

Loughmacask Masterplan SEA Environmental Report – Non-technical Summary

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Environmental Assessment **Built Environment**

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1 Introduction

Kilkenny County Council (KCC) has prepared a Masterplan for the Loughmacask development lands in Kilkenny City (the ‘Plan’ hereafter), in accordance with the city zoning objectives of the *Kilkenny City and County Development Plan 2021 – 2027*.

The preparation of the Masterplan is required to undergo a Strategic Environmental Assessment (SEA), including the preparation of an SEA Environmental Report, in accordance with Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the ‘SEA Directive’ hereafter), and associated implementing national legislation.

The purpose of the Environmental Report is to evaluate the likely environmental effects of the Masterplan and the alternatives, and to evaluate their significance with regard to the environmental baseline. This will provide stakeholders and the public with a clear understanding of the likely environmental consequences of implementing the Plan.

This document provides a non-technical summary (NTS) of the Environment Report, in order to ensure that the key issues and findings set out in the Environmental Report are readily understood by decision makers and the general public.

The preparation of the Non-technical Summary (NTS) (Volume 1), the SEA Environmental Report (Volume 2) and the SEA Statement has been undertaken by Brady Shipman Martin (BSM) on behalf of KCC.

2 The Strategic Environmental Assessment Process

2.1 What is SEA?

Strategic Environmental Assessment (SEA) is the process by which environmental considerations are required to be fully integrated into the preparation of plans and programmes prior to their final adoption. The objective of SEA is to provide for a high level of protection of the environment and to promote sustainable development.

2.2 Steps in the SEA Process

Table 2.1 highlights the four key stages in the SEA process and the progress made to date.

Table 2.1 Key Stages in SEA

Stage	Description	Status
1. Screening	Screening will determine if SEA is required.	Completed ✓
2. Scoping	Determines the spatial and temporal scope of the SEA in consultation with the designated statutory consultees.	Completed ✓
3. Environmental Report	Formal and transparent assessment of the likely significant impacts on the environment due to implementation of a Plan / Programme including all reasonable alternatives. The output from this stage is an Environmental Report, which is required to go on public display along with the draft Plan / Programme.	Completed ✓
4. SEA Statement	Summarises the process undertaken and identifies how environmental considerations and consultations have been integrated into the final Plan / Programme.	Current Stage

2.3 Scoping (Stage 2)

The Scoping Stage (Stage 2) ensures that the SEA is focused on the relevant environmental issues and examines issues at the appropriate level of detail. Scoping also includes consultation with the Environmental Authorities, and allows for the incorporation of the views of the Environmental Authorities in the Plan and the SEA Environmental Report. Details of the SEA Scoping consultation are provided in Section 2.8, below.

2.4 SEA Environmental Report (Stage 3)

The SEA Environmental Report constitutes the main written output of the SEA process. The Environmental Report predicts and evaluates the *likely significant effects* of the Plan and the alternatives. The Environmental Report provides KCC, stakeholders and the public with a clear understanding of the likely environmental consequences of implementing the Plan. The Environmental Report considers all of the following in accordance with the requirements of the SEA Directive:

- Biodiversity (Flora & Fauna);
- Population & Human Health;
- Soils and Geology;
- Water Quality;
- Air, Noise and Climate;
- Landscape;
- Material Assets;
- Cultural Heritage; and
- Interactions and Cumulative Impacts.

2.5 SEA Statement (Stage 4)

KCC has prepared a SEA Statement alongside the final adopted *Loughmacask Masterplan* (together with an updated SEA Environmental Report and Natura Impact Report (NIR)), setting out how the SEA and any consultation responses have influenced the preparation of the Masterplan. The SEA Statement also includes the measures decided upon to monitor the significant environmental effects of implementing the Masterplan.

2.6 Screening for Appropriate Assessment (AA)

A Screening Stage for Appropriate Assessment (AA) (Stage 1) has been undertaken for the Plan. The need for Appropriate Assessment arises out of Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('the Habitats Directive'), which requires that proposed plans and programmes (including amendments or variations thereof) undergo a screening test for *likely or potential effects* on European Sites (also known as the Natura 2000 network) arising from their implementation.

The AA Screening exercise has concluded that significant effects could not be ruled out in relation to the River Barrow and River Nore Special Area of Conservation (SAC) and / or the River Nore Special Protection Area (SPA). Therefore, a Stage 2 Appropriate Assessment is required and a Natura Impact Report (NIR) has been prepared in parallel with the preparation of the Masterplan and the Environmental Report (Volume 2).

2.7 Site Specific Flood Risk Assessment (SSFRA)

A Site Specific Flood Risk Assessment (SSFRA) has also been undertaken in relation to the Masterplan, in accordance with the Office of Public Works (OPW) and Department of Environment, Heritage and Local Government guidelines, *The Planning System and Flood Risk Management – Guidelines for Planning Authorities* (2009). The preparation of the Masterplan, SSFRA, SEA Environmental Report and AA have taken place concurrently, and the findings have informed both the Masterplan and the SEA.

2.8 Consultation

In March 2022, SEA scoping consultation was carried out with the specified Environmental Authorities:

- Environmental Protection Agency
- Minister for Housing, Local Government and Heritage
- Minister for Agriculture, Food and the Marine
- Minister for Environment, Climate and Communications (DoECC)

Submissions were subsequently received from the following Environmental Authorities:

- Environmental Protection Agency;
- Inland Fisheries Ireland, on behalf of Minister for Environment, Climate and Communications; and
- Geological Survey of Ireland, on behalf of Minister for Environment, Climate and Communications.

During the public display / consultation period, the Draft Plan, SEA Environmental Report, Natura Impact Report and Strategic Flood Risk Assessment was made available for comment from statutory bodies, the public and interested parties. The content of submissions or observations received has informed the finalisation of the Masterplan and the associated SEA process.

