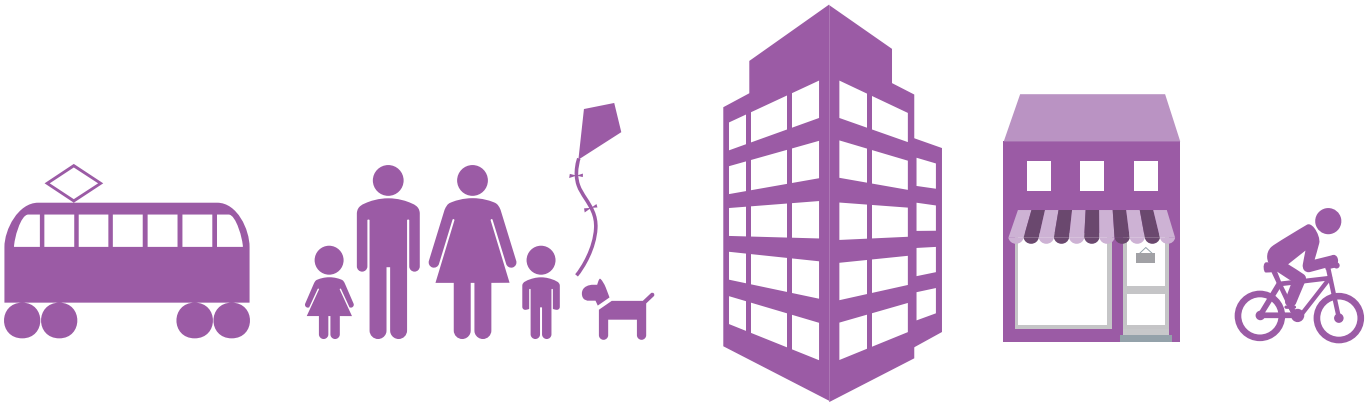
Appendix D

Estuary West Draft Masterplan

Strategic Environmental Assessment (SEA) Environmental Report



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1.0 Non-Technical Summary

1.1 Introduction

Fingal County Council is preparing a non-statutory Masterplan for lands at Estuary West in Swords, County Dublin. The requirement for the preparation of the Masterplan is identified in the Fingal Development Plan 2017-2023, under:

> *"Objective SWORDS 27*
>
> *Prepare and/or implement the following Local Area Plans and Masterplans during the lifetime of this Plan:*
>
> - *…*
> - *Estuary West Masterplan (see Map Sheet 8, MP 8.A)*
> - *…"*

The preparation of the Masterplan is required to undergo Strategic Environmental Assessment (SEA) in accordance with Directive 2001/42/EC *on the Assessment of the Effects of Certain Plans and Programmes on the Environment*[1] (also known as the SEA Directive).

The purpose of the Environmental Report is to evaluate the likely environmental effects of the Draft Masterplan and the alternatives, and their significance evaluated with regard to the environmental baseline. The Local Authority can then provide stakeholders and the public with a clear understanding of the likely environmental consequences of implementing the Draft Masterplan.

The Draft Masterplan and associated SEA Environmental Report will be made available for comment from statutory bodies, the public and interested parties during the public display period. The content of any submissions or observations received as part of the public display / consultation exercise will inform the finalisation of the Masterplan and of the associated SEA process.

This SEA Environmental Report has been prepared on behalf of Fingal County Council by Brady Shipman Martin, Environmental, Landscape and Planning Consultants.

1.2 Steps in the SEA Process

Table 1.1 below highlights the four key stages in the SEA process and the progress made to date:

Table 1.1: 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 ✓

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN

Stage	Description	Status
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.	Current Stage
4. SEA Statement	Summarises the process undertaken and identifies how environmental considerations and consultations have been integrated into the final Plan / Programme.	Next Stage

1.3 Content of Environmental Report

The SEA Environmental Report considers all of the following in accordance with the requirements of the SEA Directive:

1. Biodiversity (Flora & Fauna);
2. Population & Human Health;
3. Soil and Geology;
4. Water Quality;
5. Air, Noise and Climate;
6. Landscape;
7. Material Assets;
8. Cultural Heritage; and
9. Interaction and Cumulative Impacts.

Table 1.2 below summarises the content of the Environmental Report. In the first instance, the Environmental Report details the current condition of the environment of the study area under each of the sub-headings set out above. The Environmental Report also summarised the significant environmental pressures that may affect each of the environmental topics and the current (baseline) condition of the environment.

Table 1.1: Content of the Environmental Report

No.	Section	Description
1	Non-Technical Summary (NTS)	A brief summary of the Environmental Report, its main points and conclusions.
2	Introduction & Background	A description of the Masterplan and a summary of its key policies and objectives.
3	Methodology	The steps taken in preparation of the SEA, including the methods used and technical difficulties encountered.
4	Review of relevant Policies, Plans and Programmes	The relationship of the Masterplan to other relevant plans and programmes is highlighted.
5	Environmental	A description of the current environment of the area of the Masterplan is given, highlighting any existing environmental problems. This exercise results in a

No.	Section	Description
	Baseline	comprehensive baseline against which the likely effects of implementing the Masterplan can be examined.
6	SEA Objectives, Targets & Indicators	A number of environmental protection objectives which have been established at international, EU or national Level and are relevant to the Masterplan are listed. Following this, a description of how the objectives and any environmental considerations have been taken into account in the preparation of the Draft Masterplan is given.
7	Description of Alternatives	An assessment of the proposed alternatives to the Masterplan are considered at this stage.
8	SEA: Estuary West Masterplan	An examination of the Masterplan policies and objectives in terms of their potential effects on the various environmental parameters.
9	Mitigation Measures	Should potentially significant effects be discovered, measures to avoid, reduce or offset these effects are proposed and integrated into the Masterplan.
10	Monitoring Programme	Proposals for monitoring the significant effects of the Masterplan on the environment are put forward. A number of indicators of change and targets are identified and existing monitoring arrangements are utilised.
11	Conclusion	A conclusion with regard to the overall potential impact on the environment resulting from the implementation of the Masterplan.

1.4 Policy Context

The preparation of the Masterplan was considered within the context of a hierarchy of policies, plans and strategies of international, national, regional and local level as detailed in Section 3 of the Environmental Report. Other relevant plans, policies and programmes were considered in this report and are referenced throughout.

1.5 Screening for Appropriate Assessment (AA)

The need for 'Appropriate Assessment' (AA) arises out of Article 6(3) and 6(4) of the Habitats Directive (92/43/EEC) (on the conservation of natural habitats and of wild fauna and flora), which requires that proposed plans and programmes (including amendments or variations) undergo screening for likely or potential effects on European Sites (also Natura 2000 sites) arising from their implementation.

A Screening Stage for AA (Stage 1) was undertaken for the Draft Masterplan. This screening concluded that the Masterplan has the potential to result in significant adverse impacts on European designated sites (*i.e.* Natura 2000 sites). Therefore, a Natura Impact Report (NIR) (Stage 2 AA) has been prepared in parallel with the preparation of the Draft Masterplan and this Report. The findings of the NIR were used to inform the SEA and have been integrated into this Report and the Draft Masterplan.

1.6 SEA Objectives, Targets and Indicators

Strategic Environmental Objectives (SEOs) assist in the prediction, description and monitoring of impacts on the environment as a result of the Masterplan. The SEOs are environmental protection

objectives which have been established at international, EU or national Level, and are relevant to the Masterplan as set out in Section 6 below.

1.7 Alternative Plan Scenarios

Alternatives are essential to the SEA process and are required under the SEA Directive. Consideration of alternatives plan scenarios provides the opportunity to identify and examine the different ways to achieve the Masterplan objectives while taking into account environmental issues.

1.8 Evaluation of Masterplan (Policies and Objectives)

The various key principles, policies and objectives of the Draft Masterplan are assessed against the SEOs for likely significant environmental effect. The assessment is presented in Table 8.1 in Section 8.

1.9 Mitigation Measures

While every effort will be taken to ensure that the impact of the Masterplan on the environment is neutral to positive, certain unavoidable negative impacts may occur as a result of its adoption. This Report details the mitigation measures to reduce or avoid identifiable adverse impacts in Table 9.1 in Section 9.

1.10 Masterplan Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of the Masterplan are monitored in order to identify, at an early stage, unforeseen adverse effects and in order to undertake appropriate remedial action.

The environmental monitoring programme is outlined in Table 10.1 in Section 10 and has been developed based on the SEA Objectives Targets and Indicators presented in Section 6.

2.0 The Draft Estuary West Masterplan

2.1 Introduction

Fingal County Council is preparing a non-statutory Masterplan for c. 19.4 hectares (ha) of land at Estuary West to the north of Swords Town Centre. The area is conveniently located in terms of connections to Swords Town Centre, Dublin Airport as well as Dublin City Centre and the wider area.

The preparation of the Masterplan seeks to provide the optimum future development framework for the lands. The main aim is to establish parameters for the urban design, structure, delivery of community / amenity facilities, access and permeability for development of these lands.

While a Masterplan is a non-statutory plan, its preparation is a requirement of the Fingal Development Plan 2017-2023, under *"Objective SWORDS 27: Prepare and/or implement the following Local Area Plans and Masterplans during the lifetime of this Plan:*

- *Lissenhall East Local Area Plan (see Map Sheet 8, LAP 8.B)*
- *Oldtown / Mooretown Local Area Plan (see Map Sheet 8, LAP 8.C)*
- *Estuary West Masterplan (see Map Sheet 8, MP 8.A)*
- *Estuary Central Masterplan (see Map Sheet 8, MP8.B)*
- *Estuary East Masterplan (see Map Sheet 8, MP 8.C)*
- *Watery Lane Masterplan (see Map Sheet 8, MP 8.D)*
- *Seatown North Masterplan (see Map Sheet 8, MP 8.E)*
- *Seatown South Masterplan (see Map Sheet 8, MP 8.F)*
- *Brackenstown Masterplan (see Map Sheet 8, MP 8.G)*
- *Barryspark Masterplan (see Map Sheet 8, MP 8.H)*
- *Fosterstown Masterplan (see Map Sheet 8, MP 8.I)*
- *Crowscastle Masterplan (see Map Sheet 8, MP 8.J)"*

See Figure 2.1 below (extract from Sheet No. 8 of Fingal Development Plan 2017-2023).

While this SEA Scoping Report applies to the Estuary West Masterplan, it is noted that Fingal County Council is currently progressing a number of these Local Area Plans and Masterplans, including Lissenhall East LAP, Fosterstown Masterplan, and Barrysparks & Crowcastle Masterplan.

2.2 Land Use & Objectives

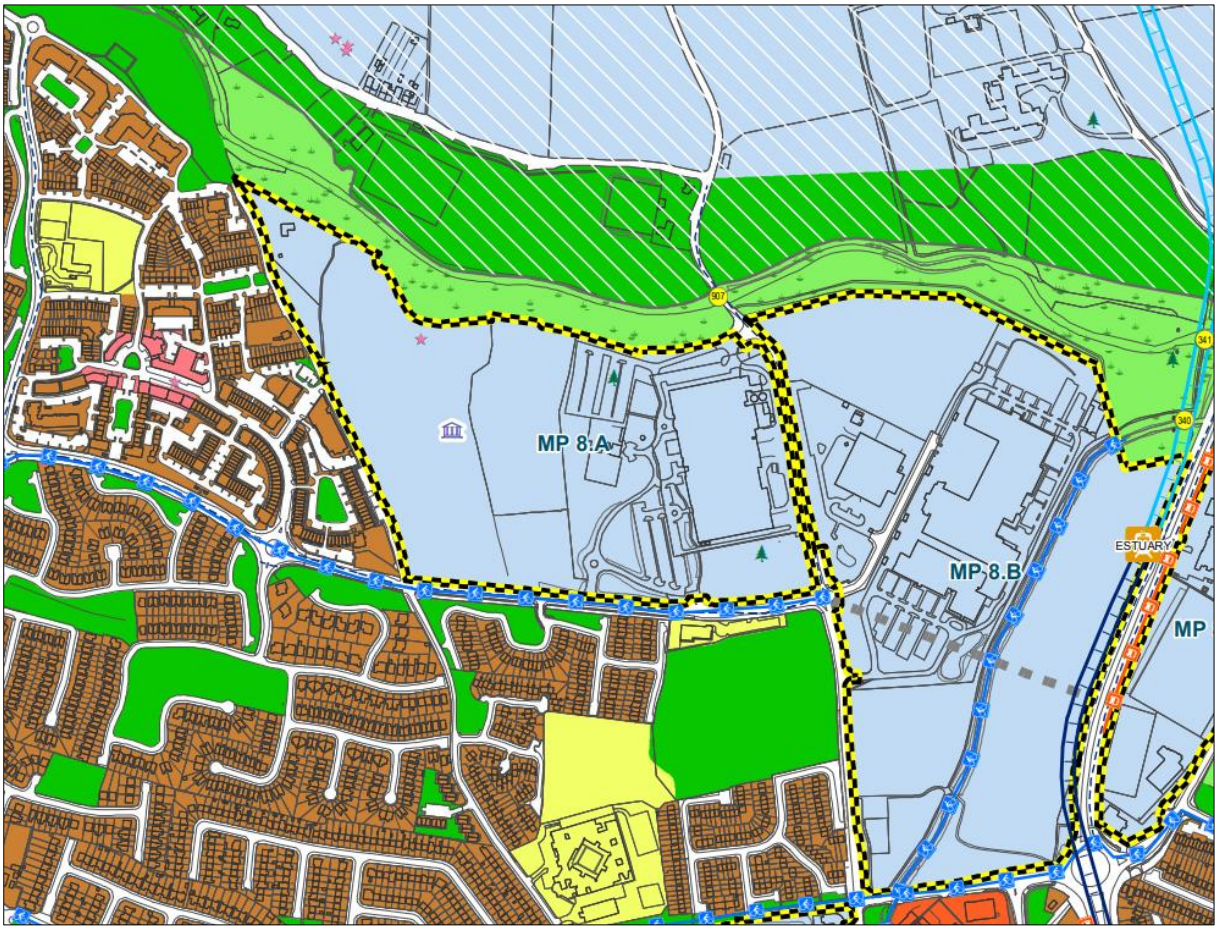
The Estuary West Masterplan lands are zoned:

"*ME – Metro Economic Corridor: Facilitate opportunities for high density mixed use employment generating activity and commercial development, and support the provision of an appropriate quantum of residential development within the Metro Economic Corridor*" (see Figure 2.1).

Lands to the east are also zoned ME and fall within the proposed Estuary Central Masterplan area. To the west and south lands comprise primarily residential (RS) and associated open space (OS) zonings.

Lands to the north follow the corridor of the Broadmeadow River and are zoned HA- High Amenity. Lands on the north side of the river are zoned OS – Open Space and ME - Metro Economic Corridor.

Figure 2.1: Extract from Fingal Development Plan Sheet No. 8: SWORDS indicating location of Estuary West Masterplan lands (MP 8.A)



The following relevant map based objectives are identified on Figure 2.1 above.

Symbol	Description
MP 8.A	Estuary West Masterplan Area (MP 8.A)
	Indicative Route for new Metro North
	Metro Stop
	Quality Bus Corridor
	Indicative Cycle/Pedestrian Route
	Road Proposal
	Proposed School
	Protect & Preserve Trees, Woodlands and Hedgerows
	Recorded Monuments

In discussing the Estuary West Masterplan, Fingal Development Plan highlights (pages 96/97) the following main elements (non-exhaustive) to be included:

- *"Future development shall provide a strong urban edge with attractive elevations which address, overlook and provide a high degree of informal supervision of: the Glen Ellan distributor Road; the extended Broadmeadow Riverside Park and Jugback Lane.*
- *A mixed use Local Services Area shall be provided in the centre of the subject lands close to Newtown House and the stand of mature trees.*
- *Provide for an extension to the Broadmeadow Riverside Park between Jugback Lane and Balheary Road in conjunction with the first phase of the development of the MP lands.*
- *Reserve a School site as required in consultation with the Department of Education and Skills.*
- *Provide for pedestrian and cycle routes within the MP lands: in particular, along a west – east access linking the proposed Local Service Area in the MP lands with Applewood to the west; along the extended Broadmeadow Riverside Park and along Jugback Lane.*
- *Provide for the retention and protection of the mature stands of trees around Newtown House as part of the development.*
- *Provide for buildings to be set back in a landscaped setting from the edge of Jugback Lane.*
- *Protect the residential amenities of existing property adjoining the subject lands.*
- *Retain the rural character of Balheary road north of its junction with Glen Ellan Road.*
- *The Master Plan lands will be subject to a detailed flood risk assessment to address potential flood risk and proposed mitigation measures.*
- *Consult with Health and Safety Authority (HSA) in relation to the designated Seveso site to the south as part of the MP process."*

The following specific objectives of the Fingal Development Plan 2017-2023 also apply to the Estuary West Masterplan lands.

> "*Objective ED90: Prepare and/or implement the following Masterplans during the lifetime of this Plan:*
>
> - *…,*
> - *Estuary West (See Map Sheet 8, MP 8.A)*
> - *…"* (page 239)

> "*Objective ED98: Prepare Local Area Plans and Masterplans within the lifetime of the Development Plan for strategically important Metro Economic zoned lands in collaboration with key stakeholders, relevant agencies and sectoral representatives."*
>
> (page 242)

> "*Objective ED99: Protect the integrity of the Metro Economic corridor from inappropriate forms of development and optimise development potential in a sustainable and phased manner."*
>
> (page 242)

> "*Objective ED100: Ensure high quality urban design proposals within the Metro Economic zoning, incorporating exemplary public spaces, contemporary architecture and sustainable places within a green landscape setting."*
>
> (page 242)

2.3 Pre-draft Consultations

Fingal County Council prepared an information leaflet: '*Estuary West Masterplan Having your Say*' for pre-draft consultation in September 2018. A drop-in information session for members of the public was

held in the County Hall, Swords, on the 13th September 2018 and submissions were invited on or before the 25th September 2018.

Four submissions were received within the given timeframe relating to the pre-draft masterplan for Estuary West. All submissions received are being considered by the planning authority in the drafting of the Masterplan.

2.4 Pre-draft SEA Scoping Consultation

As part of the SEA process, consultation on the content of the Environmental Report was undertaken with environmental authorities, including the EPA, various governmental departments and surrounding local authorities. The SEA Scoping process is discussed in detail in Section 3.4 of this Report.

2.5 Alternatives

The SEA process requires the consideration of 'reasonable alternatives' in terms of possible approaches available in the delivery of the Masterplan. Alternatives, which may include a 'do-nothing' scenario, need to be 'realistic and capable of implementation' and should represent a range of different approaches within the statutory and operational requirements of the Masterplan.

The Masterplan and SEA will identify and assess environmentally sustainable alternatives and will justify the selection of the preferred alternative on environmental grounds. As such, alternatives will be discussed in the formulation of the Plan and assessed against the SEA Strategic Environmental Objectives (SEOs) in order to evaluate their overall potential environmental impact. A discussion of the merits or otherwise of each option will be provided in the Environmental Report and the reasons for the chosen option will be discussed.

Section 7 details the alternatives available and the assessment of this alternatives is outlined in Section 7.4 below.

3.0 Methodology

3.1 Strategic Environmental Assessment (SEA)

SEA is a process for evaluating, at the earliest appropriate stage, the environmental quality and consequences of Plans or Programmes (P/Ps). The purpose is to ensure that the environmental consequences of P/Ps are assessed both during their preparation and prior to their adoption. The SEA process also gives specified environmental authorities, interested parties and the general public, an opportunity to comment on the environmental impacts of the proposed P/P and to be kept informed during the decision-making process.

SEA derives from European Communities Directive 2001/42/EC - Assessment of Effects of Certain Plans and Programmes on the Environment[2] (the SEA Directive). Article 1 of the Directive states that:

> *"The objective of this directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment."*

The SEA Directive was transposed into Irish legislation by the:

- European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004), as amended by European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, (S.I. No. 200 of 2011), and
- Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436/2004), as amended by the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011, (S.I. No. 201 of 2011).

While the latter regulations apply to statutory planning and development plans (*e.g.* County Development Plan, Local Area Plan, *etc.*), the former regulations apply to all plans and programmes:

> *"(a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism and* ***town and country planning or land use****, and which set the framework for future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive,"* (Article 9(1)(a) of S.I. No. 435 of 2011) (emphasis added),

Therefore, Regulations S.I. No. 435 of 2004, as amended by S.I. No. 200 of 2011, apply to the SEA of the proposed non-statutory Masterplan for Estuary West.

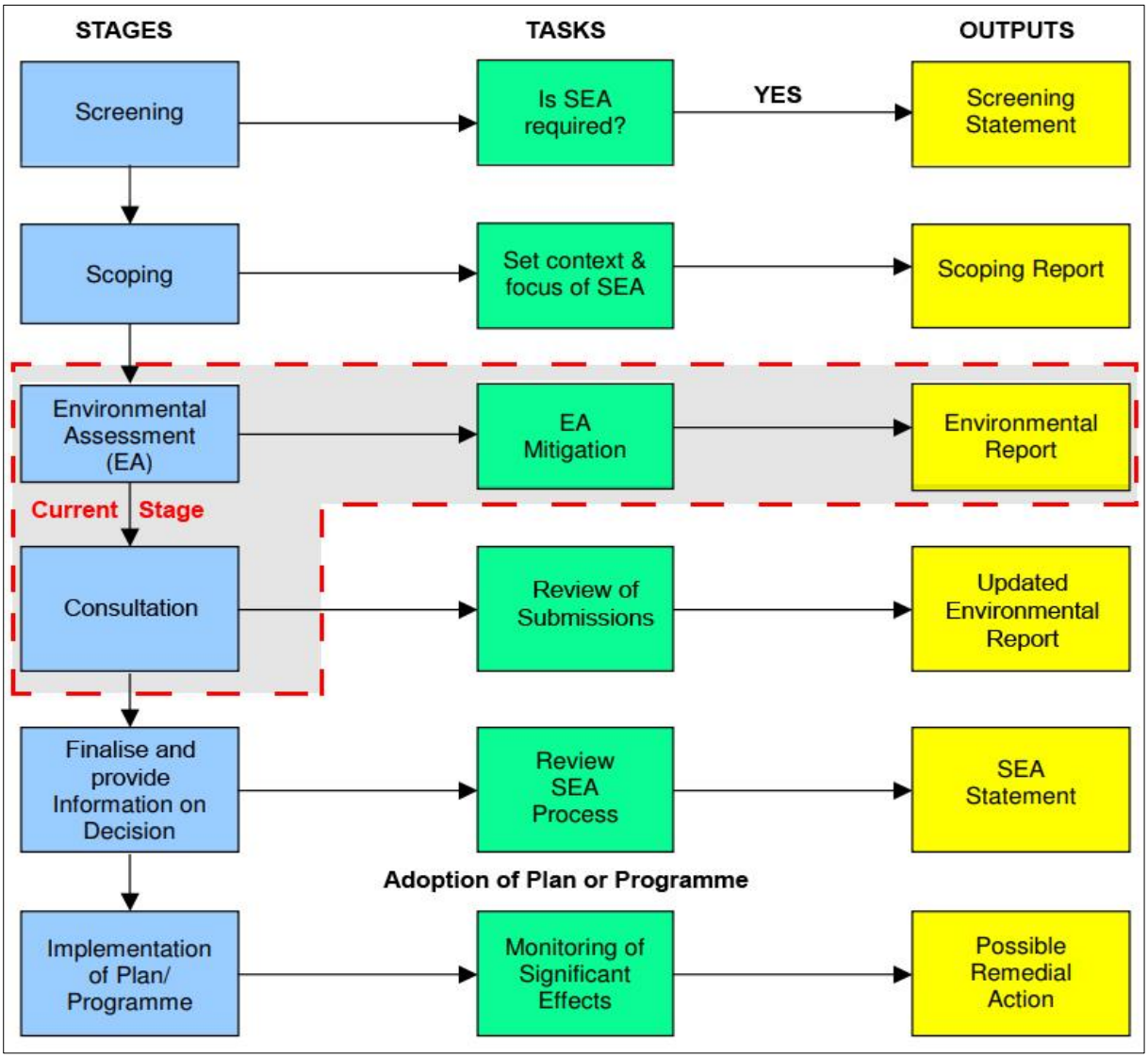
3.2 SEA Stages and Process

The key focus of SEA is to take environmental issues, and in particular '*likely significant environmental effects*' of a Plan / Programme, into consideration during the plan / programme-making process. The SEA process can be defined by four stages, all of which include some level of consultation. The key stages

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN

in the SEA process as they relate to the proposed Masterplan are outlined in Figure 3.1 and in Table 3.1 below.

Figure 3.1: Overview of SEA Process (adapted from the EPA SEA Process Checklist, 2018[3])



[3] EPA SEA Process Checklist: http://www.epa.ie/pubs/advice/ea/SEA%20Process%20Checklist.pdf

Table 3.1: Outline of the SEA Process

Stage	Description	Status
1. Screening	The requirement to undertake a SEA is mandatory for certain Plans or Programmes. Where SEA is not a mandatory requirement, the P/Ps is subject to a 'screening process', to consider if it is *likely to have significant effects* on the environment, and therefore, if SEA is required. Screening of the Plan / Programme is carried out in accordance with Article 9(4) of S.I. No. 435 of 2004, as amended by Regulations S.I. No. 200 of 2011 and with the criteria set out in Schedule 1 of the Regulations. It is noted that in accordance with Circular Letter SEA 1/08 & NPWS 1/08[4], SEA for a Plan / Programme is also a mandatory requirement where the Plan / Programme requires Appropriate Assessment (AA) under Article 6(3) of the Habitats Directive (92/43/EEC[5]).	Completed
2. Scoping	Preparation of a SEA Scoping Report highlighting that the Environmental Report is required to include: ▪ methods of assessment; ▪ contents and level of detail in the Plan / Programme; ▪ the stage in the Plan or Programme-making process; and ▪ the extent to which certain matters are more appropriately assessed at different levels in the decision-making process in order to avoid duplication of environmental assessment. Scoping provides for consultation with the environmental authorities specified in Article 9(5) of S.I. No. 435 of 2004, as amended by S.I. No. 200 of 2011, and the process allows for incorporation of the views of the environmental authorities within the Plan or Programme and the SEA Environmental Report.	Completed
3. Environmental Report	Preparation of a systemic identification and evaluation of alternatives and assessment of the *likely significant environmental* effects of implementing the Plan / Programme. The findings of the assessment, which is carried out at various stages in the Plan / Programme-making (*e.g.* Draft, Amended Draft *etc.*), are provided in the SEA Environmental Report in accordance with Article 12 and Schedule 2 of S.I. No. 435 of 2004, as amended by Regulations S.I. No. 200 of 2011. The output from this stage is an Environmental Report which accompanies the draft Plan / Programme required on public display.	Current Stage
4. SEA Statement	Completion / adoption of final Masterplan, taking account of *likely significant environmental effects*, any submissions or observations received from consultations and integration of mitigation and monitoring measures within the Plan. The Environmental Report is concluded and an SEA Statement is prepared in accordance with Article 16(2)(b) of S.I. No. 435 of 2004, as amended by Regulations S.I. No. 200 of 2011, summarising: ▪ how environmental considerations have been integrated into the Plan / Programme;	To be completed

[4] https://www.npws.ie/sites/default/files/general/circular-sea-01-08.pdf

[5] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043&from=EN

Stage	Description	Status
	▪ how the environmental report, and any submissions or consultations have been taken into account in the preparation of the Plan / Programme; ▪ the reasons for choosing the Plan / Programme; and ▪ the measures decided for monitoring he significant environmental effects of implementation of the Plan / Programme.	

