Adamstown

ADAMSTOWN SDZ PLANNING SCHEME 2014: **ENVIRONMENTAL REPORT**

South Dublin County Council
Land Use Planning & Transportation Department

Comhairle Contae
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List of Abbreviations

AA	Appropriate Assessment
CSO	Central Statistics Office
DOEHLG	Department of the Environment, Heritage and Local Government
DOECLG	Department of the Environment, Community and Local Government
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
GSI	Geological Survey of Ireland
NHA	Natural Heritage Area
NIAH	National Inventory of Architectural Heritage
NTA	National Transport Authority
NSS	National Spatial Strategy
RBD	River Basin District
RMP	Record of Monuments and Places
RPS	Record of Protected Structures
SAC	Special Area of Conservation
SDZ	Strategic Development Zone
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SI No.	Statutory Instrument Number
SPA	Special Protection Area
WFD	Water Framework Directive

Glossary

Appropriate Assessment

The obligation to undertake Appropriate Assessment derives from Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC. AA is a focused and detailed impact assessment of the implications of a strategic action or project, alone and in combination with other strategic actions and projects, on the integrity of a Natura 2000 site in view of its conservation objectives.

Biodiversity and Flora and Fauna

Biodiversity is the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems' (United Nations Convention on Biological Diversity 1992).

Flora is all of the plants found in a given area.

Fauna is all of the animals found in a given area.

Biotic Index Values (Q Values)

The Biotic Index Values, or Q values, are assigned to rivers in accordance with biological monitoring of surface waters - low Q ratings, as low as Q1, are indicative of low biodiversity and polluted waters, and high Q ratings, as high as Q5, are indicative of high biodiversity and unpolluted waters. Good status as defined by the Water Framework Directive equates to approximately Q4 in the national scheme of biological classification of rivers as set out by the Environmental Protection Agency.

Environmental Problems

Annex I of Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27 June 2001, on the assessment of the effects of certain plans and programmes on the environment (the Strategic Environmental Assessment Directive) requires that information is provided on 'any existing environmental problems which are relevant to the plan or programme', thus, helping to ensure that the proposed strategic action does not make existing environmental problems worse.

Environmental problems arise where there is a conflict between current environmental conditions and ideal targets. If environmental problems are identified at the offset they can help focus attention on important issues and geographical areas where environmental effects of the plan or programme may be likely.

Environmental Vectors

Environmental vectors are environmental components, such as air, water or soils, through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings.

Mitigate

To make or become less severe or harsh

Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing a human action, be it a plan, programme or project. Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration should be given in the first instance to preventing such effects or, where this is not possible, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: *avoid* effects; *reduce* the magnitude or extent, probability and/or severity of effects; *repair* effects after they have occurred; and *compensate* for effects, balancing out negative impacts with other positive ones.

Protected Structure

Protected Structure is the term used in the Planning Act of 2000 to define a structure included by a planning authority in its Record of Protected Structures. Such a structure shall not be altered or demolished in whole or part without obtaining planning permission or confirmation from the planning authority that the part of the structure to be altered is not protected.

Recorded Monument

A monument included in the list and marked on the map which comprises the Record of Monuments and Places that is set out County by County under Section 12 of the National Monuments (Amendment) Act, 1994 by the Archaeological Survey of Ireland. The definition includes Zones of Archaeological Potential in towns and all other monuments of archaeological interest which have so far been identified. Any works at or in relation to a recorded monument requires two months notice to the Department of the Environment, Heritage and Local Government under section 12 of the National Monuments (Amendment) Act, 1994.

Scoping

Scoping is the process of determining what issues are to be addressed, and setting out a methodology in which to address them in a structured manner appropriate to the plan or programme. Scoping is carried out in consultation with the appropriate bodies.

Strategic Actions

Strategic actions include: *Policies*, which may be considered as inspiration and guidance for action and which set the framework for plans and programmes; *Plans*, sets of co-ordinated and timed objectives for the implementation of the policy; and *Programmes*, sets of projects in a particular area.

Strategic Environmental Assessment (SEA)

Strategic Environmental Assessment (SEA) is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt it.

Strategic Environmental Objective (SEO)

Strategic Environmental Objectives (SEOs) are methodological measures which are developed from international, national and regional policies which generally govern environmental protection objectives and against which the environmental effects of the proposed amendments to the approved Planning Scheme can be tested. The SEOs are used as standards against which the provisions of the proposed amendments to the approved Planning Scheme can be evaluated in order to help identify areas in which significant adverse impacts are likely to occur, if unmitigated against.

Section 1 SEA Introduction and Background

1.1 Introduction and Terms of Reference

This is the Environmental Report prepared as part of the Strategic Environmental Assessment (SEA) of draft amendments to the Adamstown SDZ Planning Scheme, 2003. The purpose of this report is to provide a clear understanding of the likely environmental consequences of decisions regarding draft amendments to the Planning Scheme.

This report should be read in conjunction with the draft amendments.

1.2 SEA Definition

Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before the decisions are made. Strategic Environmental Assessment, or SEA, is the term which has been given to the environmental assessment of plans, and other strategic actions.

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

1.3 SEA Directive and its transposition into Irish Law

Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27th June 2001, on the Assessment of the Effects of Certain Plans and Programmes on the Environment, referred to hereafter as the SEA Directive, introduced the requirement that SEA be carried out on plans and programmes which are prepared for a number of sectors such as energy, agriculture and telecommunications.

The SEA Directive was transposed into Irish Law through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Statutory Instrument Number (SI No. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004). Both sets of Regulations became operational on 21st July 2004. The Regulations have been amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (SI No. 200 of 2011) and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 (SI No. 201 of 2011).

1.4 Implications for Amendments

Article 11 of the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004), as amended, requires that Strategic Environmental Assessment is undertaken for the preparation of Planning Schemes.

While the Adamstown SDZ Planning Scheme pre-dates the 2004 SEA Regulations, the Planning Scheme does incorporate a comprehensive Environmental Appraisal.

While there is no mandatory requirement to undertake Strategic Environmental Assessment for amendments to a Planning Scheme, South Dublin County Council determined that having regard to the nature and extent of likely amendments, the potential for significant environmental effects could not be screened out and that Strategic Environmental Assessment would therefore be appropriate in this instance.

The findings of the SEA are expressed in this Environmental Report which is submitted to the Elected Members at the same time as the proposed amendments to the approved Planning Scheme. The Environmental Report is an assessment of the existing environment within

the SDZ area, and the impacts of the proposed amendments to the approved Planning Scheme on the existing environment. The Environmental Report is a parallel but separate process to that of producing the proposed amendments and the Elected Members must take account of the Environment Report during its consideration of the proposed amendments, in accordance with Section 179F of the Planning and Development Regulations 2004 (as amended).

Section 2 Adamstown SDZ Planning Scheme

2.1 Legislative Background

The legislative process for the establishment of a Strategic Development Zone is set out in Part IX, Sections 165 to 171 of the Planning and Development Act 2000 (as amended).

The Planning and Development Act 2000 introduced Strategic Development Zones (SDZ's). Where in the opinion of the Government, specified development is of economic or social importance to the State, the Government may by order, designate one or more sites for the establishment of a Strategic Development Zone (SDZ) to facilitate that development. The order shall specify the development agency or agencies and specify the type or types of development that may be established.

Where land is designated as an SDZ by Government Order, the relevant development agency must prepare a draft planning scheme in respect of all or any part of the site within two years of the Government Order. The members of the Planning Authority shall consider the draft Planning Scheme and decide by resolution whether to make the scheme with or without variations and modifications, or to not make the scheme. The decision of the Planning Authority can be appealed to An Bord Pleanala. The Board has the power to approve the making of the planning scheme, with or without any modifications or to refuse to approve it. Planning permission must be granted for development that is consistent with the approved planning scheme and permission shall not be granted for development that would be inconsistent. There is no right of appeal to An Bord Pleanala in respect of planning decisions within the scheme area.

Section 171 of the Planning and Development Act (as amended) sets out provisions for revocation or amendment of a Planning Scheme.

2.2 Adamstown SDZ

2.2.1 Designation

The Government designated 223.5 hectares of privately owned land at Adamstown as a site for the establishment of a Strategic Development Zone for residential development on 1st July 2001. South Dublin County Council is the specified Development Agency for the Adamstown SDZ site and the relevant Planning Authority for the area.

The Government Order (S.I. No. 272 of 2001) designating Adamstown as a site for the establishment of a SDZ states that the designation was made taking into consideration *"the deficiency in the supply of housing nationally and in the Greater Dublin Area particularly, the number and phasing of the housing units which would be delivered by the inclusion of the lands within a strategic development zone, the potential for comprehensive planning and development of the site due to its scale and configuration, the efficient use of public investment in infrastructural facilities, including public transport, water, waste water and roads and that development of the site will help give effect to the policies in the Strategic Planning Guidelines for the Greater Dublin Area for development within the Metropolitan Area".*

The type of development specified in the Order is *"residential development and the provision of schools, commercial activities, including employment, office and retail facilities, a rail halt, emergency services, and the provision of community facilities*".

A draft Planning Scheme was prepared and submitted to the elected members of South Dublin County Council in December 2002 and was adopted by the Council subject to variations and modifications on 7th May 2003. The adopted scheme was the subject of 20 appeals to An Bord Pleanala. The Board approved the scheme subject to modifications on 26th September 2003.

The Adamstown SDZ Planning Scheme pre-dates the 2004 SEA Regulations and as such, an

Environmental Report under these Regulations was not prepared in respect of the approved scheme. The Planning Scheme does incorporate a comprehensive Environmental Appraisal.

2.2.2 Plan Philosophy

The Planning Scheme aims to create sustainable communities rather than just housing developments. The Scheme was prepared with regard to best practice in the planning and design of new urban communities based on a holistic approach that integrates: Urban Design, Land Use, Housing, Transportation, Ecology and Landscape, Conservation, Energy Efficiency and Phased Delivery.

2.2.3 Plan Structure

The structure of the Adamstown SDZ Planning Scheme, 2003 is as follows;

- Part 1 Introduction: Introduces the concept and explains the background to the Adamstown SDZ process.
- Part 2 Proposals for Development: Sets out the development parameters for the overall Adamstown site, including the type, extent and design of development, requirements for transportation, services and amenities and divides the site into 15 sub-areas (11 development areas and 4 amenity areas).
- Part 3 Development and Amenity Areas: Details development parameters for each of the 15 sub-areas.
- Part 4 Phasing and Implementation: Indicates the required phasing of development.
- Part 5 Environmental Appraisal: Environmental appraisal of the Scheme.

