

SEA ENVIRONMENTAL REPORT - APPENDIX II

NON-TECHNICAL SUMMARY

FOR

VARIATION No. 2 (A)

TO THE

GALWAY COUNTY DEVELOPMENT PLAN 2015-2021

BEARNA PLAN

for: Galway County Council

Áras an Chontae
Prospect Hill
Galway



by: CAAS Ltd.

1st Floor
24-26 Ormond Quay Upper
Dublin 7



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Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Strategic Environmental Assessment (SEA) Environmental Report for Variation 2 (a) to the Galway County Development Plan 2015-2021. The purpose of the Environmental Report is to comply with SEA legislation and provide a clear understanding of the likely environmental consequences of decisions regarding the adoption and implementation of the Variation.

What is an SEA?

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

Why is it needed?

The SEA has been carried out in order to comply with the provisions of the SEA Regulations as amended and in order to contribute towards environmental management and sustainable development. The output of the process is an Environmental Report and an SEA Statement that should be read in conjunction with Variation 2 (a).

How does it work?

Relevant aspects of the current state of the environment are assembled and presented to the team who prepared the Variation. This helped them to devise the Variation 2 (a) in a way in that contributes towards environmental protection and management, although parts of the Plan that were adopted by the Council conflict with proper flood risk management and are contrary to Statutory Flood Risk Management Guidelines.

What is included in the Environmental Report which accompanies Proposed Variation 2 (a)?

The Environmental Report contains the following information:

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

What happens at the end of the process?

On finalisation of the Variation, an SEA Statement is prepared and made available alongside the adopted Variation. The SEA Statement includes information on how environmental considerations have been integrated into the Variation and why the preferred alternative was chosen for the Variation.

Section 2 Variation 2 (a)

2.1 Variation 2 (a)

The purpose of Variation 2 (a) to the Galway County Development Plan 2015-2021 is to integrate the Bearna LAP into the County Development Plan.

The Strategic Vision of the Bearna Plan is as follows:

'To promote Bearna as a sustainable and vibrant coastal village, which maintains its attractive character, capitalises on its existing and future accessibility strengths, while offering a pleasant environment for a growing community, for living, shopping, education, business, recreation and tourism, all balanced against the need to safeguard and enhance the environmental sensitivities of the area, for present and future generations to come'.

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

- Providing for a sustainable level of development that is appropriate to the character, heritage, amenity and strategic role of Bearna and that allows for the enhancement of the village character, services, facilities and amenities.
- Supporting and protecting the environment, heritage, character and amenity of the village, in particular its Gaeltacht status, fishing heritage, local village character and coastal amenity.
- Promoting a high quality built environment with a well-developed public realm and promoting appropriate building forms, materials, heights and associated landscaping that complement the distinctive character, heritage and amenity of the village.
- Ensuring that there are a range of facilities, amenities and supporting services, including educational, recreational, religious, social, community and civic requirements for children, youths, adults and older persons, to serve a growing community, as well as visitors to Bearna
- Ensuring Bearna is well connected to, but has a strong local identity separate from, nearby settlements, in particular Galway City to the east and Na Forbacha to the west.
- Optimising the potential of the village's coastal location and amenity, particularly in relation to the provision of public access to the seashore, opportunities for water-related amenities and activities and an appropriate interface between land and sea.
- Maintaining a vibrant and accessible village centre that is within walking/cycling distance from most places in the village, that has a strong focal point with Bearna Pier and the harbour and that provides a range of community facilities and commercial services for the local community.
- Supporting an appropriate level of services and infrastructure to facilitate existing and future growth and sustainable development, in a manner that protects and is complementary to the environment, heritage, character and amenities of the village.
- Promoting a strong sense of community spirit, civic pride, local identity and social inclusiveness, and promoting the status of the Irish language in Bearna and its contribution to the linguistic heritage of An Gaeltacht.

The Variation is structured as follows:

- Section 1 'Introduction';
- Section 2 'Land Use Management';
- Section 3 'Development Guidelines';
- Section 4 'Land Use Zoning Matrix'; and
- Section 5 'Land Use Zoning and Flood Maps for Bearna'.

2.2 Material Alterations to Proposed Variation 2 (a) that was placed on public display

16 Material Alterations were proposed after public display of the Proposed Variation. Proposed Material Alterations No. 1-7 were determined as requiring full SEA. Full SEA (and Stage 2 AA) was undertaken on these Material Alterations and the findings of the SEA were placed on public display alongside the Material Alterations. The Elected Members were also informed of the findings.

The SEA found that, among other things:

- Material Alterations No. 1-6 provide for a range of incompatible uses within areas that are at elevated risk of flooding (these areas were identified by the Strategic Flood Risk Assessment);
- Material Alterations No. 1-6 provide incompatible uses that are contrary to proper and sustainable flood risk management and contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*;
- If any of the lands subject to Proposed Material Alterations No. 1-6 that are located within Flood Zones A or B were developed, there would be a heightened risk of flooding and associated adverse effects on people and their assets. Such effects are identified on Table 2.1 and range from loss of life, to damage to property, to loss of income;
- Material Alterations No. 1-6 would result in elevated potential for water quality to be adversely affected (as a result of flooding of water treatment systems and collection networks and flooding of unknown substances stored onsite). Polluted or contaminated waters would have the potential to adversely affect human health and biodiversity and flora and fauna (including designated European Sites); and
- Taking into account the considerable extent of lands involved, cumulative adverse effects would be likely to arise on all environmental components as a result of the provision of unnecessary zoning (for which there is no established planning need) under Material Alterations No. 1-7¹.

Table 2.1 Selection of Adverse Effects (on People and Property) that occur as a result of Flooding

Tangible Effects	Intangible Human and Other Effects
Damage to buildings (houses)	Loss of life
Damage to contents of buildings	Physical injury
Damage to new infrastructure e.g. roads	Increased stress
Loss of income	Physical and psychological trauma
Disruption of flow of employees to work causing knock on effects	Increase in flood related suicide
Enhanced rate of property deterioration and decay	Increase in ill health
Long term rot and damp	Homelessness
	Loss of uninsured possessions

In order to be consistent with the need to contribute towards proper planning and sustainable development and in order to comply with the Flood Risk Management Guidelines, it was recommended by the SEA that zoning as proposed by Variation 2 (a) and not zoning as proposed by the Material Alterations was selected.

Elected Members decided to select zoning as proposed by the Material Alterations. This zoning is contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*.

¹ Note that MA7 is located within Flood Zone C.

2.3 Further modification

A further modification to Material Alterations No. 1 to 6 was made as a result of the AA process. This modification relating to Objective CCF6 “Inappropriate Development on Flood Zones” was included within the Variation on foot of a recommendation from the AA process in order to avoid potential effects on European Sites arising from zoning within floodplains.

2.4 Relationship with other relevant Plans and Programmes

Variation 2 (a) sits within a hierarchy of strategic actions such as plans and programmes and is subject to a number of high level environmental protection policies and objectives with which it must comply, some of which are identified below.

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

It is noted that certain zoning provided for by the Plan is not is contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*.

- EU Green Infrastructure Strategy
- UN Kyoto Protocol (2nd Kyoto Period), the Second European Climate Change Programme (ECCP II), Paris climate conference (COP21) 2015
- EU 2020 climate and energy package
- Habitats Directive (92/43/EEC)
- Birds Directive (2009/147/EC)
- European Union Biodiversity Strategy to 2020
- The Clean Air for Europe Directive (2008/50/EC)
- Fourth Daughter Directive (2004/107/EC)
- Noise Directive 2002/49/EC
- Floods Directive (2007/60/EC)
- Water Framework Directive (2000/60/EC)
- Groundwater Directive (2006/118/EC)
- Drinking Water Directive (98/83/EC)
- Urban Waste Water Treatment Directive (91/271/EEC)
- Environmental Liability Directive (2004/35/EC)
- SEA Directive (2001/42/EC)
- EIA Directive (2011/92/EU as amended by 2014/52/EU)
- EU Maritime Spatial Planning Directive (2014/89/EU)
- Infrastructure and Capital Investment 2012-16: Medium Term Exchequer Framework
- Smarter Travel Initiative 2012-2016
- Smarter Travel – A Sustainable Transport Future – A New Transport Policy For Ireland 2009-2020 (2009)
- Dublin to Galway Greenway Plan
- Ireland's First National Cycle Policy Framework (2009)
- Scoping Study for a National Cycle Network (NCN)
- Strategic Framework for Integrated Land use and Transport (SFILT) – Department of Transport, Tourism and Sport
- National Climate Change Strategy 2007 – 2012 (2007)
- Climate Action and Low Carbon Development Act 2015
- National Adaptation Framework 2018
- National Mitigation Plan 2017
- Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework 2007 – 2020 (2007)
- National Renewable Energy Action Plan
- National Energy Efficiency Action Plan for Ireland 2007-2020 (2007)
- Sustainable Development – A Strategy for Ireland (1997)
- Wildlife Act of 1976
- Wildlife (Amendment) Act, 2000
- Actions for Biodiversity 2011-2016 Ireland's National Biodiversity Plan, 2011 (Draft National Biodiversity Action Plan 2017 - 2021)
- The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009)
- European Communities (Water Policy) Regulations of 2003 (SI 722 of 2003)

- European Communities (Water Policy) Regulations of 2003 (SI 350 of 2014)
- European Communities Environmental Objectives (Surface waters) Regulations of 2009 (SI 272 of 2009)
- European Communities Environmental Objectives (Groundwater) Regulations of 2010 (SI 9 of 2010)
- Water Pollution Acts 1977 to 1990
- European Communities (Urban Waste Water Treatment) Regulations 2001 (S.I. No. 254/2001)
- Water Services Act 2007
- Water Services (Amendment) Act 2012
- Water Services Act 2013
- Irish Water's Water Services Strategic Plan 2015 and associated Proposed Capital Investment Plan 2014-2016
- Ireland 2040 - Our Plan, the National Planning Framework
- National Development Plan 2018-2027
- Grid25 Implementation Programme
- National Water Resources Plan [in preparation]
- National Landscape Strategy 2015
- National Rural Development Programme
- Action Plan for Rural Development
- National Forestry Programme 2014-2020
- National Peatlands Strategy
- National Hazardous Waste Management Plan 2014-2020
- Fáilte Ireland plans, strategies etc. including those relating to the Wild Atlantic Way, Ireland's Ancient East or other brands or initiatives
- National River Basin Management Plan
- Regional Spatial Economic Strategy (Replacing Regional Planning Guidelines; To commence in 2018 and will be adopted over lifetime of the Plan)
- Freshwater Pearl Mussel Sub-Basin Management Plans
- Management Plans for European Sites
- Outputs from the Western Catchment Flood Risk Assessment and Management Programme
- Connacht-Ulster Regional Waste Management Plan
- County Development Plans including the Galway County Development Plan 2015-2021 (as varied)
- Variation No. 2 (b) to the Galway County Development Plan 2015-2021
- Local Area Plans (incl. those for Athenry, Clifden, Craughwell, Gort, Loughrea, Maigh Cuilinn, Oranmore, Oughterard, Portumna and Tuam)
- Local Economic and Community Plan for County Galway
- Groundwater Protection Scheme for County Galway
- Galway County Heritage & Biodiversity Plan 2017-2022

Section 3 The Environmental Baseline

3.1 Introduction

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

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

Variation 2 (a) has been prepared to further contribute towards the framework for proper planning and sustainable development that is already provided for by the County Development Plan. The current Bearna Plan is due to expire. In the absence of the Variation, new developments would be examined against the existing provisions included within the County Development Plan. This situation – and associated likely evolution of the environment – most closely equates with Alternative 3 “Haphazard Development” that has been identified and considered as part of the Strategic Environmental Assessment (see Section 4).

3.3 Biodiversity and Flora and Fauna

There are various highly sensitive and designated areas within and close to the Bearna Plan area on account of the species and habitats which they contain. The closest European Sites are the Galway Bay Complex SAC (Site code: 000268) and the Inner Galway Bay SPA (Site code: 004031) which are adjacent to the Plan area. European Sites and Water Management Units within 15 km buffer of Bearna are mapped on Figure 3.1.