3 Loughmacask Masterplan

3.1 Vision

The stated vision for Loughmacask is as follows:

- Loughmacask will be an exemplar and plan-led new residential quarter of Kilkenny City, characterised by sustainable mobility connecting people to high quality housing, local facilities and amenities and the city centre and set within a distinctive landscape and historic city context.
- Distinctive and vibrant neighbourhood, building on the existing locality and communities and providing an excellent quality of life with urban and rural amenities.
- A walkable urban quarter with day-to-day facilities and amenities within a 10 minute walk of homes – reducing private transport dependency and strengthening local communities.
- A new urban quarter that expands on and is integral with the historic city centre as well as the natural landscape of the Nore and Breagh river corridors.
- Excellent provision of open space, green networks and local facilities that cater for local need, foster community growth and support health and well-being.
- Responds to climate change, through sustainable transport, energy efficient building technologies, and a strong green infrastructure network including sustainable drainage (SuDS) utilising soakaways, swales, infiltration trenches, ponds and wetlands where feasible, to assist with flood management.

3.2 Key Principles

In order to achieve the above-stated vision for Loughmacask, the Masterplan has set out the following key principles, which have been informed by national and local planning policy:

- Compact growth and integration;
- 10-minute city quarter;
- Ease of access and movement; and
- Sustainable land use.

3.3 Nature and Extent of Planned Development

The land use strategy set out in the Masterplan provides for predominantly residential use, in a matrix of green space / links, and with smaller areas reserved for a local centre, existing industrial use, community use and a relocated CBS secondary school (see **Figure 3.1**, overleaf). Higher residential densities will be concentrated around the local centre, with lower densities proposed at the urban-rural interface. The Masterplan also provides for the regeneration of the Butts, an existing Local Authority housing development, situated at the interface of the development area and city centre.

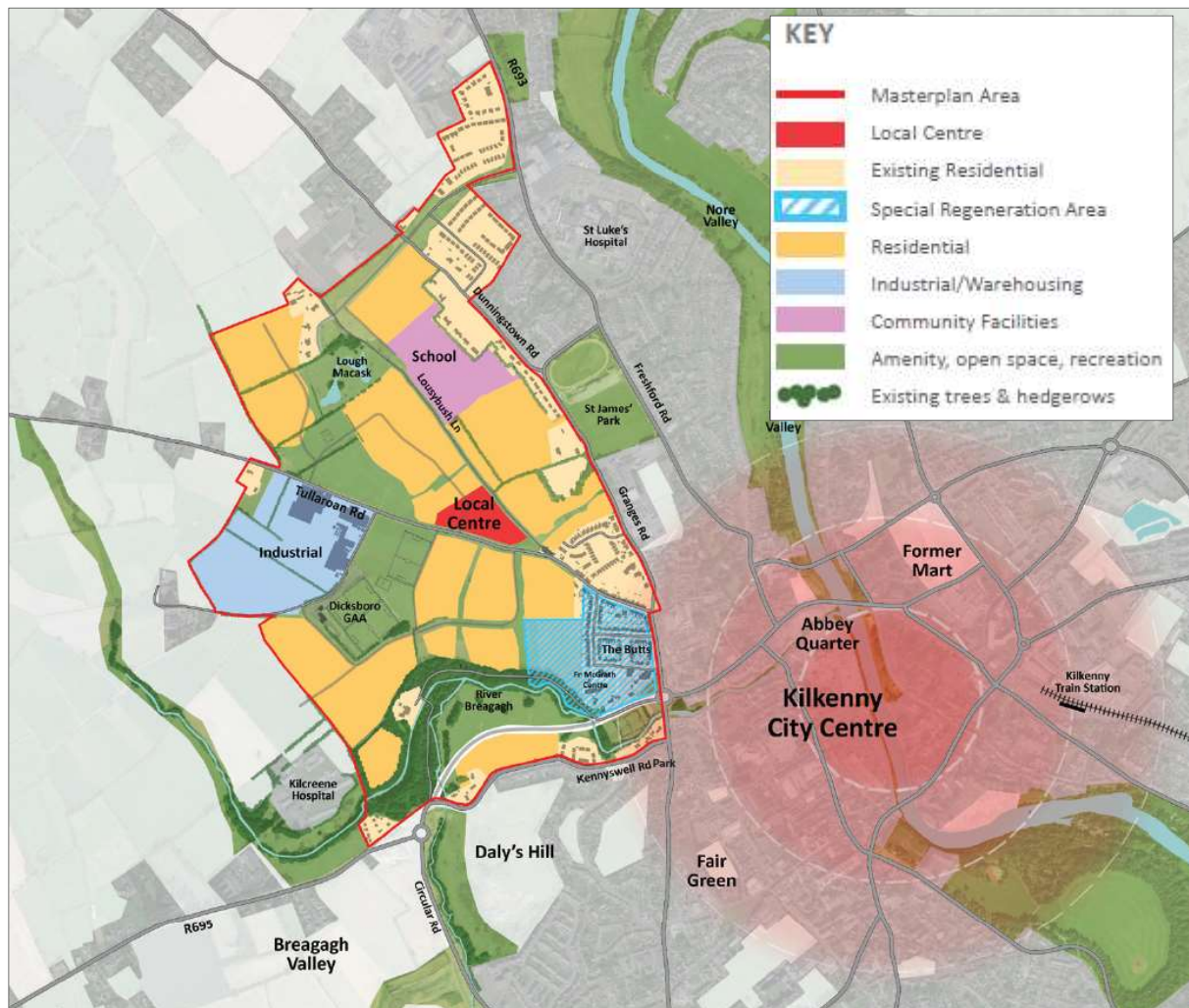
The Masterplan envisions a high quality, walkable and connected new residential quarter. Ultimately, primary vehicular access will be from the west, rather than the city centre. In the interim, primary vehicular access will continue to be from the east via the existing road network. Local access will be via the existing road network, with pedestrian and cyclist mobility prioritised. Lousybush Lane is to be a primary internal green link, for pedestrian and cyclist use only.

The Masterplan proposes an extensive and interconnected green infrastructure network across the Masterplan lands. A north-south green spine is proposed, linking the Nore Valley, Lough Macask, the Dicksboro GAA grounds, the River Breagagh corridor and existing green infrastructure to the south of the Masterplan lands. This green network is expected to substantially eliminate the need for local car journeys, and will also have the effect of buffering future residential development from an existing industrial facility. A new park, the River Breagagh Park, is proposed in the existing green area between the Breagagh River and the Central Access Scheme to the south.