2.2.4 Nature & Extent of Development

The planning scheme specifies the type and extent of development that can be delivered on lands that are subject to the scheme. The approved scheme facilities the delivery of 8,250 to 10,150 dwelling units and 32,600sq.m to 125,000sq.m of non-residential development, a railway station/transport interchange, four primary schools, one secondary school, a fire station, a primary health care centre and community centres.

To date, the delivery of housing and facilities has focused in the north of Adamstown, at The Paddocks and to the south, at Adamstown Square and Adamstown Castle, with 1,249 new homes occupied (SDCC House Count, August 2013).

Infrastructure and facilities delivered to date include a new railway station, 2 primary schools, a post-primary school, a crèche, a neighbourhood park, local retail facilities, a new sewerage pumping station, water supply and surface water drainage infrastructure, an electrical transformer station, an internal road network and upgrades to adjoining road network.

2.3 Amendments

South Dublin County Council adopted an amendment to the approved Adamstown SDZ Planning Scheme on 8th May 2006 to facilitate a reconfiguration of school sites and to introduce a requirement for a medical facility. The amendments were screened and it was decided that Strategic Environmental Assessment and AA assessment was not required.

In 2013, South Dublin County Council being the specified Development Agency for the Adamstown SDZ and the relevant Planning Authority carried out a review of the approved scheme. Based on the outcome of the review South Dublin County Council is undertaking a statutory process, pursuant to Part IX of the Planning and Development Act, 2000 (as amended) to amend the Planning Scheme.

49 no. amendments (20 no. material and 29 no. non-material) are proposed to the Adamstown SDZ Planning Scheme, 2003 that include changes to the nature and extent of development permissible.

2.4 Relationship with other relevant Plans and Programmes

2.4.1 Introduction

The approved Planning Scheme sits within a hierarchy of strategic land use plans. Proposed amendments aim to be consistent with current guidance, strategies and policies at national and regional level and with the county development plan's core strategy.

The following sections identify a number of strategic actions.

2.4.2 Regional Planning Guidelines for the Greater Dublin Area 2010-2022

The Regional Planning Guidelines translate national strategies to regional level with an emphasis on Dublin as the driver of national development and the need to physically consolidate the growth of the metropolitan area, with clear direction for greater integration of land-use and transport planning. The RPG settlement hierarchy seeks to prioritise and focus investment and growth to achieve integration in services, infrastructure, transport, economic activity and new housing. This approach reflects the prioritisation of public transport infrastructure, reducing the need to travel and a reduction in greenhouse gas emissions as set out in a number of government policy documents such as Transport 21, Smarter Travel, and the National Climate Change Strategy. Adamstown (as part of Lucan) is designated as a Metropolitan Consolidation Town capable of accommodating significant population growth.

2.4.3 Greater Dublin Area Transport Strategy – 2030 vision

This document sets out the National Transport Authority's Strategic Transport Plan for the Greater Dublin Area for the period up to 2030.

The objective of the transport strategy is to provide a long-term strategic planning framework for the integrated development of transport infrastructure and services in the GDA. The integration of land-use and transport planning for the entire region is at the heart of the strategy.

2.4.4 Retail Strategy for the Greater Dublin Area 2008-2016

The purpose of the retail strategy is to guide the activities and policies for retail planning across the seven Councils of the Dublin and Mid East Region and to set out a coordinated, sustainable approach to the assessment and provision of retail within the GDA. This is to ensure retail is provided in tandem with population growth on suitable sites, and in areas of proven need.

The Strategy outlines a retail hierarchy for the various towns within the greater Dublin area (Metropolitan and Hinterland areas) and categorises Adamstown as a 'Level 3 Town', within the Metropolitan area to ensure that this area of new population growth is provided with necessary retail services in highly accessible locations.

2.4.5 Planning and Development of Large-Scale, Rail Focused Residential Areas in Dublin – Final Report May 2013

The National Transport Authority (NTA) has prepared this study whose purpose is to assess the future delivery of rail-based large and medium scale residential development areas in Dublin, given the current economic and funding conditions prevailing in Ireland, and the current lack of new residential development delivery of any scale.

The objectives for this study were:

- To examine current issues arising in relation to large and medium scale residential development areas due to the noted pressure to deliver development at densities lower than those set out in the planning frameworks, largely driven by perceived market trends and funding issues; and

- To identify potential approaches that provide viable solutions to addressing these issues.

Government policy in urban areas has been to increase sustainability and efficiency through greater alignment of land use and transport. In relation to residential development, this policy seeks to increase residential densities in areas proximate to public transport corridors. In the Dublin area, a number of large and medium scale residential development areas on rail-based public transport corridors were identified for delivery of sustainable neighbourhoods.

These areas are planned to achieve (net) densities in excess of 50 units per hectare, as identified as being appropriate for development along public transport corridors.

2.4.6 South Dublin County Development Plan 2010-2016

The South Dublin County Development Plan, 2010-2016 provides a clear spatial framework to guide the future growth and development of South Dublin County in a coherent, orderly and sustainable way. The Planning Scheme sits alongside and forms part of the development plan in force in the area of the scheme. The core strategic aim of the County Development Plan is to promote a more consolidated and compact urban form for the County. The plan states that the next generation of urban settlements will be focused on areas such as Adamstown where development has been phased based on the provision of public transport and community infrastructure. It is a policy of the CDP to ensure that Adamstown is developed in accordance with the existing Planning Scheme.

2.5 Environmental Protection Objectives

The proposed amendments to the approved Planning Scheme are subject to a number of high level environmental protection policies and objectives with which it must comply, including those which have been identified as Strategic Environmental Objectives in Section 5.

Section 3 SEA Methodology

3.1 Introduction

This section details how the SEA of the proposed amendments to the Adamstown SDZ Planning Scheme, 2003 was undertaken.

The SEA process has been carried out alongside the scheme review process and the preparation of proposed amendments. The SEA and Plan team are integrated and the findings of the SEA were communicated on a weekly basis at team meetings in order to allow for their integration into the review process, thus minimising the potential for significant negative environmental effects arising out of the implementation of the proposed amendments to the Planning Scheme. The methodology for the SEA is outlined in the table below.

Action	Comments
1. Screening	There is a mandatory requirement to carry out a Strategic Environmental Assessment of Planning Schemes in respect of Strategic Development Zones (SDZ's). The Adamstown SDZ Planning Scheme, 2003 pre-dates the 2004 SEA Regulations. The Planning Scheme does incorporate a comprehensive Environmental Appraisal. While there is no mandatory requirement to undertake Strategic Environmental Assessment for amendments to a Planning Scheme, South Dublin County Council determined that having regard to the nature and extent of likely amendments, the potential for significant environmental effects could not be screened out and that Strategic Environmental Assessment would therefore be appropriate in this instance.
2. Scoping Issues Paper and Consultation with the Environmental Authorities	A Scoping Issues Paper was prepared containing baseline environmental data which was sent to the following Environmental Authorities on the 25th March 2013: ▪ Environmental Protection Agency (EPA), ▪ Department of Agriculture, Food and the Marine, ▪ Eastern Regional Fisheries Board, ▪ Department of Communications, Energy and Natural Resources ▪ Department of Arts, Heritage and the Gaeltacht ▪ and Department of Environment, Community and Local Government
3. Preparation of Environmental Report and Proposed Amendments to the Planning Scheme	The assignment of a team member to the SEA in order to create policy consistent documents and to examine the likely effects on the environment of implementing the proposed amendments to the planning scheme

○ **Environmental Objectives Established** ○ **Assessment of Alternative Scenarios** ○ **Mitigation Measures Detailed** ○ **Monitoring Measures Detailed**	○ Amendments to the 2003 Planning Scheme assessed in Environmental Report and alternative Development Scenarios for the area examined. ○ Favoured scenario chosen. ○ Mitigation measures discussed and chosen. ○ Monitoring incorporated into existing methods.
4. SEA Statement	At the end of the process, a statement will be issued by the Council summarising: ○ how environmental considerations have been integrated into the approved planning scheme, ○ how the environmental report and the submissions and observations made to the planning authority on the proposed amendments and Environmental Report have been taken into account during the preparation of the proposed amendments to the planning scheme. ○ the reasons for choosing the amendments to the planning scheme in the light of the other reasonable alternatives dealt with, and ○ the measures decided upon to monitor the significant environmental effects of implementation of the proposed amendments to the approved planning scheme. If the draft amendments to the approved Planning Scheme are appealed to An Bord Pleanala and subsequently approved, An Bord Pleanala will direct the Council to amend the SEA Statement where appropriate. This is only required when the proposed amendments to the planning scheme are approved by An Bord Pleanala with modifications. An Bord Pleanala will indicate in its decision any amendments required to be made to the SEA statement by the Council.
5. Monitoring the Adamstown SDZ Planning Scheme (as amended)	Monitoring significant environmental effects over the lifetime of the Adamstown SDZ Planning Scheme (as amended).

Table 1 Summary of SEA Methodology

3.2 Scoping

Scoping was an ongoing process through the SEA.

A Scoping Issues exercise was carried out in advance of the main SEA process. The SEA Scoping Issues paper sets out a description of the Adamstown SDZ area and a baseline of environmental data (grouped under the environmental themes/receptors – biodiversity, flora and fauna, population and human health, soil and landscape, water, air, climate, material assets and cultural heritage including architectural and archaeological). The Paper was issued to the designated Environmental Authorities on 25th March 2013 in order to:

- identify significant environmental issues to be taken into consideration in the making of the proposed amendments;
- to form a basis for consultation with the statutory bodies;
- identify and consult on the environmental objectives, which will be used to ensure the integration of the environment into the preparation of the proposed amendments and which will also be used to identify the likely significant effects on the environment;
- identify the baseline information and data gaps.

Submissions were received from the Environmental Protection Agency (EPA) and the Department of Agriculture, Food and Marine (DAFM).