The Moycullen Bogs NHA (Site code: 0023364) covers an area of lowland blanket bog to the west of Galway City which extends into an area to the north-west of Bearna. Several lakes and streams are contained in the site as well as large areas of wet and dry heath, fens and flushes and revegetating cutaway. Natural Heritage Areas, Proposed Natural Heritage Areas, Freshwater Pearl Mussel Sensitive Areas, Shellfish Areas and Water Management Units within 15 km buffer of Bearna are mapped on Figure 3.2. Local map with European Sites, Natural Heritage Areas, Proposed Natural Heritage Areas, Blanket Peat Soil, Freshwater Pearl Mussel Sensitive Areas, Shellfish Areas and River Sub-Basins is shown on Figure 3.3.

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

Variation 2(a) and the existing County Development Plan include robust measures to facilitate contributions towards the protection and management of biodiversity and flora and fauna.

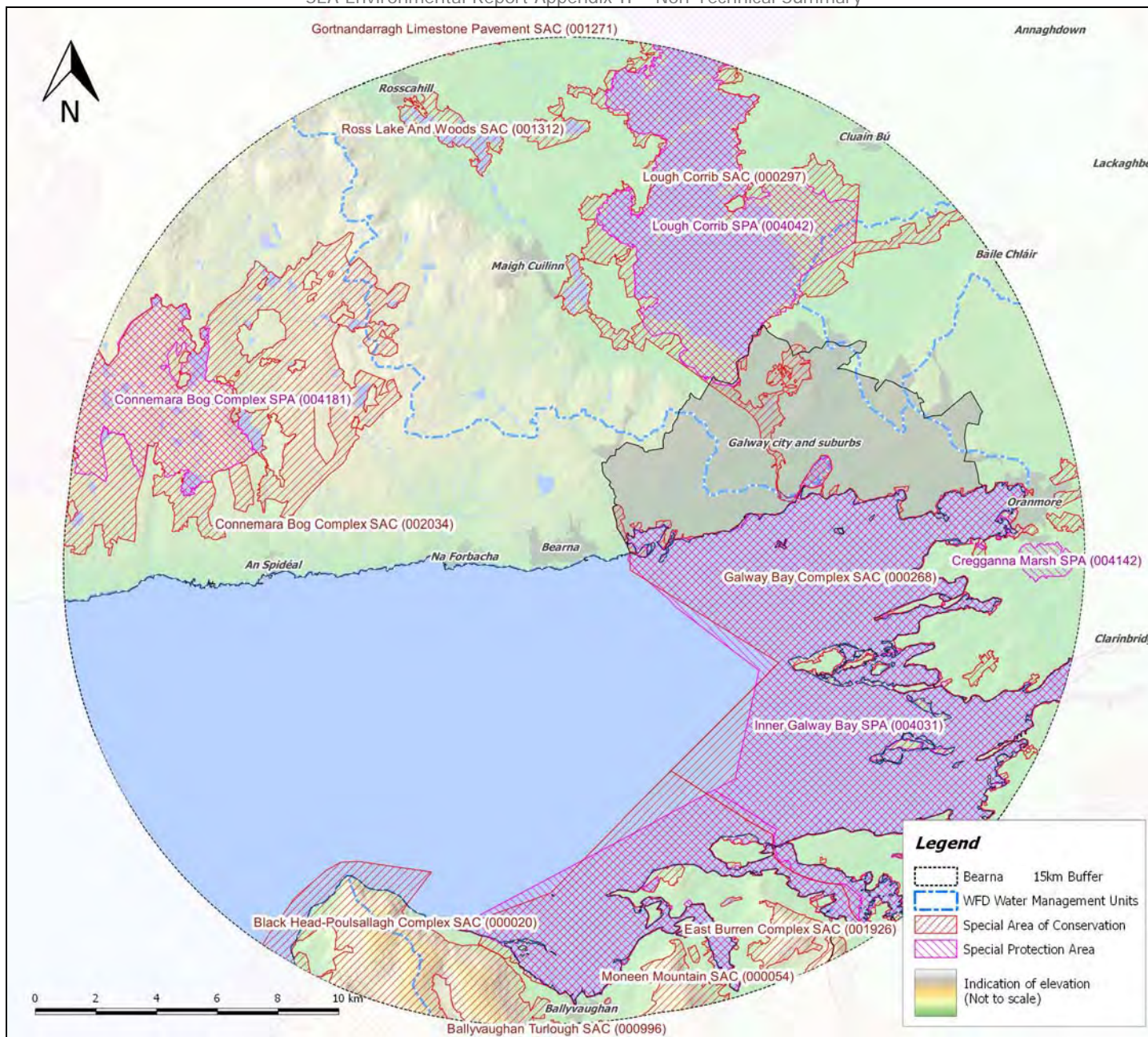


Figure 3.1 European Sites and Water Management Units within 15 km buffer of Bearna

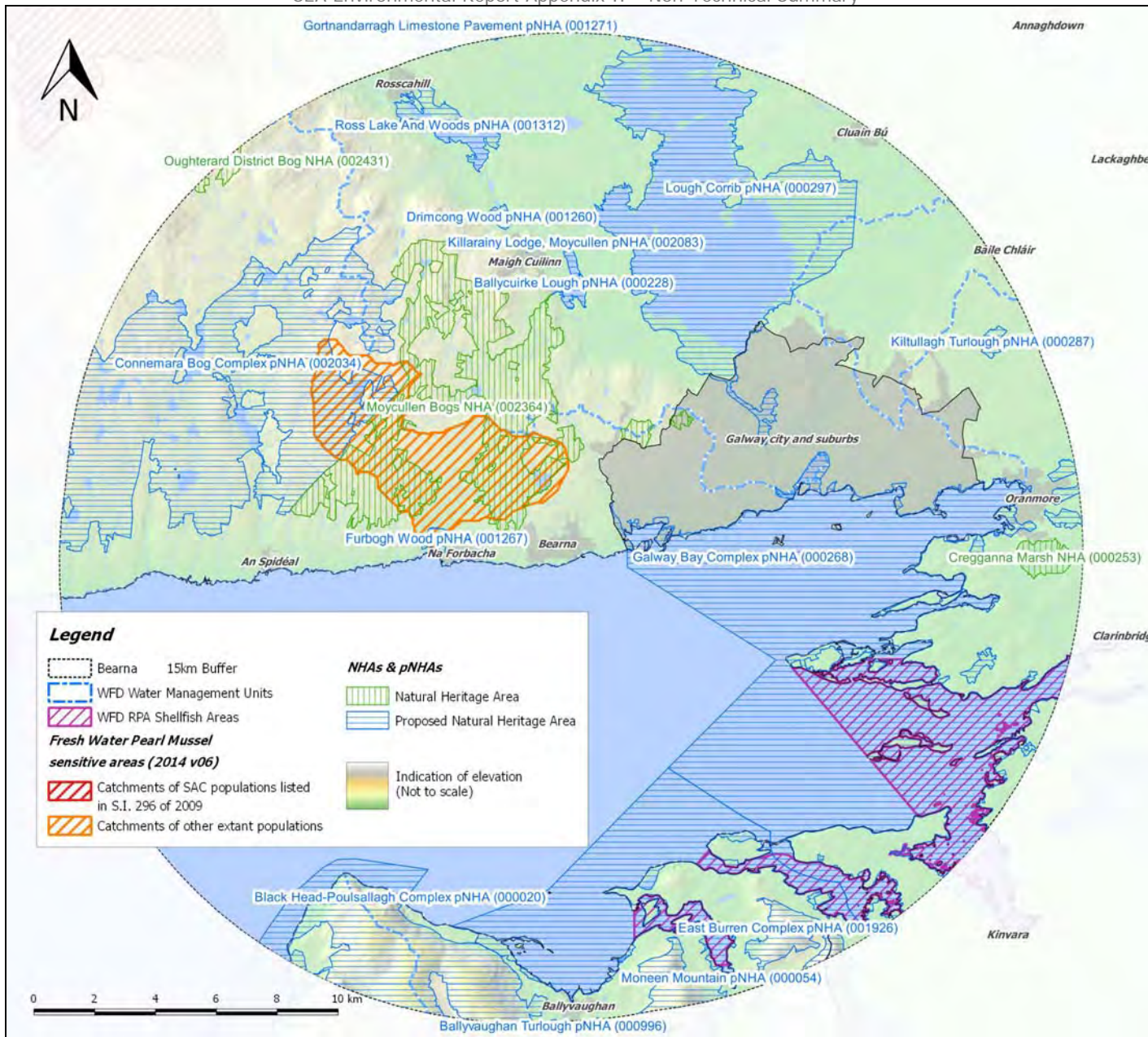


Figure 3.2 Natural Heritage Areas, Proposed Natural Heritage Areas, Freshwater Pearl Mussel Sensitive Areas, Shellfish Areas and Water Management Units within 15 km buffer of Bearna

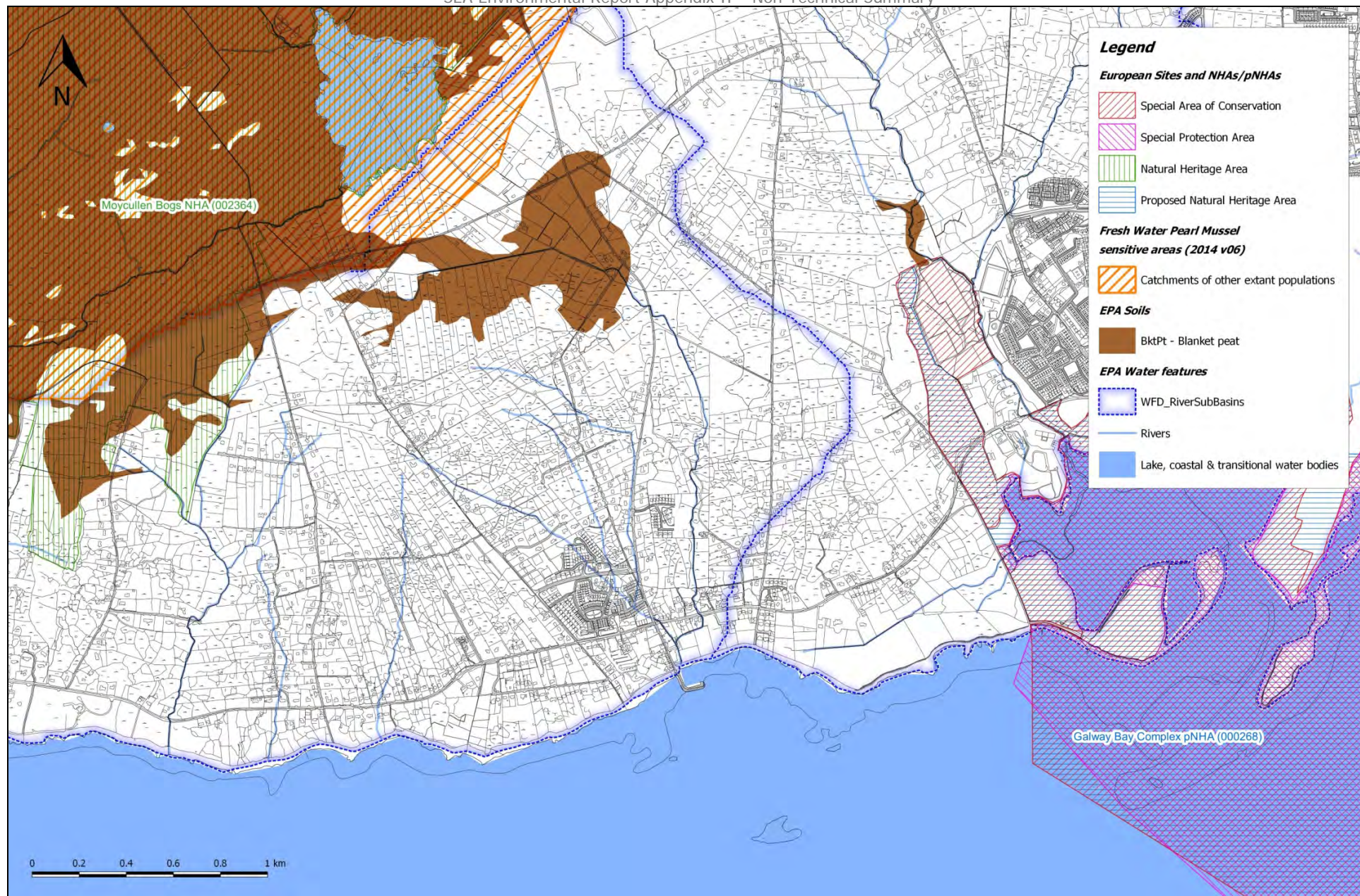


Figure 3.3 Local Map: European Sites, Natural Heritage Areas, Proposed Natural Heritage Areas, Blanket Peat Soil, Freshwater Pearl Mussel Sensitive Areas, Shellfish Areas and River Sub-Basins

3.4 Population and Human Health

The impact of implementing Variation 2 (a) on population and human health is influenced by the impacts which the Variation will have upon environmental vectors. Environmental vectors are environmental components, such as air, water or soil, through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings. Population and human health has the potential to interact with issues including the following:

- Developmental and recreational pressure on habitats and landscapes;
- Increase in demand for waste water treatment at the municipal level;
- Increase in demand for water supply water quality (see Section 3.6); and
- Flood risk (in flood sensitive areas) (see Section 3.6).