In accordance with the OPW guidelines, *The Planning System and Flood Risk Management: Guidelines for Planning Authorities* (2009), SuDS will be a requirement of future development in the Masterplan lands.

The Masterplan proposes several changes to the land use zoning in the Development Plan, as detailed in the Environmental Report (Volume 2). These changes have been made predominantly for the purposes of integrating the Butts community into the development lands by means of a ‘Special Regeneration Area’, and to provide a connected network of green infrastructure.

Figure 3.1: Loughmacask Masterplan – Land Use



4 Policy Context

The preparation of the Masterplan was considered within the context of a hierarchy of policies, plans and programmes of international, national, regional and local level as detailed in the Environmental Report (Volume 2).

The Masterplan must comply with higher level plans, including *Project Ireland 2040: National Planning Framework* (NPF), which is implemented through the *Regional Spatial and Economic Strategies* (RSEs) and lower tier Development Plans and Local Area Plans. Both the NPF and RSEs have been subject to the SEA process.

The key legislative provisions of relevance to the Masterplan include the SEA Directive, the Habitats Directive and Directive 2000/60/EC establishing a framework for community action in the field of water policy ('the Water Framework Directive'), among others.

The key policies of relevance to the Masterplan include (but are not limited to) the following:

- *Project Ireland 2040 – National Planning Framework* (2018)
- *Regional Spatial & Economic Strategy for the Southern Region* (2020)
- *Kilkenny City and County Development Plan 2021 – 2027*
- *Kilkenny Local Economic and Community Plan 2016 – 2021*;
- *Loughmacask Local Area Plan* (2008).

The Masterplan must also be prepared in accordance with the Section 28 Ministerial Guidelines.

5 Environmental Baseline

5.1 Introduction

This section provides a summary of the environmental baseline (i.e. the current state of the environment) in the area that is the subject of the Masterplan. The environmental baseline, together with the Strategic Environmental Objectives (SEOs) (refer to **Section 6**) are used to identify, describe and evaluate the likely significant environmental effects of the implementation of the Masterplan.

The Loughmacask Masterplan area is situated on the western periphery of Kilkenny City, the largest urban centre in the County and the seat of local government. The development lands have been earmarked by KCC for development as a new residential neighbourhood containing c. 904 residential units. The lands are predominantly comprised of intensive agricultural land, but also contain existing residential areas along the eastern margin, an existing industrial facility, sports grounds (including Dicksboro GAA), and two distinct pockets of semi-natural habitats / ‘green infrastructure’ at Lough Macask and in the riparian corridor of the River Breagagh. ‘The Butts’, a 20th century residential development and early example of Local Authority housing, is situated in the south-eastern portion of the Masterplan area, at its interface with the city centre.

5.2 Likely Evolution of the Environment in the Absence of the Masterplan

While, the Masterplan lands are subject to the *Kilkenny City and County Development Plan 2021 – 2027* (which outlines a sustainable planning and development strategy for the area); in the absence of a Masterplan, development in the area would be less coordinated and controlled. Development in the area would likely proceed in a more spontaneous manner, driven by individual / one-off developments.

5.3 Biodiversity (Flora & Fauna)

The Masterplan area is dominated by intensively managed agricultural land, criss-crossed by a network of mature hedgerows and treelines, which provide important local habitat and serve as ecological corridors. The Development Plan has identified Lough Macask and the River Breagagh corridor as green infrastructural assets to be protected.

The River Breaghagh and its associated riparian habitats, which include broadleaved woodland and dry meadows, provide an important habitat resource for wildlife in the study area and also serve as an ecological corridor. The invasive species, Japanese Knotweed (*Fallopia japonica*) and Himalayan Balsam (*Impatiens glandulifera*) have been identified growing along the river.

There are no European (Natura 2000) sites within the Masterplan area. However, the River Breaghagh drains into the River Nore, which supports: the River Nore SPA (site code 004233) and River Barrow and River Nore SAC (002162), both of which are c. 600 m downstream of the Masterplan lands via the River Breaghagh. There is one proposed Natural Heritage Area (pNHA) within the Masterplan area, the Lough Macask pNHA (001914). The area of the pNHA takes in the pond known as ‘Lough Macask’, for which the development lands are named, and adjacent terrestrial habitats.

5.4 Population & Human Health

Much of the study area in question is greenfield / agricultural land bounding the valley of the River Nore. Existing residential, open space and industrial development are also present, together with some areas of permitted development. At the time of the 2016 census, the population of Kilkenny City was recorded as being 26,512.

In terms of human health, the key feature of note in the study area is an existing industrial facility and upper tier Seveso establishment, Grassland Fertilisers, located off the Tullaroan Road. The importance of access to a healthy natural environment for public health was noted in the Inland Fisheries Ireland submission. It is also noted that water (supply and wastewater) infrastructure, which is necessary for proper sanitation and to support human health, is deficient in the study area – this is discussed further under Section 5.6, below

5.5 Soils & Geology

The bedrock geology in the study area is of karst limestone. St. Canice’s holy well at the southern margin of the Masterplan lands is a karst feature. The principal soils in the study area are minimal grey brown podzolics with associated gleys and brown earths of limestone glacial till parent material.

The study area is predominantly underlain by a regionally important, karstified, gravel aquifer, the Killkenny-Ballynakill Gravels (WFD code IE_SE_G_163). This groundwater body has been consistently rated as having ‘good’ status for all parameters, and is ‘not at risk’ of failing to

achieve its Water Framework Directive (WFD) objectives / good status by 2027. On account of the hydrogeological conditions in the area (e.g. presence karst limestone bedrock and gravel aquifer overlain by well-drained soil), groundwater vulnerability is high across much of the area (as is the case in wider Kilkenny City and environs), with localised extreme vulnerability in the north-western extents.

5.6 Water Quality

The River Breagagh traverses the southern portion of the Masterplan area before entering the River Nore a distance of c. 650 m east of the Masterplan area boundary. Where it passes through the Masterplan area, the River Breagagh is of ‘poor’ status and ‘at risk’ of failing to achieve its WFD objectives / good status by 2027. Significant pressures affecting water quality in the River Breagagh are industry, hydromorphology (channelisation and embankments) and pastoral agriculture. The River Nore is of consistently ‘good’ status, with its level of risk under review at present.