The scoping report identified that urban consolidation and the sustainable use of land, particularly along public transport corridors is a key component of government policy, which seeks to achieve sustainable development, economic competitiveness, community well being, environmental protection and also to achieve full economic value from investment in public infrastructure. Adamstown is a designated growth area situated along a public transport corridor and is expected to accommodate significant future population growth. The Adamstown SDZ Planning Scheme 2003 sets out a framework for the accommodation of this future growth.

The most important strategic environmental issues in relation to the proposed amendments to the approved Planning Scheme were identified as follows:

Biodiversity / Fauna / Fauna: Need to protect and enhance key landscape and ecological features and establish a green infrastructure network.

Population: A need to manage future population growth in Adamstown in a sustainable way.

Air / Noise: Need to manage the effects of the noise and air pollution arising from road and rail transport on the population in the area

Water: Implement the recommendations of the Eastern River Basin District Management Plan and associated Programme of Measures, as relevant to Adamstown, in order to improve water quality within the Plan area, having regard to the 'Poor' status of the River Liffey, under the Water Framework Directive.

Landscape: Manage the transition from a rural to urban environment.

Following preliminary data collection and consultation with relevant authorities, the scope of environmental issues to be dealt with was broadly decided upon.

After further data collection certain issues were selected for further examination.

Scoping helped the SEA to focus on the important issues, such as those relating to existing and potential environmental issues and environmental problems[1], thereby avoiding resources being wasted on unnecessary data collection.

3.3 Environmental Baseline Data

The SEA Directive requires that information on the baseline environment focus on the relevant aspects of the environmental characteristics of areas that are likely to be significantly affected and the likely evolution of the current environment in the absence of the strategic action. Data was collected to describe the environmental baseline of the Adamstown SDZ and surrounding areas from relevant environmental sources. The likely evolution of the current environment in the absence of the proposed amendments is also described.

3.4 Alternatives

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

[1] Annex I of the SEA Directive requires that information is provided on 'any existing environmental problems which are relevant to the plan or programme', thus, helping to ensure that the proposed strategic action does not make existing environmental problems worse. Environmental problems arise where there is a conflict between current environmental conditions and ideal targets. If environmental problems are identified at the offset they can help focus attention on important issues and geographical areas where environmental effects of the plan or programme may be likely.

the environment. In accordance with this requirement, three alternative scenarios for accommodating future growth at the SDZ lands in Adamstown are examined.

3.5 The SEA Environmental Report

This Environmental Report assesses the likely significant environmental effects of proposed amendments to the Planning Scheme and of the alternatives considered and evaluates the significance for the environmental baseline.

The Environmental Report provides decision-makers, (Elected Members and An Bord Pleanala) and the public with a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in the SDZ and in the Dublin Region. Mitigation measures are proposed to prevent or reduce significant adverse effects and to maximise any benefits arising. The report also outlines proposals for environmental monitoring of the amendments.

In the event that the elected members of South Dublin County Council adopt material variations or modifications the Environmental Report may require an addendum to address issues that have not been evaluated by the SEA and which may be likely to have significant environmental effects.

3.6 The SEA Statement

When the proposed amendments to the Adamstown SDZ Planning Scheme, 2003 are presented to the Elected Members for consideration, the final stage of the SEA process can also be included i.e. a SEA statement. This document would be finalised and updated once the proposed amendments have been adopted or approved. It is then published and sent to the Environmental Authorities.

It is required to include information on: how environmental considerations have been integrated into the proposed amendments to the approved Planning Scheme - highlighting the main changes that resulted from the SEA process; how the Environmental Report and consultations have been taken into account - summarising the key issues raised in consultations and in the Environmental Report indicating what action, if any, was taken in response; and the reasons for choosing the amendments in the light of the other alternatives, identifying the other alternatives considered, commenting on their potential effects and explaining why the proposed amendments were selected.

The SEA Statement must include information on how environmental considerations have been integrated throughout the process. It must also describe how the preferred alternative was chosen to introduce accountability, credibility and transparency into the strategic decision-making process.

3.7 Legislative Conformance

This report complies with the provisions of the SEA Regulations and is written in accordance with Schedule 2B of the Planning and Development (Strategic Environmental Assessment) Regulations 2004-2011 (SI No. 436 of 2004 and SI No. 201 of 2011). Table 2 (overleaf) is a reproduction of the checklist of information to be contained in the Environmental Report (DEHLG, 2004)[2] and includes the relevant sections of this report which deal with these requirements.

[2] DEHLG (2004) *Implementation of SEA Directive (2001/42/EC): Guidelines for Regional Authorities and Planning Authorities* Dublin: Government of Ireland.

Information Required to be included in the Environmental Report	Corresponding Section of this Report
(A) Outline of the contents and main objectives of the Plan or programme, and of its relationship with other relevant plans and programmes	Sections 3 and 5
(B) Description of relevant aspects of the current state of the environment and the evolution of that environment without implementation of the Plan or programme	Section 4 and Appendix I
(C) Description of the environmental characteristics of areas likely to be significantly affected	Sections 4, 5, 7 and 8
(D) Identification of any existing environmental problems which are relevant to the Plan, particularly those relating to European protected sites	Section 4
(E) List environmental protection objectives, established at international, EU or national level, which are relevant to the Plan and describe how those objectives and any environmental considerations have been taken into account when preparing the Plan	Sections 4, 6, 7 and 9
(F) Describe the likely significant effects on the environment	Section 7 and 8 and Appendix I
(G) Describe any measures envisaged to prevent, reduce and as fully as possible offset any significant adverse environmental effects of implementing the Plan or programme	Section 9
(H) Give an outline of the reasons for selecting the alternatives considered, and a description of how the assessment was undertaken (including any difficulties)	Sections 2, 6 and 7
(I) A description of proposed monitoring measures	Section 10
(J) A non-technical summary of the above information	Appendix I
(K) Interrelationships between each Environmental topic	Addressed as it arises within each Section

Table 2 Checklist of Information included in this Environmental Report

3.8 Difficulties Encountered

There are still a number of data gaps in the Baseline information for Adamstown. These are detailed below;

- The lack of a Biodiversity Plan for South Dublin.
- Lack of a National centralised Data Source

A Biodiversity Plan will be commencing shortly and is expected to be finalised by late 2013/ early 2014. Some, though not all, of the information gaps caused by the absence of a Biodiversity Plan have been addressed in the Heritage Plan.

Also the lack of a National centralised data source that could make all environmental baseline data for the approved Planning Scheme area both readily available and in a consistent format posed a challenge to the SEA process. This difficulty is one which has been encountered while undertaking SEAs for other plans and programmes within the local authority's area and was overcome by investing time in the collection of data from various sources and through the use of Geographical Information Systems.

Section 4 Baseline Environment

4.1 Introduction

The environmental baseline within the Adamstown SDZ lands is described in this section. This baseline together with the Strategic Environmental Objectives, which are outlined in Section 6, are used in order to identify, describe and evaluate the likely significant environmental effects of implementing the proposed amendments to the Adamstown SDZ Planning Scheme 2003 and in order to determine appropriate monitoring measures. The location of the Adamstown SDZ lands are shown in Figure 4.1 on the 1:50,000 Ordnance Survey Map.

The environmental baseline is described in line with the legislative requirements, encompassing the following components as required by the Planning and Development Regulations (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004),and as further amended by Planning and Development Regulations (Strategic Environmental Assessment) Regulations 2011 (SI No. 201 of 2011);

- **Biodiversity**
- **Fauna**
- **Flora**
- **Population**
- **Human Health,**
- **Soil**
- **Water**
- **Air**
- **Climatic Factors**
- **Material Assets**
- **Cultural Heritage including Architectural and Archaeological Heritage**
- **Landscape**

The interaction between environmental topics will be considered in the Environmental Report as the proposed amendments to the approved planning scheme progresses. GIS mapping is used to assist this process. Sources of baseline data includes information from statutory agencies, internal departments within the Council, the internet, local publications, planning applications and Environmental Impact Statements relating to major residential and infrastructure schemes.

Further legislative and contextual information on the environmental topics can be found in the Environmental Report of the South Dublin County Development Plan 2010 – 2016.

4.2 Context

The Adamstown SDZ site compromises 223.5 hectares of land. It is situated in the north western part of the county at the edge of the built up area of Lucan, c. 1 km east of the County boundary with Kildare, 16 km west of Dublin City Centre and 2.5 km south of Lucan Village. The site is bounded by the Dublin – Kildare rail line to the south, the R120 Regional Road to the east, the established residential area of Hillcrest to the north and agricultural lands to the west.

The lands were primarily in agricultural use at time of Planning Scheme approval in 2003, with ten habitable dwellings, mainly farmhouses, situated along Tandy's Lane, Dodsboro Road and Tubber Lane Road.

Development commenced on site in 2004 and approximately 37 hectares of land have been developed to date. Delivery of housing and community infrastructure has focused in the north of Adamstown, at The Paddocks with 356 homes occupied and 2 under construction, and to the south, at Adamstown Square and Adamstown Castle, with 893 homes occupied and 8 under construction[3]. New infrastructure includes a railway station, two primary schools and one post-primary school, a crèche, a neighbourhood park, 3 retail units, a foul drainage pumping station, drainage infrastructure including a culvert and attenuation pond in the Tobermaclugg Stream area, a 110kv Electrical Transformer Station, internal roads and upgrades to the surrounding road network.