According to the Census 2016, the total population of Bearna village was 1,998 people, a 6.4% increase from the 2011 Census figure. While this figure relates to the Census boundary for Bearna village, the population within the Bearna Plan is in excess of 2,000 people and it is envisaged that the village will experience increased growth in the forthcoming plan period.

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

3.5 Soil

Peat soils are often indicative of areas that are the most sensitive to development due ecological sensitivities and impeded drainage issues. Peat soils occur to the north of the Bearna Plan area. Bearna is underlain by impermeable granite (Galway Granites) which has helped to give rise to a high water table, often occurring less than 1m below the surface, and an extensive surface water drainage network. The granite geology is overlain by soil, the depth of which is generally very shallow with rock outcrops common throughout the area. The soils found in Bearna are composed of peat as well as of shallow granite glacial tills.

The greatest health risk from radiation in Ireland is caused by radon. The presence of radon gas, a naturally occurring radioactive gas that originates from the decay of uranium in rocks and soils, occurs across the country. Exposure to radon for long periods or at high concentrations can lead to lung cancer. It is estimated that between 10% and 20% of homes in the Plan area are above the Reference Level. These levels are relatively normal in comparison to those experienced elsewhere within the country.

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

Coastal erosion in Bearna has resulted in the loss of soil and rock along the shore in the past and has the potential to result in further losses in the future.

3.6 Water

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

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

There is a data gap relating to WFD surface water status data for certain waterbodies and these are identified as *unassigned*² when it comes to WFD status 2010-2015. Water quality status for surface water bodies across the Bearna Plan area is indicated on Figure 3.4. Surface water bodies within or adjacent to the wider Bearna Plan area are identified as being of *high* or *good* status. Most of the Plan area is located within the Bearna House Stream (also referred to as Trusky Stream) River Sub-Basin with eastern parts located within the Bearna Stream River Sub-Basin. All surface waters (rivers) within the Plan area are currently identified as being of *unassigned status* – their status has yet to be determined.

Coastal waters to the south west of the Plan area (Coastal Waterbody: Outer Galway Bay) are identified as being of *high status*, coastal waters to the south-east of the Plan area (Coastal Waterbody: Inner Galway Bay North) are identified as being of *good status*. The beach at Silverstrand holds a Blue Flag, an award given to beaches and marinas with excellent environmental management, and is identified as having Excellent Water Quality.

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

The Geological Survey of Ireland (GSI) rates the rocks, or aquifers, that contain groundwater according to both their vulnerability to pollution and their productivity. Most aquifers underlying Bearna are identified as having *extreme*, *extreme (rock near surface)* or *high* vulnerability (please see Figure 3.5). The aquifer underlying Bearna is classified as poor (generally unproductive except in local zones). Bearna and its surrounding areas are located over a relatively impermeable aquifer which has helped to give rise to a high water table, often occurring less than 1m below the surface.

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

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

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

² Ecological status is not assigned and the term *unassigned status* applies in respect of these waterbodies.

Flooding is an environmental phenomenon which, as well as causing economic and social impacts, could in certain circumstances pose a risk to human health. The existence of flood risk within Bearna has been detailed in the Strategic Flood Risk Assessment (SFRA) that has been undertaken alongside and informed the Draft Plan. The SFRA has facilitated the integration of certain flood risk management considerations into the Plan. However, certain Material Alterations were made to the Proposed Variation and adopted by the Elected Members as part of the adopted Variation. These Material Alterations provide for a range of incompatible uses within areas that are at elevated risk of flooding and are contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*. Consequently the Variation is contrary to these Guidelines and associated Circular.

Zones of elevated fluvial and coastal flood risk that were identified by the SFRA are shown on Figure 3.6. There are three types or levels of flood zones defined for the purposes of the Flood Guidelines:

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

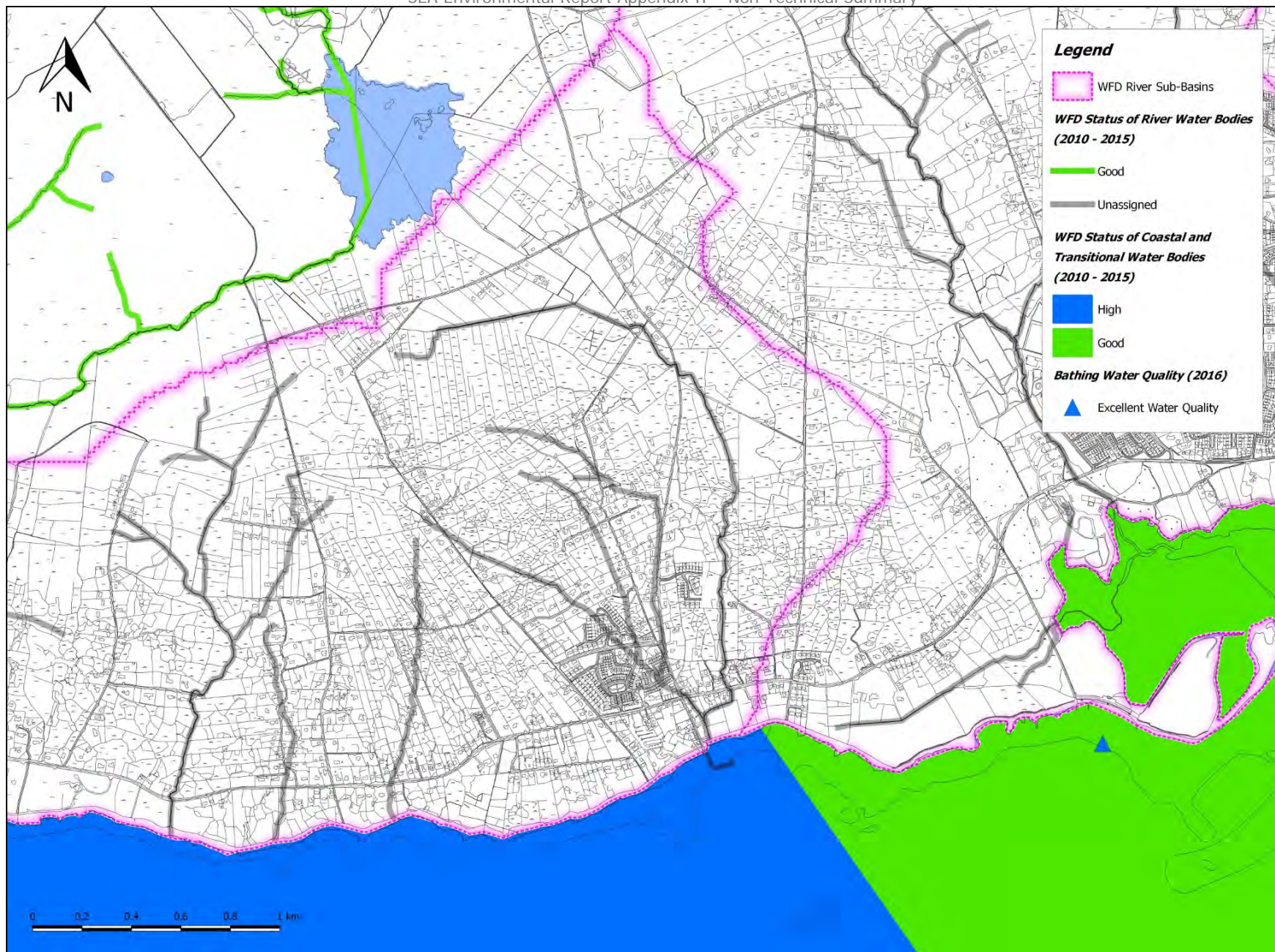


Figure 3.4 Available information on Water Quality Status (2010-2015) for Surface Water Bodies