3.3 Screening (Stage 1)

The Draft Masterplan was subject screening for the requirement for AA (see Section 2.4 above) and to screening for the requirement for SEA in accordance with Article 9(4) of S.I. No. 435 of 2004, as amended by S.I. No. 200 of 2011, and the criteria set out in Schedule 1 of the Regulations.

The Screening process concluded that SEA is required for the Draft Masterplan based on:

- the requirement for AA under Article 6(3) of the Habitats Directive; and
- potential cumulative impacts arising from traffic and transportation when the Draft Masterplan is considered in context of other proposed Draft Masterplans and proposed Draft Local Area Plans in the Swords area.

Therefore the Draft Masterplan will be subject to SEA and a SEA Environmental Report (this report) has been prepared to accompany the Draft Masterplan and AA, NIR on public display.

3.4 Scoping (Stage 2)

Scoping 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 within the Plan / Programme and the SEA Environmental Report.

The SEA Scoping Report was issued to the following environmental authorities:

Table 3.2: List of Consultees during the Scoping Stage

Prescribed Environmental Authorities*	Non-Prescribed Environmental Authorities
EPA	Louth County Council
Department of Culture, Heritage and the Gaeltacht	Meath County Council
Department of Agriculture, Food and the Marine	Kildare County Council
Department of Communications, Climate Action and Environment	South Dublin County Council
Department of Housing, Planning and Local Government	Dublin City Council

* *For purposes of consultation under Article 9(5) of S.I. No. 435 of 2004, as amended by Regulations S.I. No. 200 of 2011*

3.4.1 Scoping Submissions & Responses

A submission was received from the EPA. The submission provided information on the SEA process and associated sources of guidance. The submission drew particularly attention to:

- the "State *of the Environment Report Ireland's Environment – An Assessment 2016"* (EPA, 2016), and

- aligning the Draft Masterplan with the national commitments on climate change mitigation and adaptation, as well as relevant sectoral, regional and local adaptation plans.

These aspects have been considered and incorporated into the Draft Masterplan, which references the Fingal Draft Climate Change Action Plan (CCAP), and includes a key principle to:

- *"Ensure the long-term sustainability of the lands in the context of a changing climate and mitigate the resultant risks."* (Section 6 Key Principles, Part A, Draft Masterplan).

3.5 SEA Environmental Report (Stage 3) Current Stage

Stage 3 forms the main written output of the SEA process, the SEA Environmental Report. Consultation submissions from Stage 2 have been taken into consideration at this Stage.

Stage 3 was undertaken in a number of phases, as set out in Table 3.3 below.

Table 3.3: SEA Assessment Stage

Assessment Stage	Description
Consultation & Baseline	Information gathered during the SEA Scoping Stage was collated and expanded upon. This included a review of the findings of the consultation submissions received during the Scoping stage.
Policies, Plans & Programmes Review	A review of relevant national and regional policies, plans and programmes was undertaken both to identify the key environmental issues, to ensure that the objectives set out in the Masterplan meet the requirements of all relevant plans and policies.
Strategic Environmental Objectives (SEOs)	The environmental objectives outlined in the Scoping Report were finalised.
Strategic Environmental Assessment	Using the environmental objectives, the assessment of the potential significant effects associated with the Masterplan (objectives, projects and alternatives to the Plan) was undertaken.
Mitigation Measures	Based on this assessment, and the potential environmental impacts, mitigation and recommendations have been proposed.
Monitoring	The final step is the development of the SEA monitoring framework.

3.5.1 Consultation on the Masterplan and SEA Environmental Report

In line with SEA Regulations, the Masterplan and this SEA Environmental Report is being made available to the public and the stakeholders. Consultation on the Masterplan and this SEA Environmental Report commenced is running for 3 weeks from the 12th March 2019.

3.6 SEA Statement (Stage 4)

During the next stage of the SEA process (Stage 4), Fingal County Council will publish a SEA Statement alongside the final adopted Masterplan setting out how the SEA and any consultation responses have influenced the final Masterplan.

3.7 Appropriate Assessment (AA)

In addition to compliance with the SEA Directive, the preparation and implementation of the draft Masterplan must meet the provisions of Article 6(3) of the EU Habitats Directive (92/43/EEC) for the requirement for AA.

The finding of the Screening process was that taking account of local surface water features and their connection to European sites (Natura 2000 sites) in Malahide Estuary, the potential for impact on a European site cannot be excluded having regard to the precautionary principle.

Malahide Estuary contains two European sites:

- Malahide Estuary Special Area of Conservation (SAC) (Site code No. 000205); and
- Malahide Estuary Special Protection Area (SPA) (Site code No. 004025).

These Sites have been designated for the presence of qualifying interest coastal habitats and special conservation interest wetland bird species. Potential risks to these Sites could arise from construction related run-off affecting water quality in Malahide Estuary and in-turn affecting the designating features of the European sites.

The Draft Masterplan will be subject to "*Stage 2 AA*" as required by Article 6(3) of the Habitats Directive (92/43/EEC) and a NIR will be prepared and accompany the Draft Masterplan and SEA Environmental Report on public display.

3.8 Strategic Flood Risk Assessment (SFRA)

The Draft Masterplan is subject to a Strategic Flood Risk Assessment (SFRA) which addresses the issues of assessment and management of flood risk and surface water in the Plan boundary, see Estuary West Masterplan Storm Water Management Plan which accompanies the Draft Masterplan. The SFRA was prepared in accordance with the requirements of *The Planning System and Flood Risk Assessment Guidelines for Planning Authorities* (Government of Ireland, 2009). Development will generally be prohibited within the 1 in 1000 flood areas.

3.9 SEA Guidance

The SEA Environmental Report will reflect the requirements of Directive 2001/42/EC *on the Assessment of the Effects of Certain Plans and Programmes on the Environment* (the SEA Directive) and the national implementing legislation, S.I. No. 435 of 2004, as amended by Regulations S.I. No. 200 of 2011.

The following principal sources of guidance were used in the SEA process including in the preparation of the Environmental Report:

- Directive 2001/42/EC on the assessment of Certain Plans and Programmes on the Environment.
- Statutory Instrument 435 of 2004 - European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004.
- Statutory Instrument 200 of 2011 - European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011.
- Guidance on Implementation of Directive 2001/42/EC, European Commission, 2004. (http://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf)
- SEA of Local Authority Land Use Plans - EPA Recommendations and Resources. Environmental Protection Agency, Updated 2018.

- Strategic Environmental Assessment (SEA) Pack. Environmental Protection Agency, Updated 2018.
- SEA Spatial Information Sources Inventory. Environmental Protection Agency, 2018.
- SEA Resource Manual for Local and Regional Planning Authorities. Environmental Protection Agency, 2013.
- EPA Mapping. Environmental Mapping / Geographical Information System (GIS) tools are available at: http://gis.epa.ie/SeeMaps
- EPA Water and Air Quality Reports at: http://www.epa.ie/monitoringassessment/
- SEA Spatial Information Sources at: http://www.epa.ie/pubs/advice/ea/
- Developing and Assessing Alternatives in Strategic Environmental Assessment - Good Practice Guidance (http://erc.epa.ie/safer/iso19115/displayISO19115.jsp?isoID=3046)
- Integrating Climate Change into Strategic Environmental Assessment in Ireland - A Guidance Note. Environmental Protection Agency, 2015.
- Circular Letter PL 9/2013: Article 8 (Decision Making) of EU Directives 2001/42/EC on Strategic Environmental Assessment (SEA) as amended. Department of Environment, Community and Local Government, 2013.
- Circular Letter PSSP 6/2011: Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA). Department of Environment, Community and Local Government, 2011.
- Circular Letter SEA 1/08 & NPWS 1/08: Appropriate Assessment of Land Use Plans. Department of Environment, Heritage and Local Government, 2008.
- Integrated Biodiversity Impact Assessment - Streamlining AA, SEA and EIA Processes: Practitioner's Manual. Strive Report Series No. 106. Department of Environment, Community and Local Government, 2013.
- Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment. European Commission 2013.
- Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission, 2000. http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf
- Assessment of plans and projects significantly affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission, 2002. http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf
- Appropriate Assessment of Plans and Projects in Ireland. National Parks and Wildlife Service, 2009. http://www.npws.ie/publications/archive/NPWS_2009_AA_Guidance.pdf

4.0 Review of Relevant Policies, Plans and Programmes

4.1 Planning Hierarchy

Fingal Development Plan 2017-2023, which was adopted in 2017, incorporates *Objective SWORDS 27:* which includes the requirement to prepare the Masterplan for the Estuary West lands.

Notwithstanding the requirement for the Masterplan, the lands are zoned ME – Metro Economic Corridor, which seeks to "*facilitate opportunities for high density mixed use employment generating activity and commercial development, and support the provision of an appropriate quantum of residential development within the Metro Economic Corridor*".

The Development Plan also includes a number of key elements to be included in the Masterplan (see Section 2.2 above). Therefore, some of the key land use and zoning principles for the Masterplan lands have already been set down in the Fingal Development Plan, the making of which was subject to its own SEA and AA process.

The Masterplan will be at the lowest level of plan-making for the subject lands and will be required to have regard to the statutory planning policy framework of the County Development Plan, regional guidelines (including draft Eastern & Midlands Regional Spatial and Economic Strategy (RSES)), and national guidelines, including the National Planning Framework (NPF). The Masterplan will also be required to have regard to European and National environmental legislation, including European Directives, national environmental policy, ministerial guidance, departmental circulars, and general environmental guidance as appropriate. This hierarchy of plans, programmes, policies, strategies, *etc*. sets the legislative and policy framework by which the County Development Plan must be formulated.

A review of higher level plans / programmes will be undertaken as will key environmental legislation which informs the environmental protection policies contained within the Masterplan.

4.2 Interaction with Other Relevant Plans and Programmes

Tables 4.1 and 4.2 below provide a working list of the principal plans and programmes influencing the formulation of the Masterplan policy, either directly or through European, National and / or County level policy.

Table 4.1: Relevant National Plans and Programmes

National & Regional Plans and Programmes	
National Planning Framework (NPF)	Spatial Planning and National Roads Guidelines (2012)
National Development Plan (NDP)	Spatial Planning and National Roads (2012)
Regional Planning Guidelines for the Greater Dublin Area 2010-2022	The Traffic and Transport Assessment Guidelines (2007) and any updated / superseding documents and any forthcoming guidelines in relation to street design and cycling facilities
Draft Regional Spatial and Economic Strategy for the Eastern Midlands Assembly	National Greenway Strategy
Design Standards for New Apartments - Guidelines for Planning Authorities (March 2018)	Architectural Heritage Protection Guidelines for Planning Authorities (2011)
Urban Development and Building Heights - Guidelines for Planning Authorities' (December 2018)	National Mitigation Plan 2017

National & Regional Plans and Programmes	
Our Sustainable Future - A Framework for Sustainable Development for Ireland (2012)	Sectoral Climate Change Adaption Strategies and Low Carbon Roadmaps
Delivering Homes, Sustaining Communities, (2007)	National Policy Position on Climate Action and Low Carbon Development
Rebuilding Ireland: Action Plan for Housing and Homelessness - 2016	The National Renewable Energy Action Plan
Ireland's Environment - An Assessment 2016	The National Broadband Plan
National Biodiversity Action Plan 2017-2021	National Energy Efficiency Action Plan
Heritage Ireland 2030	National Landscape Strategy
Transport 21, as superseded by the Department of Public Expenditure and Reform document titled Infrastructure and Capital Investment 2012-2016	Eastern Midlands Region Waste Management Plan 2015-2021
A Sustainable Transport Future - A New Transport Policy for Ireland 2009-2020	Water Services Strategic Plan / Capital Investment Programme (Irish Water)
Smarter Travel, A Sustainable Transport Future, A New Transport Policy for Ireland 2009-2020	The Planning System and Flood Risk Management (2009)
Transport Strategy for the Greater Dublin Area 2016-2035	National CFRAMS Programme
Ireland's First National Cycle Policy Framework 2009	River Basin Management Plan for Ireland
Design Manual for Urban Roads and Streets (2013)	Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study

Table 4.2: Relevant Local Plans and Programmes

Local Plans and Programmes	
Fingal Development Plan 2017-2023	Your Swords - Strategic Vision 2035
Fingal County Council Corporate Plan 2015-2019	The Fingal Tourism Strategy 2015-2018
Fingal Local Economic Community Plan 2016-2021	Fingal Heritage Plan 2011-2017
Fingal Biodiversity Action Plan 2018-2023	South Fingal Fringe Study

Furthermore, there is a legislative framework for the protection of the environment and our natural resources. Where relevant these aspect will be referenced and discussed in terms of their inclusion in the process of preparing the Masterplan. Table 4.3 below provides a list of the principle legislative framework.

Table 4.3: Legislative Framework

Legislative Framework	
Planning and Development Act 2000, as amended	Water Framework Directive (WFD) (2000/60/EC)
Planning and Development Regulations 2001, as amended	Renewable Energy Directive (2009/28/EC) & EU Directive 2001/77/EC
Strategic Environmental Assessment Directive 2001/42/EEC	Flood Directive (2007/60/EC)
Habitats Directive 92/43/EEC	Bathing Water Directive (2006/7/EC)

Legislative Framework	
Directive 2009/147/EC on the Conservation of Wild Birds, 1979	Groundwater Directive (2006/118/EC)
European Communities (Birds and Natural Habitats Regulations) 2011 (S.I. No. 477 of 2011)	EU Renewable Energy Road Map
Environmental Impact Assessment Directive 2011/92/EU as amended by 2014/52/EU	EU Landfill Directive 1999/31/EC
Waste Framework Directive (2008/98/EC)	Renewable Energies in the 21st Century: Building a More Sustainable Future
Urban Wastewater Directive (91/271/EEC)	The Water Services Act (2007 & 2013)
Drinking Water Directive (98/83/EC)	European Landscape Convention 2000
Environmental Noise Directive (2002/49/EC)	The National Monuments Act 1930-2004
Environmental Liability Directive (2004/35/EC)	Wildlife Acts 1976-2000
EU 2020 climate and energy package	Roads Act 1993, as amended
Fourth Daughter Directive (2004/107/EC)	

5.0 Environmental Baseline

5.1 Introduction

Baseline data assists in assessing the current state of the environment, facilitating the identification, evaluation and subsequent monitoring of the effects of the Plan. Thus, this information creates a platform whereby existing issues relevant to the Masterplan area can be quantified, where possible, or qualified thereby ensuring that the implementation of the Masterplan does not exacerbate identifiable problems.

Baseline data was collected for the various environmental receptors described in the SEA Directive *i.e.* biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage including architectural and archaeological heritage and landscape. An overview of the various receptors and the issues of concern raised at the initial public consultation phase of the Plan's preparation is provided in this Environmental Report.

The SEA Directive requires that information is provided on "*any existing environmental problems which are relevant to the Plan or programme*". Information is therefore provided on existing environmental problems, which are relevant to the Masterplan, thus helping to ensure that the Plan does not exacerbate any existing environmental problems in the study area.

It is noted that the Masterplan is included within Fingal Development Plan 2017-2023, which was subject to its own SEA[6] process.

The headings provided are in accordance with the legislative requirements of the SEA Directive. An emphasis is placed on the strategic elements of each aspect and where potentially relevant to the Masterplan. The topics addressed are:

- Biodiversity (Flora & Fauna);
- Population & Human Health;
- Soil & Geology (incl. land use);
- Water Quality;
- Air, Noise & Climate;
- Cultural Heritage;
- Landscape;
- Material Assets;
- Architectural, Archaeological & Cultural Heritage; and
- Interaction & Cumulative Impacts.

5.2 Biodiversity (Flora & Fauna)

Biodiversity plays a significant role in the provision of clean air, water, healthy soils and food as well as visually contributing to a plan area with its natural beauty and heritage. The natural heritage of County Fingal is an important asset and a unique resource that includes marine, coastal, terrestrial, wetland, freshwater and upland habitats.

[6] http://www.fingal.ie/media/SEA%20Statement_web.pdf

The lands are located to the north of Swords Town Centre and are bounded by the Glen Ellan Road to the south, Jugback lane to the west, the Broadmeadow River (IE_EA_08B020800) to the north, and the National Archives building to the east. Presently the land consists mostly of disused agricultural land, where some clearance has occurred. Existing hedgerows surround the lands with a scattered hedgerow bisecting the lands running north/south.

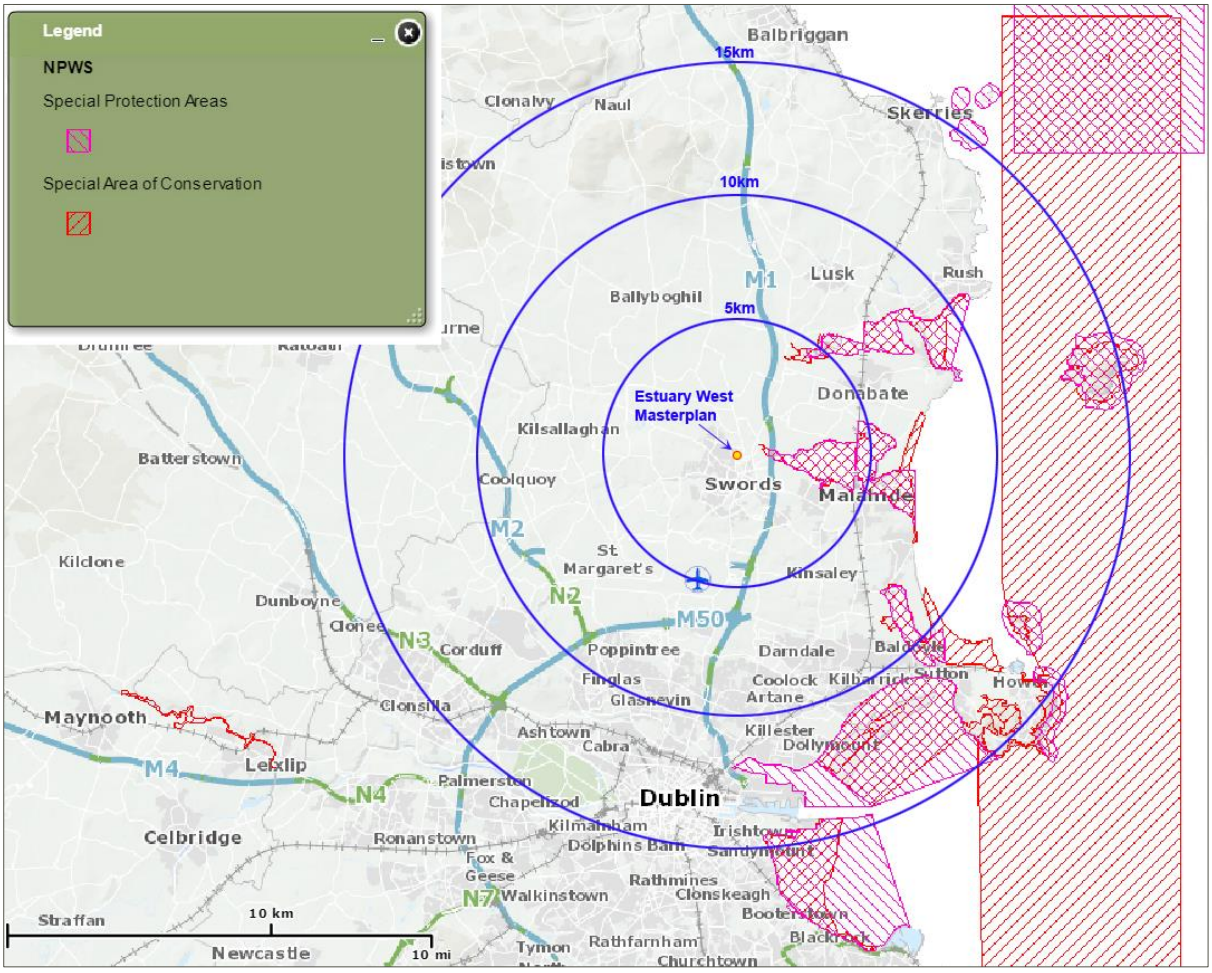
The northern boundary is adjacent to Broadmeadow River, which discharges to the protected Broadmeadow Water transitional waterbody (IE_EA_060_0100) to the east. The Broadmeadow Water transitional waterbody, is designated as a Special Area of Conservation (SAC) and a Special Protection Area (SPA) forming part of the Natura 2000 network of European sites. The designated area of the Broadmeadow Water transitional waterbody is c.0.9km east of the Masterplan Site.

All designated European sites located within 15km of the Masterplan lands are listed in Table 5.1 and Figure 5.1 below.

Table 5.1: European Sites within a 15km buffer of the Masterplan Site

European Sites within a 15km buffer of the Site			
Site Code	SPA – Site Name	Site Code	SAC – Site Name
004025	Malahide Estuary	000205	Malahide Estuary
004015	Rogerstown Estuary	000208	Rogerstown Estuary
004016	Baldoyle Bay	000199	Baldoyle Bay
004069	Lambay Island	000204	Lambay Island
004117	Ireland's Eye	002193	Ireland's Eye
004006	North Bull Island	000206	North Dublin Bay
004113	Howth Head Coast	000202	Howth Head
004024	South Dublin Bay and River Tolka Estuary	003000	Rockabill to Dalkey Island
004122	Skerries Islands		

Figure 5.1: European Sites within 5km / 10km / 15km of the Masterplan Site



Conservation objectives for SACs and SPAs have been set for the habitats and species for which the sites have been selected. Site specific detailed conservation objectives are available on the NPWS website[7]. Any potential for impact on European sites will be fully addressed in the NIR that will accompany the Masterplan and SEA Environment Report on public display.

5.2.1 Nationally Designated Sites

Nationally Designated Sites include Natural Heritage Areas (NHA) which are legally protected areas that are considered important for their habitats or which holds species of plants and animals whose habitat needs protection. Proposed Natural Heritage Areas (pNHAs) are also of significance for wildlife and habitats but have not yet been statutorily designated. However, under the Wildlife Amendment Act (2000) NHAs are legally protected from damage from the date they are formally proposed for designation.[8] Further protection can be afforded to these areas by including appropriate protective measures in the Fingal County Development Plan.

[7] NPWS website: https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives.

[8] NPWS website: https://www.npws.ie/protected-sites/nha

There are no national designated biodiversity sites on or adjoining the Masterplan Site and there is no national designated NHA within 5km of the Site. The lands are located south of the Broadmeadow River and Malahide Estuary, c.0.9km east of the Site, is designated as a pNHA.

There are a number of additional pNHAs within 5km of the Masterplan lands as noted in Table 5.2 below.

Table 5.2: Proposed Natural Heritage Areas (pNHAs) within a 5km buffer of the Masterplan Site

Site Code	Special Protection Area (SPA)
000205	Malahide Estuary
001208	Feltrim Hill
001763	Sluice River Marsh
000199	Baldoyle Bay

5.2.2 Natural Reserves

Other nature conservation designations in Fingal are Statutory Nature Reserves, which are protected under Ministerial order. There are four Statutory Nature Reserves in County Fingal – the nearest of which (Baldoyle Bay) is over 4km from the Masterplan Site.

1. Baldoyle Bay;
2. North Bull Island;
3. Rockabill Island; and
4. Rogerstown Estuary.

5.2.3 National Biodiversity Action Plan (NBAP)

The National Biodiversity Action Plan (NBAP) for Ireland provides a framework for government, civil society and private sectors to track and assess progress towards Ireland's Vision for Biodiversity over a five-year timeframe from 2017 to 2021. When developing the Masterplan, it is important to consider measures to enhance ecological biodiversity as outlined in the *National Biodiversity Action Plan 2017-2021.* NBAP targets relevant to the Plan are listed below:

- Enhance appreciation of the value of biodiversity and ecosystem services;
- Optimise opportunities under agriculture and rural development, forestry and other relevant policies to benefit biodiversity;
- Aim to reduce principal pollutant pressures on terrestrial and freshwater biodiversity;
- Optimise benefits for biodiversity in Flood Risk Management Planning and drainage schemes;
- Promote the control of non-native invasive species; and
- Promote sustainability in the aquaculture industry.

The *Fingal Biodiversity Action Plan 2010-2015* has been prepared to address the way in which wildlife resources of the County, including native plants, animals and the ecosystems, will be managed and protected over the five year period of the Plan. This plan shares the goals of the Convention on Biological Diversity and the National Biodiversity Plan, and translates them into actions at a local level. The Plan sets out the following objectives:

- To maintain, and where practicable enhance, the wildlife and habitats that give Fingal its character and natural diversity.
- To ensure that (inter)national targets for sites, species and habitats are translated into effective action at local level.
- To develop effective partnerships to ensure that programmes for biodiversity conservation are maintained in the long-term.
- To raise public awareness and encourage involvement in biodiversity action by the wider community.
- To increase our knowledge and understanding of biodiversity through ecological research.
- To ensure the full integration of biodiversity into Fingal County Council's policies and programmes as part of sustainable development in Fingal.

5.2.4 Ramsar sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention. There are four Ramsar sites located in County Fingal; Baldoyle Bay, North Bull Island, Broadmeadow Water / Malahide Estuary and Rogerstown Estuary. Relevant authorities are expected to manage their Ramsar Sites so as to maintain their ecological character and retain their essential functions and values for future generations. The Broadmeadow Water / Malahide Estuary is c.1km east of the Masterplan Site.

5.2.5 Ecological Networks and Connectivity

While the Green Infrastructure Maps from the Fingal Development Plan (sheets 14, 15, & 16) do not highlight any ecological features on the Masterplan, ecological networks are important in connecting areas of local biodiversity with each other and with nearby designated sites so as to prevent islands of habitat from being isolated entities. The Masterplan will be required to have due regard to such features in the making of the plan.