[3] SDCC figures as of February 2013

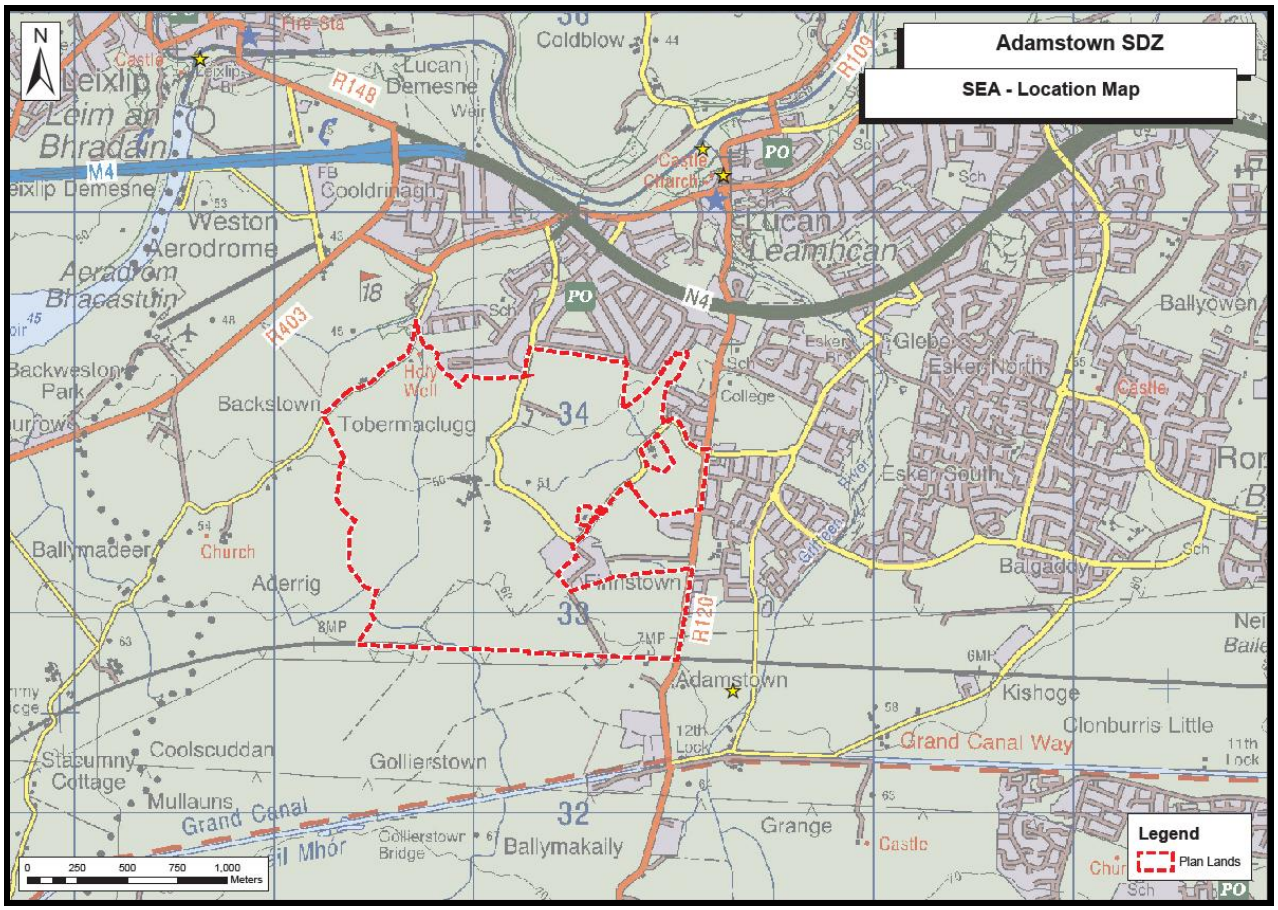


Figure 4.1 1:50,000 Ordnance Survey Map

4.3 Biodiversity (flora, fauna)

4.3.1 Introduction

The enhancement of biodiversity, preservation of natural amenities, integrity of wildlife corridors and protection of the natural environment are all important issues to be addressed in the preparation of the draft amendments to the approved Planning Scheme and in the accompanying Environmental Report.

4.3.2 Designated Natural Heritage Areas

There are no designated biodiversity areas within the SDZ lands which have a recognised National, European Union or International protection status. The Grand Canal proposed Natural Heritage Area (pNHA) is located c. 500 metres to the south of the SDZ lands; it is a man-made waterway linking the River Liffey in Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. The River Liffey is located c. 750 metres to the north of the SDZ lands. It rises in the Wicklow Mountains and flows through Counties Wicklow, Kildare and Dublin before entering into Dublin Bay, a designated Special Area of Conservation (SAC). The Tobermaclugg Stream, which flows through the SDZ lands, flows into the River Liffey to the North. There are no Tree Protection Orders within the SDZ lands.

4.3.2.1 Natura 2000 sites

Natura 2000 refers to an ecological network of protected areas in the territory of the European Union. In May 1992, the European Communities adopted legislation (Habitats Directive 92/43/EEC) designed to protect the most seriously threatened habitats and species across Europe. This legislation complements the Birds Directive (79/409/EEC) which was subsequently codified[4] under Directive 2009/147/EC due to its

[4] Codified/Codification- The process of collecting and restating the law of a jurisdiction in certain areas, usually by subject, forming a legal code, i.e. a codex (book) of law.

several previous amendments. These two Directives are the basis of the creation of the Natura 2000 network of protected areas.

There are no Natura 2000 sites located either within or directly adjacent to the SDZ lands. There are three Natura 2000 sites within South Dublin County (Glenasmole valley SAC, Wicklow Mountains SAC, and Wicklow Mountains SPA). The impacts of the plan lands on these Natura sites, as well as other Natura 2000 sites in adjoining counties, has been addressed in the Appropriate Assessment screening report.

4.3.3 Primary Ecological Corridors.

Article 10 of the Habitats Directive recognises the importance of ecological networks as corridors and stepping stones for the movement of wildlife. Migration, movement and the long term genetic health of species is assisted through creating linked networks for biodiversity purposes.

The Directive requires that connectivity and areas of ecological value which lie outside of the designated ecological sites are maintained. The Directive recognises the need for the management of these areas through land use planning and development policies. The networks are considered imperative in connecting areas of biodiversity within the County to each other, thus avoiding the creation of isolated islands of habitat. These corridors are particularly important for mammals, small birds and bats.

The County has a number of undeveloped or protected corridors of land, which act as links from the surrounding countryside, through the County and into the denser urban core of Dublin City such as the Liffey Valley, the Dodder Valley and the Grand Canal. While the River Griffeen is not subject to environmental designation, it is an important biodiversity corridor. Further elements to be considered within any habitat or green network include streams, wet ditches, hedgerows of biodiversity and heritage importance and stepping stone areas such as defunct quarries, ponds, pools and areas of woodland or substantial tree-lines.

SDZ Lands:
Adamstown SDZ site comprises 223.5 hectares of land. Approximately 37 hectares in the northern and south eastern sections of the site are developed and comprise residential development and supporting infrastructure and facilities. The remaining 186 hectares of land are currently undeveloped, but sections, particularly in the south west, have been disturbed to facilitate the construction of the road and drainage networks.

Adamstown SDZ is currently drained by a number of streams and ditches. The Tobermaclugg Stream flows northwards through the western part of the site. It is joined by the Backstown Stream on leaving the SDZ and continues along Tubber Lane and under the N4 via a culvert before discharging to the River Liffey in the vicinity of Lucan village. An overflow culvert and attenuation pond was installed between the SDZ lands and N4 to facilitate storm water drainage from the SDZ lands. The north-east Griffeen tributary flows in a north-easterly direction across the north-east of the site and later discharges to the main channel of the Griffeen River. The south-east Griffeen Tributary flows east through the southeastern corner of the site and later discharges to the Griffeen River.

The Griffeen River feeds into the River Liffey at Lucan and crosses the under the Grand Canal via a culvert to the south of the site. No watercourses in the Adamstown SDZ lands drain to the Grand Canal.

As an action of the South Dublin County Heritage Plan 2010-2015, a Habitat Mapping Project of the County was carried out and completed in February 2012. Habitat mapping was undertaken using desktop and consultation information in conjunction with aerial photography and GIS datasets. All of the habitats were mapped to Level II of the Heritage Council habitat classification system (Fossitt, 2000).

The plan lands in Adamstown have been identified under three main categories- disturbed ground, improved agricultural grassland and built land.

Improved agricultural grassland (located principally in the north and north western areas of the plan lands) relates to intensively managed or highly modified agricultural grassland that has been reseeded and/or regularly fertilised, and is now heavily grazed and/or used for silage

making. These lands are in private ownership and are not in active grazing at present.

Built land, which is located in the north eastern and south western quadrants of the plan lands, incorporates all buildings (domestic, agricultural, industrial and community) other than derelict stone buildings and ruins. It also includes areas of land that are covered with artificial surfaces of tarmac, cement, paving stones, bricks, blocks or astroturf (e.g. roads, car parks, pavements, runways, yards, and some tracks, paths driveways and sports grounds).

The habitat mapping report identified the linear woodland/scrub areas i.e. hedgerows and treelines, within the plan lands. While it is noted that this is not a substitute for a detailed hedgerow survey where the species diversity and condition would be examined, it does illustrate some of the connectivity and corridors that remain in the plan lands.

A number of existing hedgerows within the site form townland and parish boundaries. These can date from medieval times or even earlier. Older hedgerows are richer in plant and animal species as well as being of historical and cultural value. These hedgerows run through the site from northwest to south east and are also in the north-eastern quadrant. Data sources have identified substantial hedgerow removal since 2003, along the path of new housing development and the roads and drainage networks. Notwithstanding this, significant hedgerow cover remains in the mid-section of the site, along the historic Tandy's lane and in the north-western section, adjacent to the Tobermacclugg Pumping Station.

Minimal disturbance of hedgerow occurs in parts of the north-western/western and north-eastern quadrants of the plan lands, as developments have not extended into these areas. Access ways were created to facilitate the construction of the Tobermacclugg pumping station in the northwest; no further disturbance of these lands have occurred since the completion of the pumping station in 2010. Tubber lane (in the south west) and Tandy's lane are part of the areas historic road network. These roads retain dense hedging consisting of mature trees and hedgerows, and are largely overgrown in places with ivy, bramble and sycamore and ash trees present.

Figure 4.2 below indicates the location of the townland and parish boundaries as illustrated in the Historic 6 inch OS Maps. Figure 4.3, illustrates trees and hedgerows remaining (June 2013) based on a walking survey and aerial photography.