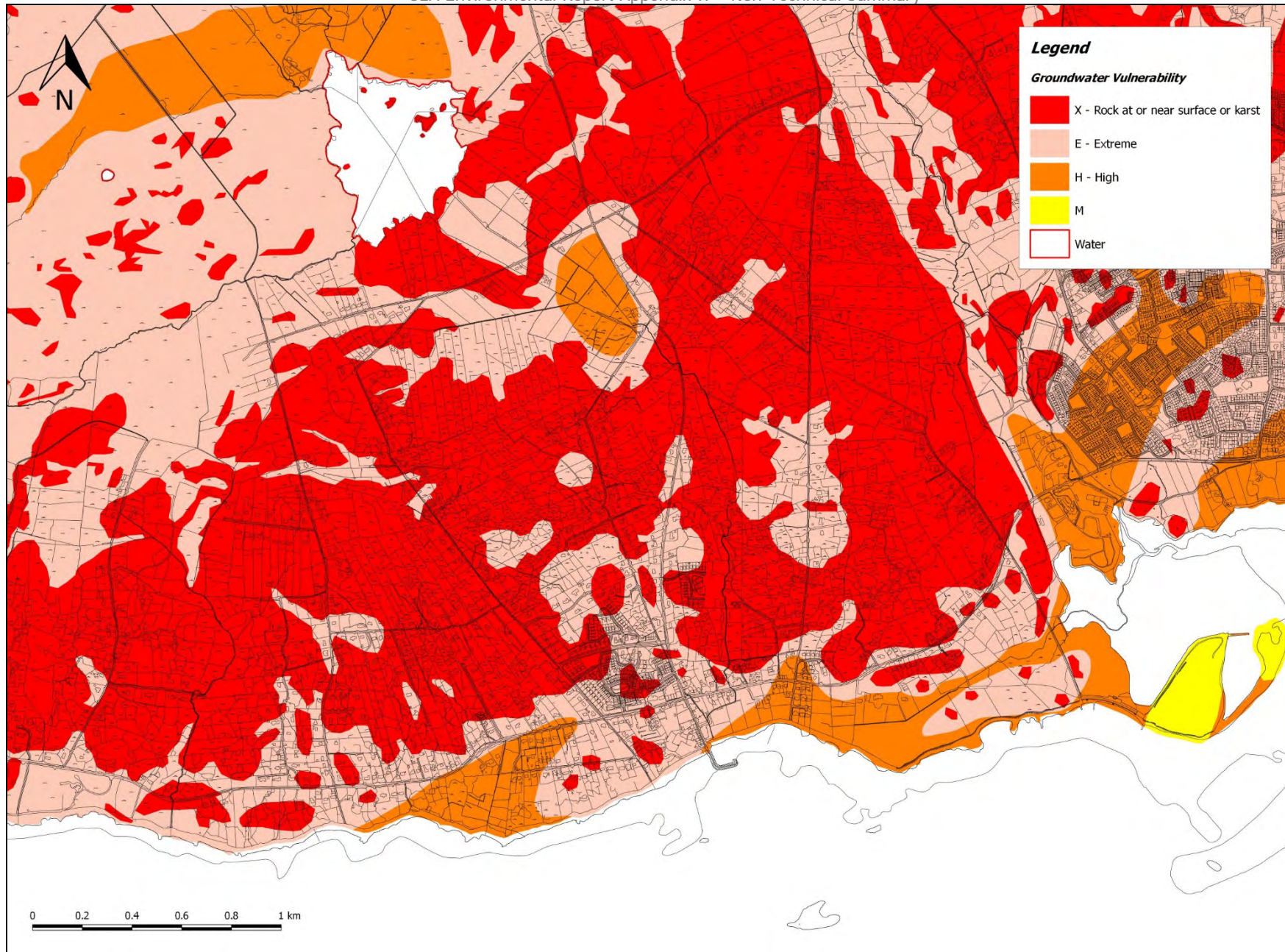


Figure 3.5 Groundwater Vulnerability

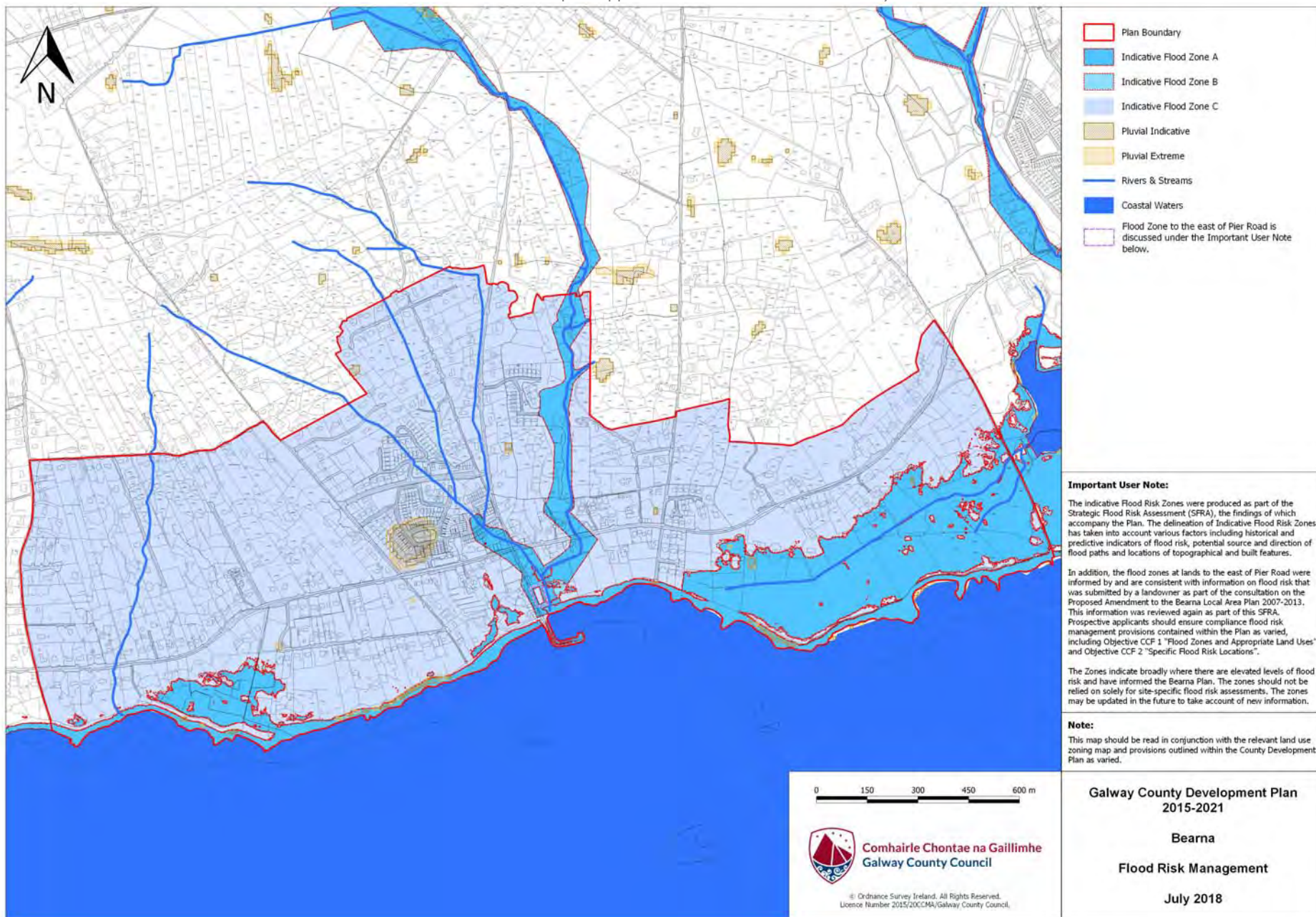


Figure 3.6 Flood Zones (fluvial and coastal)

3.7 Air and Climatic Factors

The key issue involving the assessment of the effects of implementing Variation 2 (a) on climatic factors relates to greenhouse gas emissions arising from transport. Interactions are also present with flooding and these are covered in greater detail in the Strategic Flood Risk Assessment that also accompanies the Variation.

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

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

In order to protect human health, vegetation and ecosystems, EU Directives set down air quality standards in Ireland and the other Member States for a wide variety of pollutants.

National Ambient Air Quality Network and measures the levels of a number of atmospheric pollutants at locations across the country. The current air quality at the monitoring sites closest to the Plan area is identified by the EPA as being *good*³.

3.8 Material Assets

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

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

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

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

³ 17/08/2017 (<http://www.epa.ie/air/quality/>)

listed currently as priority areas, where improvements are required to resolve urgent environmental issues.

The waste water facility in Bearna currently operates at limited capacity, with waste water being pumped from Bearna to Mutton Island⁴.

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

The EPA publishes their results in annual reports which are supported by Remedial Action Lists (RALs). The RAL identifies water supplies which are not in compliance with the Regulations mentioned above. The RAL Q3 of 2017 lists three water supply schemes in County Galway (Ballinasloe, Inishmean and Williamstown water supplies) for elevated levels of THMs above the standard in the Drinking Water Regulations. Drinking water supply scheme in Bearna is not listed on the current RAL.

The drinking water facility for Bearna operates at limited capacity⁵. It is proposed to extend the City water supply to serve west of the city as far as Lettermore. The planned Galway West Regional Water Supply Scheme (RWSS) is currently at planning phase.

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

3.9 Cultural Heritage

Archaeology is the study of past societies through the material remains left by those societies and the evidence of their environment. Archaeological sites and monuments vary greatly in form and date; examples include earthworks of different types and periods, (e.g. early historic ringforts and prehistoric burial mounds), megalithic tombs from the Prehistoric period, medieval buildings, urban archaeological deposits and underwater features. Archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts. A recorded monument is a monument included in the list and marked on the map which comprises the RMP set out county by county under Section 12 of the National Monuments (Amendment) Act, 1994 by the Archaeological Survey of Ireland. The definition includes Zones of Archaeological Potential in towns and all other monuments of archaeological interest which have so far been identified by the Government. Monuments within and surrounding Bearna and associated zones of notification, where available, are identified on Figure 3.7.

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

Part IV of the Planning and Development Act requires every development plan to include a Record of Protected Structures (RPS). A 'protected structure' is a structure or a specific feature of the structure as may be specified that a Planning Authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. There are various RPS entries within and around Bearna (see Figure 3.7) including: Bearna Pier, Lynch Monument, and Seapoint-Thatched Cottage and Fr. Griffin Memorial.

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

⁵ *Indicative Infrastructure Capacity for Core Strategy Settlements*, Feb. 2017, Galway County Council

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

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

if the Planning Authority is of the opinion that its inclusion is necessary for the preservation of the character of the place, area, group of structures or townscape concerned and any such place, area, group of structures or townscape shall be known as an "Architectural Conservation Area" (ACA).

There is currently one ACA within Bearna: Bearna Pier Road (see Figure 3.7).

3.10 Landscape

Landscapes are areas which are perceived by people and are made up of a number of layers: landform, which results from geological and geomorphological history; landcover, which includes vegetation, water, human settlements, and; human values which are a result of historical, cultural, religious and other understandings and interactions with landform and landcover.

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

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

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

A map of the landscape sensitivity for the Bearna Plan area is provided on Figure 3.8.

The most sensitive landscapes are 'Class 5 - Unique', 'Class 4 - Special' and 'Class 3 - High sensitivity' while landscapes of lesser sensitivity are 'Class 2 - Moderate sensitivity' and 'Class 1 - Low sensitivity'. The sensitivity of a landscape to development and therefore to change will vary according to its character and to the importance which is attached to any combination of landscape values. The landscape at Bearna (see Figure 3.8) is generally classified as being of Moderate Sensitivity (Class 2), High Sensitivity (Class 3) at the coastal areas and with Rusheen Estuary identified as being of Special Sensitivity (Class 4).