5.2.6 Invasive Species

Invasive species constitute a threat to biodiversity and eco-systems and can have economic costs. In Ireland, there are currently 377 recorded non-native species and 342 non-native 'potential Invaders', 66% are considered to have a low impact risk, 21% to have a medium impact risk and 13% have a high impact risk. The majority of invasive species in Ireland are plants, however, there is potential for rising trends of invasive vertebrate and invertebrate species.[9]

In Fingal, the problem with invasive species is mainly limited to alien plants species that grow in and along some of our woodlands, heathland and watercourses. Japanese Knotweed (*Fallopiajaponica*), Himalayan Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*) are occasionally found along watercourses, completely taking over areas of the riverbank. Landowners are responsible for preventing the spread of Japanese Knotweed on their own land.

5.2.7 Biodiversity Issues

Ireland is currently experiencing a decline in floral and faunal populations. Implementation of measures to achieve the requirements of the Habitats Directive and the objectives of the WFD are likely to benefit protected sites in the future.

[9] O'Flynn, C., Kelly,J. and Lysaght,L.(2014).Ireland's invasive and non-native species–trends in introductions. National Biodiversity Data Centre Series No. 2.

There is a potential to impact on the integrity of the **Natura 2000 sites** located to the north of the Masterplan Site, namely the Malahide Estuary SPA and Malahide Estuary SAC.

Construction works have the potential indirect impacts on the Natura 2000 sites and their qualifying features of interest. Potential impacts include habitat loss or degradation as well as disturbance to habitats, species and ecosystem dynamics.

There is a potential to impact on **water quality** as a result of the activities associated with the implementation of the Masterplan. Contamination may arise through poor working practices, leakages or accidental spillage of materials if efficient pollution control measures are not fully implemented and maintained during the lifetime of the Masterplan.

5.3 Population & Human Health

5.3.1 Population

The administrative area of Fingal covers over 450km^2 and includes 88km of scenic coastline. The County stretches from the River Liffey and the Dublin City boundary in the south to the Meath boundary north of Balbriggan, and eastwards from the coast to the Meath and Kildare boundaries in the west. Fingal has the youngest population in the State (total population, 296,214 in 2016 Census). The Census results for 2016 show that the settlement of Swords had a population of 39,248 in April 2016 compared to 36,924 in April 2011, *i.e.* a change of 2,324 persons or 6.3%. This accounts for 0.8% of the national population of 4,857,000 persons. The results of Census 2016 indicates that population growth in County Fingal was 6.3% since 2011, the fourth highest in the state[10].

Figure 5.2 below shows the population change per electoral division (ED) in Swords, between 2011 and 2016. Together these figures provide a clear indication of the distribution of population within the area. Only 1 No. ED (037 Swords-Glasmore) in County Fingal has experienced population decline (-0.48%). An overall pattern of growth can be seen more widely in Fingal and in the Swords area.

The age structure of the population of Fingal reflects the future housing requirements, school requirements and community services. Figure 5.4 below shows the number of people within each age cohort for 2011 and 2016. An overall population increase is evident in many age cohorts with the exception of 0-4 and 20-34. The drop in the age cohort from 20 to 34 years may be a side effect of the economic downturn and consequent potential outward migration from the county. It is likely that the drop in the 0-4 group is attributed to the reduced population within the 20-35 cohort.

The increased numbers in the age cohort of 5 to 19 year olds reflects a more immediate requirement for additional primary and secondary school places. The increase in the older population will also have long-term implications relating to health and social service needs.

[10] Census 2016 viewer: http://airomaps.nuim.ie/id/Census2016/

Figure 5.2: Population density in the Swords area (Location of the Masterplan Site indicated in red)

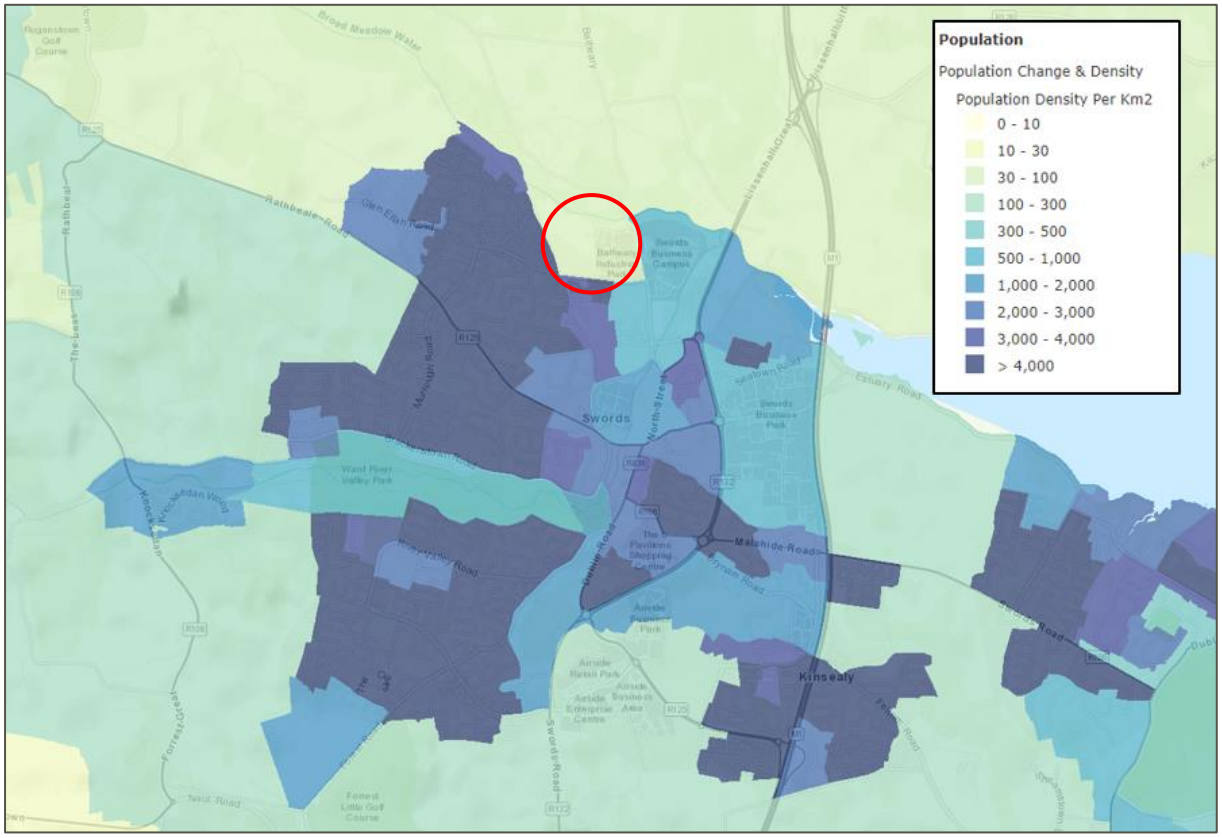


Figure 5.3: Population change per Electoral Division (ED) in Swords. (Location of the Masterplan Site indicated in red)

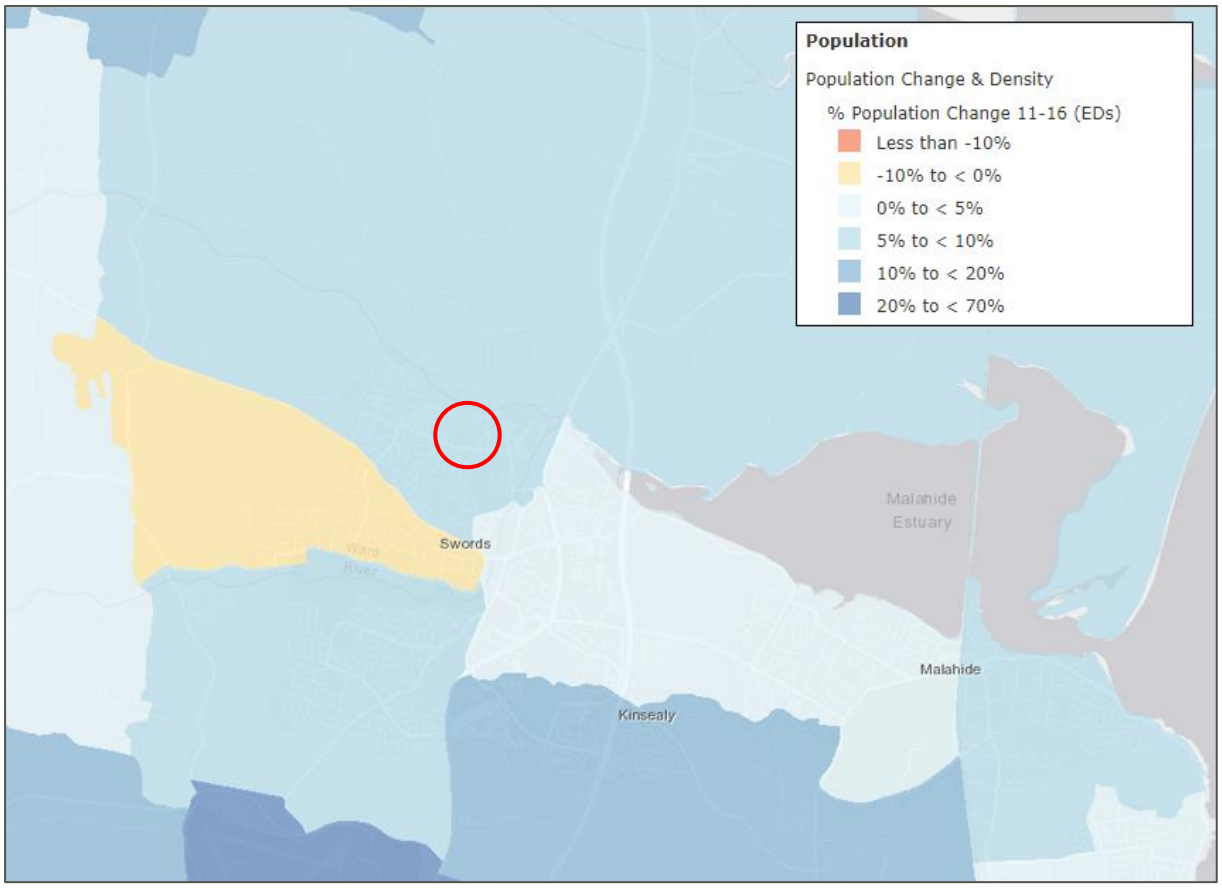
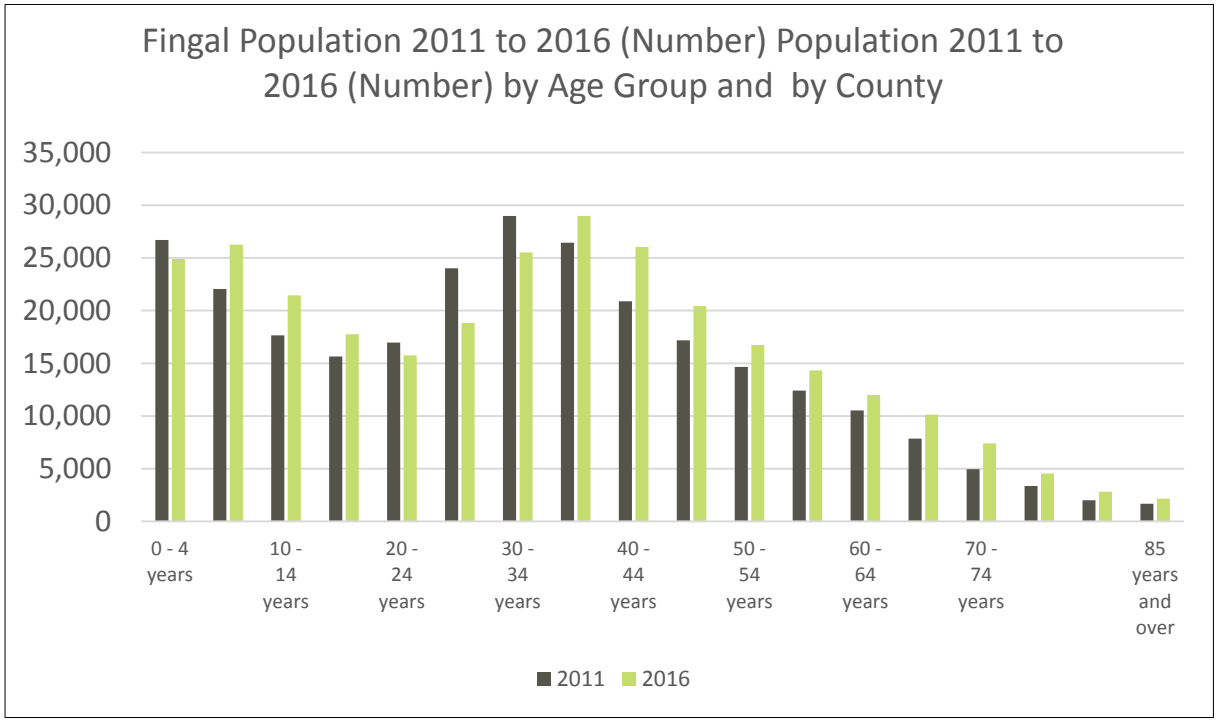


Figure 5.4: Population Change in Fingal between 2011 and 2016 (CSO, 2018)



5.3.2 Housing

The Planning and Development Act (PDA) places a statutory obligation on planning authorities to ensure that an adequate housing supply and sufficient lands for residential development are provided through the course of the Development Plan.

According to the Census 2016, there is a total housing stock of 2,003,645 in Ireland. Based on the occupancy status of each property on census night this can be broken down into four main categories: occupied (1.7m or 85.2%), temporarily absent (50k or 2.5%), vacant (183k or 9.1%) and holiday homes (62k or 3.1%). Overall Fingal has one of the lowest levels of vacancy in the country at 4.7%.

A Housing Strategy is included within the Development Plan in accordance with the requirements of the Planning and Development Act (as amended) which sets out the overall framework for the supply of land to meet the housing needs of the county. This includes an assessment of the housing requirements of the different categories of household, including the requirements of elderly persons and persons with disabilities.

It is noted that the current zoning also allows for the "*provision of an appropriate quantum of residential development within the Metro Economic Corridor*".

5.3.3 Tourism

Tourism has been identified as one of the country's most important economic sectors and is credited with playing a significant role in the economic recovery in recent years. Tourism is particularly important in that it can assist in providing business and employment opportunities across regions and leads to jobs across the spectrum of skills requirements. In 2015 the national policy framework for the tourism sector, *People, Place and Policy: Growing Tourism to 2025*, was published with a strong focus on developing the sector to attract ten million overseas visitors, create a range of direct and indirect enterprise opportunities and to grow employment in the sector to 250,000 persons by 2025.

The quality and diversity of Fingal's tourism offer is particularly strong in relation to the Council-owned Heritage Properties such as Malahide Castle and Gardens, Fingal's top visitor attraction; Council-operated events such as the Flavours of Fingal County Show in Newbridge Demesne; and Council-supported events such as the international Test Cricket Match in Malahide Castle.

5.3.4 Human Health

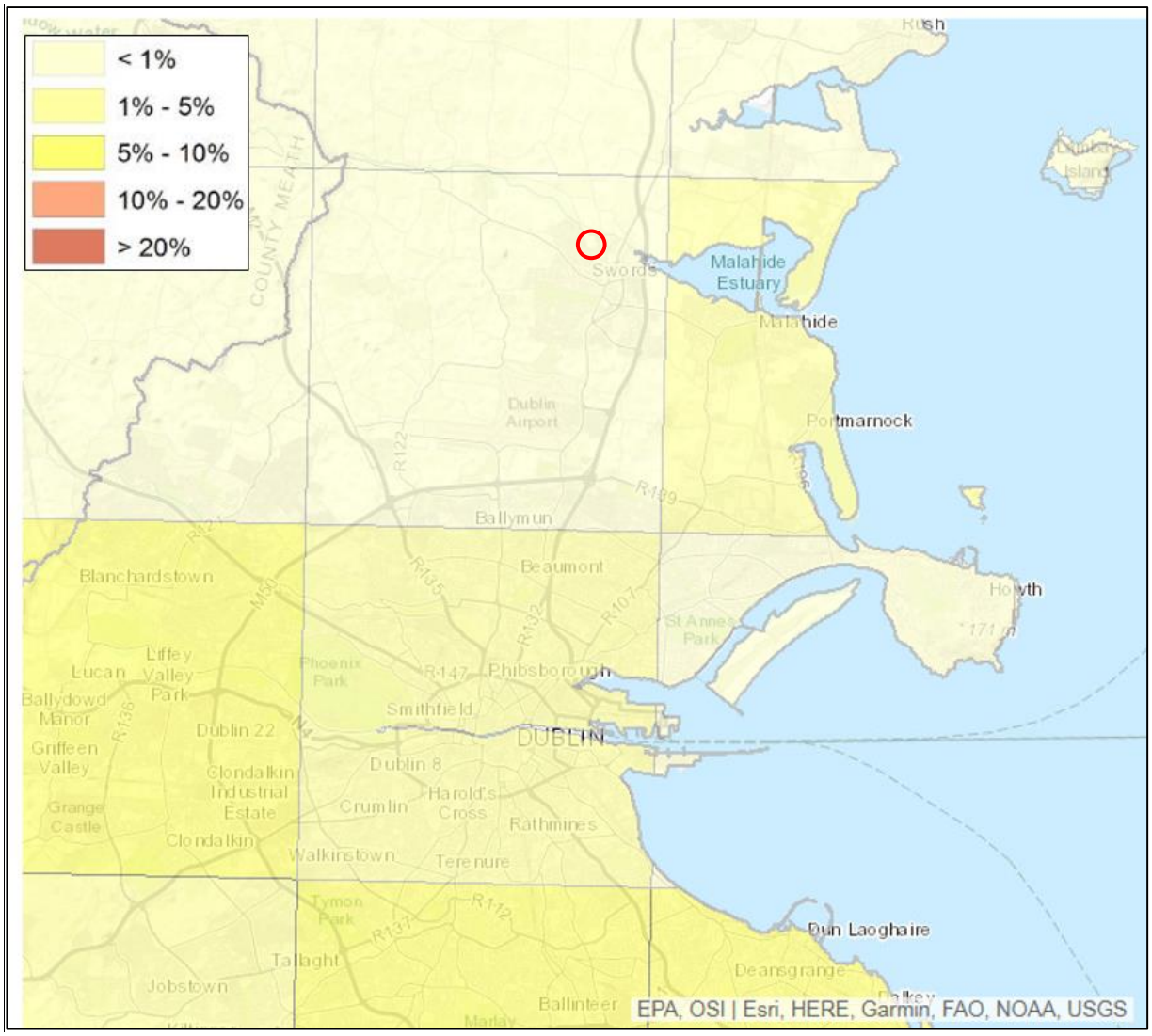
Human health has the potential to be impacted upon by environmental factors such as air, water or soil through which contaminants could accumulate and have potential to cause harm through contact with human beings. Hazards or nuisances to human health can arise due to exposure to these vectors, for example arising from incompatible adjacent land uses. The impact of development on human health is also influenced by the extent to which new development is accompanied by appropriate infrastructure and the maintenance of the quality of water, air and soil.

5.3.5 Radon & Human Health

Radon is a radioactive gas, which is naturally produced in the ground from the uranium present in small quantities in all rocks and soils. Tiny radioactive particles are produced by the gas which when inhaled can cause lung cancer. The risk of contracting lung cancer as a result of Radon depends on how much Radon a person has been exposed to over a period of time. Radon levels in the county have been collated from the Radiological Protection Institute of Ireland and are shown in Figure 5.5 below. The

Swords are has a relatively low radon level at less than 1%. However, a high radon level can be found in any home in any part of the country[11].

Figure 5.5: Radon Levels in Swords / North Dublin area. (Location of the Masterplan Site indicated in red)



5.3.6 Population & Human Health Issues

The development of the Masterplan Site will bring new opportunities to the local community and beyond for employment opportunities as a result of both direct and indirect impacts of the Masterplan.

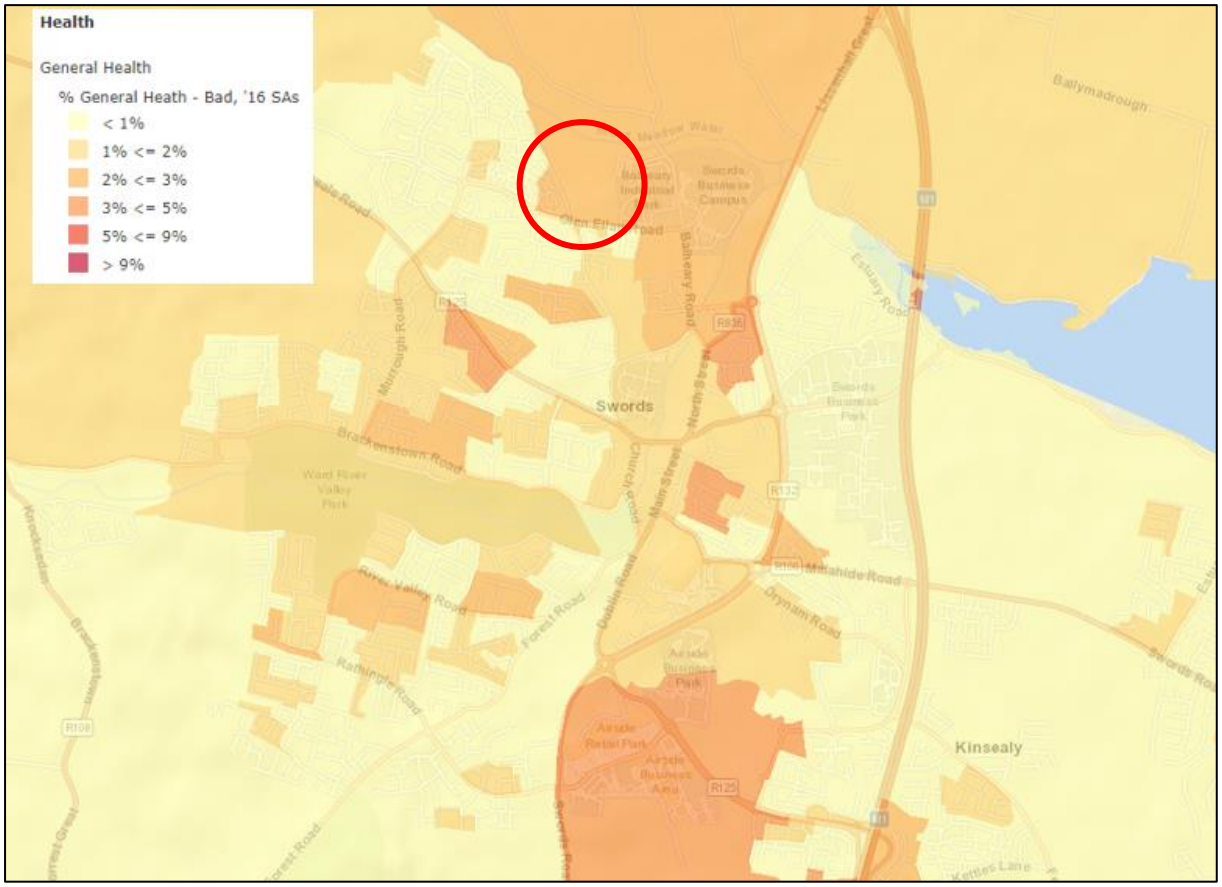
There is a limited potential for short-term disturbances to the local community / residential areas during the construction phase as a result of construction-related noise and traffic increases.

Ensuring the health and wellbeing of all residents, workers and visitors should be a priority. This should be included in the vision of the Plan. Development of family friendly towns and villages that cater for the needs of everyone with access to community facilities, housing, education and public transport is fundamental to the overall well-being of the population.

[11] EPA website: http://www.epa.ie/radiation/radonmap/

Results of a national health survey are shown on Figure 5.6 below. Studies of general health in Swords indicate there are very few areas which more than 5% of the population consider their health as bad[12].

Figure 5.6: Results of national health survey. (Location of the Masterplan Site indicated in red)



5.4 Soils & Geology

The upper most layer of the earth's surface is generally termed "Soil". It comprises for the most part organic matter, minerals and fine to course grained weathered rocks. The variability in the constituent parts and the percentage content of each in the soil matrix results in differing characteristics. This has implications for suitable land use and the appropriateness for differing land use practices.

Geology encompasses the understanding and study of the solid and liquid matter that constitutes the earth and the processes by which they are formed, moved and changed. Its understanding is necessary to fully appreciate the geological factors that shape and influence the world and its particular structure.

5.4.1 Soils

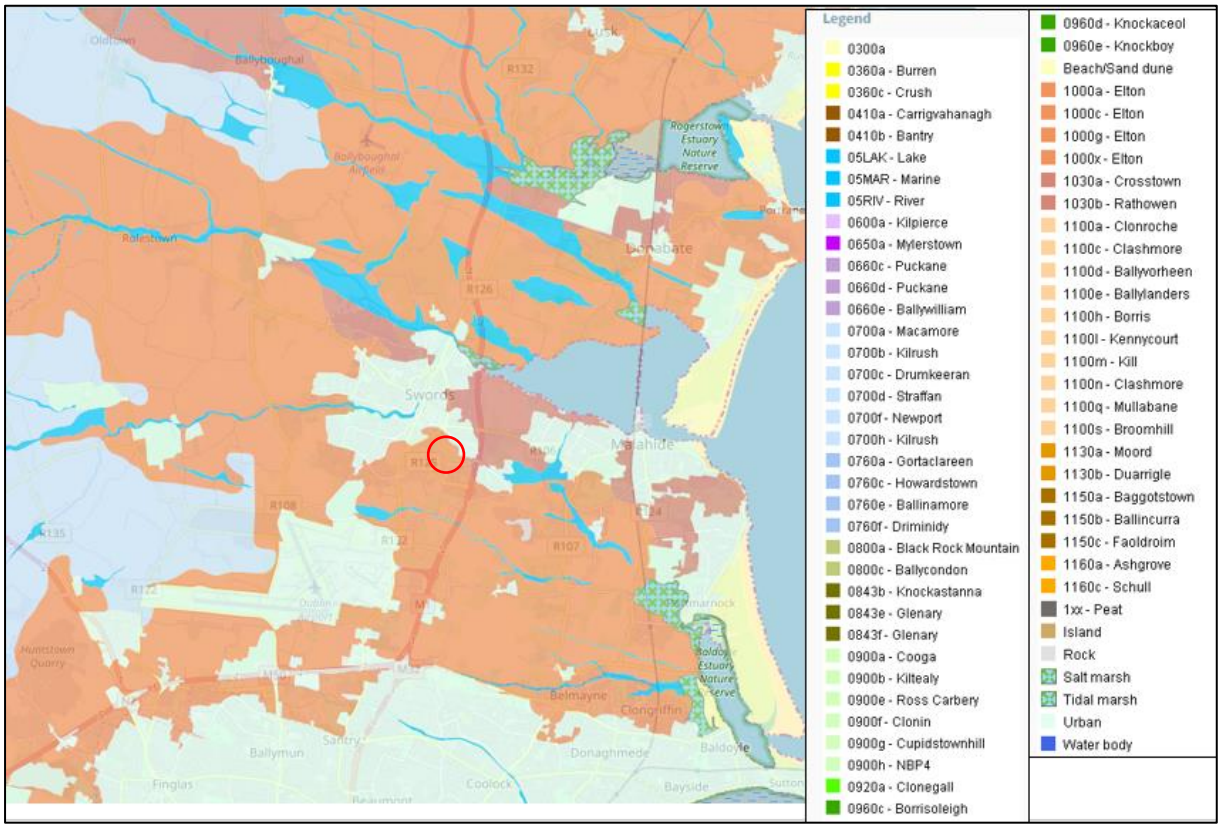
Soil is a non-renewable resource that performs many vital functions: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Such functions of soil are worthy of protection because of their socio economic as well as environmental importance.