Wastewater from Kilkenny City and environs is treated at Irish Water’s Purcellsinch wastewater treatment plant. This plant provides tertiary treatment, and is compliant with its emission limit values with capacity for future growth. Discharge from the plant does not have an observable impact on water quality or the WFD status of waterbodies.

As noted in the Development Plan, wastewater drainage infrastructure in the study area is not sufficient to meet the needs of permitted or proposed growth at Loughmacask. It is an objective of the Development Plan (refer to Objectives 4K and 10a) to facilitate and assist Irish Water in the provision of necessary water and wastewater infrastructure. A Drainage Area Plan is being progressed for the wastewater network in Kilkenny City, which will inform future investment requirements for the City network. According to the KCC meeting minutes from December 2018, the Council has been in discussions with Irish Water regarding the installation of a new sewer line to serve the Loughmacask area.

Potable water supply to Kilkenny City and environs is provided by water treatment plants at Troyswood and Radestown, the latter of which is on the EPA’s Remedial Action List. According to Irish Water, improvement works to Troyswood Water Treatment Plant are ongoing and will ultimately allow for the decommissioning of the Radestown plant. These works will increase

the capacity of the potable water supply in Kilkenny, supporting future growth, including at Loughmacask. (Irish Water, 2021).

Localised groundwater flooding is known to occur at Loughmacask, producing the fluctuating waterbody at this location. Parts of the River Breaghagh corridor are also subject to flooding. However, all of the lands earmarked for residential development under the Development Plan are situated in Flood Zone C, where there is a low probability of flooding. A Site Specific Flood Risk Assessment (SSFRA) has been prepared in respect of the Plan.

5.7 Air, Noise & Climate

In relation to air, noise and climate, no particular problems have been identified in the study area. As discussed above, there is localised flood risk in the study area. It is noted that climate change exacerbates flood risk in Ireland, and this has been given due consideration under the scope of the Plan, Environmental Report and SSFRA.

5.8 Landscape

The Development Plan identifies views and prospects for protection in Kilkenny. Those of pertinence to the Plan are as follows:

- **No. 2:** View of St. Canice's and St. Mary's Cathedrals from Tullaroan Road
- **No. 6:** View of St. Mary's Cathedral from Kenny's Well Road
- **No. 14:** View of City from Dunningstown Road

By virtue of the gentle sloping topography of the Loughmacask lands, there are, in general, pleasant vistas over historic Kilkenny City, taking in landmarks such as St. Canice's Cathedral and Round Tower, St. Canice's Church and St. Mary's Cathedral.

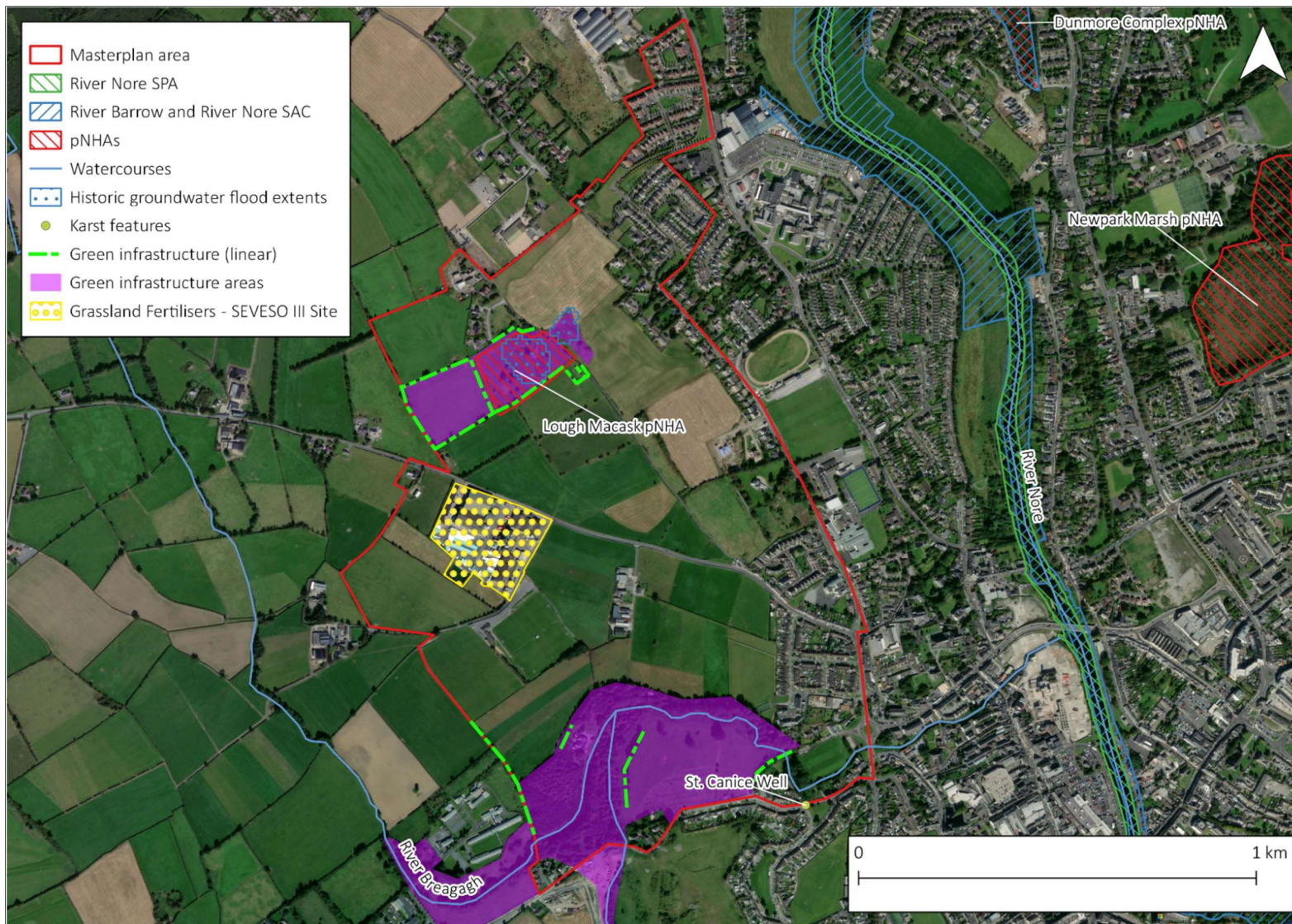
5.9 Material Assets

There are various material assets in the study area, including buildings and infrastructure. As detailed above, water infrastructure in the study area (which is the responsibility of Irish Water) is deficient. Irish Water, with the support of KCC, are working to provide the necessary infrastructural upgrades to support permitted and proposed growth at Loughmacask.