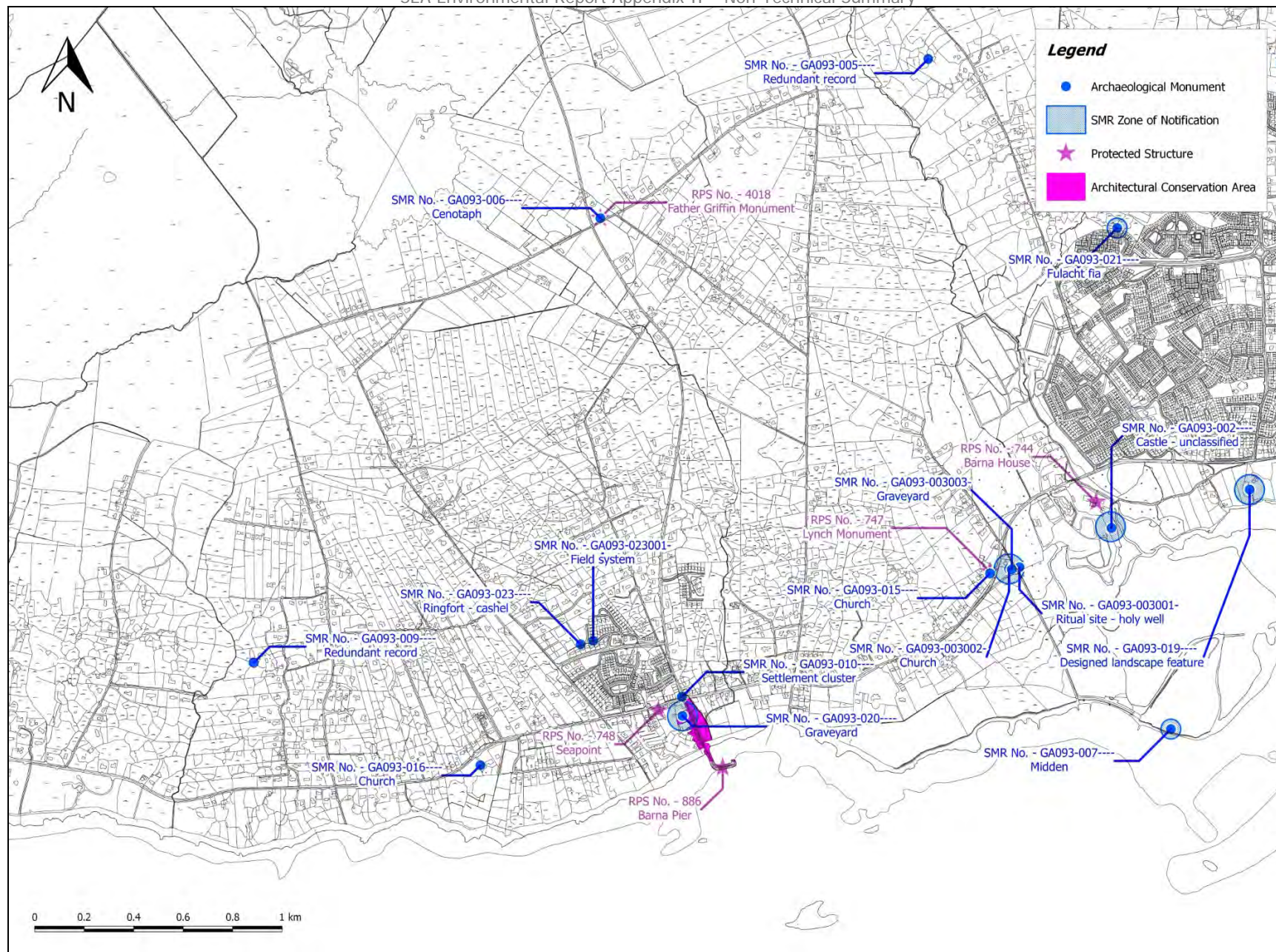


Figure 3.7 Archaeological and Architectural Designations

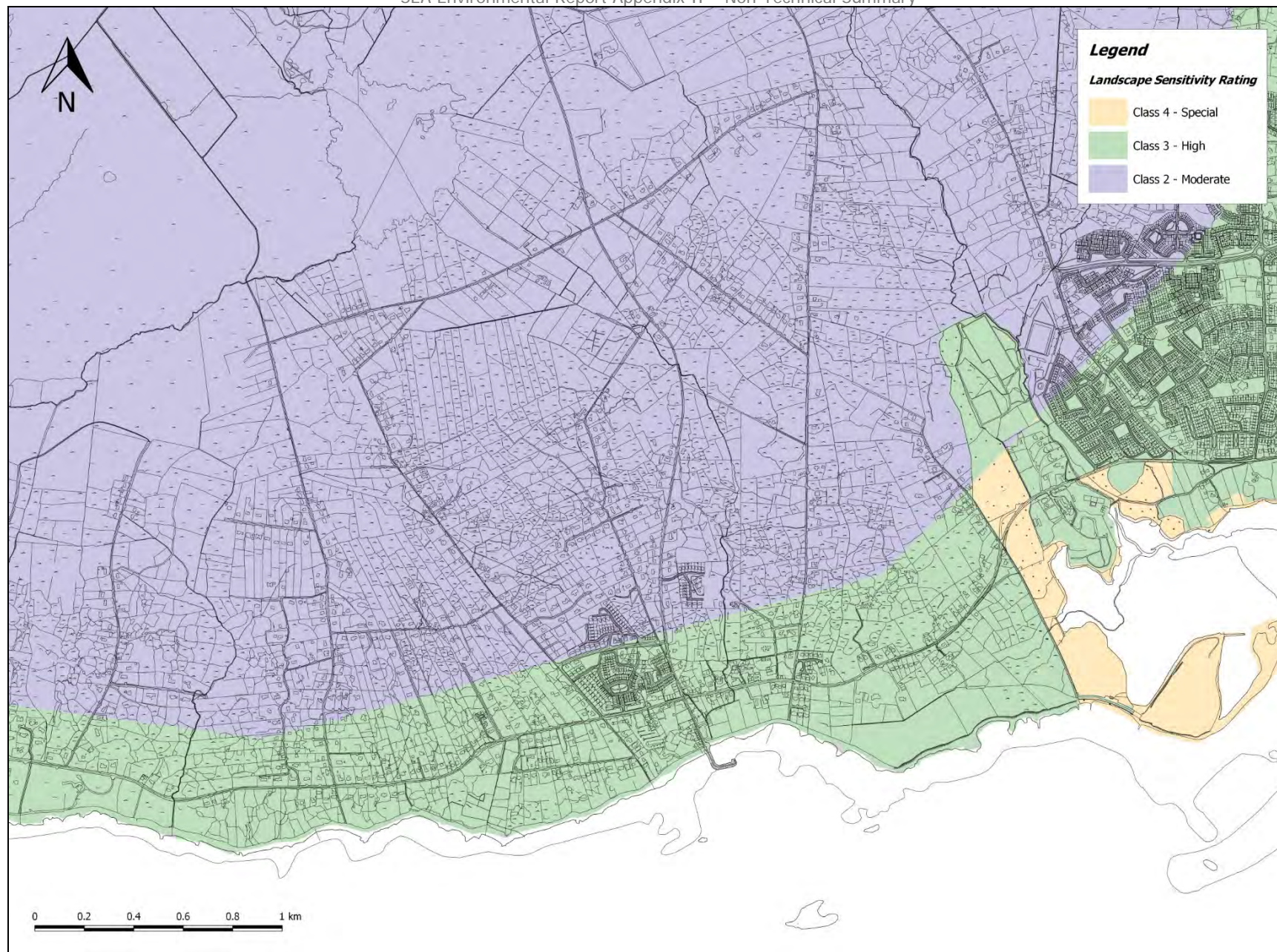


Figure 3.8 Landscape Sensitivity

3.11 Appropriate Assessment

Appropriate Assessment (AA) has been undertaken alongside the preparation of the Variation 2 (a).

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

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

The conclusion of the Stage 2 AA is that Variation 2 (a) is not foreseen to give rise to any significant adverse effects on designated European Sites, alone or in combination with other plans or projects. Specific mitigation measures had to be integrated into the Variation in order to avoid potential effects arising from zoning within floodplains.

3.12 Strategic Flood Risk Assessment

Overview

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

The SFRA provides an appropriately strategic assessment of flood risk within the town of Bearna and has been undertaken in full compliance with the 2009 Flood Guidelines and subsequent circular PL2/2014. The SFRA has been undertaken with the aim of protecting existing and future properties and populations from the adverse effects of flooding.

Submissions received on Flood Zones and Zoning

The SFRA includes the delineation of flood zones. Various submissions were received during the Variation preparation/adoption process that requested reductions to these flood zones, however in all instances insufficient evidence was provided to justify any reductions to the extents of the flood zones and therefore changes on this basis would be contrary to the Flood Guidelines. Zoning of these lands as requested, for residential and/or village centre development, would be inappropriate and contrary to the Guidelines.

Allowing inappropriate land use zoning in flood zones would also be contrary to the correct approach followed in the 2012 Bearna Plan – where the Flood Guidelines were adhered to.

Submissions have failed to demonstrate awareness of the evidence of historical flooding in this area in 1977, 2015 and 2017. Photos and videos have been submitted on two occasions during the Variation-preparation process, January 2018 and May 2018, which relate to lands adjoining the Trusky Stream.

A number of submissions identify that flood risk arising from zoning for incompatible uses in within Flood Zones A/B can be adequately managed by structural and non-structural flood risk management measures however this would not be in compliance with the Flood Risk Management Guidelines⁶.

⁶ Page 21 "Chapter 3 Principles and Key Messages", "Key Messages": *"Only when both avoidance and substitution cannot take place should consideration be given to mitigation and management of risks."*

Lands proposed by submissions to be zoned for inappropriate uses are within Flood Zone A, an area at elevated risk of flooding. The Guidelines require a sequential approach involving firstly to avoid inappropriate development in this area. Exceptions to the restriction of development are only allowed where a detailed Justification Test (taking into account flood risk management measures) is passed. A Justification Test would not be passed in this instance as there are more alternative lands available for village centre/residential uses in Bearna. As a Justification Test would not be passed consideration cannot be given to the mitigation and management of risk.

Furthermore, where channel clearance works have been undertaken, the Office of Public Works (OPW) have advised (February 2018) that it would be contrary to the precautionary principle to assume that rivers will be maintained in their improved state by a private land-owner. There is no statutory duty on or budget for the OPW to maintain river schemes in Bearna. The OPW have identified that it would not actively condone private clearance for the purpose of achieving a re-zoning of land. Is it therefore unreasonable to identify flood zones based on the non-equilibrium depth of the channel.

On foot of a number of submissions from Bearna residents that contained video and photographic evidence of historic flooding in the Cnoc Fraoigh area on lands adjoining the Trusky Stream in 2015 and 2017, Flood Zone A at Cnoc Fraoigh was extended. It is also noted that evidence was provided of a flood event in the vicinity of the R336, the Twelve Pins Hotel and Pier Road, when a number of houses in the Pier Road area were flooded as well as undeveloped land that is now developed.

A Flood Study for the Cnoc Fraoigh lands that was included as part of a separate submission did not provide any contrary evidence that these photos were incorrect or that there was any rational for flooding on these lands on two occasions. In review of this submission, reference was made to a previous planning application (09-1278) that referenced "Other Natural Lake/Flooding" to lands to the east of Cnoc Fraoigh Housing Estate.

Given the issues that presented during the Variation preparation/adoption process as summarised above and combined with the significant number of recent floods in the County, it was identified that it would be irresponsible and reckless to zone lands for vulnerable uses in these areas.

Compliance of Variation 2 (a) with the Flood Guidelines

The preparation of the Variation, SEA and SFRA has taken place concurrently and the findings of the SFRA have informed the SEA. The SFRA has facilitated the integration of certain flood risk management considerations into the Variation. However, certain Material Alterations were made to Proposed Variation and adopted by the Elected Members as part of the adopted Variation. These Material Alterations provide for a range of incompatible uses within areas that are at elevated risk of flooding and are contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*. Consequently the Variation is contrary to these Guidelines and associated Circular.

Section 4 Description of Alternatives

4.1 Introduction

As per the requirements of the SEA Directive, the SEA considered reasonable alternatives, which are capable of being implemented for both Proposed Variation 2 (a) and, subsequently, the Proposed Material Alterations, taking into account the objectives and the geographical scope of the Plan (as varied).

4.2 Alternatives considered for Proposed Variation 2 (a)

Galway County Council in preparing Proposed Variation 2 (a) for public display, developed three alternatives for Bearna as detailed below. An evaluation of alternatives is provided at Section 5.

Alternative 1: Even (Refinement and Consolidation) Development

- Achieving the population targets: Bearna to reach the population targets by 2021, resulting in balanced orderly development and implementation of the core strategy as contained in Chapter 2 of the Galway County Development Plan 2015-2021.
- This alternative provides Village Centre/Mixed Uses/Brownfield Development within and around the existing centre.
- Phase I Residential Expansion Areas are provided at two discrete areas, at lands to the west of Creagán and at lands around Cnoc Fraoigh.
- The infrastructure required to be in place to achieve the growth targets is already in place.
- Residential Development to take place on R1 lands in the lifetime of the Bearna Plan, unless a comprehensive justification is provided for alternative residential lands.
- Community development facilities to be developed in tandem with the targeted growth of the settlement.
- Village Centre developments would be developed in a planned and coordinated manner.
- Opportunity sites identified with clear design and proposed uses identified.
- Open Space and Recreational Lands would be preserved.

Alternative 2: Sporadic Development

- Achieving the population targets: Bearna to reach the population targets by 2021, resulting in the implementation of the core strategy as contained in Chapter 2 of the Galway County Development Plan 2015-2021.
- This alternative provides Village Centre/Mixed Uses/Brownfield Development within and around the existing centre.
- Phase I Residential Expansion Areas are provided:
 - Across lands including those provided for under Alternative 1 (at lands to the west of Creagán and at lands around Cnoc Fraoigh)
 - Along lands stretching westwards from the town, along the R336, to the west of Creagán.
 - Along lands stretching eastwards from the town, along the R336, to the east of Carraig an Iolar.
- Additional infrastructure would be required to accommodate sporadic development, more than would be required for Alternative 1 'Even (Refinement and Consolidation) Development'.
- Residential Development to take place on R1 and R2 lands in the lifetime of the Bearna Plan, unless an evidence based justification is provided for alternative residential lands.
- Village centre development would be sporadic and uncoordinated around the village centre zonings.
- Opportunity sites are identified but no clear guidance on the design parameters or uses identified.

Alternative 3: Haphazard Development

- Achieving the population targets - Bearna to reach the population targets by 2021, resulting in the implementation of the core strategy as contained in Chapter 2 of the Galway County Development Plan.
- Additional infrastructure would be required to accommodate sporadic development, more than would be required for Alternative 1 'Even (Refinement and Consolidation) Development' or Alternative 2 'Sporadic Development', development would have to be serviced by private waste water treatment systems which would have to be properly maintained.
- Residential development would occur on a piecemeal and haphazard basis within the three settlements.
- Ribbon and backland development would be a dominant feature within the settlement.
- Village centre development would be permitted on a number of different zonings and not concentrated on the village centre.
- No opportunity sites identified-laissez faire attitude in relation to development.
- Each application would be considered on its own merits and no land use zoning is provided for.

4.3 Alternatives considered for Proposed Material Alterations

16 Material Alterations were proposed after public display of the Proposed Variation. Proposed Material Alterations No. 1-7 were determined as requiring full SEA.

Material Alterations No. 1-6 proposed inappropriate development within areas that are at elevated risk of flooding. There is no established planning need to zone these lands. The alternative for each of these Alterations was to retain appropriate zoning as it was included within the Proposed Variation.

Proposed Material Alteration No. 7 proposed the rezoning of lands from Open Space/Recreation and Amenity Zoning to Residential Phase 1. There is no established planning need to zone these lands. A final alternative to Proposed Material Alterations 1-7 combined is included that involves retaining the zoning for all sites as it is included in the Variation.

The alternatives for the Proposed Material Alterations are arrayed on the table below.

Table 4.1 Alternatives considered for Proposed Material Alterations

Proposed Material Alteration No.	Alternative A: Zoning as proposed by Proposed Variation 2 (a)	Alternative B: Zoning as proposed by Material Alteration(s)
MA1	Business and Enterprise Opportunity Site No. 3 Open Space/Recreation and Amenity	Village Centre
MA2	Opportunity Site No. 2 Open Space/Recreation and Amenity	Village Centre
MA3	a) Open Space/Recreation and Amenity b) Residential Phase 1	a) Residential Phase 1 b) Residential Phase 2
MA4	Open Space/Recreation and Amenity	Village Centre
MA5	Open Space/ Recreation and Amenity	Village Centre
MA6	Open Space/ Recreation and Amenity	Village Centre
MA7 ⁷	Open Space/ Recreation and Amenity	Residential Phase 1
MA1-7	Open Space/Recreation and Amenity Business and Enterprise Opportunity Sites No. 2 and 3 Residential Phase 1	Village Centre Residential Phase 1 Residential Phase 2

⁷ Note that MA7 is located within Flood Zone C.