[12] http://airomaps.nuim.ie/id/Census2016/

County Fingal contains a range of soils (see Figure 5.7) that support various habitats and land uses and provide valuable mineral resource potential. Fertile soils also provide the basis for a thriving agricultural and food sector.

The soils beneath the Masterplan Site are derived from mainly derived from calcareous parent materials (BminDW) to the south, Made /Built land (Made) to the east and Mineral alluvium (AlluvMIN) [13] to the north of the Site.

Figure 5.7 Soil Mapping for Swords. (Location of the Masterplan Site indicated in red) (EPA, 2019)



5.4.2 Geology

The Geological Survey of Ireland (GSI) provides information available on bedrock, subsoil, aquifer classifications and vulnerability. Fingal is a place with a subtle but distinctive landscape compared to other parts of Ireland. The bedrock foundation, with hundreds of millions of years in the formation and shaping, and the more recent history of geomorphological processes involving river channels and glaciers are what have created the underlying geological diversity, or geodiversity. Geological understanding and interpretation is best achieved on the ground at sites where rocks and landforms are displayed. Fingal has a range of such natural and man-made sites.[14]

The Masterplan Site is underlain by the Malahide Formation (CDMALH) which comprises of Argillaceous bioclastic limestone, shale. The lower part of the formation is composed of calcareous shales, siltstones and sandstones, and occasional thin limestones at its base. These are followed by cyclical, peloidal and oncolitic, peloidal, occasionally nodular micrites and thin intraclastic.

[13] GSI Spatial Resources: https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228

[14] https://jetstream.gsi.ie/iwdds/delivery/GSI_Transfer/Geoheritage/Fingal_Audit.pdf

The Geological Survey of Ireland (GSI) has identified 21 County Geological Sites in Fingal which are important Irish Geological Heritage (IGH) sites. Some of these sites may be designated, in due course, as National Heritage Areas (NHAs) because of their geological interest from a national perspective. None of these sites are located on or adjoining the Masterplan Site.

The nearest IGH site is Feltrim Quarry (IGH 13) (Exposed faces of Lower Carboniferous limestone, shale (Waulsortian mudmound), locally fossiliferous), c.3.5km to the southeast of the Masterplan Site.

5.4.3 Soils & Geology Issues

Any development will need to ensure appropriate management measures are in place.

The mismanagement of construction activities such as concrete handling, oil refuelling and extractions / excavations has the potential to disturb, contaminate and pollute underlying soils. Mitigation measures will ensure that adverse impacts on soils and geology will be avoided and / or minimised during the life of the Masterplan.

5.5 Water

Water is fundamental to all life; for humans, plants and animals alike. It is also critical in economic terms in generating and sustaining wealth in a number of key areas such as agriculture, fishing, power generation, industry, transport and tourism. However, it is also a fragile resource requiring continued protection. In general terms Ireland's waters are of good quality, however preserving the high standard of water is essential for human health and the natural environment.

For the purposes of this section, the water environment is taken to include natural features such as lakes, rivers, streams and groundwater. In addition flooding is also dealt with in this section. Wastewater treatment and drinking water are discussed under Material Assets in Section 5.9 below.

5.5.1 The Water Framework Directive (WFD)

The EU Water Framework Directive (2000/60/EC) establishes a framework for the protection of both surface water and groundwater. Since 2000, Water Management in the EU has been directed by the Water Framework Directive (WFD) 2000/60/EC, which was transposed into Irish law under the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003). This legislation requires governments to take a holistic approach to managing all their water resources based on natural geographic boundaries, i.e. the river catchment or basin. The WFD establishes a common framework for the sustainable and integrated management of all waters covering groundwater, inland surface waters, transitional waters and coastal waters. The WFD requires Member States to manage all of their waters and ensure that they achieve at least 'good status' by 2015 and beyond. The ultimate deadline for Member States for achievement of 'good' status is 2027 at the latest.

5.5.2 River Basin Districts and Waterbodies

For the purpose of implementing the WFD, Ireland was divided into eight River Basin Districts (RBDs) or areas of land that are drained by a large river or number of rivers and the adjacent estuarine / coastal areas. The first cycle of the River Basin Management Plan (RBMP) ran from 2009-2015, where the eight RBDs devised separate plans with the objective of achieving at least '*good*' status for all waters by 2015.

The second cycle of the River Basin Management Plan: 2018-2021, is currently underway and all eight RBDs have merged to form one national RBD. The RBMP sets out the actions that Ireland will take to

improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2027. Ireland is required to produce a RBMP under the Water Framework Directive (WFD).

Water quality data is also collected by the EPA to provide an overall status of water quality. The monitoring programme, as part of the WFD, assesses water quality but also water trends of rivers in relation to ecological and physico-chemical quality. The WFD status of rivers ranges from '*high*' to '*bad*'. The EPA also undertakes water quality surveys for transitional and coastal waterbodies.

Water quality in Ireland has deteriorated over the past two decades. The RBMP provides a more coordinated framework for improving the quality of our waters - to protect public health, the environment, water amenities and to sustain water-intensive industries.

The Masterplan Site lies within the Nanny-Delvin Catchment (Nanny-Delvin 08) and within the Broadmeadow Sub-catchment (Broadmeadow_SC_010) (EPA, 2019). The Site is located south of the Broadmeadow River (IE_EA_08B020800) and north of a tributary of the River Ward (IE_EA_08W010610). Both rivers discharge into the Broadmeadow Water transitional waterbody (IE_EA_060_0100).

Table 5.3 below outlines the Catchment, Sub-catchment, WFD waterbody name, WFD Code, WFD Status within the Masterplan area.

5.5.3 Surface Water Quality

The latest Water Quality in Ireland report 2010-2015 has been published by the EPA in 2017. The Report contains the most up-to-date and comprehensive assessment of the ecological health of Ireland's groundwater, rivers, lakes, canals, transitional waters and coastal waters following the completion of the first six-year cycle of the WFD. The results shows that a considerable amount of work is still required to meet the environmental objectives of the WFD. Four out of every 10 river waterbodies are failing to meet their objectives having been classed at moderate or worse ecological status.[15] The status of waterbodies in County Fingal range from 'Bad' to 'Good'. The WFD surface waterbody status of waterbodies in the Swords area is shown in Figure 5.8 below.

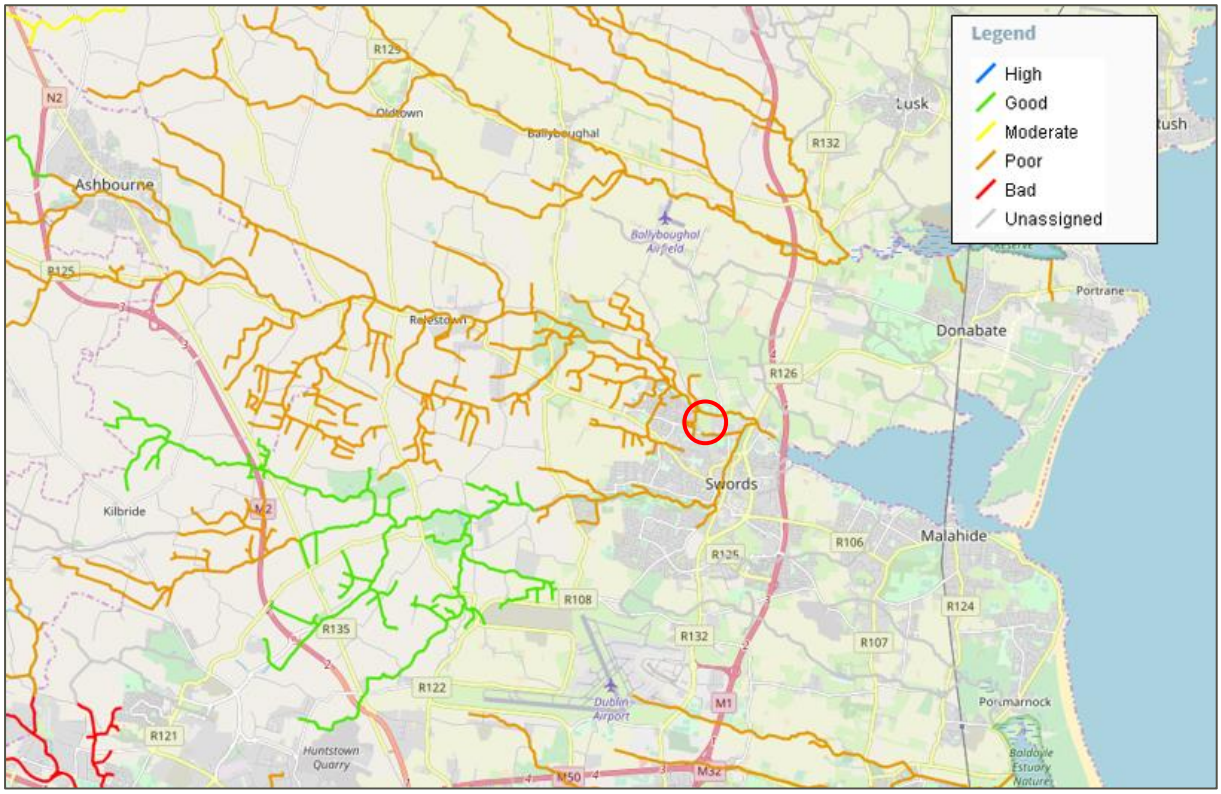
Table 5.3 below outlines the WFD Status and the waterbodies at risk within the Masterplan area. The 'risk' status of a water body looks at the current water quality and trends and highlights waterbodies that are at risk of deteriorating or being at less than 'good' status in the future.

[15] Water Quality in 2016

Table 5.3: WFD Catchments, Waterbodies and Current Status

Catchment (WFD Catchment Code)	Sub-catchment Name (WFD Sub-catchment Code)	WFD Waterbody Name (EPA Name)	Waterbody Type	EU WFD Code	WFD Status 2010 - 2015	Risk Status
Nanny-Delvin (08)	Broadmeadow_SC_010 (08_3)	Broadmeadow_040	River	IE_EA_08B020800	Poor	At Risk
		Ward_040	River	IE_EA_08W010610	Poor	
N/A	N/A	Broadmeadow Water	Transitional	IE_EA_060_0100	Moderate	At Risk
N/A	N/A	Malahide Bay	Coastal	IE_EA_060_0000	Moderate	At Risk

Figure 5.8: WFD Surface Waterbody Status. (Location of the Masterplan Site indicated in red) (EPA, 2019)



5.5.4 Sustainable Urban Drainage Systems (SuDS)

Surface water on all new development sites should be managed through Sustainable urban Drainage Systems (SuDS). SuDS aims to reduce the rate and quantity of surface water runoff, and improve water quality from the site. On large developments, SuDS may provide an opportunity to enhance biodiversity and amenity.

The objective of SuDS in new developments is to replicate, as closely as possible, the surface water drainage regime to the predevelopment 'greenfield' situation. This is achieved through the use of surface water source control and site control measures. Source control measures include rainwater harvesting, natural infiltration, infiltration trenches, filter drains, filter strips, swales and permeable

paving. Site control measures include attenuation by means of tanks or retention ponds. The surface water runoff rate from the site must be limited to the 'greenfield' runoff rate to reduce the risk of flooding.

5.5.5 Groundwater

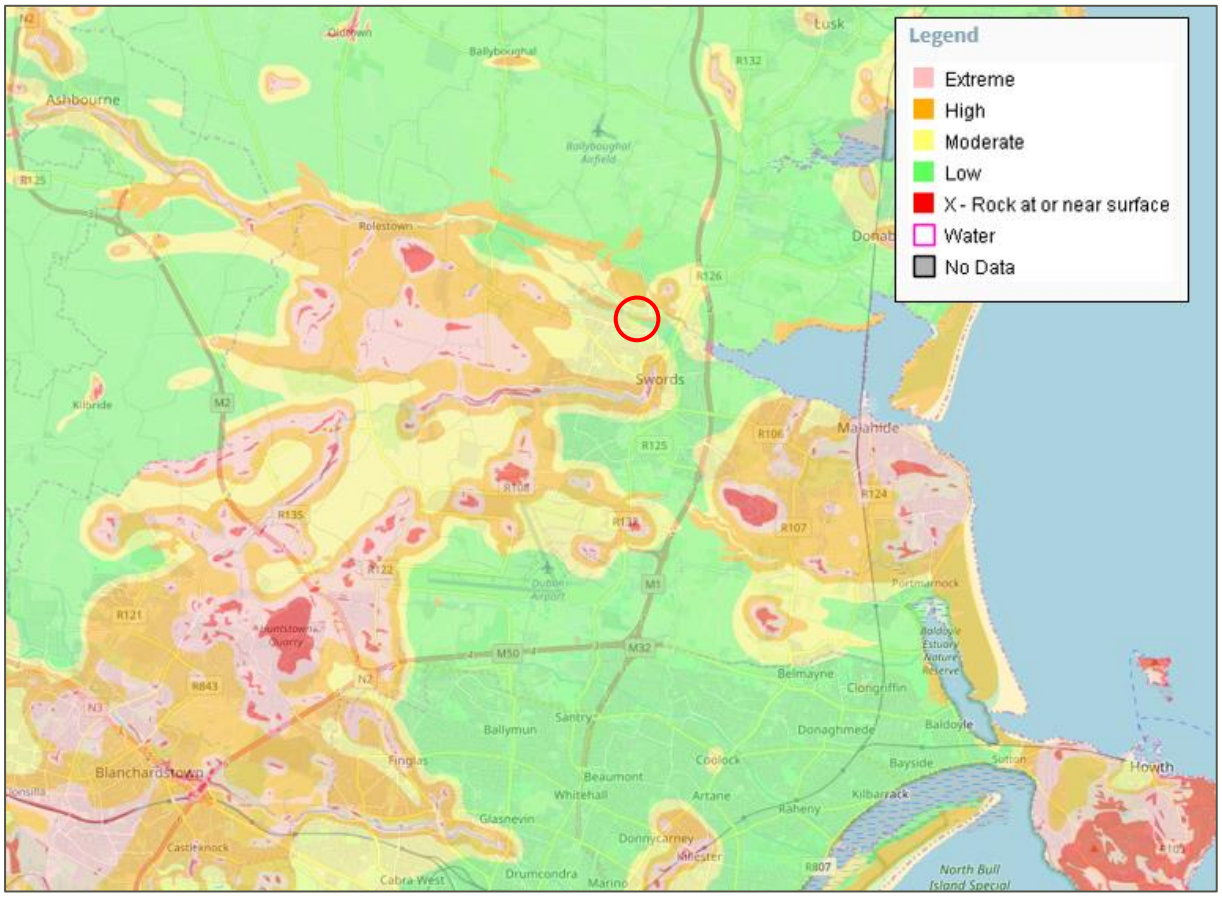
The EU Groundwater Directive (2006/118/EC) uses a holistic approach to groundwater by addressing the relationships between groundwater, surface water and ecological receptors.

Groundwater aquifers form important sources of drinking water both locally and regionally. Much of the summer seasonal flow in many rivers is also derived from groundwater sources. To maintain high quality water resources within the plan area, it is important that development is controlled and managed appropriately, in particular in areas of high groundwater vulnerability to avoid transmission of pollutants into important aquifers.

Groundwater Quality Status from 2010 to 2015 was generally 'Good'[16] and therefore, the Masterplan must protect groundwater from deterioration. The underlying underlying bedrock of the Masterplan lands is "Argillaceous bioclastic limestone, shale" (GSI, Online Map Viewer, 2019). There is one groundwater body within the Masterplan Site (Swords (IE_EA_G_011). This groundwater body is classified with a "Good" status under the WFD monitoring requirements (EPA, 2019). The groundwater vulnerability of the Site ranges between "Low" to "High". The groundwater vulnerability of the wider Swords area is shown in Figure 5.9 below.

[16] Water Quality in Ireland 2010-2015, p49

Figure 5.9: Groundwater Vulnerability in Swords. (Location of the Masterplan Site indicated in red) (EPA, 2019)



Issues to consider relating to protection of groundwater include;

- the enforcement of planning conditions related to installation, operation and maintenance of wastewater treatment / networks; and
- the development of a wastewater leak detection programme and the implementation and enforcement of the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2009.

5.5.6 Flooding and Flood Risk

The underlying causes of flooding, heavy rain and high sea levels are, essentially uncontrollable. Floods are usually caused by a combination of events including overflowing river banks, heavy rains, coastal storms or blocked or overloaded drainage systems and increase in development and impermeable surfacing. Numerous severe floods have occurred throughout the county in the last decade causing significant damage to and loss of property.

The Office of Public Works (OPW) is the lead State body for flood risk management. In 2018, the OPW launched 'Flood Maps' to provide information on the likelihood of flood risk and the extent of flooding across Ireland. The OPW Flood Maps for the Swords area are currently under review.

As part of the review for the preparation of a current County Development Plan (2017–2023) a Strategic Flood Risk Assessment (SFRA) Report was undertaken to support the making of the plan and the SEA of Plan.

Some lands in the Swords town centre overlap with Flood Zones A and B (indicated on Development Plan Green Infrastructure Maps). The flood extents are largely confined to car parking areas and public spaces adjacent to the Ward River.

In line with *The Planning System and Flood Risk Management Guidelines for Planning Authorities (2009),* a SFRA of the Estuary West Masterplan has been carried out carried out to inform the preparation of the Draft Masterplan. The SFRA has provided an assessment of all types of flood risk within the lands to assist Fingal County Council in making informed strategic land-use planning decisions. Development will generally be prohibited within the 1 in 1000 flood areas.

5.5.7 Seveso Sites

The Seveso III Directive (European Directive 2012/18/EU) and the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2000 (S.I. No. 476 of 2000) apply to companies where dangerous substances are present in quantities equal to or above specified thresholds. There are two thresholds, a lower one of 50 tonnes ("Lower tier sites") and a higher one of 200 tonnes ("Top tier sites"). Lower tier sites are required to have a Major Accidents Prevention Policy and a Safe Work Systems Plan. Top tier sites are required to carry out, in conjunction with the local competent authority (which includes the Health Service Executive, the Local Authority, An Garda Síochána and in the case of New Ross, New Ross Port Company) a Major Accidents External Emergency Plan.

Emergency plans must take full account of objectives established for nearby waters in river basin plans. The legislation deals with the prevention of major accidents. There is one Seveso site in Swords (lower tier) which is <1.km from the Site, see Table 5.4 below.

Table 5.4: Seveso Site in Swords

Distance from Site	Name and Address	Licence Number
0.6km	Sk Biotek Ireland Limited, Watery Lane, Swords	P0014-04

5.5.8 Water Quality Issues

The principal threat to water is pollution which can adversely impact on all parts of the water cycle from groundwater to rivers, lakes estuaries and coastal waters. In simple terms, pollution means the presence of a harmful substance such as a poisonous metal or pesticide, a nutrient or silt. Urban and rural development including wastewater and surface water disposal can have significant impacts on water quality.

Any development as part of the Masterplan has the potential to impact waterbody status, water usage, flood risk and generate wastewater. The Masterplan must fully meet the requirements of the WFD, the Groundwater Directive and aim to drive improvement to water quality in both the short and long-term.

5.6 Air Quality, Noise and Climate Change

5.6.1 Air Quality

Air quality legislation in Ireland highlights the need “to avoid, prevent or reduce harmful effects on human health and the environment as a whole”. In addition, it requires that Local Authorities where

appropriate "shall promote the preservation of best ambient air quality compatible with sustainable development."

EU legislation on air quality requires that Member States divide their territory into zones for the assessment and management of air quality. The EPA manages the national ambient air quality monitoring network and measures the levels of a number of atmospheric pollutants. The current trends in air quality in Ireland are reported in the EPA publication '*2016 Annual Report on Air Quality in Ireland*' which is currently the most up to date analysis of air quality data for Ireland. Four national air quality zones have been designated in Ireland, these are:

- Zone A is the Dublin conurbation;
- Zone B is the Cork conurbation;
- Zone C comprises of 23 large towns in Ireland with a population of >15,000; and
- Zone D is the remaining area of Ireland.

The Masterplan Site is located within Zone A, within the 'Dublin conurbation' Air Quality Index Region (EPA, 2019). The designated zones have been defined to meet the criteria for air quality monitoring, assessment and management as defined in the aforementioned regulations.

The air quality index for the Swords area is calculated on an hourly basis under the Dublin City Air Quality Index for Health (AQIH) Regions. The AQIH is based on measurements of five air pollutants all of which can harm health. The five pollutants are:

- Ozone gas;
- Nitrogen dioxide gas;
- Sulphur dioxide gas;
- $PM_{2.5}$ particles; and
- PM_{10} particles.

Air Quality Map show whether air quality is "good", "fair", "poor" or "very poor" in each region. The closet air monitoring station to the Masterplan Site is Swords at Watery Lane. The current air quality in the Dublin AQIH Region "Good" (EPA, 2019).

Monitoring is done using continuous monitors for ozone and nitrogen oxides. The pollutants of most concern are those whose main source is traffic such as Particulate Matter and Nitrogen Dioxide. The need to protect and improve, (as appropriate), air quality within the Plan area, particularly in areas zoned for increased urban and transport related development should be highlighted in the Plan.

Local Sources of Emissions to Air

The main sources of air emissions in the vicinity of the Site are the adjacent R125, R132 and M1 roads and EPA licenced facilities. Traffic-related pollutants tend to settle out quickly near the roadside while the emissions from licenced facilities are subject to strict Emission Limit Values (ELVs) that are regulated by the EPA. Compliance with these ELVs eliminates potential risk to human health and / or the environment. The EPA Air Quality in Ireland Annual Report 2016 has been used to describe the receiving environment in terms of air quality. Following a review of the EPA database (EPA, 2019), there are two Industrial Emissions Directive (IED) sites (Arch Chemicals BV (P0060-01) and Sk Biotek Ireland Limited (P0014-04)), <1km from the Masterplan Site.

5.6.2 Noise

The objectives of EU and Irish noise legislation is "*to avoid, prevent or reduce harmful effects on human health and the environment as a whole*", and this includes noise nuisance. The Noise Directive -

Environmental Noise Directive (END) 2002/49/EC relating to the assessment and management of environmental noise - is part of an EU strategy setting out to reduce the number of people affected by noise in the longer term and to provide a framework for developing existing community policy on noise reduction from source. The Directive requires competent authorities in Member States to:

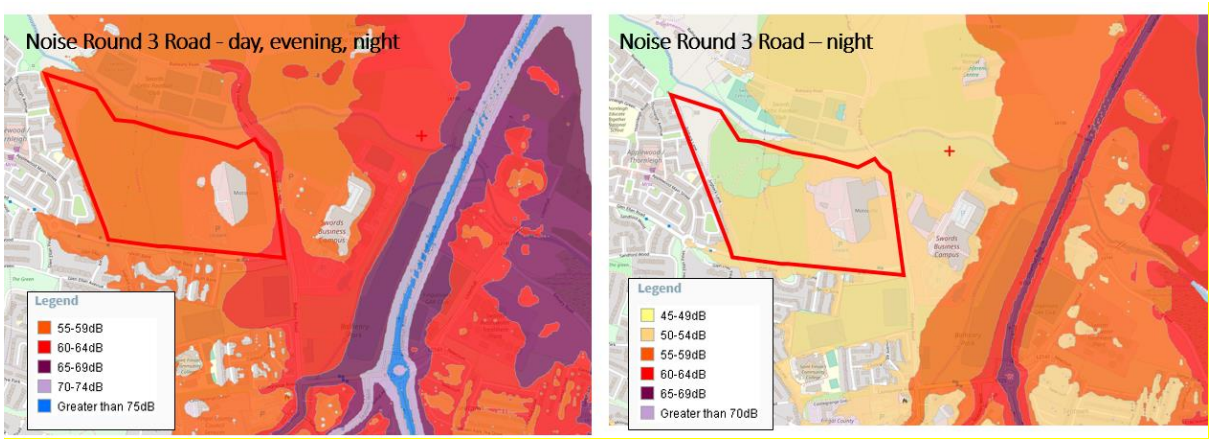
- draw up strategic noise maps for major roads, railways, airports and agglomerations, using harmonised noise indicators and use these maps to assess the number of people which may be impacted upon as a result of excessive noise levels; and
- draw up action plans to reduce noise where necessary and maintain environmental noise quality where it is good; and inform and consult the public about noise exposure, its effects, and the measures considered to address noise.

The Directive does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities.

In accordance with Environmental Noise Regulations (S.I. No. 140 of 2006), a draft Noise Action Plan for Fingal County 2019-2023[17] was issued by Fingal County Council for public consultation. This Noise Action Plan is aimed at managing environmental noise from road, rail and industrial sources within Fingal County Council, but excludes noise from aircraft. Noise from aircraft is dealt with in a separate Noise Action Plan dedicated to the management of Aircraft Noise alone, entitled 'Dublin Airport Noise Action Plan 2018-2023'.

As part of this preparatory process, noise maps were prepared for all major roads in the county (*i.e.* roads in excess of 3 million vehicles per annum), see Figure 5.10 below.

Figure 5.10: Extract from EPA noise mapping. (Location of the Masterplan Site indicated in red) (EPA, 2019)



Daytime and night-time noise mapping of these roads were prepared using EPA recommended noise limits which identified local 'hot spots' (noise sensitive areas) in terms of population exposure. The identification of noise sensitive areas allows for the application of protectives measure or mitigation measures in advance of further development.