5.10 Cultural Heritage

There are numerous architectural heritage sites and recorded archaeological features in the study area, including Protected Structures, as detailed in the Environmental Report (Volume 2). Three Architectural Conservation Areas, as identified in the Development Plan, also adjoin or partially overlap with the Masterplan area: Talbot's Inch, St. Mary's and St. Canice's.

Figure 5.1 Key Environmental Features (© Bing Maps, 2022)



6 Strategic Environmental Objectives

Strategic Environmental Objectives (SEOs) are methodological measures derived from environmental protection objectives established at international and / or national level. SEOs are used as standards against which the provisions of the Masterplan can be evaluated, in order to identify areas in which significant adverse impacts are likely to occur, if unmitigated. The development of these objectives ensures that the SEA focuses only on those issues that are most relevant and of significance to the Plan. The SEOs for the Plan are set out in **Table 6.1**, overleaf.

Table 6.1 Strategic Environmental Objectives (SEO) for the Masterplan

Theme	SEO
Biodiversity (Flora & Fauna) (B)	B1: To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annex habitats and species.
	B2: Ensure no adverse effects on the integrity of any European site, with regard to its qualifying interests, associated conservation status, structure and function.
	B3: Safeguard national, regional and local designated sites and supporting features which function as stepping stones for migration, dispersal and genetic exchange of wild species.
	B4: Enhance biodiversity in line with the National Biodiversity Strategy and its targets.
Population & Human Health (P)	P1: Consolidate growth and limit urban sprawl.
	P2: Enhance human health and promote healthy living through access to active travel opportunities, especially walking and cycling.
	P3: Safeguard the county's citizens from environment-related pressures and risks to health and well-being.
Water (W)	W1: Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD.
	W2: To prevent pollution and contamination of ground water.
	W3: Avoid inappropriate development in areas at risk of flooding and areas that are vulnerable to current and future erosion.
	W4: Integrate sustainable water management solutions (such as SuDS, porous surfacing and green roofs) into development proposals.
Land & Soils (S)	S1: Protect soils against pollution, and prevent degradation of the soil resource.
	S2: Safeguard areas of prime agricultural land and designated geological sites.
Air (A)	A1: To avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air from all sectors with particular reference to emissions from transport, residential heating, industry and agriculture.

Theme	SEO
	A2: Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.
	A3: Meet Air Quality Directive standards for the protection of human health — Air Quality Directive.
	A4: Decrease noise pollution and move closer to WHO recommended levels.
Climate (C)	C1: Contribute towards the reduction of greenhouse gas emissions in line with national targets.
	C2: Integrate sustainable design solutions into infrastructure (e.g. energy efficient buildings; green infrastructure, modal shift).
	C3: Promote development resilient to the effects of climate change.
	C4: Promote the use of renewable energy, energy efficient development and increased use of public transport.
Material Assets (M)	M1: Optimise existing infrastructure and provide new infrastructure to match population distribution proposals.
	M2: Promote the circular economy, reduce waste, and increase energy efficiencies.
	M3: Ensure there is adequate sewerage and drainage infrastructure in place to support new development.
	M4: Reduce the energy demand from the transport sector and support moves to electrification of road and rail transport modes.
Cultural Heritage (H)	H1: Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage.
Landscape & Visual (L)	L1: To provide a framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention.
	L2: Protect identified views and prospects of significance.

7 Consideration of Alternatives

7.1 Introduction

The SEA Directive and Regulations requires that reasonable alternatives (taking into account the objectives and the geographical scope of the Masterplan) are identified, described and evaluated for their likely significant effects on the environment.

7.2 Alternative Scenarios

In accordance with the SEA Guidelines, the alternatives put forward should be reasonable, realistic and capable of implementation. They should also be in line with the appropriate strategic level at which the Masterplan will be implemented within the national planning hierarchy. The Masterplan will be framed within a policy context set by a hierarchy of national, regional and local level strategic plans, as well as the Irish and European legislative framework. As the Masterplan lands are subject to the *Kilkenny City and County Development Plan 2021 – 2027*, a do-nothing scenario which retains the existing approach is included as a viable alternative.

Two reasonable alternatives scenarios have been assessed:

- **Alternative 1 - Do-nothing:** Development as set out in Development Plan; and
- **Alternative 2 – Consolidated:** Development on basis of Development Plan but with enhanced consolidation, land use and connectivity.

7.3 Assessment of Alternatives

The assessment of the alternatives scenarios has been carried out with reference to potential impacts on the SEOs, as set out in Section 6, above.

When the restrictions of higher level plans are taken into consideration, both scenarios are broadly similar. However, Alternative 2 provides for more compact and consolidated development centred on the local centre, and for greater access and connectivity within the Masterplan lands and adjoining areas. This provides for slightly greater environmental benefit in terms of community, connectivity, greenhouse gas emissions and use of existing and planned infrastructure.

Table 7.1 Assessment of Plan Alternatives

Alternative Considered	Likely to improve status of SEOs to a greater degree	Likely to improve status of SEOs to a lesser degree	Likely neutral effect on status of SEOs	Potential conflict with status of SEOs likely to be mitigated	Potential conflict with status of SEOs unlikely to be mitigated
Alternative 1: Do-nothing		P1, P2, P3, A1, A2, A3, A4, C1, C2, C3, M1, M4	C4, H1, M2	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, L1, L2	M3
Alternative 2: Consolidated	P1, A1, C1, C2; M1, M4	P2, P3, A2, A3, A4, C3	C4, H1, M2	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, L1, L2	M3

7.4 Preferred Alternative

The selected alternative for the Masterplan is Alternative 2. This alternative facilitates the improvements in various environmental components by accommodating a more connected, integrated and consolidated land use arrangement that addresses environmental sensitivities and meets the opportunities of the Masterplan area.