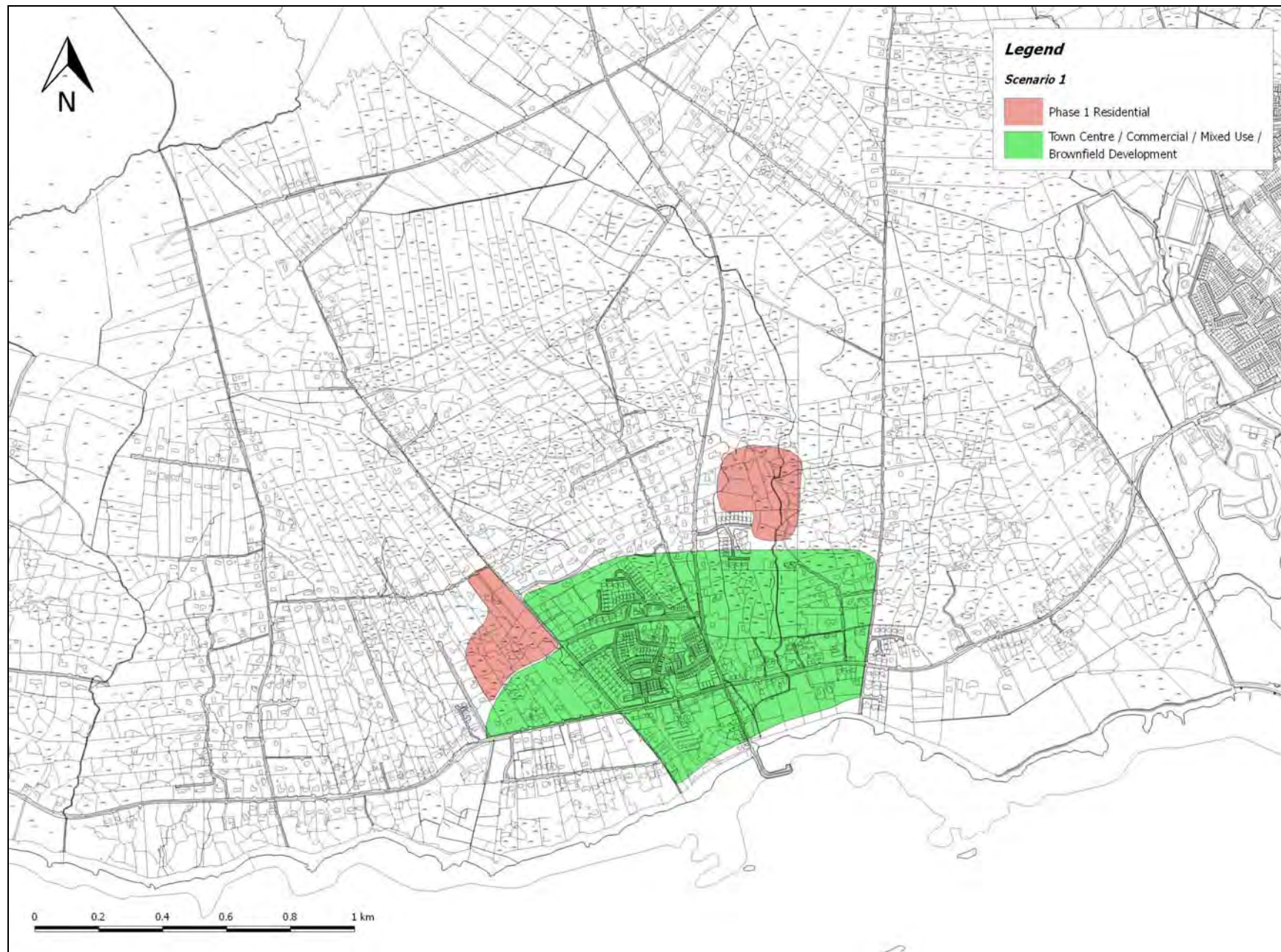


Figure 4.1 Bearna Alternative 1 considered for Proposed Variation 2 (a) in advance of public display

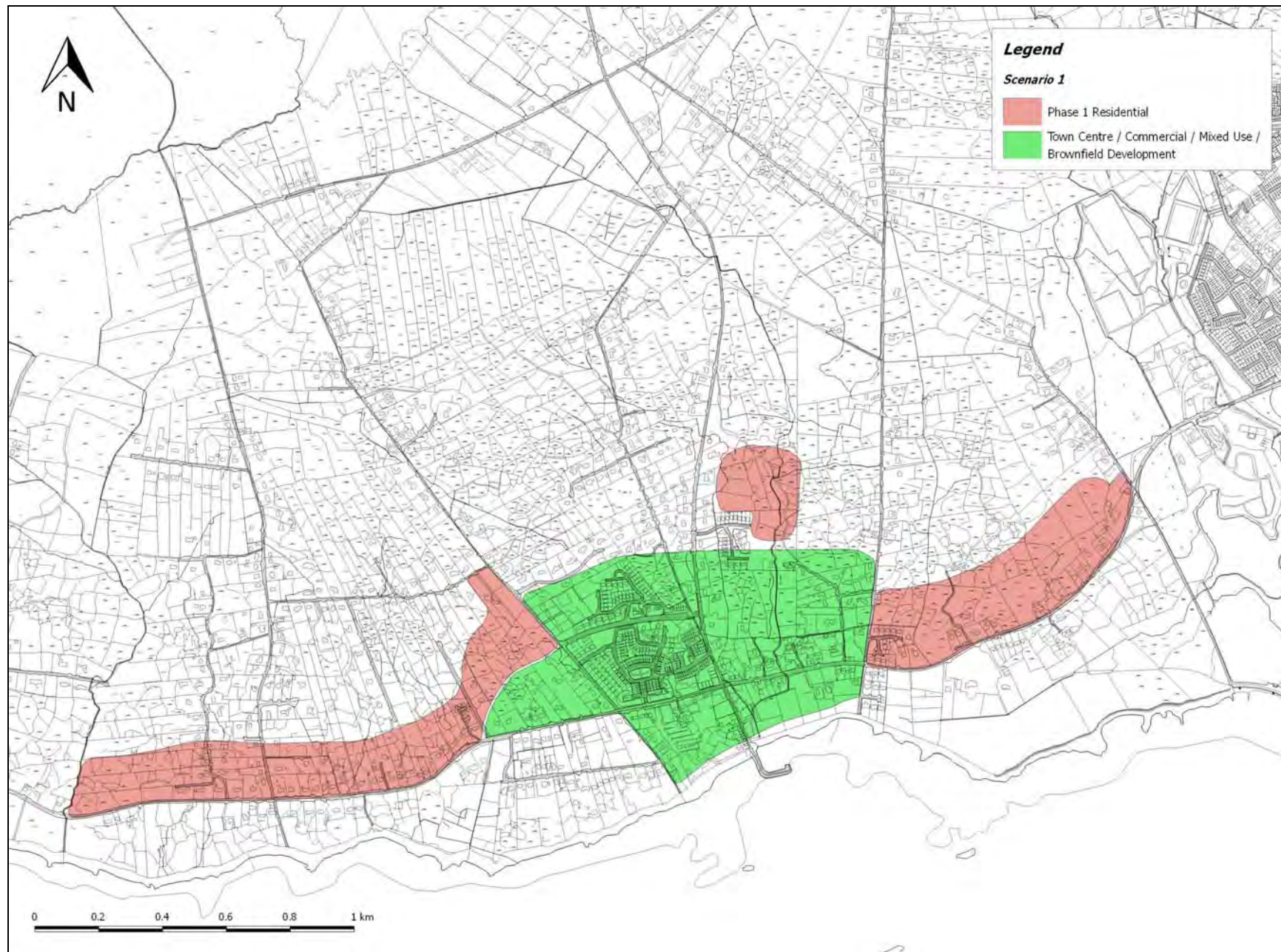


Figure 4.2 Bearna Alternative 2 considered for Proposed Variation 2 (a) in advance of public display

Section 5 Evaluation of Alternatives

This section provides an evaluation of the environmental effects of implementing the alternatives including the taking into account of cumulative effects.

The relevant aspects of the current state of the environment (see Section 3) and the Strategic Environmental Objectives⁸ (see Table 5.1) were used in the evaluation of alternatives that is summarised in this section.

Table 5.1 Strategic Environmental Objectives

Environmental Component	SEO Code	SEO
Biodiversity, Flora and Fauna	B1	To ensure compliance with the Habitats and Birds Directives with regard to the protection of European Sites and Annexed habitats and species ⁹
	B2	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function act as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
	B3	To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites ¹⁰ and to ensure compliance with the Wildlife Acts 1976-2010 with regard to the protection of species listed on Schedule 5 of the principal Act
	B4	To sustain existing sustainable rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain
Population and Human Health	PHH1	To protect populations and human health from exposure to incompatible landuses
Soil	S1	To avoid damage to the hydrogeological and ecological function of the soil resource in County Galway
Water	W1	To maintain and improve, where possible, the quality and status of surface waters
	W2	To prevent pollution and contamination of ground water
	W3	To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG and OPW, 2009)
Material Assets	M1	To serve new development with adequate and appropriate waste water treatment
	M2	To serve new development with adequate drinking water that is both wholesome and clean
	M3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse.
Air and Climatic Factors	C1	To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport
Cultural Heritage	CH1	To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context
	CH2	To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context
Landscape	L1	To avoid significant adverse impacts on the landscape - especially with regard to the County's landscapes which are most valuable and most sensitive to change and protected focal points and views.

⁸ Strategic Environmental Objectives (SEOs) are methodological measures developed from policies which generally govern environmental protection objectives established at international, Community or Member State level e.g. the environmental protection objectives of various European Directives which have been transposed into Irish law and which are required to be implemented.

⁹ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

¹⁰ The Planning and Development Act 2000 as amended defines a 'wildlife site'.

5.1 Evaluation of Alternatives considered for Proposed Variation 2 (a)

By:

- Concentrating Village Centre/Mixed Uses/Brownfield Development within and around the existing village centre and
- Providing for new Residential Expansion Areas over two discrete sites that are already or most easily served by infrastructure and could serve demand for new development

Alternative 1 ‘Even (Refinement and Consolidation) Development’ would result in the greatest degree of significant positive environmental effects and least degree of potential conflicts. Development would be most likely to occur within or closest to the existing settlement centre on serviced sites.

By:

- Concentrating Village Centre/Mixed Uses/Brownfield Development within and around the existing village centre and
- Providing for new Residential Expansion Areas over a greater number of sites that could serve demand for new development

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

Additional infrastructure would be required to accommodate sporadic development, more than would be required for Alternative 1 ‘Even (Refinement and Consolidation) Development’.

By:

- Not identifying opportunity sites; and
- Following a ‘laissez faire’ approach in relation to development, with each application considered on its own merits and no land use zoning would be provided for

Alternative 3 ‘Haphazard Development’ would result in the least degree of significant positive environmental effects and greatest degree of potential conflicts. Development would be spread out over the entire area associated with the settlement, with ribbon and backland development a dominant feature within the settlement. Although existing Plan provisions – including those relating to environmental protection/management and sustainable development – would have to be complied with, the potential for cumulative adverse effects would be significantly higher with this alternative.

All of the alternatives are consistent with approach provided by the existing Plan, to sustain existing sustainable rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain.

The Selected Alternative that emerged from the planning/SEA process and was placed on public display as “Proposed Variation No. 2 (a)” was Alternative 1: Even (Refinement and Consolidation) Development. This alternative was selected and developed by the Planning Team and placed on public display by the Council having regard to both:

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

The original land use zoning map for the town that evolved from the selection of Alternative 1 ‘Even (Refinement and Consolidation) Development’ and that was placed on public display as Proposed Variation No. 2 (a) is provided at Figure 5.1.