According to the draft Noise Action Plan, the major sources of noise present within Fingal County Council are from road and rail. The main findings from the noise assessment arising from the noise mapping are as follows:

[17] https://consult.fingal.ie/en/system/files/materials/9770/Noise%20Action%20Plan%20for%20Fingal%20County.pdf

- Of the 292,700 people living in the Fingal County Council area (2016 census), 25.6%, or 74,800 people are exposed to road traffic noise sources above the desirable Lden level of 55dB(A);
- 0.82 % of people living in the Fingal County Council area are exposed to rail traffic noise sources above the desirable Lden level of 55dB(A); and
- Whilst the % of people exposed to noise sources above the desirable Lden level of 55dB(A) has decreased since 2011, the overall population in Fingal County Council has increased, therefore the number of dwellings and people exposed to levels above 55dB(A) Lden has increased.

Since the main priority of the Directive is to reduce environmental noise exposure in residential areas, the Masterplan should ensure this requirement is complied with and as appropriate, the Masterplan should promote the implementation of the Directive and associated national regulations.

Consideration should also be given to protect, where relevant, any designated quiet areas in open country. In 2003, the EPA commissioned a research project to establish baseline data for the identification of quiet areas in rural locations. Quiet Areas are defined as "an area in open country, substantially unaffected by anthropogenic noise." A range of minimum distance criteria from man-made noise sources such as urban areas, industry and major road sources were defined, and the report includes a number of key recommendations for the identification and control of Quiet Areas.

5.6.3 Climate Change

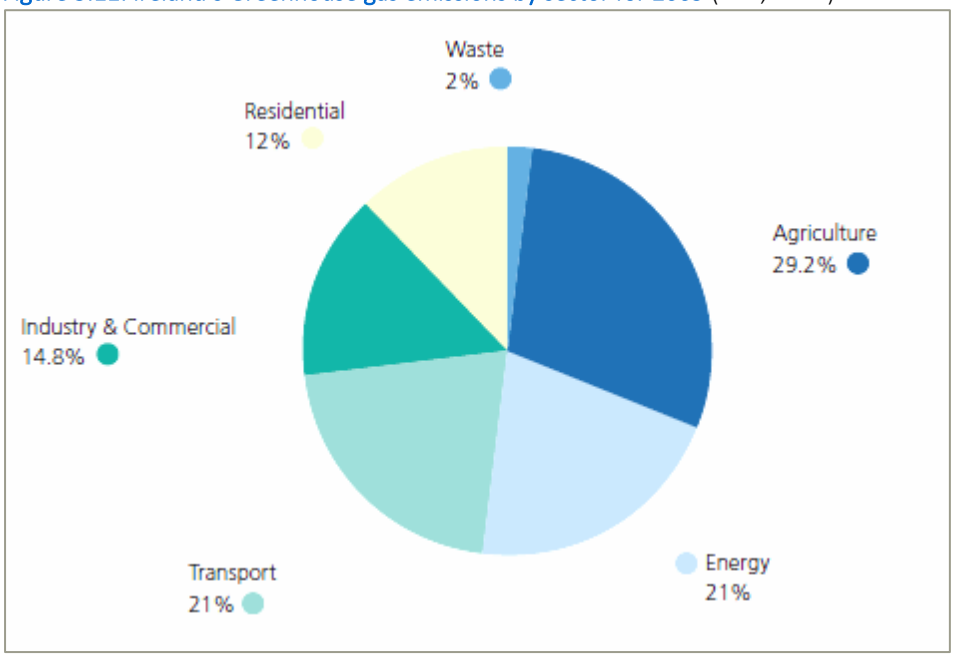
Climate Change is a phenomenon that has widespread economic, health and safety, food production, security, and other dimensions. It is also widely recognised that Climate Change is occurring as a result of the build-up of atmospheric Greenhouse Gases (GHG's) such as carbon dioxide (CO_2). Most GHG emissions are related to the energy generation, transport, agriculture, and industry sectors, see Figure 5.11 below.

Ireland's 2020 target is to achieve a 20% reduction of non-Emissions Trading Scheme (non-ETS) sector emissions (i.e. agriculture, transport, residential, commercial, non-energy intensive industry, and waste) on 2005 levels with annual binding limits set for each year over the period 2013-2021[18].

Nationally, agriculture is the single largest contributor to the overall emissions, at 29.2% of the total, followed by Energy (power generation & oil refining) at 21% and transport at 21%. The remainder is made up by industry and commercial at 14.8%, the residential sector at 12%, and waste at 2%.

[18] Greenhouse Gas Emissions Projections to 2020 – An Update
http://www.epa.ie/pubs/reports/air/airemissions/2020_GHG_Projections_2016_Bulletin.pdf

Figure 5.11: Ireland's Greenhouse gas emissions by sector for 2009 (EPA, 2011)



A Strategy towards Climate Change Action Plans for the Dublin Local Authorities has been published in association with CODEMA. This document has seven main focus areas that we will concentrate our efforts on to deliver actions that are under Local Authority remit and can contribute towards Local Authority vision. These are:

- Citizen & Stakeholder Engagement
- Planning
- Energy
- Transport
- Water
- Waste
- Ecosystems & Biodiversity.

The closest Met Éireann temperature monitoring station to the Masterplan Site is at Dublin Airport, c.2km south of the Site. Average annual temperatures from 1981-2010 were 9.8°C, with an average of 3.9 hours of sunshine per day. Mean annual rainfall during the same period was 758mm, recorded at Dublin Airport.

The United Nations Intergovernmental Panel on Climate Change (IPCC) (2014) reports that there is "unequivocal" evidence that the climate system is warming and furthermore that:

> "*Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems*." (IPCC, 2014) [19].

In Ireland, the expected effects of climate change are increased frequency of extreme weather events within the next century. This will include a 20%-30% increase in precipitation, greater rainfall intensity coupled with flash floods and an average annual temperature increase of ~2°C. The potential impacts

[19] IPPC website: https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf

of climate change could have serious consequences for both people and infrastructure along Ireland's coastal areas as well as its rivers (OPW, 2015).

The OPW published the '*Flood Risk Management 2015-2019*' report as part of the Department of Communications, Climate Action and Environment's (DCCAE) '*Climate Change Sectoral Adaptation Plan*'. In this report the OPW adopted two indicative potential future scenarios, Mid-Range Future Scenarios (MRFS) and High-End Future Scenarios (HEFS), which are based on both average and more extreme climate change projections. Under the MRFS a 20% increase in both extreme rainfall depth and peak flood flows are expected, along with a 0.5m increase in sea level. Under the HEFS, the two former parameters are expected to increase by 30%, along with a 1m rise in sea level by the 2080s[20].

5.6.4 Air Quality, Noise & Climate Change Issues

Road traffic has become the greatest source of air pollution generally. In urban areas, concern has clearly shifted to a range of pollutants associated with this source which may be considered relatively new in the context of air quality control. The most important of these pollutants are NO_2, particulate matter less than 10 microns in diameter (PM_{10}), carbon monoxide (CO) and a wide variety of Volatile Organic Compounds (VOC), including carcinogens such as benzene. Advances in engine technology and fuel development will, it is predicted, offset rises in tail pipe emissions from increased car usage due to an increased population. The context to the Masterplan is suburban / urban in nature where travel is an essential part of daily life. Therefore, it is important that a good quality road infrastructure is provided and indeed alternatives to the private car are encouraged where possible.

The potential effects of climate change resulting in an increase in the frequency and severity of flooding events from rainfall must also be considered in the Draft Masterplan. Severe rainfall events as a result of climate change could adversely impact upon town's in Fingal leading to water shortages, residential flooding and disruption to infrastructure. Towns along the coast will become increasingly vulnerable to rises in the sea level and coastal erosion.

5.7 Cultural Heritage

The physical traces left in the landscape by previous generations in archaeological monuments and sites and in historic buildings, townscapes and vernacular structures forms part of the tangible cultural heritage of Fingal linking the past and present. It is part of our identity, part of the distinctive character, vibrancy and attractiveness of where we come from or the places we live and work in and plays a significant role in drawing visitors to the area. The Council recognises the importance of identifying, valuing and safeguarding the archaeological and architectural heritage of Fingal for future generations which can be achieved through the proper management, sensitive enhancement and / or appropriate development of this resource.

5.7.1 Archaeological Heritage

The archaeological heritage of an area includes structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other types as well as their context, whether situated on or under land or water.

The National Monuments Acts 1930-2004 provide for the protection of archaeological heritage. The Record of Monuments and Places (RMP) was established under Section 12 of the National Monuments

[20] Term 2080s used to describe the period covering 2071-2100. Increases are measured with respect to the period 1961-1990.

(Amendment) Act 1994 and structures, features, objects or sites listed in this Record are known as Recorded Monuments.

Monuments on the Register of Historic Monuments are established under the Section 5 of the National Monuments (Amendment Act) 1987. Under the provisions of Section 5(8) of the National Monuments (Amendment) Act 1987, any person who plans to carry work in the vicinity of a monument recorded on the Register of Historic Monuments must give two months' notice to the Minister for Culture, Heritage and the Gaeltacht. Owners of lands on which a monument listed on the Register of Historic Monuments is situated have been notified of the presence of the monument and the legal protection which applies.

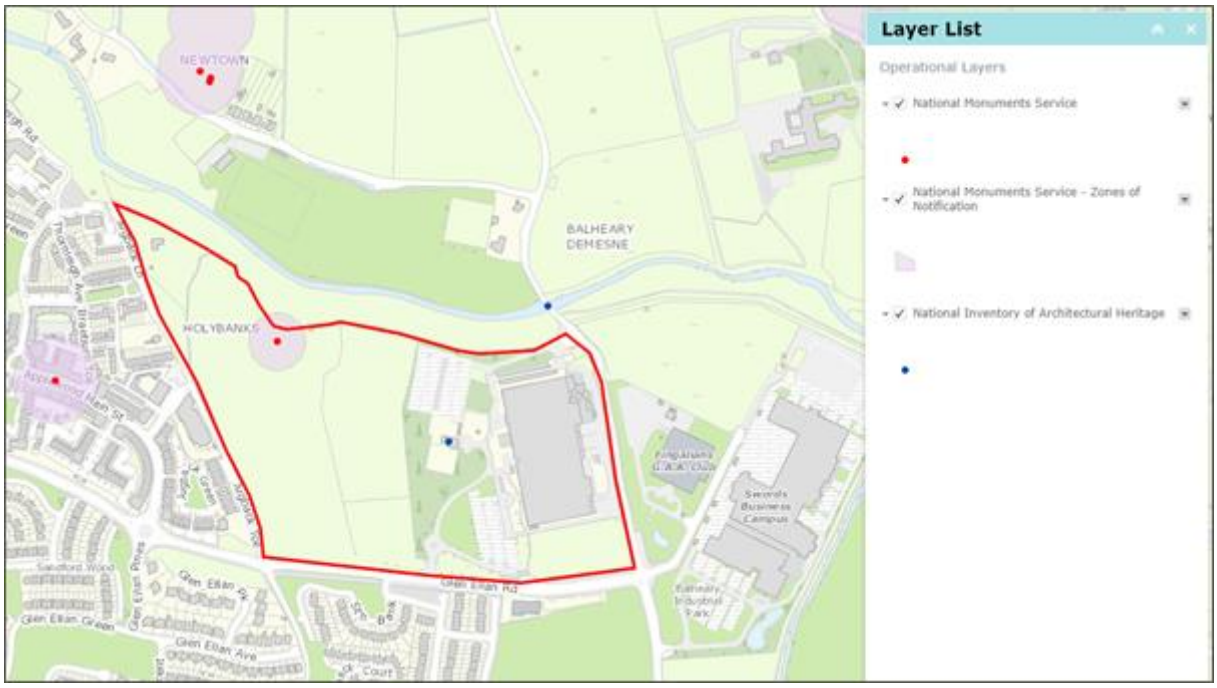
The discovery of unrecorded monuments can often occur during excavations. Section 26 of the National Monuments Act 1930 (as amended) requires that excavations for archaeological purposes must be carried out by archaeologists acting under an excavation licence. The Database of Irish Excavation[21] contains summary accounts of excavations carried out in Ireland from 1969 to the present year.

One site is identified on the Estuary West Site, see Figure 5.12 and Table 5.5 below.

Table 5.5: List of the National Monument Sites in the Masterplan Site

Site Reference No.	Class	Townland	Scheduled for inclusion in the next revision of the RMP
DU011-080	Ring-ditch	Holybanks	Yes

Figure 5.12: Estuary West Masterplan Site with Monuments, Notification Buffers and NIAH references



5.7.2 Architectural Heritage

Section 10 of the Planning & Development Act 2000 (as amended) places an obligation on all Local Authorities to include in their Development Plan objectives for the protection of structures, or parts of structures, which are of special architectural, historical, archaeological, artistic, cultural, scientific,

[21] Irish Excavation Ireland website: http://www.excavations.ie/

social or technical interest. These buildings and structures are compiled on a register known as the Record of Protected Structures (RPS).

A Protected Structure, unless otherwise stated in the RPS, includes:

- the interior of the structure;
- the land lying within its curtilage;
- any other structures within the curtilage, and their interiors, and
- all fixtures and features which form part of the interior or exterior of any of these structures.

Owners or occupiers of a protected structure may request the Council to issue a declaration as to the type of works, which may or may not be permitted in their structure. The record of protected structures in Fingal is contained within the Fingal Development Plan 2017-2023.

There are no protected structures on the lands, however, one references on the National Inventory of Architectural Heritage (NIAH) is located within the lands, see Figure 5.12 above and Table 5.6 below.

Table 5.6: List of the NIAH Site in the Masterplan Site

Reg. No.	Name	Date	Rating
11335009	Newtown House	1750 - 1770	Regional Importance

5.7.3 Architectural Conservation Areas (ACAs)

There are currently 32 No. Architectural Conservation Areas (ACAs) in County Fingal none of which are located in Swords or proximate to the Masterplan Site.

5.7.4 Cultural Heritage Issues

Construction activities have the potential for direct negative impacts on heritage features and their setting. There is 1 No. National Monument Site and 1 No. NIAH in the Masterplan Site, however there is potential for development to impact undiscovered archaeological features, therefore mitigation measures will be required.

Implementation of the Masterplan also provides the opportunity to potentially uncover new heritage features and enhance public awareness of and access to these sites.

5.8 Landscape

The concept of landscape encompasses all that can be seen by looking across an area of land, i.e. it is the visible environment in its entirety. Landscape is the context in which all change takes place and helps to create a unique sense of place or identity within an area. The landscape supports a wide range of ecological habitats despite growth in its resident population. The interaction of all of these elements influences landscape character for future generations.

A National Landscape Strategy for Ireland 2015-2025 was published, in line with Ireland's obligations under the European Landscape Convention. The key objectives of this Strategy are the recognition of landscape in law and the provision of a policy framework to put measures in place for the management and protection of landscape, the production of a national Landscape Character Assessment (LCA) through data gathering and an evidence based description of character assessment, raising awareness and public consultation.

5.8.1 Landscape Character Assessment (LCA)

Landscape Character Assessment (LCA) is a process that describes maps and classifies landscapes. Landscape character is defined as *'a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse'*. Defining landscape character enables an understanding to be formed of the inherent value and importance of individual landscape elements and the processes that may alter landscape character in the future. The cultural and ecological aspects of the landscape cannot be divorced from its physical and visual characteristics so all of these elements are considered.

Landscape Character Types (LCT) are distinct types of landscape that are relatively homogenous in character and are generic in nature in that they may occur in different localities throughout the country. Nonetheless, where they do occur, they commonly share similar combinations of geology, topography, land cover and historical land use, *e.g*. Upland Areas.

The LCA contained in the Fingal Development Plan 2017-2023 divides the county into LCTs, see Table 5.7 below. Swords, including the Masterplan Site, is located in the low-lying agricultural type, which is of modest value and low sensitivity.

Table 5.7: Landscape Character Areas in Fingal County Council

Landscape Character Types (LCTs)	Landscape Value	Landscape Sensitivity
Rolls Hills with Tree belts	Modest	Medium
High lying Agricultural	High	High
Low lying Agricultural	Modest	Low
Estuary	Exceptional	High
Coastal	Exceptional	High
River Valleys / Canal	High	High

5.8.2 Protect & Preserve Trees, Woodlands and Hedgerows / Preserve Views

Sheet 8 of the Fingal Development Plan indicates the objective to Protect and Preserve Trees, Woodland and Hedgerows. There is no specific objective to Preserve Views on or adjoining the Masterplan lands, see Figure 2.1 above.

5.8.3 Landscape Issues

The visual impact upon the landscape will be taken into consideration during the development of the Masterplan. The landscape character of the Masterplan Site is located in a low-lying agricultural type, with low landscape sensitivity. In the long-term the Masterplan is unlikely to have an adverse effect on the landscape, since the surrounding area is made up of Swords Town Centre, residential areas and industrial / commercial / warehousing areas.

5.9 Material Assets

Material assets include water supply, wastewater treatment infrastructure, waste disposal sites including recycling, transport infrastructure (road, rail, canal, airports and ports), energy and supply networks and broadband services. Material assets also includes economic assets such as coastal and water resources which support fisheries and aquaculture.

5.9.1 Water and Wastewater Services

The sustainable growth of the County is dependent on the provision of services and infrastructure. A Plan led approach, in accordance with the County's Core Strategy and Settlement Strategy is required for the delivery of such services in order to ensure there is adequate capacity to support the future development of the County.

There have been significant changes in responsibilities for water supply and wastewater treatment. As of January 2014 Irish Water replaced local authorities as a single provider of water and wastewater services. The future development of County Fingal's water and wastewater treatment infrastructure is largely dependent on the Irish Water Services Investment Programme, and the availability of funding therein.

5.9.1.1 Water Services and Water Supply

Irish Water have prepared the Water Services Strategic Plan (WSSP), *'A Plan for the Future of Water' Services'* and it provides for the first time at national level an opportunity to consider the way water services are delivered in Ireland. The WSSP sets out strategic objectives for the delivery of water services over the next 25 years up to 2040. The Plan details current and future challenges affecting the provision of water services and identifies priorities to be dealt with over the short to medium term. The Plan is to be reviewed on a five year basis.

Swords Water Main Replacement Project is currently underway and the aim of the Project is to:

- provide a long term upgrade of the aging water networks in Swords;
- provide a reliable water supply to householders and businesses within Swords, Malahide & Portmarnock;
- provide a permanent solution to burst history on the water main resulting in fewer disruptions to the supply;
- improve the overall improvement in the level of service; and
- reduce leakage by 44 million litres of water per month.

The River Liffey is the major source of public water supply for Fingal County. This water supply source also supplies water to a substantial proportion of Dublin City and parts of South Dublin, Kildare and Meath.

Fingal County Council water supply is served by the Leixlip Water Treatment Plant (WTP), which expanded its production of water to 215ML per day which is approximately 30% of the Dublin Region's drinking water requirements. Another WTP at Bog of the Ring produces on average 3.15 mega litres a day, which supplements the water supply of the northern part of the County, using groundwater from wells.

5.9.1.2 Wastewater Services

The Swords Urban Wastewater Treatment (UWWT) agglomeration boundary covers an area c.9km^2 in the environs of Swords Town. The Swords agglomeration boundary drains mainly by gravity to the Swords Wastewater Treatment Plant (WWTP) (Reg. Number D0024-01) on Spittal Hill Road to the east of Swords. Treated effluent from the WWTP discharges to the Broadmeadow Water at the confluence of the Broadmeadow River (IE_EA_08B020800) and the Broadmeadow Water transitional waterbody (IE_EA_060_0100). Wastewater from the South of the County discharges to the Regional Waste Water Treatment Plant at Ringsend operated by Dublin City Council.

The Swords Sewerage Scheme & Wastewater Treatment Works has recently undergone substantial investment and has capacity to treat wastewater for up to 90,000 Population Equivalent (PE), which is well above existing and projected capacity needs.

This presence of an upgraded treatment plant capable of handling the area's fast growing population is important in protecting the Broadmeadow Water transitional waterbody, a valuable ecological resource and local amenity, from wastewater pollution.

5.9.2 Waste Management

Waste management in Ireland is regulated by the Waste Management Acts, 1996 to 2011, which require Local Authorities to prepare detailed plans for the management of waste. Under the Waste Management Acts, a Development Plan is deemed to include the objectives of the Waste Management Plan for its area.

The Eastern Midlands Region Waste Management Plan (WMP) 2015-2021 was adopted in May 2015. The overall vision of the Eastern Midlands Region WMP is to rethink the approach taken towards managing waste and that waste should be seen as a valuable material resource. The Plan also supports a move towards achieving a circular economy which is essential if the region is to make better use of resources and become more resource efficient.

In line with the Eastern Midlands Region WMP, Fingal County Council will continue to:

- promote a waste prevention and minimisation programme to target all aspects of waste; and
- promote awareness and an increase in the amount of waste reused and recycled.

Furthermore, Fingal County Council is trying to gradually move away from the disposal of waste to landfill. Balleally landfill has closed for the acceptance of waste with soil being accepted for restoration / capping purposes only and Dunsink landfill closed in the late 1990's.

There are two recycling centres in the County:

- Coolmine Recycling Centre, Blanchardstown; and
- Estuary Recycling Centre, Swords.

Construction and Demolition (C&D) Waste is generally collected by authorised collectors and often used for backfilling. Since there is a significant move away from landfill, which has been an outlet for C&D Waste, alternative recovery options are required in the future years.

The EC (Waste Directive) Regulations 2011, sets a 70% target for the reuse, recycling and recovery of man-made C&D waste in Ireland by 2020.

5.9.3 Transport

5.9.3.1 General

Land-use planning and transport planning are inextricably linked and their proper integration is a key determinant to sustainable development. '*Smarter Travel: A Sustainable Transport Future'* is a national document which seeks to achieve a shift to more sustainable means of transport by setting Targets for Modal Change. Nationally the target is for modal share of car commuting to drop from 65% to 45% by 2020 and for cycling to reach 10% of journeys made by 2020. The main objectives are:

1. To encourage smarter travel, i.e. to reduce overall travel demand;
2. To maximise the efficiency of the transport network;
3. To reduce reliance on fossil fuels and therefore to reduce transport emissions;

4. To improve accessibility to transport.

5.9.3.2 Public Transport

The planned delivery of the new MetroLink and BusConnects projects are two very important public transport initiatives for Swords. The proposed alignment of the new MetroLink runs directly along the R132 road and adjoins the northern boundary of the Masterplan Site. Currently, based on the current proposed alignment, the new MetroLink runs directly along the R132 c.400m to the east of the Masterplan Site.

Swords is already well served by bus provision, with five different operators serving the area. The routes and frequency of the services is varied, with Swords well served by routes both southwards to the Airport and Dublin City Centre, and towards Balbriggan to the West. The majority of the buses serve Swords on an hourly basis.

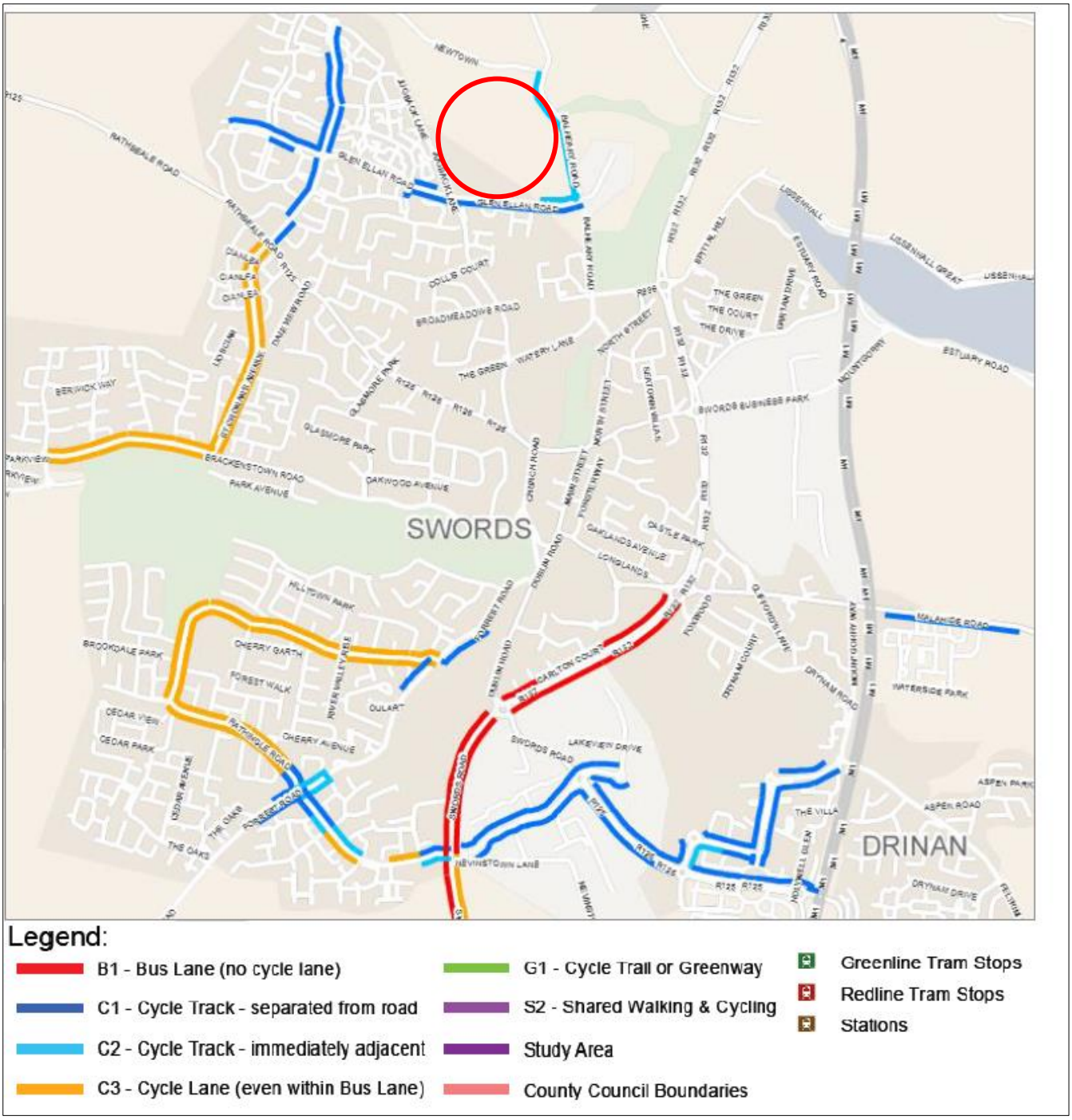
The Masterplan area at Estuary West is well-served by bus stops along the Glen Ellan Road. The lands are also within a desirable / acceptable walking distance to the Dublin Bus Stops along the R132. The bus stops along the R132 have limited and substandard footpaths to facilitate users' access to the stops. There are no crossings provided to enable access to the bus stops located on either side of the road. Pedestrians are forced to access the bus stops by using the footbridges, which are a long detour and are not on desire lines.