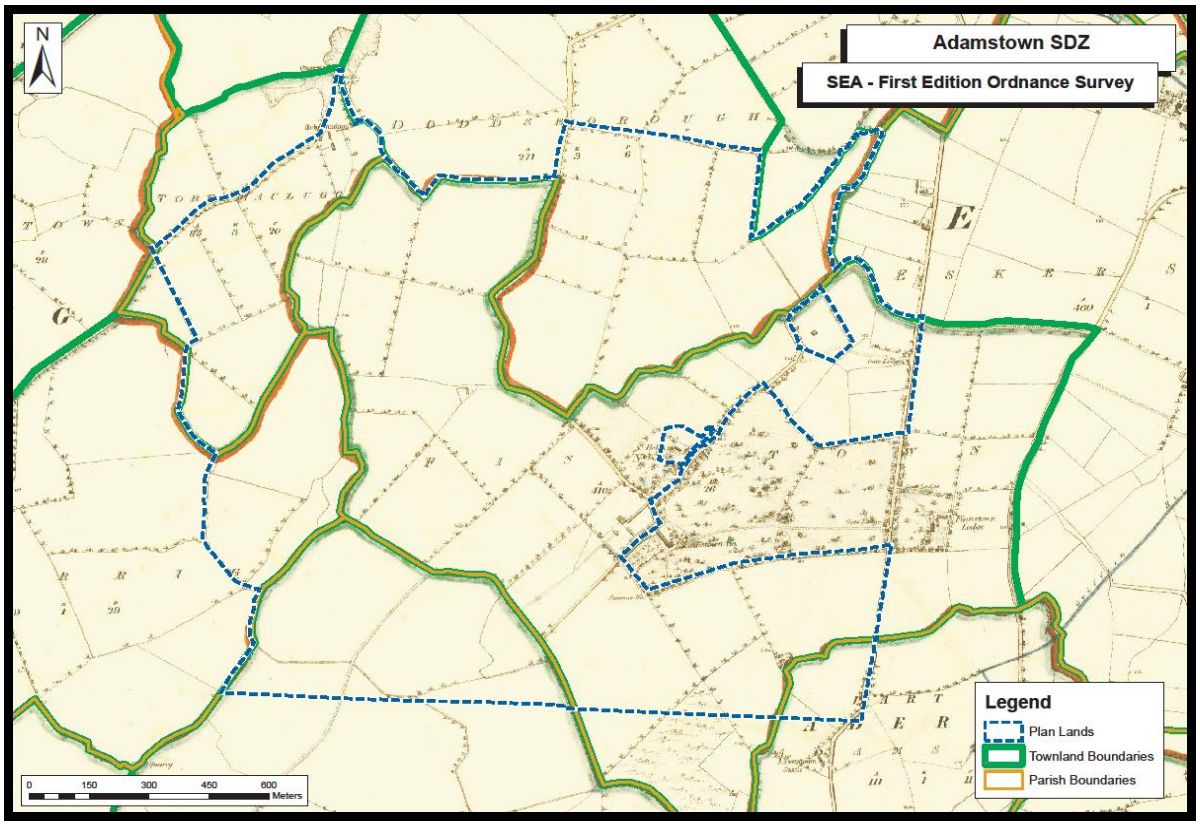


Figure 4.2 First Edition OS Map- Townland and Parish Boundaries

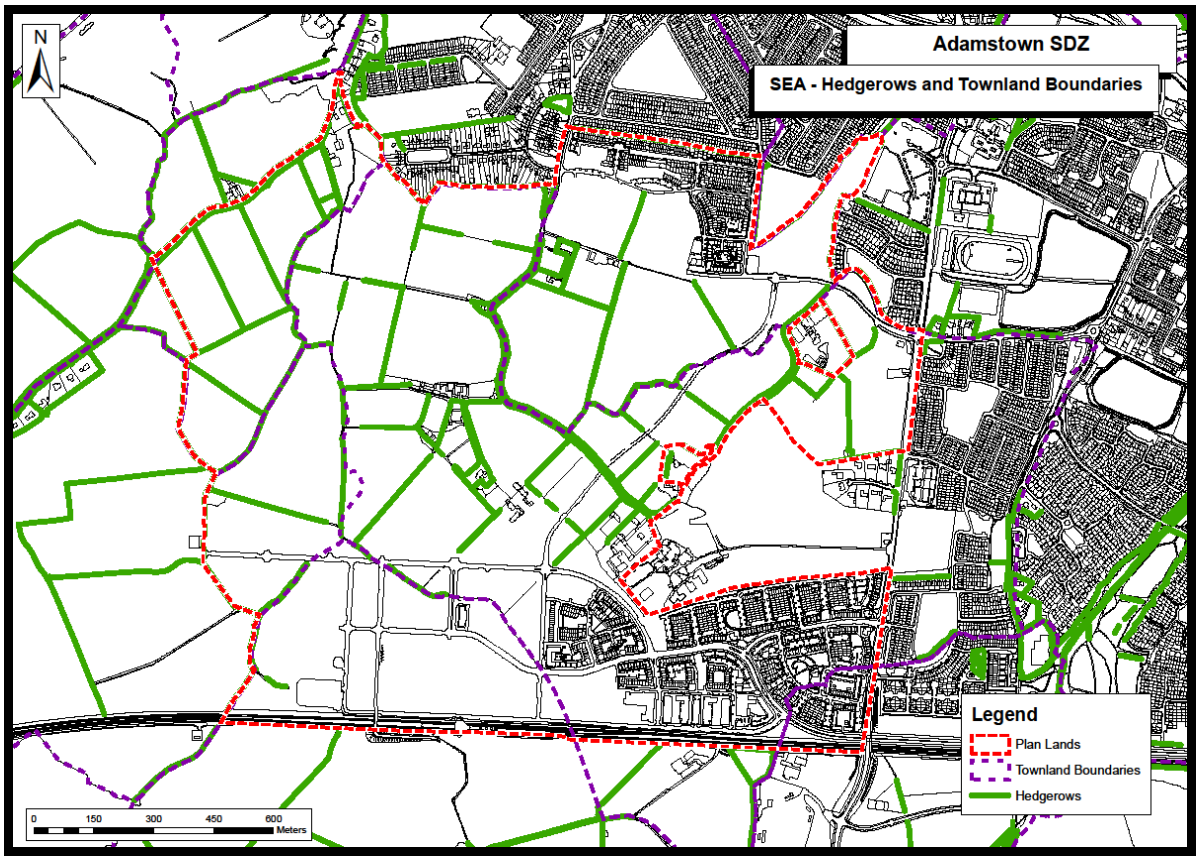


Figure 4.3. Hedgerows and Townland Boundaries

4.3.4 Fauna

4.3.4.1 Protected Species- Bats

The EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare and vulnerable species, including all species of bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All species of bat found in Ireland are listed on Annex IV of the Directive, while the Lesser Horseshoe bat is further protected under Annex II. Furthermore, all bat species are protected under the Wildlife Act (1976) and Wildlife [Amendment] Act (2000) which makes it an offence to willfully interfere with or destroy the breeding or resting place of these species.

In a survey carried out by Bat Conservation Ireland and the Centre for Irish Bat Research (January 2012), analysis was carried out of the county examining the areas of greatest bat occurrence and areas where bats may be particularly vulnerable. Analyses were carried out at a 5km resolution using the CORINE landcover, altitudinal, climatic and other datasets. This analysis is based on bat records available from 2000 to 2009 and it is noted that results may change as further records and more widespread and detailed habitat datasets become available over time. The survey concluded that the Annex II list species Lesser horseshoe bat is confined in Ireland to counties along the western seaboard, so is absent from County Dublin and South Dublin County Council area. A small proportion of the core range of the Nathusius' pipistrelle occurs in County Dublin but this includes more than two 5km squares in South Dublin County. Apart from the above two species (Lesser Horseshoe Bat and Nathusius' pipistrelle), the Daubenton's bat has next the most restricted distribution in the whole county with just 35% of Co. Dublin included in its core range. This species, however, is found in South Dublin County and the west of the county (i.e. where the SDZ lands are located) is likely to sit within the Daubenton's core range. Most or all of South Dublin County, however, is included in the core ranges of the common pipistrelle, soprano pipistrelle, Leisler's bat and Natterer's bat. Approximately half the county is included in the whiskered bat's core range.

The National Biodiversity Centre which is a national organisation for the collection, collation, management, analysis and dissemination of data on Ireland's biological diversity has no record to date of the presence of bats within the SDZ lands.

It is noted however that the information contained within the databases is largely reliant on surveys and sightings being submitted to and collated by the Data Centre and therefore some data gaps may exist.

4.3.4.2 Birds

Bird species recorded[5] as breeding at the site were great tit, coal tit, blue tit, starling, blackbird, song thrush, wren, robin, house sparrow, dunnock, magpie, chaffinch, greenfinch, yellowhammer, pied wagtail and rook. Birds recorded as present, and probably breeding around farm and residential buildings which were not included in the survey were jackdaw, swift, house martin and swallow. There was evidence of birds of prey but no birds were observed. The bird species are typical of rural areas with intensive agriculture and without wetland and extensive woodland habitats.

4.3.4.3 Mammals

Fox, hare and rabbit were observed at Adamstown[6]. Rabbits were numerous, with small warrens frequent in hedgerows and railway embankment scrub. Badgers or hedgehogs were not sighted but their presence was not ruled out. Rats were frequent in arable land especially potato fields. Two species of butterfly were recorded at the site. No damselflies or dragonflies were observed.

4.3.5 Aquatic Biodiversity, Flora and Fauna

The River Griffeen is a tributary of the River Liffey. Brown Trout and Three-spinned stickleback were found to be present in the river during a fish salvage operation during the Griffeen Castle weir installation[7]. The River Liffey supports Atlantic Salmon (Salmo salar, Annex II of the Habitats Directive), and brown and sea trout.

[5] Information taken from the Environmental Appraisal in the approved Adamstown SDZ Planning Scheme 2003.
[6] As Footnote no. 5 above
[7] Eastern Regional Fisheries Board- Annual Report 2007

4.3.6 Biodiversity: Existing Problems and Environmental Considerations

Habitat loss and fragmentation has occurred during construction works with vegetation and hedgerow removal. Significant portion of the strategic drainage network has been installed since 2003, with limited reference to Sustainable Urban Drainage technologies.

4.3.7 Evolution of Biodiversity, Flora and Fauna in the Absence of Draft Amendments

Urbanisation of the SDZ lands will continue in accordance with the terms of the approved scheme.

4.4 Population

4.4.1 Overview

The Adamstown SDZ site is located in the Electoral Division (ED) of Lucan St. Helen's. The ED comprises established residential areas to west and south west of Lucan Village, the Adamstown SDZ site and surrounding agricultural lands.