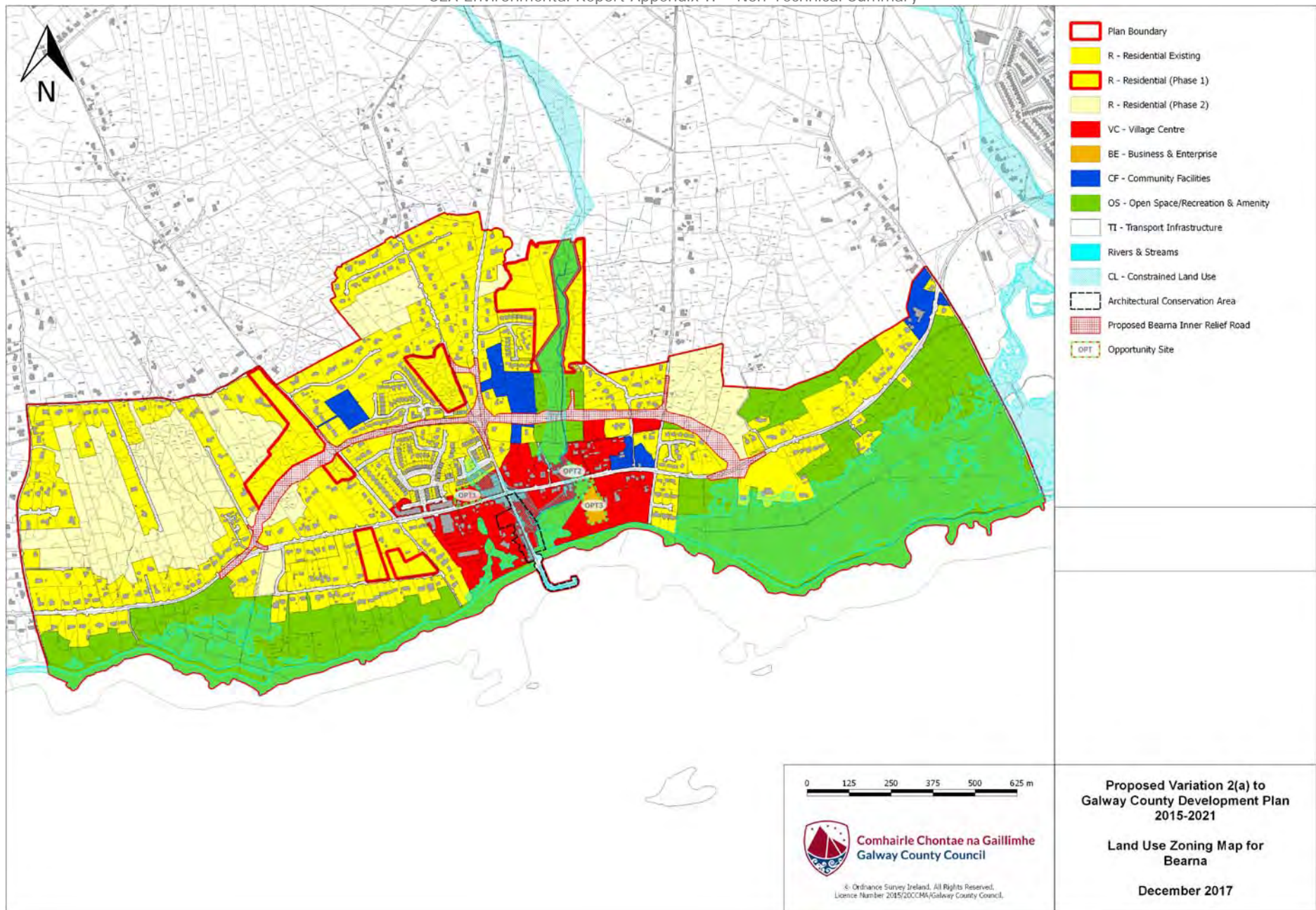


Figure 5.1 Land Use Zoning Map that was placed on public display as Proposed Variation 2 (a)

5.2 Evaluation of Alternatives considered for Proposed Material Alterations

16 Material Alterations were proposed after public display of Proposed Variation 2 (a). Proposed Material Alterations No. 1-7 were determined as requiring full SEA.

Material Alterations No. 1-6 proposed inappropriate development within areas that are at elevated risk of flooding. There is no established planning need to zone these lands. The alternative for each of these Alterations was to retain appropriate zoning as it was included within Proposed Variation 2 (a).

Proposed Material Alteration No. 7¹¹ proposed the rezoning of lands from Open Space/Recreation and Amenity Zoning to Residential Phase 1. There is no established planning need to zone these lands. A final alternative to Proposed Material Alterations 1-7 combined is included that involves retaining the zoning for all sites as it is included in Proposed Variation 2 (a).

As detailed under Section 4.3, alternatives considered for Proposed Material Alterations are as follows: Alternative A: Zoning as proposed by Proposed Variation 2 (a); and Alternative B: Zoning as proposed by Material Alteration(s).

5.2.1 Alternative A for Individual Proposed Material Alterations

Alternatives that provide for Zoning as proposed by Proposed Variation 2 (a) that was placed on public display (these alternatives are referred to as **Alternative A**, see Table 4.1) would be likely to contribute towards flood risk management in compliance with the Flood Risk Management Guidelines and as a result would contribute towards the protection of human health. As these alternatives provide for various types of built development they would have the potential to conflict with all environmental components. Potentially significant adverse environmental effects arising from this conflict are described on Table 5.2.

Table 5.2 Potentially Significant Adverse Environmental Effects, if unmitigated, common to all alternatives

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

¹¹ Note that MA7 is located within Flood Zone C.

For all interactions under Alternative A, these effects would be mitigated by both provisions integrated into the Variation and existing provisions already in force through the County Development Plan – see Section 7.

5.2.2 Alternative B for Individual Proposed Material Alterations

Alternatives that provide for zoning as proposed by Material Alterations to Proposed Variation 2 (a) that was placed on public display (these alternatives are referred to as **Alternative B**, see Table 4.1) provide a range of incompatible uses within areas that are at elevated risk of flooding. The areas that are at elevated risk of flooding have been identified by the Strategic Flood Risk Assessment.

Providing incompatible uses in these areas is contrary to proper and sustainable flood risk management and contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14* recently issued by the Department of the Environment, Heritage & Local Government.

If any of the lands subject to these Proposed Material Alterations that are located within Flood Zones A or B were developed, there would be a heightened risk of flooding and associated adverse effects on people and their assets. Such effects are identified on Table 5.3 and range from loss of life, to damage to property, to loss of income.

Table 5.3 Selection of Adverse Effects (on People and Property) that occur as a result of Flooding

Tangible Effects	Intangible Human and Other Effects
Damage to buildings (houses)	Loss of life
Damage to contents of buildings	Physical injury
Damage to new infrastructure e.g. roads	Increased stress
Loss of income	Physical and psychological trauma
Disruption of flow of employees to work causing knock on effects	Increase in flood related suicide
Enhanced rate of property deterioration and decay	Increase in ill health
Long term rot and damp	Homelessness
	Loss of uninsured possessions

In addition to these effects on people and property, there would be elevated potential for water quality to be adversely affected (as a result of flooding of water treatment systems and collection networks and flooding of unknown substances stored onsite). Polluted or contaminated waters would have the potential to adversely affect human health and biodiversity and flora and fauna (including designated European Sites).

Furthermore, as these Alternatives provide for various types of built development they would have the potential to conflict with other environmental components. Potentially significant adverse environmental effects arising from this conflict are described on Table 5.2.

5.2.3 Alternative A for Combined Proposed Material Alterations

Alternatives that provide for Zoning as proposed by Proposed Variation 2 (a) that was placed on public display (these alternatives are referred to as **Alternative A**, see Table 4.1) would be likely to cumulatively contribute towards flood risk management in compliance with the Flood Risk Management Guidelines and as a result would contribute towards the protection of human health.

As these alternatives provide for various types of built development they would have the potential to cumulatively conflict with all environmental components. Potentially significant adverse environmental effects arising from this conflict are described on Table 5.2.

The extent of potentially significant adverse environmental effects arising under Alternative A would be of a lesser degree than the extent of potentially significant adverse environmental effects arising under Alternative B.

5.2.4 Alternative B for Combined Proposed Material Alterations

Alternatives that provide for zoning as proposed by the Material Alterations that were placed on public display (these alternatives are referred to as **Alternative B**, see Table 4.1) provide a range of incompatible uses within areas that are at elevated risk of flooding. These alternatives would have the potential to cumulatively, adversely and significantly affect human health, new and existing property, the status of waters and ecology.

Taking into account the considerable extent of lands involved, cumulative adverse effects would be likely to arise on all environmental components as a result of the provision of unnecessary zoning (for which there is no established planning need) at Proposed Material Alterations No. 1-7 lands. The extent of potentially significant adverse environmental effects arising under Alternative B would be of a greater degree than the extent of potentially significant adverse environmental effects arising under Alternative A.

5.2.5 The Recommended Alternative for the Proposed Material Alterations 1-7

In order to be consistent with the need to contribute towards proper planning and sustainable development and in order to comply with the Flood Risk Management Guidelines, it was recommended by the SEA and the Planning Department that Alternative A (zoning as proposed by Proposed Variation 2 (a) and not zoning as proposed by the Material Alterations) was selected in each instance by the Elected Members.

Elected Members decided to select zoning as proposed by the Material Alterations (Alternative B). This zoning is contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*.

Section 6 Summary of Effects arising from the Adopted Variation No. 2 (a)

Galway County Council integrated a number of recommendations arising from the SEA, AA and SFRA processes into the Variation (see Section 7).

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

However, not all recommendations made by the SEA/SFRA process were accepted by the Elected Members. The land use zoning provided for by Material Alterations No. 1-6 that was adopted as part of the Variation:

- Provide for a range of incompatible uses within areas that are at elevated risk of flooding (these areas were identified by the Strategic Flood Risk Assessment);
- Provide incompatible uses that are contrary to proper and sustainable flood risk management and contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*;
- Facilitate development that would result in a heightened risk of flooding and associated adverse effects on people and their assets. Such effects are identified on Table 6.1 and range from loss of life, to damage to property, to loss of income;
- Would result in elevated potential for water quality to be adversely affected (as a result of flooding of water treatment systems and collection networks and flooding of unknown substances stored onsite). Polluted or contaminated waters would have the potential to adversely affect human health and biodiversity and flora and fauna (including designated European Sites).

The land use zoning provided for by Material Alterations No. 1-7 that was adopted as part of the Variation would be likely to result in cumulative adverse effects on all environmental components, taking into account the considerable extent of lands involved and as a result of the provision of this unnecessary zoning (for which there is no established planning need).

Table 6.1 Selection of Adverse Effects (on People and Property) that occur as a result of Flooding

Tangible Effects	Intangible Human and Other Effects
Damage to buildings (houses)	Loss of life
Damage to contents of buildings	Physical injury
Damage to new infrastructure e.g. roads	Increased stress
Loss of income	Physical and psychological trauma
Disruption of flow of employees to work causing knock on effects	Increase in flood related suicide
Enhanced rate of property deterioration and decay	Increase in ill health
Long term rot and damp	Homelessness
	Loss of uninsured possessions

In order to be consistent with the need to contribute towards proper planning and sustainable development and in order to comply with the Flood Risk Management Guidelines, it was recommended by the SEA that zoning as proposed by Proposed Variation 2 (a) and not zoning as proposed by the Material Alterations was selected.

Elected Members decided to select zoning as proposed by the Material Alterations. This zoning is contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*.

Table 6.2 provides a detailed overall evaluation of the environmental effects arising from the Variation. The effects encompass all in-combination/cumulative effects arising from implementation of the Variation. The potentially significant adverse environmental effects (if unmitigated) arising from implementation of the Variation are detailed as are residual effects, taking into account mitigation through both provisions integrated into the Variation and existing provisions already in force through the County Development Plan – see Section 7.

Environmental impacts which occur will be determined by the nature and extent of multiple or individual projects and site specific environmental factors. Strategic Environmental Objective (SEO) codes are taken from Table 5.1.

The land use zoning from the adopted Variation is provided at Figure 6.1.