Cycling and walking is environmentally friendly, fuel-efficient and a healthy mode of transport to work, school, shopping and for recreational purposes. Cycling and walking are considered an efficient, fast and relatively inexpensive form of transport and its promotion is in line with the principles of sustainable development and promotion of healthy lifestyles.

Estuary West connects to the R132 via Glen Ellan Road, Balheary Road and a short section of the R125. The R132 is a wide dual-carriageway type road parallel to Swords Main Street.

There are currently limited cycling facilities within the urban areas in Fingal County. In Swords, the cycling provision predominately consists of cycle tracks or lanes along new roads and the shared use of bus lanes. As can be observed from the existing cycle network map in Figure 5.13 below, the cycle facilities lack continuity.

Figure 5.13: Existing Cycle Routes (Location of Estuary West Site circled in red) (GDA Cycle Network)



5.9.4 Transport Infrastructure Schemes

National primary and secondary roads play a central role in providing ready access to all regions of the Country. They connect Swords with the adjoining regions and provide direct access to the wider Dublin Region. Swords is strategically located close to Dublin Airport and has excellent access to the national road network (M50 and M1). Traffic from Swords can access Dublin City / Dublin Port via the M1 and Port Tunnel and Dublin Airport via the M1 or the R132 road. The Estuary West Site is located c.400m west of the R132.

Table 5.8 provides a description of potential road schemes of relevance to the Swords and Estuary West Masterplan areas. As there is acknowledged pressure on the road network generally around Swords, Fingal County Council has commissioned a detailed South Fringe Transportation Study, which will feed into the making of the Masterplan.

Table 5.8: National Road Schemes in the Swords area

Road Scheme
Swords Western Relief Road
Swords Western Distributor Road
Completion of Airside to Feltrim Road Link
R125 Rathbeale Road Improvements
Fosterstown Link
Inner Ward River Crossing
Enhancement of junctions e.g. Castlegrange Junction; Glen Ellan Road/Balheary Road; Estuary Junction; and R125 Rathbeale Road /Murrough Road
Widening Balheary Road between Glen Ellan Road and the Castlegrange junction and then eastward towards the R132 and M1.
Upgrading the roundabouts on Glen Ellan Road to cyclist friendly roundabouts.

5.9.5 Energy

Ireland is committed to a range of renewable energy and efficiency targets. At European Level the '20/20/20' commitments agreed under the EU '*Climate Change and Energy Package'* set three targets for 2020:

- A minimum 20% reduction in greenhouse gas emissions based on 1990 levels.
- 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.
- 20% of final energy consumption to be produced by renewable energy resources.

The Europe 2020 Strategy was adopted in 2010 and aims to enable Europe to emerge from the economic crisis in a stronger position, setting out five headline targets one of which includes climate change.

Ireland's National Targets are:

- Reduce emissions in the non–traded sector by 20% compared to 2005 levels.
- Increase the share of renewables in final energy consumption to 16% and to move towards a 20% increase in energy efficiency.

Fingal County Council seeks to ensure that all new developments contribute positively towards reducing energy consumption and the associated carbon footprint. The Council will promote and facilitate new and innovative technologies seeking to provide renewable energies. The Council will also ensure a balance is achieved between the development of renewable energy sources and the protection of the natural heritage, visual amenity, biodiversity and food producing lands.

5.9.6 Broadband

High-speed broadband is core to competitiveness. The National Broadband Plan sets out the strategy to deliver high speed broadband throughout Ireland. Ireland has made significant progress in recent

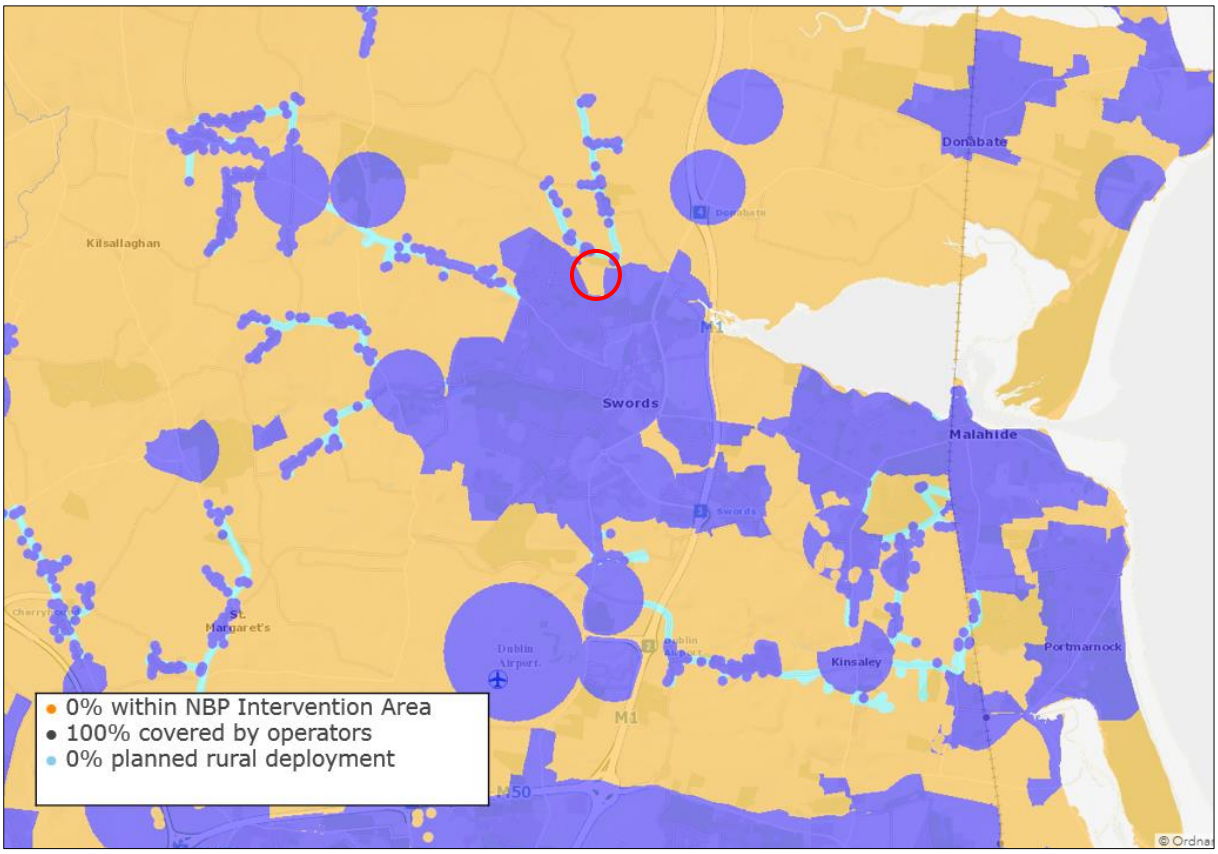
years in terms of broadband connectivity at all levels: international connectivity, backhaul networks, Metropolitan Area Networks (MANs) and local access networks. This progress is reflected in improved broadband availability and take-up with the number of broadband subscribers increasing from 602,000 to over 1.666 million over the last five years.

Fingal has reasonably good access to the broadband network (see Table 5.9 and Figure 5.14 below) with figures from the 2016 Census indicating that 79.5% of households within Fingal had broadband connectivity compared with 63.8% nationally. However it is acknowledged that within the County there are many urban and rural locations where service is deficient.[22]

Table 5.9: Broadband connectivity in Fingal

Name	Total Number of Premises	Premises in Intervention Area	Premises covered by Commercial Operators	Premises to be covered by Planned Commercial Rural Deployment
Dublin Fingal	62,087	8%	92%	0%

Figure 5.14: Broadband Services in Swords Area. (Location of Estuary West Masterplan Site indicated in red)



[22] DCENR website for High Speed Broadband: https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=99c229dc4c414971afc50818b25337ef

5.10 Interactions and Cumulative Impacts

In accordance with the SEA Directive, the interaction between the SEA environmental topics must be taken into account as part of the assessment process. While all environmental topics interact with each other to some extent, it is considered that the most significant interactions are between:

- human beings and water,
- human beings and air and climate,
- human beings and material assets (transport),
- human beings and landscape and heritage,
- biodiversity, land, soils and water,
- land, soils and water, and
- landscape and heritage.

6.0 SEA Objectives, Targets and Indicators

A series of Strategic Environmental Objectives (SEOs) will be prepared in line with current guidance and also with specific reference to the SEA for the existing Fingal Development Plan 2017-2023. The SEOs provide a basis for the assessment of the environmental effects of the Plan and are framed in such a manner as to enable the Plan to be fully assessed in environmental terms.

SEOs are distinct from the objectives within the Plan, although they will often overlap and are developed from international, national and regional policies which generally govern environmental protection objectives.

The SEA objectives also take consideration of the baseline conditions (Section 5), consultation and the identification of the key environmental issues. The development of these objectives ensures that the SEA focuses only on those issues that are most relevant and of significance to the Masterplan.

The SEA objectives are separate to the objectives contained within the Master Plan. The SEA objectives have been divided into environmental topics, with at least one objective for each topic:

- Biodiversity, Flora & Fauna (B);
- Population & Human Health (PHH);
- Soil & Geology (SG);
- Water (W);
- Air Quality, Noise & Climate Change (ANCC);
- Cultural Heritage (CH);
- Landscape (L); and
- Material Assets (MA).

These SEA objectives are then paired with specific targets. Environmental indicators are used to track the process in achieving the targets. Table 6-1 below sets out the SEA Objectives, Targets and Indicators for the Masterplan.

Table 6.1: SEA Objectives, Targets and Indicators for the Masterplan

Theme	Objective	Targets	Indicators
Biodiversity, Flora & Fauna (B)	(B_1) Preserve, protect, maintain and where appropriate restore the terrestrial, aquatic and soil biodiversity, including EU and nationally designated sites and protected species.	▪ Consider siting of new development on non-sensitive sites. ▪ Improve /conserve and protect all designated sites and species within and adjacent to the Plan Site. ▪ Deliver the requirement of the Habitats Directive (Article 4, Paragraph 4) for the maintenance or restoration of annexed habitats and species within SACs at a favourable conservation status. ▪ Promote the maintenance and, as appropriate, achievement of favourable conservation status of habitats and species, in association with the NPWS and other stakeholders. ▪ Protect SPAs, Annex I bird species, and regularly occurring migratory bird species and their habitats, and avoid pollution or deterioration of important bird habitats outside SPAs. ▪ Improve the ecological coherence of Natura 2000 by encouraging the management of, maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species. ▪ Protect NHAs, National Parks, Nature Reserves, Wildfowl Sanctuaries, refuges for Fauna or Flora and sites proposed for designation.	▪ Number and extent of Protected Sites. ▪ Areas actively managed for conservation. ▪ Population and range of Protected Species. ▪ Achievement of the Objectives of Biodiversity Plans.
Population & Human Health (PHH)	(PHH_1) Provide high quality residential, community, working and recreational environments with access to sustainable transport options.	▪ Minimise population exposure to high levels of noise, vibration and air pollution. ▪ Increase modal shift to public transport. ▪ Co-ordinate land use and transportation policies. ▪ Improve access to recreation opportunities.	▪ Census population data. ▪ Rates of Unemployment per area. ▪ % increase in housing (number and type).

Theme	Objective	Targets	Indicators
	(PHH_2) Protect human health and well-being.		
Soils & Geology (SG)	(SG_1) Safeguard sensitive soil resources.	▪ Prevent pollution of soil through adoption of appropriate environmental protection procedures during construction and maintenance works on site. ▪ Ensure polluting substances are appropriately stored and bunded. ▪ Ensure appropriate management of existing contaminated soil in accordance with the requirements of current waste legislation. ▪ Re-use of brownfield lands, rather than developing Greenfield lands, where possible. ▪ Minimise the consumption of non-renewable sand, gravel and rock deposits.	▪ Rates of re-use / recycling of construction waste ▪ Rates of cement / concrete production ▪ Rates of brownfield site and contaminated land reuse and development. ▪ Rates of greenfield development.
Water (W)	(W_1) Protect and where necessary improve and maintain water quality and the management of watercourses and groundwater, in compliance with the requirements of the Water Framework Directive objectives and measures.	▪ Support the achievement of "good" ecological and chemical status/potential of waterbodies in accordance with the Water Framework Directive. ▪ Minimise flood risk through appropriate management of flood vulnerable zones. ▪ Promote sustainable drainage practices to improve water quality and flow.	▪ Compliance of potable water sources to water quality regulations. ▪ Compliance of surface waters with national and international standards. ▪ Potable and wastewater treatment capacities versus population. ▪ % of wastewater achieving tertiary treatment. ▪ Achievement of the Objectives of the River Basin Management Plans. ▪ Amount of new developments within flood plains. ▪ Annual costs of damage related to flood events.
Air Quality, Noise & Climate	(ANCC_1) Minimise emissions of pollutants to air associated with transport.	▪ Minimise air and noise emissions during construction and operation of new developments. ▪ Promote minimisation of greenhouse gas emissions to the atmosphere.	▪ Traffic, Transport and Vehicular survey data. ▪ National and region specific emission data. ▪ Compliance with national standards. ▪ Reduction in greenhouse gas emissions.

Theme	Objective	Targets	Indicators
Change (ANCC)	(ANCC_2) Minimise contribution to climate change by adopting adaptation and mitigation measures.	▪ Limiting and adapting to climate change.	▪ Number and extent of emission licensed facilities. ▪ Number of energy / renewable energy production facilities. ▪ Rates of energy / renewable energy consumption.
Cultural Heritage (C)	(C_1) Protect places, features, buildings and landscapes of cultural, archaeological and / or architectural heritage from impact as a result of development.	▪ Regeneration of derelict and underutilised heritage sites. ▪ Improve appearance of areas with particular townscape character. ▪ Improve protection for protected archaeological sites and monuments and their settings, protected structures and conservation areas and areas of archaeological potential ▪ Enhance access to sites of heritage interest	▪ Updating of inventories to include new sites / features. ▪ Achieving the objectives of development plans regarding heritage protection. ▪ Range and extent of areas of heritage potential ▪ Range and extent of areas of special planning controls.
Landscape (L)	(L_1) Protect and maintain the special qualities of the landscape character including coastal character within Fingal.	▪ Improve protection for landscapes of recognised quality. ▪ Maintain clear urban / rural distinctions. ▪ Enhance provision of, and access to, green space in urban areas. ▪ Ensure development is sensitive to its surroundings.	▪ Range and extent of Amenity Landscapes. ▪ Rates of development within designated landscapes. ▪ Rates of urban expansion. ▪ Rates of deforestation. ▪ Rates of agricultural land re-development. ▪ % change of land use from rural to urban.
Material Assets (MA)	(MA_1) Make best use of existing infrastructure and promote the sustainable development of new infrastructure to meet the needs of the county's and Swords population.	▪ Improve availability and accessibility of commercially provided facilities and public services. ▪ Increase local employment opportunities. ▪ Improve efficiencies of transport, energy and communication infrastructure. ▪ Promotion of sustainable transport infrastructure i.e. increased public transport. ▪ Reduce the generation of waste and adopt a sustainable approach to waste management.	▪ Location / level of Infrastructure. ▪ Achievement of development plan objectives. ▪ Rates of deprivation. ▪ Rate of waste disposal to landfill statistics. ▪ Range and extent of recycling facilities and services. ▪ Rates of recycling.

7.0 Description of Alternatives

7.1 Introduction

Consideration of alternatives is a critical function of the SEA process and is necessary to evaluate the likely environmental consequences of a range of development strategies for the Plan within the constraints imposed by environmental and planning conditions.

7.2 Legislative Context

Article 5 of the SEA Directive requires the consideration of reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme and the significant environmental effects of the alternatives proposed. It states under Article 5(1) that;

> *Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated. The information to be given for this purpose is referred to in Annex I.*

In accordance with 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 Plan will be implemented within the national and county planning hierarchy. The Masterplan will be framed within a policy context set by a hierarchy of National, Regional and County level strategic plans as well as the Irish and European legislative framework. Therefore the options for alternatives are limited, and a scenario such as the 'do-nothing' situation has not been included as it is neither reasonable nor realistic.

The alternatives proposed have been assessed against the relevant SEOs established for the key aspects of the environment likely to be affected by the Plan's implementation. The evaluation process resulted in the identification of potential impacts and informed the selection of the preferred development scenario for the Masterplan lands. This determination sought to understand whether each alternative was likely to improve, conflict with, or have a neutral interaction with the environment of the plan area.

7.3 Description of Proposed Alternatives

The Draft Masterplan has been prepared largely in response to the requirement to meet development need as set out in the Fingal Development Plan 2017-2023. This development must takes account of transport plans, most notably the proposed BusConnects and MetroLink projects, which will provide for a high-quality high-frequency public transport services between Swords, the airport and Dublin City Centre. Consequently, the alternatives considered were closely linked to the delivery of MetroLink.

The Estuary West Masterplan is also one of 3 Masterplans currently being advanced by Fingal County Council in the Swords area (Fosterstown and Barrysparks & Crowscastle being the other 2). As such, each Masterplan has a relationship with other Plans and development proposals therein. The requirement to prepare a Masterplan is a stated objective of the Fingal Development Plan, and as such consideration of do-nothing is not a valid alternative option. Likewise the zoning objectives for the lands have been established in the County Development Plan and again consideration of alternative zoning is

not a valid alternative option. The various alternative options are outlined in Table 7.1 and assessed in Table 7.2.

Table 7.1 Alternative Scenarios

Alternative Scenario 1: Unconstrained Development Scenario	
Components	Critical Evaluation
▪ Greater quantum of development in the short-medium term ▪ Addressing the housing shortages in Dublin	▪ This scenario would create a severe impact on the surrounding transport / road network, if the development were to be delivered prior to the operation of MetroLink.

Alternative Scenario 2: 50% Development Scenario	
Components	Critical Evaluation
▪ 50% of development being delivered prior to the operation of MetroLink ▪ Addressing the housing shortages in Dublin	▪ This scenario would create a significant impact on the surrounding transport / road network, if the development were to be delivered prior to the operation of MetroLink. ▪ While a sensitivity analysis indicated that a reduction in the quantum of car parking permitted in the proposed commercial areas would reduce the impact, the impact was still considered significant impact.

Alternative Scenario 3: 25-30% Development Scenario	
Components	Critical Evaluation
▪ 25-30% of development being delivered prior to the operation of MetroLink	▪ Traffic modelling indicated that a scenario whereby 25-30% of the combined overall development of the Masterplan areas would have an acceptable impact on the surrounding transport network.

The project team also considered the merits of sequencing the different Masterplans for areas around Swords. – *e.g.* allowing Estuary West to be completed or substantially completed prior to development commencing in the other Masterplan areas. However, given the landownership patterns across the three Masterplan areas and the desire for development to commence in order to provide more local employment and housing, this approach was considered inequitable and potentially counterproductive as long delays might be experienced across all Masterplan areas if one landowner decided to postpone development. Instead, an approach whereby each Masterplan will be permitted to develop a proportion of the overall quantum of development envisaged has been adopted, subject to the recommendations of the transport assessment.

7.4 Evaluation of Alternatives

This Section provides a comparative evaluation of the environmental effects of implementing the alternatives and determines which alternative is likely to have a beneficial, neutral or negative relationship with the SEO's outlined in Section 6. Using the above SEOs, the alternatives are evaluated

against these environmental objectives, the results of the assessment are presented in Table 7.2. The Assessment is categorized as follows:

Positive	
Neutral	
Uncertain	
Negative	

7.5 Outcome of Alternatives Assessment

Table 7.2 below highlights a comparative assessment of the proposed alternatives. This assessment identifies that Alternative 3 is the most appropriate and environmentally protective for the future development of the Masterplan lands and the wider Swords area.

Table 7.2 Assessment of Alternatives

SEA Objectives	Development Scenario 1	Development Scenario 2	Development Scenario 3
Biodiversity, Flora & Fauna			
(B_1) Preserve, protect, maintain and where appropriate restore the terrestrial, aquatic and soil biodiversity, including EU and nationally designated sites and protected species.	Negative	Negative	Negative
Population & Human Health			
(PHH_1) Provide high quality residential, community, working and recreational environments with access to sustainable transport options.	Negative	Negative	Positive
(PHH_2) Protect human health and well-being.	Negative	Negative	Positive
Soils & Geology			
(SG_1) Safeguard sensitive soil resources.	Negative	Negative	Negative
Water			
(W_1) Protect and where necessary improve and maintain water quality and the management of watercourses and groundwater, in compliance with the requirements of the WFD objectives and measures.	Neutral	Neutral	Neutral
	Uncertain	Uncertain	Uncertain
Air Quality, Noise & Climate Change			
(ANCC_1) Minimise emissions of pollutants to air associated with transport.	Negative	Negative	Positive
(ANCC_2) Minimise contribution to climate change by adopting adaptation and mitigation measures.	Negative	Negative	Positive
Cultural Heritage			

SEA Objectives	Development Scenario 1	Development Scenario 2	Development Scenario 3
(C_1) Protect places, features, buildings and landscapes of cultural, archaeological and / or architectural heritage from impact as a result of development.	Neutral	Neutral	Neutral
	Uncertain	Uncertain	Uncertain
Landscape			
(L_1) Protect and maintain the special qualities of the landscape character including coastal character within Fingal.	Neutral	Neutral	Neutral
	Uncertain	Uncertain	Uncertain
Material Assets			
(MA_1) Make best use of existing infrastructure and promote the sustainable development of new infrastructure to meet the needs of the county's and Swords population.	Negative	Negative	Positive

8.0 Strategic Environmental Assessment of Estuary West

8.1 Introduction

The SEA process ensures that the environment is central to all decisions on the future development of the plan area.

The purpose of this section of the Environmental Report is to highlight the potential conflicts, if they are present, between the stated policies and objectives contained in the Plan with the Strategic Environmental Objectives. Furthermore the assessment examines the potential impact arising from the Plan's implementation of its policies and objectives on sensitive environmental receptors.

The process of SEA and Masterplan formulation is an iterative one and as such environmental considerations have informed all stages of plan preparation carried out to date in order for the potential for significant adverse effects arising from implementation of the plan to be minimised. Nonetheless, it is possible that some individual plan objectives or policies will create such effects. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts and where this is not possible for stated reasons, to lessen or offset those effects through mitigation measures outlined in Section 9 of this report.

In some instances there is little or no relationship between the various Plan Policies / Objectives and the respective environmental receptor. Where this occurs, the potential impact is regarded as neutral and no further discussion is deemed necessary.

This section provides a comparative evaluation of the environmental effect of implementing the stated policies and objectives of the Masterplan and determines whether each measure is likely to have a positive, neutral, uncertain or negative relationship with the SEO's outlined in Section 6. Using the above SEOs, the policies and objectives of the Masterplan are evaluated in the context of their impact on these environmental objectives, the results of the assessment are presented in a table format below. The potential effects are categorised as follows:

- Potential Positive Impact
- Uncertain Impact
- Neutral or No Relationship
- Potential Negative Impact

Table 8.1 below provides a detailed evaluation of the refined policies and objectives incorporated into the Draft Masterplan. Where the evaluation identifies a potential uncertain or negative impact with the status of an SEO, the relevant SEO code and provision is entered into a Mitigation Table (see Table 9.1) to assess what mitigation is available to offset uncertain or potentially negative impacts arising from the provision.