Alternative 2 also allows for a greater number journeys via sustainable transport modes and would be likely to contribute towards associated positive environmental effects on overall greenhouse gas emissions, energy usage and air and noise emissions.

8 Strategic Environmental Assessment of the Masterplan

8.1 Introduction

The purpose of this section of the SEA Environmental Report (Volume 2) is to predict and evaluate as far as possible the environmental effects of the Plan. In accordance with SEA Guidelines, the assessment characterises impacts under four headings:

Potential positive impact:	A change which improves the quality of the environment.
Potential negative impact:	A change which reduces or lessens the quality of the environment.
Uncertain impact:	The nature of any impact cannot be ascertained at this stage.
Neutral or no relationship:	A change which does not affect the quality of the environment.

8.2 Environmental Assessment of Masterplan

The environmental effects of the implementation of the Masterplan have been assessed (see **Table 8.1**) using compatibility criteria in order to determine how they would be likely to affect the status of the SEOs.

The *Kilkenny City and County Development Plan 2021 – 2027* already provides for land use, zoning and objectives for the Loughmacask area. The Development Plan also includes a specific objective (Z8 – City Zoning Objectives) to prepare a masterplan for the Loughmacask area. It is noted that during its preparation, the Development Plan, including all provisions applicable to the Loughmacask area, was subject to full SEA, Appropriate Assessment (AA) and Site Specific Flood Risk Assessment (SSFRA).

The degree to which effects can be determined is limited, as the Masterplan will be implemented through lower tier decision making and project-level environmental assessment, as appropriate.

No potentially significant negative environmental effects have been identified. However, some potential uncertain effects arising from implementation of the Masterplan have been identified, as outlined in **Table 8.2**

Table 8.1: Environmental Assessment of the Masterplan

Masterplan Provision	Predicted effects on status of SEOs ¹			
	Potential positive effects on status of SEOs	Uncertain effects on status of SEOs	Potential negative effects on status of SEOs	Neutral effects / no likely effects on status of SEOs
Section 1 - Introduction				
Sets out context and location of Loughmacask				B1, B2, B3, B4, P1 , P2, P3, W1, W2, W3, W4, S1, S2, A1, A2, A3, A4, C1, C2, C3, C4, M1, M2, M3, M4, H1, L1, L2
Details of public consultation and engagement process and findings of same. Highlighted importance of landscape and environment; amenity, community and social facilities; access and movement; public transport; traffic and safety; and other environmental and infrastructural considerations	B1, B2, B3, B4, P1 , P2, P3, W1, W2, W3, W4, S1, S2, A1, A2, A3, A4, C1, C2, C3, C4, M1, M2, M3, M4, H1, L1, L2			
Section 2 - Vision				
Sets out vision for Masterplan for Loughmacask to be <i>“an exemplar and plan-led new residential quarter of Kilkenny City, characterised by sustainable mobility connecting people to high quality housing, local facilities and amenities and the city centre and set within a distinctive landscape and historic city context.”</i>	P1, P2, P3, A1, C2, M1, M4, H1, L1			B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, A2, A3, A4, C1, C3, C4, M2, M3, L2
Key themes include:	P1, P2, P3, A1, C2, L1			B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, A2, A3, A4, C1, C3,

¹ Acronyms used: Biodiversity (B), Population and Human Health (P), Water (W), Soils (S), Air (A) Climate (C), Material Assets (M), Heritage (H) and Landscape (L).

Masterplan Provision	Predicted effects on status of SEOs ¹			
	Potential positive effects on status of SEOs	Uncertain effects on status of SEOs	Potential negative effects on status of SEOs	Neutral effects / no likely effects on status of SEOs
<i>Distinctive and vibrant neighbourhood, building on the existing locality and communities and providing an excellent quality of life with urban and rural amenities.</i>				C4, M1, M2, M3, M4, H1, L2
Key themes include: <i>A walkable urban quarter with day-to-day facilities and amenities within a 10 minute walk of homes – reducing private transport dependency and strengthening local communities.</i>	P1, P2, P3, A1, C2, M1, M4			B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, A2, A3, A4, C1, C3, C4, M2, M3, H1, L1, L2
Key themes include: <i>A new urban quarter that expands on and is integrated with the historic city centre as well as the natural landscape of the Nore and Breagh river corridors.</i>	P1, P2, P3, A1, H1, L1			B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, A2, A3, A4, C1, C3, C4, M2, M3, L2
Key themes include: <i>Excellent provision of open space, green networks and local facilities that cater for local need, foster community growth and support health and well-being.</i>	B4, P1, P2, P3, L1			B1, B2, B3, W1, W2, W3, W4, S1, S2, A1, A2, A3, A4, C1, C2, C3, C4, M1, M2, M3, M4, H1, L2
Key themes include: <i>Responds to climate change, through sustainable transport, energy efficient building technologies, and a strong green infrastructure network including sustainable drainage (SuDS) utilising soakaways, swales, infiltration trenches, ponds and wetlands where feasible.</i>	B4, W1, W2, W3, W4, A1, A2, A3, A4, C1, C2, C3, C4, M1, M3, M4, L1			B1, B2, B3, P1, P2, P3, S1, S2, M2, H1, L2
Section 3 – Strategic Planning Context				
Sets out context of the Masterplan for Loughmacask within the hierarchy of national, regional and local				B1, B2, B3, B4, P1, P2, P3, W1, W2, W3,