The population of the Lucan St. Helen's ED recorded a population increase of 30% between the 2006 (6592 persons) and 2011 (9450 persons) census periods. This is relative to a population decline of 6% over the previous Census period, 2002 (7,045 persons) to 2006 (6592 persons). Adamstown is the only significant development area within the ED, and as such the population increase from 2006 to 2011 is attributed primarily to the Adamstown site (Census 1991-2011).

The Adamstown SDZ Planning Scheme 2003, permits a minimum of 8,250 new homes and a maximum of 10,150 new homes. First occupations on foot of the approved scheme occurred in September 2006 and 1249 units were occupied by end August 2013 (SDCC Counts).

The projected population for the SDZ is 25,000 people. Small Area Census data[8] for the Adamstown site identifies a population of 3358 persons in Adamstown in 2011. 35 percent of the population were in the under 20 age category, 65 percent was in the 20-65 age categories and less than 1% was in the 65+ age category.

Regional planning policy in the form of the Regional Planning Guidelines and the Greater Dublin Area Transport Strategy recognise the strategic importance of Adamstown as a location to accommodate future population growth at higher densities by virtue of its position within the Metropolitan area of Dublin and along a rail corridor.

4.4.2 Population and Human Health.

Human health has the potential to be impacted upon by environmental vectors (i.e. environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings). Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from a variety of factors, e.g. incompatible adjacent land uses. These factors have been considered with regard to the description of: the baseline of each environmental component; and the identification and evaluation of the likely significant environmental effects of implementing the proposed amendments to the approved Planning Scheme.

4.4.3 Existing Problems

Legislative objectives governing population and human health are not identified as being conflicted with.

4.4.4 Evolution of Population and Human Health in the Absence of Draft Amendments

Development would continue to occur within the SDZ lands in accordance with the Adamstown SDZ Planning Scheme 2003.

4.5 Geology and Soils

The Geological Survey of Ireland GSI has provided information on Bedrock, Soils, Groundwater Classification and Aquifer

[8] The Adamstown site comprises 10 Small Areas, with 267103001 incorporating rural lands outside of the site also.

Vulnerability in the Adamstown Area (www.gsi.ie).

4.5.1 Geology

The Geology of the Adamstown area is characterised by the presence of Carboniferous limestone bedrock overlain by glacial till deposits common to the Greater Dublin Area. Reference to the Bedrock Maps of the "Geological Survey of Ireland" indicates that bedrock in the Adamstown area is underlain by Calp Limestone and can be generally described as dark grey, fine grained, graded limestone with interbedded black, poorly fossiliferous shales. Presence of blocks of Leinster granite and lower Paleozoic greywacke indicates the close proximity of a shoreline or active fault margin to the south[9].

4.5.2 Sites of Geological Interest.

Following consultation with the Geological Survey of Ireland, a number of sites in South Dublin County that are considered to be geologically sensitive and important have been identified. Sites of Geological Interest are listed in the County Development Plan 2010-2016. There are no such sites in proximity to Adamstown.

[9] Source: Environmental Impact Statement for SDZ08A/0002

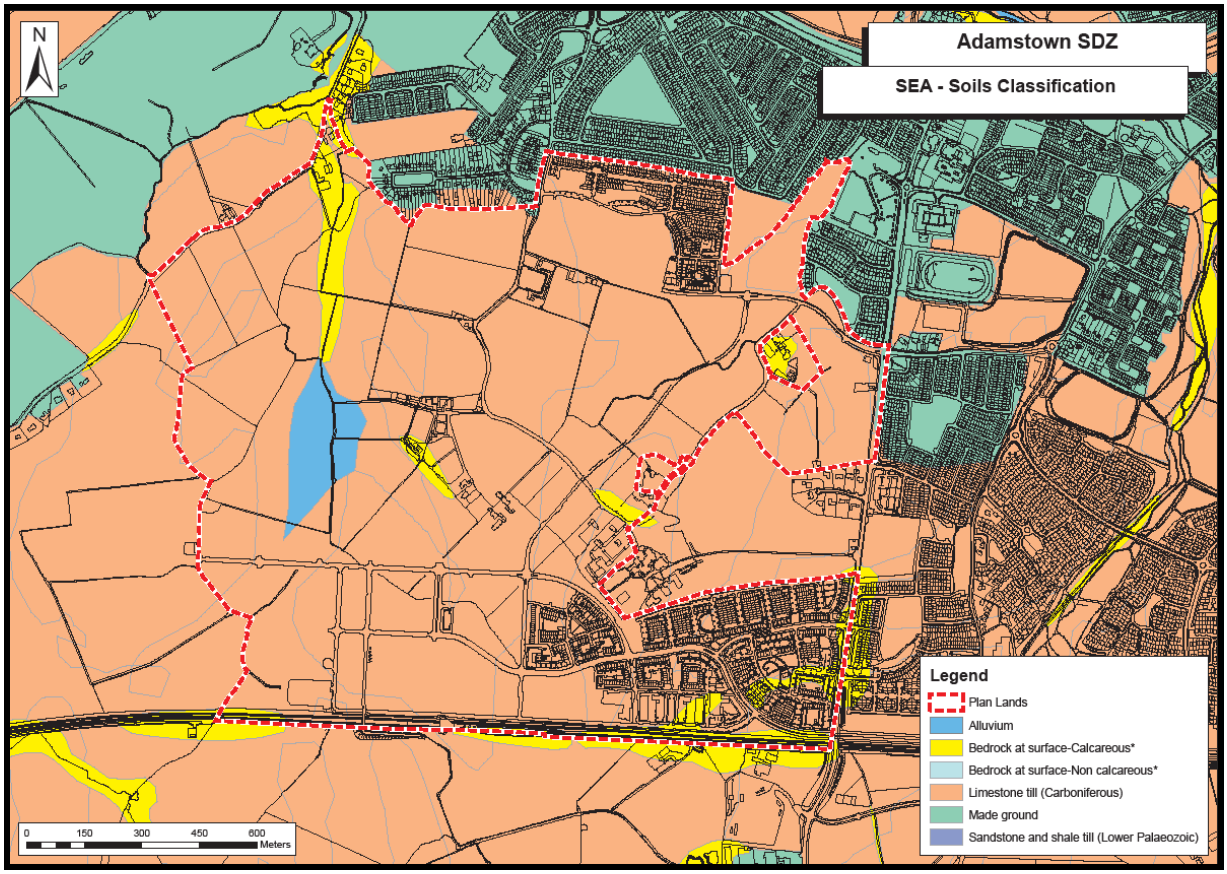


Figure 4.4 Soils Classification for Adamstown

4.5.3 Soils Classifications

There is currently no legislation specific to the protection of soil resources. There is, however, currently an EU Thematic Strategy on the protection of soil which includes a proposal for a Soil Framework Directive which proposes common principles for protecting soils across the EU.

The predominant soil type of the SDZ lands is Limestone Till, with the developed areas cateogorised as Made Ground[10] (Figure 4.4).

4.5.3.1 Contaminated Soils

Contaminated areas in the county are categorised as old landfill sites. South Dublin County Council has identified 66 no. degraded sites that have potential to negatively affect receiving waters and land uses. There are no Contaminated Sites within or close to Adamstown.

4.5.3.2 Extractive Industries

The largest quarry operating at present in South Dublin is the Roadstone Limestone Quarry at Belgard/ Newlands Cross; this is located almost 6km to the south-east of the SDZ lands. Due to the distance of this quarry from the plan lands, it is unlikely to have a significant impact on the plan lands.

4.5.4 Soil and Geology Issues: Existing Problems / Environmental Considerations

It is considered that there are no existing problems or environmental concerns in relation to this matter.

4.5.5 Evolution of Geology/Soils in the Absence of Draft Amendments

The Adamstown SDZ Planning Scheme 2003 will continue to be implemented. Having regard to

[10] Made Ground typically comprises of demolition rubble made up of concrete, brick, glass, ash, pottery and mortar in a matrix of gravely clay.

the nature and extent of proposed amendments, it is considered that the outcome with regard to geology and soil condition would be largely unaltered.

4.6 Water

4.6.1 Introduction

The Adamstown SDZ lands are all located within the River Griffeen and River Liffey catchment areas.

4.6.2 The Water Framework Directive (WFD)

The key piece of legislation governing water quality in Ireland is the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003), which transposed Directive 2000/60/EC (the Water Framework Directive, (WFD) into Irish law. The WFD sets out that a Member State shall implement the necessary measures to prevent deterioration of the status of all bodies of surface, ground estuarine and coastal water, and shall protect, enhance and restore all bodies of surface and ground water with the aim of achieving good ecological status by 2015.

4.6.2.1 River Basin Districts and Water Bodies

For the purposes of implementing the WFD, Ireland has been divided into eight river basin districts. South Dublin lies wholly within the Eastern River Basin. A characterisation report for this basin was prepared in September 2005. The Eastern River Basin Characterisation report indicates the main pressures and threats to the water-bodies in the basin achieving the status required under the WFD.

4.6.3 Rivers

River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive (WFD).

For the purposes of assessment under the WFD, three (3) main rivers drain lands in South Dublin. These are The Liffey, Dodder and Camac. These rivers are monitored by the EPA and South Dublin County Council.
The Adamstown SDZ lands are located within the Griffeen lower and Liffey Lower Catchments. There are five (5) stations monitoring the Liffey within South Dublin. Most recent[11] water quality data indicates that the quality of water in the south Dublin sections of the Liffey is of good status (Q4)[12] .

The Eastern River Basin District River Basin Management Plan 2009-2015 indicates that the overall status of the Liffey Lower is Poor and the Griffeen Lower is Bad. It is an overall objective to restore the status of the river to 'good' by 2027[13] (Table 4.1).

In general, the WFD requires our waters to achieve at least good status/potential by 2015, and that their status does not deteriorate. Having identified the status of waters, the next stage is to set objectives for waters. Objectives consider waters that require protection from deterioration as well as waters that require restoration and the timescales needed for recovery. Four default objectives have been set initially - Prevent Deterioration, Restore Good Status, Reduce Chemical Pollution and Achieve Protected Areas Objectives. These objectives have been refined based on the measures available to achieve them; the latter's likely effectiveness, and consideration of cost-effective combinations of measures. Where it is considered necessary extended deadlines have been set for achieving objectives in 2021 or 2027.

In addition to these default objectives, the Eastern River Basin Management Plan also recommends a series of measures needed to bring the Griffeen and Liffey Lower back to good status.