Table 8.1: Environmental Assessment of Draft Masterplan Policies and Objectives

Specific Key Principles, Policies and Objectives of the Draft Masterplan	Potential Negative Impact	Potentially Uncertain Impact	Potentially Neutral or No relationship	Potential Positive Impact
Part A: Swords Masterplan				
A Growing Place – "Enable future employers on the Masterplan lands to attract the best talent by creating a quality environment in which businesses will want to locate and staff will want to work"			(B_1) (PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	
A Growing Place – "Maximise the return on investment in key infrastructure including MetroLink by facilitating development at an appropriate scale		(B_1)(PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)		
A Growing Place - "Create Masterplan areas with distinctive characters through the use of innovative, high-quality architecture and green infrastructure"			(B_1)(PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	
A Growing Place – "Ensure that the scale of development is appropriate at the interfaces of existing residential areas"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2) (L_1)
A Growing Place – "Ensure that development is phased to coincide with infrastructural upgrades, to manage the impact of development on the surrounding area"				(B_1)(PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)
A Growing Place – "Incorporate existing features, such as trees, hedgerows and buildings of architectural merit into future proposals"			(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)(B_1) (L_1)
A Connected Place – "Ensure that the Masterplan lands are highly accessible and contribute to the efficient movement of vehicles in the locality and the Swords area more broadly"			(B_1) (PHH_1) (PHH2) (SG_1) (W_1)	(MA_1)

			(ANCC_1) (ANCC_2) (C_1) (L_1)	
A Connected Place – "Facilitate safe pedestrian / cyclist access from and through the Masterplan lands to the proposed MetroLink stations"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH_2)
A Connected Place – "Reduce the need to undertake local car-based journeys through the provision of a high quality walking and cycling network both within and surrounding the Masterplan lands"			(B_1) (SG_1) (W_1) (C_1) (L_1) (MA_1)	(PHH_1) (PHH_2) (ANCC_1) (ANCC_2)
A Connected Place – "Improve opportunities for off-road movements by providing green routes through Masterplan lands"				(B_1) (PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)
A Connected Place – "Support the role and function of Swords Main Street by ensuring a high level of pedestrian and cyclist connectivity from the Masterplan lands"				(B_1)(PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)
A Connected Place – "Ensure that the Masterplan lands are adequately serviced by both car and cycle parking"			(B_1)(PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	
A Green Place – "Ensure that the provision of green infrastructure is a key component of the design and layout of development on the lands and that proposals connect to and enhance existing green infrastructure assets"				(B_1) (PHH_1) (PHH_2) (SG) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)
A Green Place – "Mitigate flood risk by incorporating SuDS features into new development and take advantage of the opportunities created to ensure that these areas enhance the landscape quality of the area"		(B_1) (PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)		

A Green Place – "Reduce the carbon footprint of new buildings by ensuring that development is designed to minimise requirements for energy and water"			(L_1) (C_1) (B_1) (PHH1) (PHH2)	(SG_1) (W_1) (ANCC_1) (ANCC_2) (MA_1)
A Green Place – "Ensure the long-term sustainability of the lands in the context of a changing climate and mitigate the resultant risks"			(L_1)	(B_1) (PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)
A Green Place – "Ensure existing landscape features such as watercourses, tree groups and townland hedgerows are incorporated into future development proposals"			(MA_1)	(B_1) (PHH1) (PHH2) (SG) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1)
A Green Place – "Provide green corridor connections between open spaces both internal and external to the site for recreational, environmental and ecological benefits"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)
A Place for People – "Ensure that the range of housing matches the needs of future residents and helps to diversify the housing stock in Swords"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)
A Place for People – "Provide a variety of housing types suitable for people at a range of life stages to take account of the shifting nature of society and its demographics"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)
A Place for People – "Meet the sporting and recreational needs of the growing population through the provision of appropriate facilities on the Masterplan lands"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)
A Place for People – "Ensure that new or extended open space networks are designed to facilitate people with a broad range of abilities"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)
A Place for People – "Facilitate the provision of additional school spaces by allocating appropriate sites for the construction of new national schools"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)
A Place for People – "Ensure that the existing community in adjacent areas benefit from the development of the lands"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)

A Place for People – "Increase opportunities for physical activity, both intentional and incidental"			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH2)
Specific Key Principles, Policies and Objectives of the Draft Masterplan	Potential Negative Impact	Potentially Uncertain Impact	Potentially Neutral or No relationship	Potential Positive Impact
Part D: Estuary West – Chapter 2 Opportunities				
Open Space / Recreational Amenity - Provide a green corridor along the Broadmeadow River to create an extension of the riverside park.			(PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(B_1)(L_1)
Open Space / Recreational Amenity - Incorporate two linear (north-south) green corridors, which will incorporate necessary SuDS infrastructure and will provide a high quality landscape that fosters biodiversity and provides for the enjoyment of residents.			(PHH_1) (PHH_2) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(B_1) (L_1) (W_1)
Open Space / Recreational Amenity - Provide new sporting facilities (playing field / sports court) for the use of residents.		(B_1)(L_1)	(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
Open Space / Recreational Amenity - Potential to provide pedestrian/cycle links across the Broadmeadow River to connect with sports grounds at Swords Celtic.	(B_1) (L_1)	(W_1)	PHH_1) (PHH2) (SG_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	
Open Space / Recreational Amenity - Provide a 'nature playground' within the Broadmeadow Park.		(B_1) (L_1)	(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
Local Centre - Create a local centre with retail and retail services to facilitate local needs.		(B_1) (L_1) (W_1)	(SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
Local Centre - Provide an opportunity for people to meet and gather through the provision of a civic square.		(B_1)(L_1)	(SG_1) (W_1) (ANCC_1) (ANCC_2) (MA_1)	(PHH_1) (PHH_2)
Local Centre - Incorporate Newtown House into the civic square and local centre.		(B_1) (L_1) (C_1)	(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)

Commercial - Provide commercial uses to the south-east of the Masterplan lands, at the junction of the Glen Ellan/ Balheary Road. A potential of c. 18,000 sq.m of commercial floorspace can be provided.		(B_1)(L_1) (W_1)	(SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1) PHH1) (PHH2	
Educational facilities - Provide a new primary school in Estuary West to serve the growing population of the north-Swords area.		(B_1)(L_1) (W_1)	(SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
Educational facilities - Provide additional sporting/recreational facilities to serve the primary school.		(B_1)(L_1)	(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
Heritage - Newtown House will be protected and conserved. Incorporate the public civic square with Newtown House and the local retail centre to promote this key heritage asset. Encourage the reuse of Newtown House.			(B_1) (PHH1) (PHH2) (SG) (W_1) (ANCC_1) (ANCC_2) (L_1) (MA_1)	(C_1)
Community / Neighbourhood - Provide high quality residential accommodation which will cater to the changing needs of its future residents.			(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)(B_1)(L_1)	(PHH_1) (PHH_2)
Community / Neighbourhood - Provide a mix of apartments and houses, with a range of bedroom sizes to facilitate the growing population of Swords.			(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)(B)(L_1)	(PHH_1) (PHH_2)
Community / Neighbourhood - Ensure the provision of local services and amenities to support new residential developments.			(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)(B)(L_1)	(PHH_1) (PHH_2)
Part D: Estuary West – Chapter 4 Transport and Movement				
Main vehicular access to the Masterplan lands will be achieved via the Glen Ellan Road and the Balheary Road.		(B_1)(W_1) (L_1)	PHH_1) (PHH_2) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	
Smaller grade local streets will facilitate access throughout the site.			(B_1)(PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	
Pedestrian and cyclist connections shall be incorporated to promote a reduction in the use of the private car.			(B_1) (SG_1) (W_1) (C_1) (L_1)	(PHH_1) (PHH_2) (ANCC_1) (ANCC_2) (MA_1)

"To minimise the visual impact of parking, development parking will be provided in underground/under-croft parking"		(B_1) (SG_1) (W_1)	PHH_1) (PHH_2) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(L_1)
"Prior to the delivery of MetroLink… In this interim phase, 50% of the commercial parking requirement will be permitted in the form of temporary surface parking, adjacent to the buildings, with the remaining 50% accommodated in underground/under-croft parking. When the Metro becomes operational, temporary surface parking areas will be reverted "	(B_1) (L_1) (W_1)	(PHH_1) (PHH_2) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)		
"Secure and easily accessible residential cycle parking is to be provided for each residential and commercial block in accordance with the minimum standards set out in the Fingal Development Plan"			(B_1) (SG_1) (W_1) (C_1) (L_1) (MA_1)	(PHH_1) (PHH_2) (ANCC_1) (ANCC_2)
"Hard and soft landscaping and appropriate lighting will be required around surface carparking areas"			(B_1)(PHH_1) (PHH2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	
Part D: Estuary West – Chapter 5 Green Infrastructure				
Facilitate the extension of the Broadmeadow River Valley Park along the Ward River immediately to the north of the Masterplan lands encompassing pedestrian and cyclist infrastructure.			(SG_1) (W_1) (C_1) (MA_1)(ANCC_1) (ANCC_2)	(PHH_1) (PHH_2) (B)(L_1)
Provide two north-south green corridors linking the proposed extension to the Broadmeadow River Valley Park to the Glen Ellan Road.			(SG_1) (W_1) (C_1) (MA_1)(ANCC_1) (ANCC_2)	(PHH_1) (PHH_2) (B)(L_1)
Provide active open space facilities in the form of playing pitches adjacent to the school site and available for use by local residents outside of school requirements.		(B_1) (L_1)	(SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
Provide a high quality landscaped space/ square based around Newtown House and the proposed local centre.			(B_1)(PHH_1) (PHH2) (SG) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(L_1)
Ensure that the proposed link streets and local access streets as shown on the road hierarchy are lined with trees planted in constructed tree pits.			(PHH_1) (PHH2) (SG) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(B_1) (L_1)
Provide an open space area that encompasses any required SuDS or flood mitigation measures adjacent to the Balheary Road/ Ward River, to coincide with the 1:1000 year flood			(B_1) (PHH1) (SG) (C_1) (L_1) (MA_1)	(PHH2) (W_1) (ANCC_1) (ANCC_2)

risk area as identified in the accompanying Strategic Flood Risk Assessment. Any possible form of development in this area shall be subject to further site specific flood risk assessment.				
Conserve, protect and enhance existing trees and hedgerows within the Masterplan lands to help foster biodiversity in the area.			(PHH1) (PHH2) (SG) (W_1) (ANCC_1) (ANCC_2) (MA_1)	(C_1) (L_1) (B)
Ensure that new or extended open space networks are designed to facilitate people with a broad range of ability.			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH_2)
Part D: Estuary West – Chapter 6 Built Form				
Provide a variety of heights throughout the Masterplan lands to create visual interest and to facilitate access to light, generally in accordance with Figure 6.2.		(L_1)	(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
Provide lower heights adjoining existing residential areas in the form of 2-3 storey development along Jugback Terrace.			(B_1) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	(PHH_1) (PHH_2)
Provide a strong urban edge to the Glen Ellan Road, where heights ranging from 5 - 6 storeys will be supported.		(L_1)	(B_1)(PHH1) (PHH2) (SG) (W_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	
"Facilitate pedestrian and cyclist connectivity through the site to minimise walking / cycling distance to the proposed Estuary MetroLink station"			(B_1) (L_1) (W_1) (SG_1) (C_1) (MA_1)	(PHH1) (PHH2) (ANCC_1) (ANCC_2)
"Facilitate the provision of a school located centrally within the Masterplan lands, with accompanying open space / play spaces		(B_1) (L_1) (W_1)	(SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
"Provide residential accommodation at a net density of 70-75 units per hectare, with an appropriate mix of houses and apartments to meet the needs of future residents of the area and to diversify Swords' existing housing stock"		(B_1) (L_1) (W_1)	(SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
"Provide a local centre, based around Newtown House, with c. 3,500 sq.m of retail / retail services to serve the day-to-day needs of local residents and workers"		(B_1) (L_1) (W_1)	(SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)
"Densities will only be permitted at the higher end of the range where it can be demonstrated that the proposed development contributes substantially toward the achievement of the principles and objectives set out in this Masterplan and will result in a high quality living environment"		(B_1) (L_1) (W_1)	(SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH_1) (PHH_2)

"Provide up to 18,000 sq.m of flexible commercial floorspace to facilitate a range of employment uses in keeping with the Metro Economic zoning of the lands"		(L_1) (B_1) (W_1)	(PHH_1) (PHH2) (SG_1) (ANCC_1) (ANCC_2) (C_1)	(MA_1)
"Commercial floorspace should be provided in a cluster to the south-east of the Masterplan lands, adjacent to the junction of the Balheary Road and Glen Ellan Road"		(L_1) (B_1) (W_1)	(PHH_1) (PHH2) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	
"Provide houses fronting Jugback Lane (primarily accessed from the Glen Ellan Road) to improve overlooking and passive surveillance"			(B_1) (L_1) (W_1) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH1) (PHH2)
"The overall unit-type mix of the Masterplan lands shall be broadly within the following parameters: 20-25% 1 bedroom units; 45-55% 2 bedroom units; 20-30% 3 bedroom units"			(B_1) (L_1) (W_1) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH1) (PHH2)
Height – "Provide lower heights adjoining existing residential areas in the form of 2-3 storey development along Jugback Lane		(L_1)	(B_1) (W_1) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	(PHH1) (PHH2)
Part D: Estuary West – Phasing and Implementation				
Development within the Masterplan area shall be phased in order to manage the impact of the development envisaged on the surrounding area.				(B_1)(PHH1) (PHH2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)
No more than 25% of the overall quantum of development envisaged shall be constructed and occupied prior to the operation of MetroLink.				(B_1)(PHH1) (PHH2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)
Development within the Masterplan area shall be phased in accordance with Table 9.1 and Figure 9.1 contained herein.				(B_1)(PHH1) (PHH2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)

9.0 Mitigation Measures

9.1 Introduction

The quality of the environment within plan area is an important issue for consideration by Fingal County Council. A green county is a healthy county. Protecting and enhancing open spaces for both biodiversity and recreational use has benefits for the area's sustainability and attractiveness as a place to live, work and visit. While it is a key priority of the Masterplan to attract the best talent by creating a quality environment in which businesses will want to locate and staff will want to work, this must be achieved by balancing the need for intensification of development with the need to protect and enhance vulnerable natural areas. This has been recognised throughout the SEA and Masterplan process and the Plan is framed within ideals of sustainability throughout its vibrant communities, tourism economy and unique cultural and natural heritage.

Article 5 of the SEA Directive requires that Mitigation Measures be proposed for all significant adverse effects on the environment as a result of the implementation of the Masterplan. The SEA is an iterative process prepared in tandem with the formulation of the policies and objectives of the Masterplan. While not always possible to achieve, it is the aim of the process to ensure that sensitive environmental receptors are given adequate and appropriate consideration throughout.

9.2 Mitigation Measures

As environmental considerations have informed all stages of the preparation of the Masterplan, the policies and objectives of the Plan have been framed to ensure that potential adverse impacts are avoided, eliminated or lessened to an acceptable level.

This section outlines the mitigation measures identified, as necessary, to address the potential negative or uncertain impacts arising from the implementation of the Masterplan. While every effort has been taken to ensure that the impact of the Masterplan on the environment is neutral to positive, particular unavoidable negative impacts may occur as a result of its implementation. Table 9.1 below details the protectives policies and objectives of the Fingal Development Plan that reduce or eliminate potential negative or uncertain impacts. A full list of the appropriate protective policies and objectives as set out in the Fingal Development Plan are provided in Appendix 1

In general terms, all proposals for development will be required to have due regard to the environmental considerations outlined the Fingal Development Plan 2017-2023. At the project-level, future developments will be required to undergo screening for the requirement for Environmental Impact Assessment (EIA) and Habitat Directive Assessment Stage, and detailed mitigation measures for all projects will also be developed as appropriate.

As a result of this informed iterative process, it is the finding of the assessment of the Masterplan as presented in Section 8 and Section 9 of this Report, that the full implementation of the Plan, will have a neutral impact on the environment as a whole.

Similarly, Section 10 below outlines the SEA monitoring process of the implementation of the Masterplan on various environmental receptors.

A schedule of monitoring and reporting is set out in Table 10.1 in order to ensure that any unforeseen negative impact is identified at the earliest opportunity and subsequently appropriate mitigation measures are put in place to eliminate or at a minimum limit the level of impact to an acceptable degree.

Table 9.2: Mitigation Measures

Specific Policies and Objectives of the Draft Plan	Potential Negative Impact	Potentially Uncertain Impact	Protective Policies and Objectives Comments
Part A: Swords Masterplan			
A Growing Place – "Maximise the return on investment in key infrastructure including MetroLink by facilitating development at an appropriate scale		(B_1) (PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Population & Human Health** will be mitigated by Policy PM24, PM25 and PM26. Potential uncertain impacts on **Soils and Geology** will be mitigated by Policy RF83 and SP02. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01. Potential uncertain impacts on **Air Quality, Noise & Climate Change** will be mitigated by Policy EN01, SP01, NP03 and GI11. Potential uncertain impacts on **Cultural Heritage** will be mitigated by Policy Sp01, Sp02, Sp03, Sp04 and Sp05. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Material Assets** will be mitigated by Policy MT12, MT15 and MT36.
A Green Place – "Mitigate flood risk by incorporating SuDS features into new development and take advantage of the opportunities created to ensure that these areas enhance the landscape quality of the area"		(B_1) (PHH_1) (PHH_2) (SG_1) (W_1) (ANCC_1) (ANCC_2) (C_1) (L_1) (MA_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Population & Human Health** will be mitigated by Policy PM24, PM25 and PM26. Potential uncertain impacts on **Soils and Geology** will be mitigated by Policy RF83 and SP02. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01. Potential uncertain impacts on **Air Quality, Noise & Climate Change** will be mitigated by Policy EN01, SP01, NP03 and GI11. Potential uncertain impacts on **Cultural Heritage** will be mitigated by Policy Sp01, Sp02, Sp03, Sp04 and Sp05. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Material Assets** will be mitigated by Policy MT12, MT15 and MT36.

Specific Key Principles, Policies and Objectives of the Draft Masterplan	Potential Negative Impact	Potentially Uncertain Impact	Protective measures
Part D: Estuary West – Chapter 2 Opportunities			
Open Space / Recreational Amenity - Provide new sporting facilities (playing field/sports court) for the use of residents.		(B_1)(L_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47.
Open Space / Recreational Amenity - Potential to provide pedestrian/cycle links across the Broadmeadow River to connect with sports grounds at Swords Celtic.	(B_1)((L_1)	(W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
Open Space / Recreational Amenity - Provide a 'nature playground' within the Broadmeadow Park.		(B_1) (L_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47.
Local Centre - Create a local centre with retail and retail services to facilitate local needs.		(B_1) (L_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
Local Centre - Provide an opportunity for people to meet and gather through the provision of a civic square.		(B_1) (L_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47.
Local Centre - Incorporate Newtown House into the civic square and local centre.		(B_1) (L_1) (C_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Cultural Heritage** will be mitigated by Policy Sp01, Sp02, Sp03, Sp04 and Sp05.
Commercial - Provide commercial uses to the south-east of the Masterplan lands, at the junction of the		(B_1) (L_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01.

Glen Ellan / Balheary Road. A potential of c. 18,000 sq.m of commercial floorspace can be provided.			Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
Educational facilities - Provide a new primary school in Estuary West to serve the growing population of the north-Swords area.		(B_1) (L_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
Educational facilities - Provide additional sporting / recreational facilities to serve the primary school.		(B_1)(L_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47.
Part D: Estuary West – Chapter 4 Transport and Movement			
Main vehicular access to the Masterplan lands will be achieved via the Glen Ellan Road and the Balheary Road.		(B_1) (W_1) (L_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
"To minimise the visual impact of parking, development parking will be provided in underground / under-croft parking"		(B_1) (SG) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
"Prior to the delivery of MetroLink… In this interim phase, 50% of the commercial parking requirement will be permitted in the form of temporary surface parking, adjacent to the buildings, with the remaining 50% accommodated in underground / under-croft parking. When the Metro becomes operational, temporary surface parking areas will be reverted "	(B_1) (L_1) (W_1)	(PHH_1) (PHH_2) (SG_1) (ANCC_1) (ANCC_2) (C_1) (MA_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Population & Human Health** will be mitigated by Policy PM24, PM25 and PM26. Potential uncertain impacts on **Soils and Geology** will be mitigated by Policy RF83 and SP02. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01. Potential uncertain impacts on **Air Quality, Noise & Climate Change** will be mitigated by Policy EN01, SP01, NP03 and GI11.

			Potential uncertain impacts on **Cultural Heritage** will be mitigated by Policy Sp01, Sp02, Sp03, Sp04 and Sp05. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Material Assets** will be mitigated by Policy MT12, MT15 and MT36.
Part D: Estuary West – Chapter 5 Green Infrastructure			
Provide active open space facilities in the form of playing pitches adjacent to the school site and available for use by local residents outside of school requirements.		(B_1)(L_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47.
Part D: Estuary West – Chapter 6 Built Form			
Provide a variety of heights throughout the Masterplan lands to create visual interest and to facilitate access to light, generally in accordance with Figure 6.2.		(L_1)	Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47
Provide a strong urban edge to the Glen Ellan Road, where heights ranging from 5 - 6 storeys will be supported.		(L_1)	Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47
"Facilitate the provision of a school located centrally within the Masterplan lands, with accompanying open space / play spaces".		(B_1) (L_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
"Provide residential accommodation at a net density of 70-75 units per hectare, with an appropriate mix of houses and apartments to meet the needs of future residents of the area and to diversify Swords' existing housing stock".		(B_1) (L_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
"Provide a local centre, based around Newtown House, with c. 3,500 sq.m of retail / retail services to		(B_1) (L_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47.

serve the day-to-day needs of local residents and workers".			Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
"Densities will only be permitted at the higher end of the range where it can be demonstrated that the proposed development contributes substantially toward the achievement of the principles and objectives set out in this Masterplan and will result in a high quality living environment"		(B_1) (L_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
"Provide up to 18,000 sq.m of flexible commercial floorspace to facilitate a range of employment uses in keeping with the Metro Economic zoning of the lands".		(L_1) (B_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
"Commercial floorspace should be provided in a cluster to the south-east of the Masterplan lands, adjacent to the junction of the Balheary Road and Glen Ellan Road".		(L_1) (B_1) (W_1)	Potential uncertain impacts on **Biodiversity** will be mitigated by Policy WQ05, GI23 and SP01. Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47. Potential uncertain impacts on **Water** will be mitigated by Policy SW01, SW12, WQ02, WQ04, DW06 and WT01.
Height – "Provide lower heights adjoining existing residential areas in the form of 2-3 storey development along Jugback Lane.		(L_1)	Potential uncertain impacts on **Landscape** will be mitigated by Policy PM26, PM44, PM45, GI02, GI03, SP03, SP04, NH44, NH45 and NH47

10.0 Monitoring Programme

10.1 Introduction

Monitoring of the Masterplan and its implications on the environment is paramount to ensure that the environment is not adversely affected through its implementation. Under Article 10 of the SEA Directive, monitoring must be carried out of the significant environmental effects directly related to the implementation of the Plan "*in order to, inter alia, identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action*." The SEA Guidelines state that monitoring should concentrate on the 'likely significant environmental effects', which have been identified in this Report, and measures identified as necessary to avoid, reduce and offset any significant adverse effects.

10.2 Monitoring Indicators

Baseline monitoring is proposed on a series of indicators which measure changes in the environment, especially changes which are critical in terms of environmental quality, for example water or air pollution levels. These indicators aim to simplify complex interrelationships and provide information about environmental issues which is easy to understand. A list of environmental indicators is provided in Table 10.1 below. The indicators are based on the SEO presented in Section 6 and have been derived from knowledge of the existing environmental issues within the Plan area and also from legislation, guidelines and higher level plans.

It is considered that a monitoring report on the implementation of the policies and objectives within the Masterplan is important for the on-going and future implementation of the Plan. It is also considered appropriate that the monitoring programme for the implementation of the policies and objectives within the Masterplan is integrated with the monitoring programme for the statutory development plans for Fingal County.

Environmental indicator assessment during monitoring can show positive / neutral impacts or negative impacts on the environment. Where an indicator value highlights a positive / neutral impact on the environment, it is likely that the policies of the Masterplan are well defined with regard to the environment. Conversely, where the policies of the Masterplan have a negative impact on the environment, it may be necessary to review the policies or objectives of the Plan or to take some other form of intervention. For example, if an objective or policy is having a significant adverse impact, a change may be considered during the lifetime of the Plan.

10.3 Sources

Measurements for indicators generally come from existing monitoring sources. Existing monitoring sources include those maintained by the relevant authorities including the National Transport Authority (NTA), the EPA, the NPWS and the Central Statistics Office (CSO).

The output of lower-tier environmental assessment and decision making - including a review of project approvals granted and associated documents - will also be utilised as part of the Monitoring Programme.

Where significant effects - including positive, negative, cumulative and indirect - have the potential to occur as a result of the undertaking of individual projects or multiple individual projects, such instances should be identified and recorded and should feed into the monitoring evaluation.

Table 10.1 Monitoring Environmental Indicators

Environmental Component	Indicators	Targets	Responsibility	Frequency / Timing
Biodiversity, Flora & Fauna	▪ Number and extent of Protected Sites ▪ Areas actively managed for conservation ▪ Population and range of Protected Species ▪ Achievement of the Objectives of Biodiversity Plans	▪ Consider siting of new development on non-sensitive sites. ▪ Improve/conserve and protect all designated sites and species within and adjacent to the Plan area ▪ Deliver the requirement of the Habitats Directive (Article 4, Paragraph 4) for the maintenance or restoration of annexed habitats and species within SACs at a "favourable conservation status. ▪ Promote the maintenance and, as appropriate, achievement of favourable conservation status of habitats and species, in association with the NPWS and other stakeholders. ▪ Protect SPAs, Annex I bird species, and regularly occurring migratory bird species and their habitats, and avoid pollution or deterioration of important bird habitats outside SPAs. ▪ Improve the ecological coherence of Natura 2000 by encouraging the management of, maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species ▪ Protect NHAs, National Parks, Nature Reserves, Wildfowl Sanctuaries, Refuges for Fauna or Flora and sites proposed for designation.	Fingal County Council, National Parks & Wildlife, Dept of Housing, Planning, Community and Local Government.	Monitoring of environmental likely significant effects on a project by project basis as particular elements of the plan are developed and advanced. National Monitoring Report under Article 12 of the Birds Directive. (c. every 6 years).

Environmental Component	Indicators	Targets	Responsibility	Frequency / Timing
Population & Human Health	▪ Census population data ▪ Rates of Unemployment per area ▪ % increase in housing (number and type)	▪ Minimise population exposure to high levels of noise, vibration and air pollution ▪ Increase modal shift to public transport ▪ Co-ordinate land use and transportation policies ▪ Improve access to recreation opportunities	Fingal County Council, CSO, DHPCLG	CSO data every four years. On-going regular monitoring on increase in housing.
Soils & Geology	▪ Rates of re-use / recycling of construction waste ▪ Rates of cement / concrete production ▪ Rates of brownfield site and contaminated land reuse and development ▪ Rates of greenfield development	▪ Prevent pollution of soil through adoption of appropriate environmental protection procedures during construction and maintenance works on site. ▪ Ensure polluting substances are appropriately stored and bunded. ▪ Ensure appropriate management of existing contaminated soil in accordance with the requirements of current waste legislation. ▪ Re-use of brownfield lands, rather than developing Greenfield lands, where possible. ▪ Minimise the consumption of non-renewable sand, gravel and rock deposits.	Fingal County Council, EPA	Internal monitoring of likely significant environmental effects on a project by project basis Review of CORINE mapping (every c.5 years). Annual reviewing of brownfield rates
Water	▪ Compliance of potable water sources to water quality regulations ▪ Compliance of surface waters with national and international standards ▪ Potable and wastewater treatment capacities versus population ▪ % of wastewater achieving tertiary treatment ▪ Achievement of the Objectives of the River Basin Management Plans	▪ Support the achievement of "good" ecological and chemical status/potential of waterbodies in accordance with the Water Framework Directive. ▪ Minimise flood risk through appropriate management of flood vulnerable zones. ▪ Promote sustainable drainage practices to improve water quality and flow.	Fingal County Council, OPW, EPA	On-going regular monitoring supplemented by data arising from development and delivery of measures within the Plan.