Table 6.2 Overall Evaluation – Effects arising from the Adopted Variation 2 (a)

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

SEA Environmental Report Appendix II – Non-Technical Summary

Environmental Component	Significant Positive Effect, likely to occur	Potential Effect, if unmitigated	Residual Adverse Effects	Relevant SEO Codes
Material Assets	<ul style="list-style-type: none"> Allows for use of planned infrastructure including water services infrastructure and transport infrastructure. Makes use of existing water services and drainage infrastructure. 	<ul style="list-style-type: none"> Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). Increases in waste levels. 	<ul style="list-style-type: none"> Residual wastes to be disposed of in line with higher level waste management policies. 	M1 M2
Air and Climatic Factors	<ul style="list-style-type: none"> Facilitates contribution towards a shift from car to more sustainable and non-motorised transport modes. Facilitates contribution towards reducing congestion and associated adverse effects on air quality. Facilitates contribution towards reductions in travel related greenhouse gas and other emissions to air. 	<ul style="list-style-type: none"> Emissions to air including greenhouse gas emissions and other emissions. Climate adaptation interactions. 	<ul style="list-style-type: none"> An extent of travel related greenhouse gas and other emissions to air. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility. 	C1
Cultural Heritage	<ul style="list-style-type: none"> Contributes towards protection of cultural heritage in wider region by facilitating development within an existing settlement. 	<ul style="list-style-type: none"> Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities. 	<ul style="list-style-type: none"> Potential alteration to the context and setting of architectural heritage however these will occur in compliance with legislation. Potential alteration to the context and setting of archaeological heritage however this will occur in compliance with legislation. Potential loss of unknown archaeology however this loss will be mitigated by measures integrated into the Plan as varied. 	CH1 CH2
Landscape	<ul style="list-style-type: none"> Contributes towards protection of wider landscape by facilitating development within an existing settlement. 	<ul style="list-style-type: none"> Occurrence of adverse visual impacts and conflicts with the appropriate protection of designations relating to the landscape, especially with regard to the County's landscapes which are most valuable and most sensitive to change and protected focal points and views. 	<ul style="list-style-type: none"> The Plan as varied contributes towards the protection of landscape designations. The County's landscapes will change overtime as a result of natural changes in vegetation cover combined with new developments. This will occur within Bearna, including at coastal lands to the south of the R336. 	L1

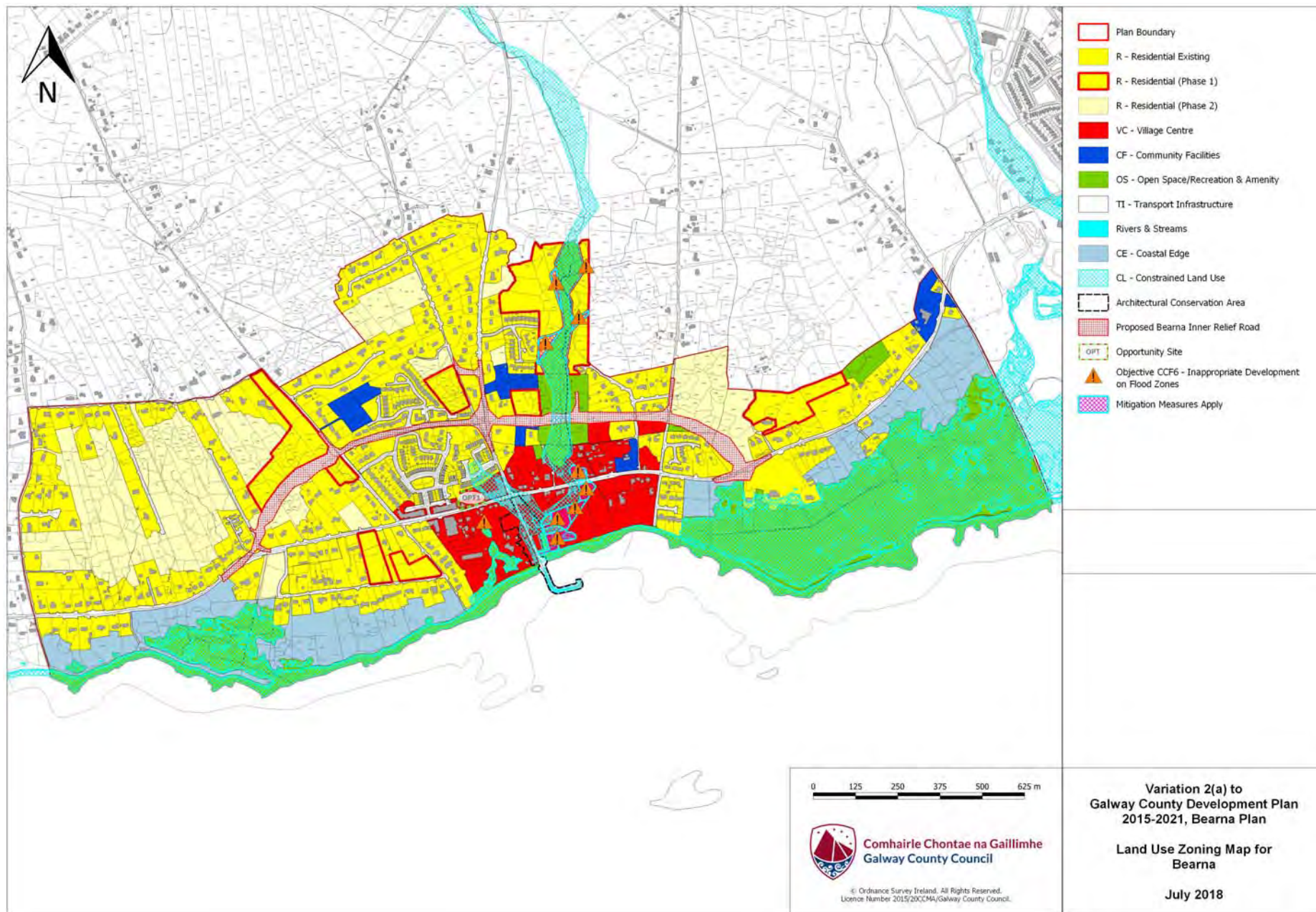


Figure 6.1 Land Use Zoning Map for Adopted Variation 2 (a)

CAAS for Galway County Council

Section 7 Mitigation and Monitoring Measures

7.1 Mitigation

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

Various environmental sensitivities and issues have been communicated to the Council through the various SEA, AA and SFRA processes undertaken for the original 2015 Plan, Variation No. 1 and Variation 2 (a).

By integrating certain recommendations into the Variation the Council will contribute towards environmental protection and management. However, certain Material Alterations were made to Proposed Variation and adopted by the Elected Members as part of the adopted Variation. These Material Alterations provide for a range of incompatible uses within areas that are at elevated risk of flooding and are contrary to *The Planning System and Flood Risk Management Guidelines for Planning Authorities* (2009) and *Circular PL2/14*. Consequently the Variation is contrary to these Guidelines and associated Circular.

A summary of individual SEA and AA provisions into the text of the Proposed Variation is provided at Table 7.1.

7.2 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Environmental Report contains proposals for monitoring these effects. Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action.

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

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

A stand-alone Monitoring Report on the significant environmental effects of implementing the County Development Plan (including the Variation 2 (a)) will be prepared in advance of the review of the County Development Plan. This report will address the indicators that are set out on Table 7.1.

Table 7.1 Summary of Mitigation Measures and Indicators for Monitoring

Environmental Component	Mitigation Measures, including:	Selected Indicator(s)
Biodiversity, Flora and Fauna	<p>Measures from the Variation</p> <ul style="list-style-type: none"> • Objective CF 4 - Coastal Amenity Park • Objective CF 6 - Jetty/Marina Development • Objective CF 7 - Coastal Setback • Objective BNH 2 - Natural Heritage Areas and Proposed Natural Heritage Areas • Objective BNH 3 - European Environmental Compliance • Objective RT3 - Public Footpath & Lighting Network • Objective CCF6- Inappropriate Development on Flood Zones <p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> • Policies NHB 1, NHB 2, NHB 3, NHB 5, NHB 6, NHB 7 and NHB 8 • Objectives DS 6, DS 9, EQ1, EQ 4, ICT 1, NHB 1, NHB 2, NHB 4, NHB 5, NHB 6, NHB 7, NHB 8, NHB 10, NHB 11, NHB 13, AFF 6 and DS10 <p>Also see various measures providing for populations in rural and supporting areas.</p>	<p>B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive</p> <p>B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan (as varied)</p> <p>B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan (as varied)</p> <p>B3ii: Number of significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976.</p> <p>B4: Population of the county involved in land management</p>
Population and Human Health	<p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> • Policy CC 8 • Objectives TI 12 and EQ 2 <p>Also see measures related to soil, water quality, flooding, waste water treatment and drinking water supply and quality.</p>	<p>PHH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency</p>
Soil	<p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> • Objective NHB12 <p>Also see measures related to water quality and waste water treatment.</p>	<p>S1: Soil extent and hydraulic connectivity</p>
Water	<p>Measures from the Variation</p> <ul style="list-style-type: none"> • Objective BNH 4 - Local Streams • Objective CCF1 - Flood Zones and Appropriate Land Uses • Objective CCF2 - Coastal Flooding • Objective CCF3 - Structural and Non-Structural Risk Management Measures in Flood Vulnerable Zones • Objective CCF4 - Water Bodies and Watercourses • Objective CCF5 - Coastal Protection • Objective LU9 - Constrained Land Use Zone (CL) • DM Guideline FL1 – Flood Zones and Appropriate Land Uses <p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> • Policies NHB 4, AFF 5, FL 1, FL 2, FL 3, FL 4 and FL 5 • Objectives NHB 3, NHB 8, NHB 10, NHB12, EQ1, AFF 5, AFF 6, AFF9, CS 4, WS 1, WS 2, WS 7, WS 9, WS 11, WW 1, FL 1, FL 2, FL 3, FL 4, FL 5, FL 6, DS 7, DS 8 and DS 9 and RA 1 	<p>W1i: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009)</p> <p>W1ii: Mandatory and Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008)</p> <p>W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC</p> <p>W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk</p>

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Environmental Component	Mitigation Measures, including:	Selected Indicator(s)
Material Assets	<p>Measures from the Variation</p> <ul style="list-style-type: none"> Objective IS1 - Wastewater Treatment Plant <p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> Policies WS 1 WS 2 WS 3 WS 4 WS 5 WS 6 WW 1 WM1 WM2 Objectives WS 1, WS 2, WS 3, WS 4, WS 5, WS 6, WS 7, WS 8, WS 9, WS 10, WS 11, WS 12, WS 13, WS 14, WS 15, WW 1, WW 2, WW 3, WW 4, WW 5, WW 6, WW 7, WW 8, WW 10, WM 1, WM 2, WM 3, WM 4, WM 5, WM 6, CS 4, RHO -5 and EDT 5 	<p>M1: Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the Plan (as varied)</p> <p>M2: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a result of implementing the Plan (as varied)</p> <p>M3i: Total collected and brought household waste</p> <p>M3ii: Packaging recovered (t) by self-complying packagers</p>
Air and Climatic Factors	<p>Measures from the Variation</p> <ul style="list-style-type: none"> Objective RT1 - Transport Network Objective RT3 - Public Footpath & Lighting Network Objective RT5 - Bus Services, Stops and Shelters Objective LU7 - Transport Infrastructure (TI) DM Guideline DM1 – Development Densities <p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> Strategic Aims 6, 7 and 11 Policies CC 1, CC2, CC3, CC4, CC5, CC6, CC 7, TI 1, TI 2, TI 3 and TI 4 <p>Objectives DS 1, DS 2, DS 3, DS 8, CS 3, CS 5, TI 1, TI 2, TI 3, TI 4, TI 16, TI 17, TI 18, TI 19, TI 20, TI 21, DS 8, CC1, CC 2, CC3, CC 4 and CC5</p>	<p>C1: Percentage of population travelling to work, school or college by public transport or non-mechanical means</p>
Cultural Heritage	<p>Measures from the Variation</p> <ul style="list-style-type: none"> Objective BNH 1 - ACA Appraisal and Management Plan <p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> Policies AH 1, AH 2, ARC 1, ARC 2, ARC 3, ARC 4 and ARC 5 <p>Objectives AH 1, AH 2, AH 3, AH 4, AH 5, AH 6, AH 7, AH 8, AH 9, AH 10, AH 11, ARC 1, ARC 2, ARC 3, ARC 4, ARC 5, ARC 6 and ARC 7</p>	<p>CH1: Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential (and the context of the above within the surrounding landscape where relevant) – protected from adverse effects resulting from development which is granted permission under the Plan (as varied)</p> <p>CH2: Percentage of entries to the Record of Protected Structures and Architectural Conservation Areas and their context protected from adverse effects resulting from development which is granted permission under the Plan (as varied)</p>
Landscape	<p>Measures from the Variation</p> <ul style="list-style-type: none"> Objective UD3 - Coastal Views Objective CF 7 - Coastal Setback <p>Measures from the Plan as varied</p> <ul style="list-style-type: none"> Policy LCM 1 <p>Objectives LCM 1, LCM 2, LCM 3, FPV 1 and WH 1</p>	<p>L1: Number of complaints received from statutory consultees regarding avoidable impacts on the landscape - especially with regard to the County's landscapes which are most valuable and most sensitive to change and protected focal points and views - resulting from development which is granted permission under the Plan (as varied)</p>