Masterplan Provision	Predicted effects on status of SEOs ¹			
	Potential positive effects on status of SEOs	Uncertain effects on status of SEOs	Potential negative effects on status of SEOs	Neutral effects / no likely effects on status of SEOs
planning strategies and policies. This includes reference to the Kilkenny City and County Development Plan 2021-2027.				W4, S1, S2, A1, A2, A3, A4, C1, C2, C3, C4, M1, M2, M3, M4, H1, L1, L2
Section 4 – Lands at Loughmacask				
Provides a detailed description of lands and context of Loughmacask – including environmental sensitivities, land uses and identifying key challenges.	B1, B2, B3, B4, P1, P2, P3, W1, W2, W3, W4, S1, S2, A1, A2, A3, A4, C1, C2, C3, C4, M1, M2, M3, M4, H1, L1, L2			
Section 5 – Principles and Strategy				
<p>Sets out the Principles for the Masterplan for Loughmacask as follows:</p> <ul style="list-style-type: none"> ■ Compact growth and integration: Loughmacask will establish a new urban quarter at Kilkenny City that is fully integrated with the City. ■ 10-minute city quarter: Residents should be able to access local services such as shops, schools and parks within a 10-minute walk or cycle from their homes. ■ Ease of access and movement: A significant difference between the Loughmacask LAP 2008 and this Masterplan is the removal of through traffic from the area by the reconfiguration of the road objectives for the area and the re-routing of 	P1, P2, P3, A1, A2, A3, A4, C1, C2, C3, C4, M1, M2, M3, M4	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, H1, L1, L2		

Masterplan Provision	Predicted effects on status of SEOs ¹			
	Potential positive effects on status of SEOs	Uncertain effects on status of SEOs	Potential negative effects on status of SEOs	Neutral effects / no likely effects on status of SEOs
<p>through traffic. The primary vehicular access will be from the east or the west into but not through Loughmacask.</p> <ul style="list-style-type: none"> ■ Sustainable land use: New residential development will be the primary land use and a new secondary school will be provided at Lousybush Lane. The local centre will include an appropriate sized local supermarket, in accordance with the Development Plan Retail Strategy, and a number of smaller retail and commercial units that cater for the day-to-day need of the local community. 				
Sets out the strategy for the Masterplan for Loughmacask.	P1, P2, P3, A1, A2, A3, A4, C1, C2, C3, C4, H1, L1	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, M1, M2, M3, M4, L2		
Section 6 – Masterplan				
<p>Sub-section 6.1 sets out the approach to land use including Butts ‘Special Regeneration Area’. The primary land use will be residential comprising a range of housing typologies and densities that respect, extend and integrate with established residential areas. Land use will allow for a neighbourhood centre, new school and network of open spaces and recreational areas.</p>	P1, P2, P3, C2, C3, M1	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, C1, H1, L1, L2		C4, M2, M3, M4
<p>Sub-section 6.2 sets out the approach to connectivity and access. The masterplan sets out that the area will be high-quality, walkable and connected new residential quarter</p>	P1, P2, P3, A1, A2, A3, A4, C1, C2, C3, M1, L1	B1, B2, B3, B4, W1, W2, W3, W4		S1, S2, C4, M2, M3, M4, H1, L2

Masterplan Provision	Predicted effects on status of SEOs ¹			
	Potential positive effects on status of SEOs	Uncertain effects on status of SEOs	Potential negative effects on status of SEOs	Neutral effects / no likely effects on status of SEOs
with highly visible walking and cycling facilities throughout and with local access points for vehicular traffic quickly transforming to homezone style shared streets. Lousybush Lane will be a primary green link that is free of vehicles and providing a convenient and attractive route for local journeys from homes to the local centre, schools, community facilities and amenity spaces.				
Sub-section 6.3 sets out the approach to open space, including SUDS . The approach includes for protection and integration within open space of the key natural features including Lough Macask and the River Breaghagh, enhancement of recreational / sporting facilities, and incorporation of sustainable drainage systems.	B1, B2, B3, B4, P1, P2, P3, W1, W2, W3, W4, S1, A1, C2, C3, H1, L1			S2, A2, A3, A4, C1, C4, M1, M2, M3, M4, L2
Sub-section 6.4 sets out the approach to the roads hierarchy . Key road network objectives (i.e. Western Bypass, and Phase 2 of Central Access Scheme) have been included and assessed in the Kilkenny City and County Development Plan 2021-2027. Therefore, the masterplan only considers local roads and access streets, passive traffic calming, and pedestrian and cycle facilities.	P1, P2, P3, A1, A3, A4, C1, C2, C3, M1, M4	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, A2, C4, M2, M3, H1, L1, L2		
Sub-section 6.5 sets out the approach to density , with higher density around the local centre and centrally within the lands to underpin establishment of a local community in proximity to the newly planned secondary school.	P1, P2, P3, W4, S1, S2, A1, C1, C2, C3, M1, M2	B1, B2, B3, B4, W1, W2, W3, A2, A3, A4, C4, M3, M4, H1, L1, L2		

Masterplan Provision	Predicted effects on status of SEOs ¹			
	Potential positive effects on status of SEOs	Uncertain effects on status of SEOs	Potential negative effects on status of SEOs	Neutral effects / no likely effects on status of SEOs
Sub-section 6.6 sets out the approach to character areas including provision of high-quality, walkable and connected communities, with local access and cycle links.	P1, P2, W4, S2, A1, C2, C3, M1	B1, B2, B3, B4, P3, W1, W2, W3, S1, A2, A3, A4, C1, C4, M2, M3, M4, H1, L1, L2		
Sub-section 6.7 sets out the approach to phasing . The phasing includes for delivery of open space in tandem with development. It is also noted that permission exists for c.300 residential units, however, no significant development has taken place due to lack of wastewater infrastructure. Therefore, delivery of critical infrastructure is required in advance of development of the lands. While the overall effect of the proposed phasing of development will be environmentally positive or neutral development has potential for uncertain effects on SEOs, which can be readily mitigated.	P1, W3, W4, S1, S2, C2, M1, M3, M4	B1, B2, B3, B4, P2, P3, W1, W2, W3, W4, A1, A2, A3, A4, C1, C3, C4, M2, H1, L1, L2		
Section 7 – Environmental Considerations				
Sets out the key environmental considerations for the Masterplan, including outputs from the SEA and AA assessments.	B1, B2, B3, B4, P1, P2, P3, W1, W2, W3, W4, S1, S2, A1, A2, A3, A4, C1, C2, C3, C4, M1, M2, M3, M4, H1, L1, L2			