Environmental Component	Indicators	Targets	Responsibility	Frequency / Timing
	▪ Amount of new developments within flood plains ▪ Annual costs of damage related to flood events			
Air Quality, Noise & Climate Change	▪ Traffic, Transport and Vehicular survey data ▪ National and region specific emission data ▪ Compliance with national standards ▪ Reduction in greenhouse gas emissions ▪ Number and extent of emission licensed facilities ▪ Number of energy / renewable energy production facilities ▪ Rates of energy / renewable energy consumption	▪ Minimise air and noise emissions during construction and operation of new developments. ▪ Promote minimisation of greenhouse gas emissions to the atmosphere ▪ Limiting and adapting to climate change	Fingal County Council, EPA	On-going regular monitoring supplemented by data arising from development and delivery of the measures within the plan (every c.2 years).
Cultural Heritage	▪ Updating of inventories to include new sites / features ▪ Achieving the objectives of development plans regarding heritage protection ▪ Range and extent of areas of heritage potential ▪ Range and extent of areas of special planning controls	▪ Regeneration of derelict and underutilised heritage sites ▪ Improve appearance of areas with particular townscape character ▪ Improve protection for protected archaeological sites and monuments and their settings, protected structures and conservation areas and areas of archaeological potential ▪ Enhance access to sites of heritage interest	Fingal County Council, NPWS, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs	Monitoring of Statutory Consultee inputs on environmental effects as particular elements of the Masterplan are developed and advanced.
Landscape	▪ Range and extent of Amenity Landscapes	▪ Improve protection for landscapes of recognised quality ▪ Maintain clear urban/rural distinctions	Fingal County Council, private developers / landowners	Monitoring of Statutory Consultee inputs on environmental effects as particular elements of

Environmental Component	Indicators	Targets	Responsibility	Frequency / Timing
	▪ Rates of development within designated landscapes ▪ Rates of urban expansion ▪ Rates of deforestation ▪ Rates of agricultural land re-development ▪ % change of land use from rural to urban	▪ Enhance provision of, and access to, green space in urban areas ▪ Ensure development is sensitive to its surroundings		the Masterplan are developed and advanced.
Material Assets	▪ Location / level of Infrastructure ▪ Achievement of development plan objectives ▪ Rates of deprivation ▪ Rate of waste disposal to landfill statistics ▪ Range and extent of recycling facilities and services ▪ Rates of recycling	▪ Improve availability and accessibility of commercially provided facilities and public services ▪ Increase local employment opportunities ▪ Improve efficiencies of transport, energy and communication infrastructure ▪ Promotion of sustainable transport infrastructure i.e. increased public transport. ▪ Reduce the generation of waste and adopt a sustainable approach to waste management.	Fingal County Council	

11.0 Conclusion

The Estuary West Masterplan, its policies and objectives are key to a sustainable development and growth of Swords and its environs.

This SEA Environmental Report presents an assessment of the likely significant effects of the Masterplan on the environment. This Report has been prepared in compliance with the SEA Directive and associated transposing Irish regulations. The SEA and the NIR have been developed in tandem with the draft Masterplan for Estuary West. The benefit of preparing the Masterplan, Environment Report, NIR and SFRA simultaneously ensures that these issues are highlighted at an early stage in the process. This allows the potential negative impacts of the plan to be predicted early on, evaluated and effectively prevented or mitigated. Stage 3 of this SEA process (the assessment stage) was undertaken as outlined in Section 3 above.

The objectives of the Plan were assessed against the SEO and indicate that the full implementation of the Plan will not result in a significant negative or adverse impact on the environmental resources within the Plan area boundary. As a result, the Masterplan will have a neutral impact on the environment as a whole.

Where the SEA has found potential for negative impacts on the environment as a result of the implementation of the Masterplan, mitigation as well as enhancement measures have been proposed. The implementation of these measures, coupled with the monitoring procedures will ensure the Estuary West Masterplan is acceptable from an environmental perspective.

11.1 Next Steps

The next step in the SEA process is consultations on the Draft Masterplan, the SEA Environmental Report, NIR the SFRA and associated documents. These documents will be made available for display and viewing for 3 weeks from the 12th March 2019.

All comments and submissions received during this consultation period will be collated and where necessary the documents revised and reviewed. Where no major objections or comments are received, the final version of the Masterplan can be adopted. Following publication of the Masterplan, an SEA Statement will be prepared to summarise the process and outline how environmental considerations and consultation were integrated into the Final Masterplan.

Appendix 1: Protective Policies and Objectives from Fingal Development Plan 2017-2023

Appendix 1: Protective Policies and Objectives from Fingal Development Plan applied to the Strategic Environmental Objectives (SEOs)

SEO	SEO Description	Selected Protective Policies / Objectives from Fingal Development Plan 2017-2023
Biodiversity (B)	**(B_1)** Preserve, protect, maintain and where appropriate restore the terrestrial, aquatic and soil biodiversity, including EU and nationally designated sites and protected species.	WQ05 "Establish riparian corridors free from new development along all significant watercourses and streams in the County. Ensure a 10 to 15 metre wide riparian buffer strip measured from top of bank either side of all watercourses, except in respect of the Liffey, Tolka, Pinkeen, Mayne, Sluice, Ward, Broadmeadow, Corduff, Matt and Delvin where a 30m wide riparian buffer strip from top of bank to either side of all watercourses outside urban centres is required." GI23 "Ensure biodiversity conservation and/or enhancement measures, as appropriate, are included in all proposals for large scale development such as road or drainage schemes, wind farms, housing estates, industrial parks or shopping centres." SP01 "Conserve and enhance the County's biodiversity."
Population & Human Health (PHH)	**(PHH_1)** Provide high quality residential, community, working and recreational environments with access to sustainable transport options. **(PHH_2)** Protect human health and well-being.	PM24 Promote excellent urban design responses to achieve high quality, sustainable urban and natural environments, which are attractive to residents, workers and visitors and are in accordance with the 12 urban design principles set out in the Urban Design Manual – A Best Practice Guide (2009). PM25 "Have regard to the joint Department of Transport, Tourism and Sport and the Department of Environment, Community and Local Government's Design Manual for Urban Streets and Roads (DMURS), (2013) and the National Transport Authority's Permeability Best practice Guide (2015), in the provision of good urban design. " PM26 "Enhance and develop the fabric of existing and developing rural and urban centres in accordance with the principles of good urban design, including the promotion of high quality well-designed visually attractive main entries into our towns and villages. "
Soil & Geology (SG)	**(SG_1)** Safeguard sensitive soil resources.	RF83 "Ensure that any future proposals for extraction of aggregates and land reclamation proposals include an assessment of the impact(s) on the natural and cultural heritage, and on the coastal processes of erosion, deposition accretion and flooding. Any such proposals may need to be accompanied by an Environmental Impact Statement and/or Screening for Appropriate Assessment" SP02 "Conserve and enhance the County's geological heritage."
Water (W)	**(W_1)** Protect and where necessary improve and maintain water quality and the management of watercourses and groundwater, in compliance with the requirements of the Water Framework Directive objectives and measures.	"Objective SW01 Protect and enhance the County's floodplains, wetlands and coastal areas subject to flooding as vital green infrastructure which provides space for storage and conveyance of floodwater, enabling flood risk to be more effectively managed and reducing the need to provide flood defences in the future and ensure that development does not impact on important wetland sites within river / stream catchments." SW12 Require an environmental assessment of all proposed flood protection or alleviation works.

SEO	SEO Description	Selected Protective Policies / Objectives from Fingal Development Plan 2017-2023
		WQ02 Protect and develop, in a sustainable manner, the existing groundwater sources and aquifers in the County and control development in a manner consistent with the proper management of these resources in conformity with the Eastern River River Basin Management Plan 2009- 2015 and the 2nd cycle national River Basin Management Plan 2017-2021 and any subsequent plan and the Groundwater Protection Scheme WQ04 "Protect existing riverine wetland and coastal habitats and where possible create new habitats to maintain naturally functioning ecosystems whilst ensuring they do not impact negatively on the conservation objectives of any European sites." "**Objective DW06 -** Promote the sustainable use of water and water conservation in existing and new development within the County and encourage demand management measures among all water users." **Objective WT01** Liaise with and work in conjunction with Irish Water during the lifetime of the plan for the provision, extension and upgrading of waste water collection and treatment systems in all towns and villages of the County to serve existing populations and facilitate sustainable development of the County, in accordance with the requirements of the Settlement Strategy and associated Core Strategy.
Air Quality, Noise & Climate Change (ANCC)	**(ANCC_1)** Minimise emissions of pollutants to air associated with transport. **(ANCC_2)** Minimise contribution to climate change by adopting adaptation and mitigation measures.	EN01 Support international, national and county initiatives for limiting emissions of greenhouse gases through energy efficiency and the development of renewable energy sources using the natural resources of the County in an environmentally sustainable manner where such development does not have a negative impact on the surrounding environment, landscape or local amenities. SP01 "Have regard to European Union, National and Regional policy in all matters relating to air quality, light pollution and noise pollution and where appropriate take steps to reduce effects of air, noise and light pollution on environmental quality and surrounding residential amenity." NP03 "Require all developments to be designed and operated in a manner that will minimise and contain noise levels. " GI11 "Ensure the Green Infrastructure Strategy for Fingal reflects a long-term perspective, including the need to adapt to climate change."
Cultural Heritage (C)	**(C_1)** Protect places, features, buildings and landscapes of cultural, archaeological and / or architectural heritage from impact as a result of development.	**Sp01** "By safeguarding archaeological sites, monuments, objects and their settings listed in the Record of Monuments and Places (RMP), and any additional newly discovered archaeological remains, and by identifying archaeologically sensitive historic landscapes." **Sp02** "By protecting of the architectural heritage of Fingal through the identification of Protected Structures, the designation of Architectural Conservation Areas, the safeguarding of designed landscapes and historic gardens, and

SEO	SEO Description	Selected Protective Policies / Objectives from Fingal Development Plan 2017-2023
		the recognition of structures and elements that contribute positively to the vernacular and industrial heritage of the County. " **Sp03** "By favouring the preservation in-situ (or at a minimum preservation by record) of all sites and features of historical and archaeological interest. " **Sp04** "By making our cultural heritage more accessible and maximise its potential as a learning resource. " **Sp05** "By promoting the understanding of Fingal's cultural heritage in terms of its inherent and unique character and to recognise what elements should be preserved, conserved or enhanced. "
Landscape (L)	**(L_1)** Protect and maintain the special qualities of the landscape character including coastal character within Fingal.	PM26 "Enhance and develop the fabric of existing and developing rural and urban centres in accordance with the principles of good urban design, including the promotion of high quality well-designed visually attractive main entries into our towns and villages. " PM44 "Provide a wide variety of public open spaces, including allotments, community gardens, permaculture parklands and sporting facilities, on a hierarchical basis throughout the County in order to achieve a choice of open space facilities. Best practice Green Infrastructure Guidelines should be used to determine the location and type of open spaces to be provided. " PM45 "Require a minimum public open space provision of 2.5 hectares per 1000 population. For the purposes of this calculation, public open space requirements are to be based on residential units with an agreed occupancy rate of 3.5 persons in the case of dwellings with three or more bedrooms and 1.5 persons in the case of dwellings with two or fewer bedrooms." GI02 "Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European Sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the maintenance of landscape character including historic landscape character and the protection and enhancement of the architectural and archaeological heritage. " GI03 "Seek a net gain in green infrastructure through the protection and enhancement of existing assets, through the provision of new green infrastructure as an integral part of the planning process, and by taking forward priority projects including those indicated on the Development Plan green infrastructure maps during the lifetime of the Development Plan."

SEO	SEO Description	Selected Protective Policies / Objectives from Fingal Development Plan 2017-2023
		SP03 "Promote a unified approach to landscape planning and management, provide an understanding of Fingal's landscape in terms of its inherent and unique character and ensure that Fingal's landscape is appropriately protected, managed and planned." SP04 "Protect, enhance and sustainably manage the coastline and its natural resources." NH44 "Protect and enhance the special landscape character and exceptional landscape value of the islands, including their biodiversity, archaeological and architectural heritage." NH45 "Protect High Amenity areas from inappropriate development and reinforce their character, distinctiveness and sense of place. "NH47 "Ensure the County's natural coastal defences, such as beaches, sand dunes, salt marshes and estuary lands, are protected and are not compromised by inappropriate works or development."
Material Assets (MA)	**(MA_1)** Make best use of existing infrastructure and promote the sustainable development of new infrastructure to meet the needs of the county's and Swords population.	**Objective MT12** Facilitate the implementation of the demand management measures in the M50 Demand Management Study, as required. **MT15** "Investigate and avail of the opportunities provided by new Metro North and any other public transport infrastructure to provide new cycle and pedestrian links including crossings of the M50 which currently represents a major barrier to active transport modes." **Objective MT36** Maintain and protect the safety, capacity and efficiency of National roads and associated junctions in accordance with the Spatial Planning and National Roads Guidelines for Planning Authorities, DECLG, (2012), the Trans-European Networks (TEN-T) Regulations and with regard to other policy documents, as required.

Fingal Development Plan Strategic Policies	
1	Promote sustainable development by providing for the integration of economic, environmental, social and cultural issues into the Development Plan policies and objectives, utilising to that end the Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) processes.

2	Minimise the impact of the County's contribution to climate change, and adapt to the effects of climate change, with particular reference to the areas of land use, energy, transport, water resources, flooding, waste management and biodiversity, and maximising the provision of green infrastructure including the provision of trees and soft landscaping solutions.
15	Strengthen and consolidate greenbelts around key settlements.
21	Ensure new developments have regard to the recommendations of the Flood Risk Assessment, generally avoiding development on areas liable to flooding or which would be liable to exacerbate flooding.

PM25	Have regard to the joint Department of Transport, Tourism and Sport and the Department of Environment, Community and Local Government's Design Manual for Urban Streets and Roads (DMURS), (2013) and the National Transport Authority's Permeability Best practice Guide (2015), in the provision of good urban design.

Chapter of Development Plan	Reference	Type	Policy/ Objective Text
Chapter 1: Introduction and Strategic Context	17	Policy	Work with Irish Water to secure the timely provision of water supply and drainage infrastructure necessary to end polluting discharges to waterbodies, comply with existing licences and Irish and EU law, and facilitate the sustainable development of the County and the Region.
Chapter 5: Rural Fingal	RF59	Objective	Ensure that the design of new dwellings have regard to the Development Management Standards Chapter with specific reference to the following… (b) Protect existing trees, hedgerows, townland boundaries and watercourses which are of amenity, historic or biodiversity value and ensure that proper provision is made for their protection and management in future development proposals.
Chapter 5: Rural Fingal	RF76	Objective	Encourage the development of environmentally sustainable agricultural practices, to ensure that development does not impinge on the visual amenity of the countryside and that watercourses, wildlife habitats and areas of ecological importance are protected from the threat of pollution.
Chapter 5: Rural Fingal	RF86	Objective	Facilitate the sustainable development of forestry provided that it is in harmony with the surrounding landscape, that no significant adverse impacts are caused to natural waters, wildlife habitats, or conservation areas and that it does not have a significant adverse visual impact on the local landscape and subject to compliance with normal planning and environmental criteria.

Chapter of Development Plan	Reference	Type	Policy/ Objective Text
Chapter 7: Movement and Infrastructure	WT02	Objective	Liaise with Irish Water to ensure the provision of wastewater treatment systems in order to ensure compliance with existing licences, EU Water Framework Directive, River Basin Management Plans, the Urban Waste Water Directive and the EU Habitats Directive.
Chapter 7: Movement and Infrastructure	WT03	Objective	Facilitate the provision of appropriately sized and located waste water treatment plants and networks including a new Regional Wastewater Treatment Plant and the implementation of other recommendations of the Greater Dublin Strategic Drainage Study, in conjunction with relevant stakeholders and services providers, to facilitate development in the County and Region and to protect the water quality of Fingal's coastal and inland waters through the provision of adequate treatment of wastewater.
Chapter 7: Movement and Infrastructure	SW01	Objective	Protect and enhance the County's floodplains, wetlands and coastal areas subject to flooding as vital green infrastructure which provides space for storage and conveyance of floodwater, enabling flood risk to be more effectively managed and reducing the need to provide flood defences in the future and ensure that development does not impact on important wetland sites within river / stream catchments.
Chapter 7: Movement and Infrastructure	SW04	Objective	Require the use of sustainable drainage systems (SuDS) to minimise and limit the extent of hard surfacing and paving and require the use of sustainable drainage techniques where appropriate, for new development or for extensions to existing developments, in order to reduce the potential impact of existing and predicted flooding risks.
Chapter 7: Movement and Infrastructure	SW11	Objective	Ensure that where flood protection or alleviation works take place that the natural and cultural heritage of rivers, streams and watercourses are protected and enhanced to the greatest extent possible
Chapter 7: Movement and Infrastructure	WQ01	Objective	Strive to achieve 'good status' in all waterbodies in compliance with the Water Framework Directive, the Eastern River Basin District Management Plan 2009-2015 and the associated Programme of Measures (first cycle) and to cooperate with the development and implementation of the second cycle national River Basin Management Plan 2017-2021.
Chapter 7: Movement and Infrastructure	WQ02	Objective	Protect and develop, in a sustainable manner, the existing groundwater sources and aquifers in the County and control development in a manner consistent with the proper management of these resources in conformity with the Eastern River Basin Management Plan 2009-2015 and the second cycle national River Basin Management Plan 2017-2021 and any subsequent plan and the Groundwater Protection Scheme.

Chapter of Development Plan	Reference	Type	Policy/ Objective Text
Chapter 7: Movement and Infrastructure	WQ03	Objective	Implement the recommendations of the Groundwater Protection Scheme.
Chapter 7: Movement and Infrastructure	WQ04	Objective	Protect existing riverine wetland and coastal habitats and where possible create new habitats to maintain naturally functioning ecosystems whilst ensuring they do not impact negatively on the conservation objectives of any European sites.
Chapter 7: Movement and Infrastructure	WQ05	Objective	Establish riparian corridors free from new development along all significant watercourses and streams in the County. Ensure a 10 to 15 metre wide riparian buffer strip measured from the top of the bank either side of all watercourses, except in respect of the Liffey, Tolka, Pinkeen, Mayne, Sluice, Ward, Broadmeadow, Corduff, Matt and Delvin where a 30m wide riparian buffer strip from top of bank to either side of all watercourses outside urban centres is required as a minimum.
Chapter 7: Movement and Infrastructure	WQ06	Objective	Minimise the impact on surface water of discharges from septic tanks, proprietary effluent treatment systems and percolation areas by ensuring that they are located and constructed in accordance with the recommendations and guidelines of the EPA and Fingal County Council.
Chapter 8: Green Infrastructure	GI03	Objective	Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the maintenance of landscape character including historic landscape character and the protection and enhancement of the architectural and archaeological heritage.
Chapter 8: Green Infrastructure	GI15	Objective	Ensure the protection of European sites is central to Fingal County Council's Green Infrastructure Strategy.
Chapter 8: Green Infrastructure	GI21	Objective	Require all new development to address the protection and provision of green infrastructure for the five GI themes set out in the Development Plan (Biodiversity, Parks, Open Space and Recreation, Sustainable Water Management, Archaeological and Architectural Heritage, and Landscape) in a coherent and integrated manner.
Chapter 8: Green Infrastructure	GI25	Objective	Integrate provision for biodiversity with public open space provision and sustainable water management measures (including SuDS) where possible and appropriate.
Chapter 8: Green Infrastructure	GI31	Objective	Ensure the provision of new green infrastructure addresses the requirements of functional flood storage, the sustainable management of coastal erosion, and links with provision for biodiversity, Sustainable Drainage Systems (SuDS) and provision for parks and open space wherever possible and appropriate.

Chapter of Development Plan	Reference	Type	Policy/ Objective Text
Chapter 8: Green Infrastructure	GI32	Objective	Seek the creation of new wetlands and/or enhancement of existing wetlands through provision for Sustainable Drainage Systems (SuDS).
Chapter 8: Green Infrastructure	GI33	Objective	Seek the provision of green roofs and green walls as an integrated part of Sustainable Drainage Systems (SuDS) and which provide benefits for biodiversity, wherever possible.
Chapter 9: Natural Heritage	NH01	Objective	Support the implementation of the Fingal Heritage Plan in relation to the promotion and protection of Fingal's Natural Heritage.
Chapter 9: Natural Heritage	NH02	Objective	Integrate provision for biodiversity with public open space provision and sustainable water management measures (including SuDS) where possible and appropriate.
Chapter 9: Natural Heritage	NH03	Objective	Implement the Fingal Biodiversity Action Plan 2015 and any revisions thereof in partnership with all relevant stakeholders.
Chapter 9: Natural Heritage	NH09	Objective	Support the National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, in the maintenance and, as appropriate, the achievement of favourable conservation status for the habitats and species in Fingal to which the Habitats Directive applies.
Chapter 9: Natural Heritage	NH10	Objective	Ensure that the Council takes full account of the requirements of the Habitats and Birds Directives, as they apply both within and without European sites in the performance of its functions.
Chapter 9: Natural Heritage	NH11	Objective	Ensure that the Council, in the performance of its functions, takes full account of the objectives and management practices proposed in any management or related plans for European sites in and adjacent to Fingal published by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
Chapter 9: Natural Heritage	NH12	Objective	Undertake field studies and map invasive species throughout the County and initiate control programs with all relevant stakeholders and landowners to control the key invasive species.
Chapter 9: Natural Heritage	NH13	Objective	Ensure that proposals for development do not lead to the spread or introduction of invasive species. If developments are proposed on sites where invasive species are or were previously present, the applicants will be required to submit a control and management program for the particular invasive species as part of the planning process and to comply with the provisions of the European Communities Birds and Habitats Regulations 2011 (S.I. 477/2011).
Chapter 9: Natural Heritage	NH14	Objective	Protect inland fisheries within and adjacent to Fingal and take full account of Inland Fisheries Ireland Guidelines in this regard when undertaking, approving or authorising development or works which may impact on rivers, streams and watercourses and their associated habitats and species.

Chapter of Development Plan	Reference	Type	Policy/ Objective Text
Chapter 9: Natural Heritage	NH15	Objective	Strictly protect areas designated or proposed to be designated as Natura 2000 sites (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); also known as European sites) including any areas that may be proposed for designation or designated during the period of this Plan.
Chapter 9: Natural Heritage	NH16	Objective	Protect the ecological integrity of proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, and Habitat Directive Annex I sites.
Chapter 9: Natural Heritage	NH17	Objective	Ensure that development does not have a significant adverse impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, and on rare and threatened species including those protected by law and their habitats.
Chapter 9: Natural Heritage	NH18	Objective	Protect the functions of the ecological buffer zones and ensure proposals for development have no significant adverse impact on the habitats and species of interest located therein.
Chapter 9: Natural Heritage	NH19	Objective	Develop Ecological Masterplans for the Rogerstown, Malahide and Baldoyle Estuaries focusing on their ecological protection and that of their surrounding buffer zones.
Chapter 9: Natural Heritage	NH20	Objective	Maintain and/or enhance the biodiversity of the Nature Development Areas [which include waterbodies] indicated on the Green Infrastructure maps.
Chapter 9: Natural Heritage	NH23	Objective	Protect the ecological functions and integrity of the corridors indicated on the Development Plan Green Infrastructure Maps.
Chapter 9: Natural Heritage	NH24	Objective	Protect rivers, streams and other watercourses and maintain them in an open state capable of providing suitable habitat for fauna and flora, including fish.
Chapter 9: Natural Heritage	NH26	Objective	Promote the use of watercourses, rivers and lakes for the pursuit of angling, through working with Inland Fisheries Ireland to improve water quality, to improve fish stocks and to provide safe access to fishing, where appropriate, taking full account of the requirements of the Habitats Directive and other relevant legislation.
Chapter 9: Natural Heritage	NH68	Objective	Protect bathing waters, including those listed in the Water Framework Directive Register of Protected Areas for the Eastern River Basin District, at Sutton, Portmarnock, Malahide, Donabate, Portrane, Rush, Loughshinny, Skerries and Balbriggan in order that they meet the required bathing water standards and implement the findings and recommendations of the Quality of Bathing Water in Ireland reports as published.

Chapter of Development Plan	Reference	Type	Policy/ Objective Text
Chapter 12: Development Management Standards	DMS01	Objective	Ensure that all plans and projects in the County which could, either individually or in-combination with other plans and projects, have a significant effect on a European site or sites are subject to Screening for Appropriate Assessment.
Chapter 12: Development Management Standards	DMS02	Objective	Ensure Local Authority development proposals are subject to environmental assessment, as appropriate, including Screening for Appropriate Assessment and Environmental Impact Assessment.
Chapter 12: Development Management Standards	DMS54	Objective	Prevent possible pollution of groundwater and surface water via: • The design and installation of the proposed proprietary treatment plant in accordance with an appropriate harmonised standard, a European technical approval, a National technical specification, an appropriate Irish standard, an Irish Agreement Board Certificate, or an alternative National technical specification of any EU member Me State. Objective DMS54 contd. • The proposed plant and secondary treatment is to be located in accordance with the Code of Practice: Wastewater Treatment and Disposal Systems serving Single Houses (p.e. <=10) published by the EPA, 2009. • The applicant must enter into a maintenance agreement for the proposed treatment plant. • A site characterisation test form must be completed by a suitably qualified and competent person. Notwithstanding this, the Council may require additional tests to be carried out under its supervision. • Pending the installation of the treatment plant and polishing filter/percolation area, the applicant will be required to lodge a monetary deposit with the Council. The deposit will be refunded on receipt of a certificate from a suitably qualified and competent person confirming that all necessary works have been carried out in accordance with the manufacturer's instructions.
Chapter 12: Development Management Standards	DMS55	Objective	Implement the recommendations of the Ground Water Protection Scheme.
Chapter 12: Development Management Standards	DMS132	Objective	Require the incorporation of rain water harvesting systems in new commercial developments and the use of water butts as a minimum for use in residential developments.
Chapter 12: Development Management Standards	DMS162	Objective	Ensure all development proposals include measures to protect and enhance biodiversity.

Chapter of Development Plan	Reference	Type	Policy/ Objective Text
Chapter 12: Development Management Standards	DMS163	Objective	Ensure Screening for Appropriate Assessment and, where required, full Appropriate Assessment is carried out for all plans and projects in the County which, individually, or in combination with other plans and projects, are likely to have a significant direct or indirect impact on any European site or sites.
Chapter 12: Development Management Standards	DMS164	Objective	Ensure that sufficient information is provided as part of development proposals to enable Screening for Appropriate Assessment to be undertaken and to enable a fully informed assessment of impacts on biodiversity to be made.
Chapter 12: Development Management Standards	DMS165	Objective	Ensure that Natura Impact Statements (NIS) and any other ecological impact assessments submitted in support of proposals for development are carried out by appropriately qualified professionals and that any necessary survey work takes place in an appropriate season.
Chapter 12: Development Management Standards	DMS166	Objective	Ensure planning applications for proposed developments likely to have significant direct or indirect impacts on any European site or sites are accompanied by a Natura Impact Statement prepared in accordance with the Guidance issued by the Department of the Environment, Heritage and Local Government (Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009).
Chapter 12: Development Management Standards	DMS167	Objective	Ensure ecological impact assessment is carried out for any proposed development likely to have a significant impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, or rare and threatened species including those species protected by law and their habitats. Ensure appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment.
Chapter 12: Development Management Standards	DMS171	Objective	Ensure that no development, including clearance and storage of materials, takes place within 10m – 15m as a minimum, measured from each bank of any river, stream or watercourse in the County.