The additional measures for the River Griffeen and Liffey Lower include

[11] EPA (2010) Water Quality in Ireland 2007-2009, Wexford: EPA

[12] The Biotic Index values, are assigned to rivers in accordance with biological monitoring of surface waters – low Q ratings, such as Q1, are indicative of low biodiversity and polluted waters, and high Q ratings, such as Q5, are indicative of high biodiversity and unpolluted waters, Good status as defined by the Water Framework Directive equates to approximately Q4 in the national scheme of biological classification of rivers as set out by the EPA.

[13] Extended timescales have been set for certain waters due to technical, economic, environmental or recovery constraints. Extended timescales are usually of one planning cycle (6 years, to 2021) but in some cases are two planning cycles (to 2027).

- Further investigation/ monitoring required
- Develop septic system management programme.
- Enforce regulations on septic systems.
- Conduct awareness campaign for sustainable domestic water use, including rainwater harvesting and domestic soakaways for storm water.
- Develop Habitat Suitability Curves for salmonids in Irish Rivers.

	Liffey Lower	**Griffeen Lower**
Overall Status	Poor	Bad
Objective	Restore 2027	Restore 2027
Risk	At Risk	At Risk
Heavily Modified	No	No
Macroinvertebrate Status	Poor	Not Assessed
Physico-Chemical Status	Moderate	Good

Table 4.1: Status Report of the Liffey and Griffeen Rivers[14]

4.6.4 Groundwater Groundwater and Aquifer Vulnerability [15]

The Geological Survey of Ireland (GSI) has undertaken a Groundwater Protection Scheme for South Dublin County. The overall aim of the Groundwater Protection Scheme, which has been undertaken jointly between the GSI and the Local Authority, is to preserve the quality of groundwater, particularly for drinking water purposes, for the benefit of present and future generations.

The Strategic Drainage Study for the Greater Dublin Area identifies that the groundwater in South Dublin is at risk from diffuse sources including inadequate urban sewerage systems and point sources including some contaminated land.

The groundwater vulnerability within the SDZ lands is predominately 'extreme vulnerability'. There are small areas of extreme vulnerability where rock is generally at or close to the surface located along the southern and south-eastern boundaries of the SDZ site.

4.6.4.1 Aquifer Vulnerability

The aquifer on which the entire plan lands are located is rated as "Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones".

None of the water bodies within the Adamstown SDZ area have been listed on the WFD Register of Protected Areas (RPAs).

[14] Source: www.wfdireland.ie; Information as of May 22nd 2013

[15] Information on Groundwater and Aquifer Vulnerability from www.gsi.ie

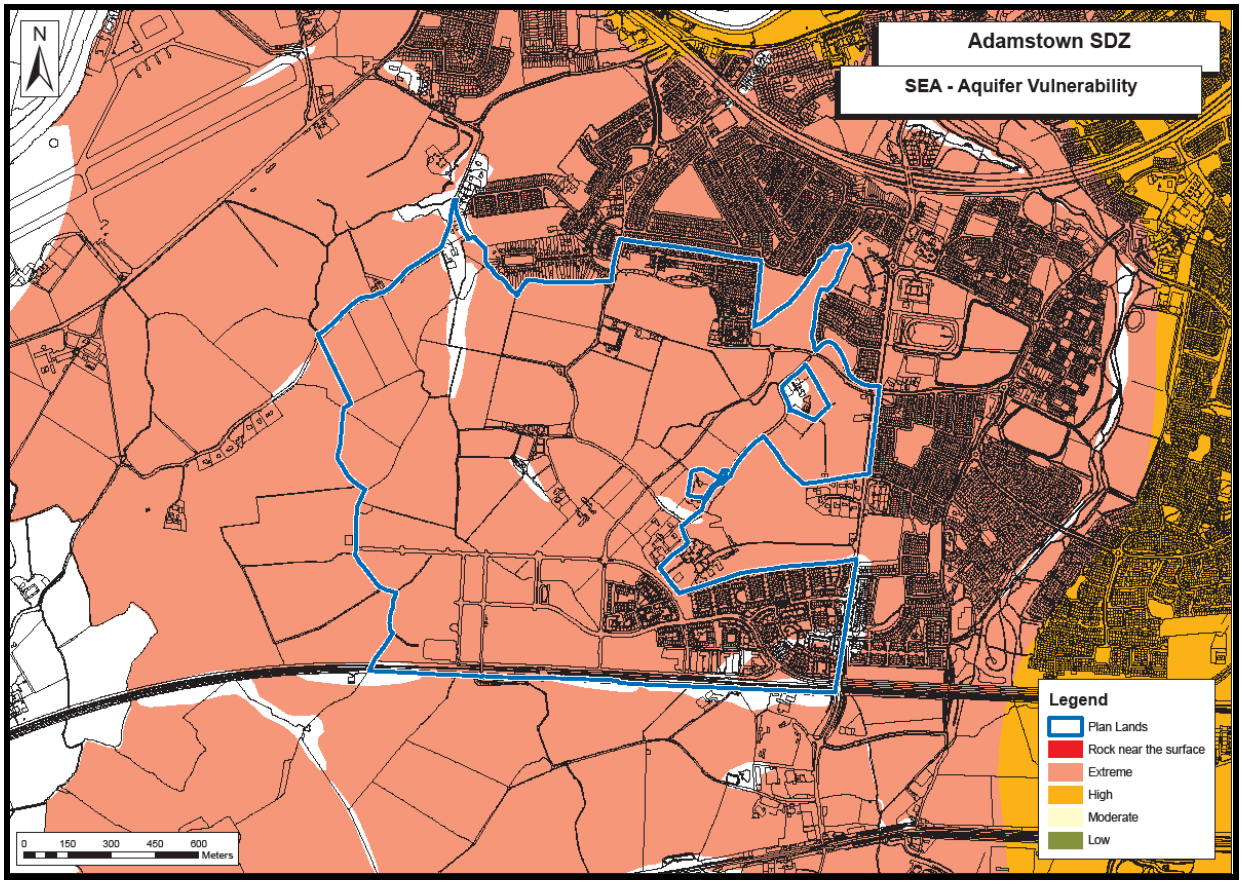


Figure 4.5 Aquifer Vulnerability

4.6.5 Surface Water

The Adamstown SDZ lands are located within three surface water drainage sub-catchments; these are Tobermaclugg, North East Griffeen Tributary and South East Griffeen Tributary.

Approximately 65% of the SDZ lands drain to the Tobermaclugg Stream, which flows north through the western part of the site and is joined by the Backstown Stream on leaving the SDZ lands and continues along Tubber Lane before draining to the River Liffey to north. The established drainage system was considered insufficient to meet the requirements of the approved Scheme and flood events had occurred in the environs of Tubber lane. A storm water culvert and 5000m³ attenuation pond was installed in 2011 to manage surface water flow in this area. The culvert takes surface water directly from Adamstown to the attenuation pond, bypassing a section of the Tobermaclugg Stream, with outfall to the River Liffey in the vicinity of Lucan Village.

Attenuation of storm water in the North-East Griffeen tributary catchment is drained to the surface water outfall and attenuation pond at Tobermaclugg. Attenuation has been achieved by using underground storage in the form of a combination of precast concrete tanks and oversized pipes in conjunction with flow control devices. Attenuation of storm water in the south east Griffeen tributary is dealt with partially by the construction of a number of underground retention tanks, which are later discharged to the main channel of the Griffeen River via oversized pipes.

A significant proportion of the surface water drainage infrastructure required under the approved Planning Scheme is now in place. Infrastructure installed to date includes underground attenuation tanks and culverts with a more limited application of a Sustainable Urban Drainage system (SUDS) approach.

4.6.6 Flooding

4.6.6.1 OPW National Flood Hazard Mapping

"The Planning System and Flood Risk Management – Guidelines for Planning Authorities 2009" indicate that catchment based Flood-Risk Management Plans are currently being developed by the OPW in consultation with Regional and Local Authorities. These will provide the focal point and strategic direction for flood risk management in the County. The use of the planning system is an integral part of flood risk management.

Issues raised in the Guidelines include: -

- Need to identify and safeguard flood plains;
- Implementation of Sustainable Drainage Systems;
- The sequential approach to managing flood risks utilizing flood zones is to be undertaken.
- A justification test for development proposed within zones of flooding probability is to be provided.

Catchment Flood Risk Assessment Management Studies (CFRAMS) were undertaken for a number of rivers on a pilot basis since 2006, including the River Dodder in South Dublin County. In 2011, CFRAM studies were commissioned at the scale of the River Basin Districts. The Eastern CFRAM study commenced in June 2011 and will run until the end of 2015. Assessment of the Camac and Poddle catchments have been prioritised within the overall study timeframe, following a flood event, in order to allow SDCC and DCC to progress flood management works. A number of flood management options are currently on display.

4.6.6.2 Griffeen and Liffey River Flooding

The Adamstown SDZ area is within the Griffeen and Liffey catchment. The flood risk information in relation to the catchment is limited to provisional data (OPW initial Preliminary Flood Risk Assessment - PFRA), alluvial soils as a surrogate for Flood Risk and OPW recorded Flood Events.

The Office of Public Works (OPW) Draft Preliminary Flood Risk Assessment (PFRA)[16] , using fluvial and pluvial data records, has identified a number of areas in and around the plan lands which would have potential flood risk (Figure 4.6 below).

To the southeast of the plan lands, along the R120 Road, fluvial data identifies a 1% Annual Exceedance Probability (AEP) 100 year event occurring in this area, running in a north to southwest direction, within the River Griffeen upper catchment area. Fluvial data also identifies a 1% AEP to the east of the plan lands along the Tobermacclugg stream. It should be noted, however, that extensive flood alleviation works have been carried out on the Tobermacclugg Stream and Griffeen River since the Planning Scheme was adopted which have significantly reduced flood risk in this area.

The pluvial data records identify a 1% AEP 100 year event occurring on a smaller scale in a number of locations throughout the plan lands. No flood events have been recorded by the OPW in the SDZ site or in the proximate vicinity.

[16] The OPW Draft Preliminary Flood Risk Assessment is currently closed for public consultation. It is part of the Catchment Flood Risk Management Programmes (CFRAMPs) which is a long-term strategy for the reduction and management of flood risk in Ireland.