Table 8.2: Potential Uncertain Effects of the Implementation of the Masterplan

Provision	Potential uncertain effects on status of SEOs ²
Section 5 – Principles & Strategy	
Sets out the Principles for the masterplan.	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, H1, L1, L2
Sets out the Strategy for the masterplan.	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, M1, M2, M3, M4, L2
Section 6 – Masterplan	
Sub-section 6.1 sets out the approach to land use including Butts Regeneration potential .	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, C1, H1, L1, L2
Sub-section 6.2 sets out the approach to connectivity and access .	B1, B2, B3, B4, W1, W2, W3, W4
Sub-section 6.4 sets out the approach to the roads hierarchy .	B1, B2, B3, B4, W1, W2, W3, W4, S1, S2, A2, C4, M2, M3, H1, L1, L2
Sub-section 6.5 sets out the approach to density .	B1, B2, B3, B4, W1, W2, W3, A2, A3, A4, C4, M3, M4, H1, L1, L2
Sub-section 6.6 sets out the approach to neighbourhoods .	B1, B2, B3, B4, P3, W1, W2, W3, S1, A2, A3, A4, C1, C4, M2, M3, M4, H1, L1, L2
Sub-section 6.7 sets out the approach to phasing .	B1, B2, B3, B4, P2, P3, W1, W2, W3, W4, A1, A2, A3, A4, C1, C3, C4, M2, H1, L1, L2

² Acronyms used: Biodiversity (B), Population and Human Health (P), Water (W), Soils (S), Air (A) Climate (C), Material Assets (M), Heritage (H) and Landscape (L).

8.3 Cumulative Impacts

Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact. There are two types of potential cumulative effects that have been considered, namely:

- **Potential intra-Plan cumulative effects:** These arise from the interactions between different types of potential environmental effects resulting from a plan, programme, etc. The interrelationships between environmental factors that help determine these potential effects are identified in **Table 8.3**.
- **Potential inter-Plan cumulative effects:** These arise when the effects of the implementation of one Plan occur in combination with those of other plans, programmes, projects, etc.

No likely significant cumulative effects are predicted to occur as a result of the implementation of the Plan in combination with other plans, programmes, projects, etc.

Table 8.3: Significant Interrelationships between Environmental Factors

Component	Biodiversity & Flora / Fauna	Population & Human Health	Soil	Water	Air and Climate	Material Assets	Cultural Heritage	Landscape
Biodiversity & Flora / Fauna		No	Yes	Yes	Yes	Yes	No	Yes
Population & Human Health			Yes	Yes	Yes	Yes	No	Yes
Soil				Yes	Yes	Yes	Yes	Yes
Water					Yes	Yes	Yes	Yes
Air and Climate						Yes	Yes	Yes
Material Assets							Yes	Yes
Cultural Heritage								Yes
Landscape								

9 Mitigation Measures

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

Article 5 of the SEA Directive requires that mitigation measures be proposed for significant adverse effects identified on the environment as a result of the implementation of the Plan. The environmental assessment of the provisions of the Masterplan has not identified the potential for significant negative environmental effects, but does identify a number of potential uncertain effects as set out in **Tables 8.1** and **8.2**, above.

The Masterplan has been informed by the sensitivities of the receiving environment as identified herein and in the Environmental Report (Volume 2). Various characteristics of the Masterplan proposals will have the effect of avoiding and / or minimising potential adverse environmental effects. These include but are not limited to the following:

- The Masterplan provides the framework for a compact, planned new urban neighbourhood adjoining and integrated with the existing city centre; avoiding unplanned, one-off scattered or ribbon development at the urban-rural interface – and, therefore, minimising the impacts of unplanned urban sprawl and greenfield development, e.g. habitat loss.
- Vegetated setbacks and buffers will be retained around the River Breaghagh and Lough Macask, providing for habitat conservation, reduced flood risk and safeguarding of water quality.
- The proposed green spine will buffer future residential development from the existing industrial facility (a Seveso site), Grassland Fertilizers.
- Mature hedgerows and treelines will be retained, and a network of green infrastructure created, safeguarding ecological corridors.
- The Masterplan proposals will promote sustainable mobility and reduce through traffic, thereby minimising environmental effects (including greenhouse gas emissions, noise and air quality impacts) associated with vehicles with internal combustion engines.
- Development of the Masterplan lands will incorporate a network of SuDS measures, including bio-retention swales, reducing flood risk and safeguarding water quality.

- The existing ‘Butts’ community will be integrated into the Masterplan area, avoiding community severance that may otherwise arise.

This Masterplan sits at a lower level in the planning and development hierarchy than the *Kilkenny City and County Development Plan 2021 – 2027*. The Masterplan lands are subject to the policies and objectives contained in the Development Plan, as well as the measures set out in the corresponding Natura Impact Report (NIR), SEA Environmental Report / Statement and Site Specific Flood Risk Assessment (SSFRA).

Many of the policies, objectives and development management requirements set out in the Development Plan will have the effect of mitigating the potential environmental effects of future development, as detailed in the SEA Environmental Report (Volume 2).

10 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Loughmacask Masterplan is a stated objective of the *Kilkenny City and County Development Plan 2021-2027* and must be prepared in accordance with the requirements of the development plan. The SEA Statement for the adopted development plan provides (at Section 5 & Table 5) a detailed monitoring programme of the implementation of the Development Plan, which will include the Loughmacask Masterplan. Therefore, separate monitoring of the environmental effects of the implementation of the Masterplan is not required.

11 Conclusion

In summary, the Strategic Environmental Assessment of the Loughmacask Masterplan has concluded that its provisions are not likely to result in significant negative environmental effects. It is considered that the implementation of the Masterplan would constitute a preferable scenario relative to the baseline (i.e. do-nothing) scenario for the Masterplan lands. The implementation of the Masterplan will provide for more coordinated and controlled development of the lands in question, delivering a new residential quarter in Kilkenny City, characterised by sustainable mobility and a connected network of green infrastructure.

While no significant negative effects are predicted, various characteristics of the Masterplan proposals (such as the incorporation of SuDS, retention of mature hedgerows and use of vegetated buffers at Lough Macask and the River Breagagh) will have the effect of avoiding / minimising negative effects. Additionally, the Masterplan lands are subject to the *Kilkenny City and County Development Plan 2021 – 2027*, which contains a range of policies, objectives and development management requirements that will also serve to mitigate potential negative environmental effects of development on these lands.

Monitoring under the scope of the SEA process for the *Kilkenny City and County Development Plan 2021 – 2027* will ensure that any unforeseen adverse environmental effects would be identified early, were they to arise.

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