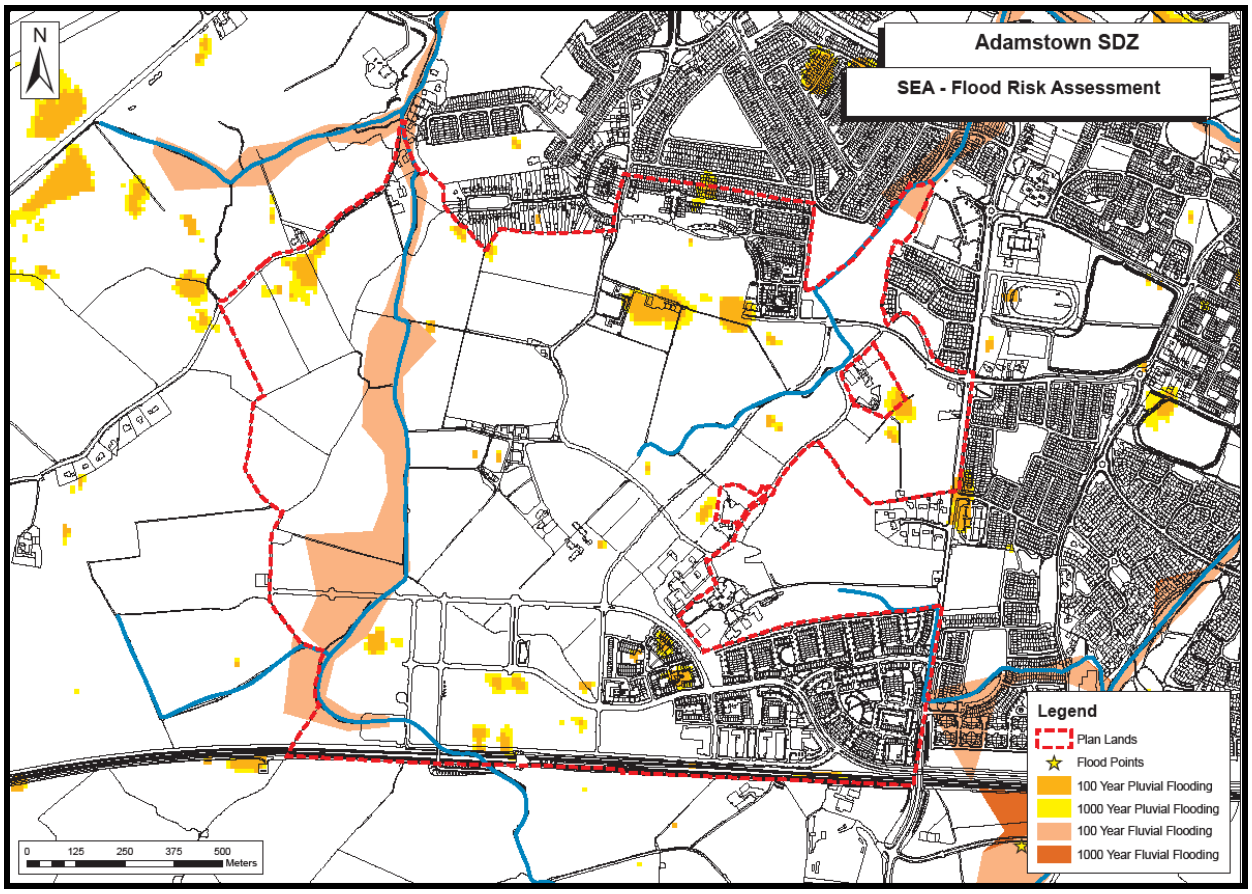


Figure 4.6 OPW: Preliminary Floor Risk Assessment (PFRA) Map

4.6.7 Water Issues: Existing Problems / Environmental Considerations

Under the requirements of the WFD, South Dublin is expected to identify and manage the waters within the county and ensure that existing and proposed development in the County does not affect the achievement of 'Good' water status by 2015. The River Basin Management Plan for the ERBD notes the status of the Liffey Lower in South Dublin and projects a timeframe of 2027 for compliance with the WFD regarding rivers.

The River Basin Management Plan for the ERBD proposes management and monitoring for the Liffey.

The groundwater vulnerability within the SDZ lands is "extreme vulnerability"; there are small areas of extreme vulnerability where rock is generally at or close to the surface located along the southern and south-eastern boundaries of the SDZ site.

The extreme groundwater vulnerability is also located on a Locally Important Aquifer. The sensitivity of these areas could impact on the groundwater within the county, should inappropriate development be allowed to take place in close proximity to these locations.

There are no Water Framework Directive Protected Areas identified by the River Basin Management Plan for the ERBD in the SDZ area.

The requirements of *"The Planning System and Flood Risk Management – Guidelines for Planning Authorities"* (2009), need to be taken into account to ensure that any potential flooding in this area does not impact on human health, property, or the ability to meet the requirements of the WFD or need to protect biodiversity.

A significant proportion of the surface water drainage infrastructure required under the approved Planning Scheme is now in place. Infrastructure installed to date includes underground attenuation tanks and culverts with a more limited application of a Sustainable Urban Drainage system (SUDs) approach.

4.6.8 Evolution of Water in the Absence of Draft Amendments

The Adamstown SDZ Planning Scheme 2003 will continue to be implemented. Having regard to the nature and extent of proposed amendments, it is considered that the outcome with regard to Water would be largely unaltered.

The approved Planning Scheme requires the installation of waste water infrastructure to serve the site. The strategic network has been largely installed since 2003. This is in keeping with South Dublin policies to achieve WFD commitments. The replacing of semi-natural land cover with artificial, more impervious surfaces is likely to lead to cumulative increases in run-off to the County's river bodies. These cumulative increases have the potential to increase flood risk in the broader area. Greater incorporation of Sustainable Urban Drainage techniques through amendments could offset some of this impact.

4.7 Air and Climatic Factors

4.7.1 Ambient Air Quality

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

These pollutants are generated primarily through fuel combustion, in space heating, traffic, electricity generation and industry and, in sufficient amounts, could affect the well-being of the areas inhabitants. The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed.

The EU Directive on ambient air quality and management (The Air Quality Framework Directive; 96/62/EC) has been transposed into Irish legislation by the Air Quality Standards Regulations 2002 and the Ozone Regulations 2004, which detail strategic objectives in relation to air quality and management. These objectives include setting pollution standards which will avoid, prevent and reduce harmful effects on human health and the environment, maintaining ambient air quality where it is of a good standard and improving it in other cases.

Four (4) daughter directives create additional limits for specific air pollutants. These deal with more commonly released pollutants such as sulphur dioxide, nitrogen dioxide, and nitrogen oxide, particulate matter and lead, and carbon monoxide and benzene, and less common, but equally hazardous pollutants such as ozone, arsenic, nickel and cadmium.

Studies indicate that in recent years, the focus of air pollution monitoring has shifted from black smoke, sulphur dioxide (SO_2)(both from home heating) and lead (petrol based) to monitoring benzene, nitrogen oxide (NO_x) and particle matter (PM_{10}), which are derived from traffic based sources. Significant reduction of nitrogen oxides (NO_x) from road transport is required if Ireland is to meet its commitments under the National Emissions Ceiling (NEC) Directive by 2010. The latest Air Quality report from the EPA[17] does not expect NO_x emissions to meet the target date.

4.7.2 Air Zones

In order to comply with the directives mentioned above, the EPA measures the levels of a number of atmospheric pollutants. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations 2002 (SI No. 271 of 2002). The main areas defined in each zone are:

_ Zone A: Dublin Conurbation.
_ Zone B: Cork Conurbation.
_ Zone C: 21 Other cities and large towns including Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee and Dundalk.
_ Zone D: Rural Ireland, i.e. the remainder of the State - small towns and rural areas of the country - excluding Zones A, B and C.

The SDZ lands fall within Zone A. Air quality in Zone A is currently good.

4.7.3 Air Quality Monitoring

The Environmental Protection Agency (EPA) maintains 1 no. permanent air monitoring station in South Dublin County, at the Old Bawn Road in Tallaght, approximately 12 kilometres from the site. The station monitors Sulphur Dioxide and Particulate Matter (PM_{10}) on a continuous basis. The latest available document *'Air Quality in Ireland Report (2011)'* by the EPA indicated that none of the monitoring stations in

[17] EPA. Irelands Environment 2008. Air Quality. P43.

South Dublin exceeded allowable limits during 2011[18]. While the PM_{10} daily limit of 50ug/m3 was breached four times in 2011, the limit is only deemed breached if more than 35 exceedances occur during a year.

An EIS for a proposed mixed use development in Adamstown (Reg. Ref. SDZ08A/0002) included an air quality assessment. The assessment concluded that all monitoring fell within allowable limits and that any increases in emissions during the short term construction period could be mitigated.

Given that traffic emissions generate a significant amount of airbourne pollutants, the recent noise mapping exercise undertaken for South Dublin is of interest (Fig 3.10 and 3.11 below). The map indicates highest noise levels (65-69 Lden dB(a)) originating from the adjacent railway line and R120 road (>74 Lden dB(a). It is likely that areas with high levels of noise disturbance from roads and heavy rail would also have a high incidence of transport generated air pollutants.

4.7.4 Point Sources for Emissions in Air

There are three (3) sources of large scale industrial and agricultural activities monitored by the EPA. These are Integrated Pollution Prevention Control (IPPC) licenses, waste licenses and SEVESO licenses or sites. There are no licenses under the above categories present within the Adamstown SDZ area. The Grange Castle Business Park located directly to the southeast of Adamstown contains a number of industrial facilities that are subject to IPPC and waste licensing. Pfizer Ireland Pharmaceuticals and Takeda Ireland Limited are two such industries located within Grange Castle Business Park.

The principal class of activity (as detailed in their IPPC licences[19]) for Pfizer Ireland Pharmaceuticals and Takeda Ireland Limited relates to the manufacture of pesticides, pharmaceutical or veterinary products and their intermediates.

Both Pfizer Ireland Pharmaceuticals and Takeda Ireland Ltd fall within Category 4.5 of the IPPC Directive which relates to installations using a chemical or biological process for the production of basic pharmaceutical products. The main emissions to air from the Pfizer site arise from the boilers and Combined Heat and Power plant. The main area of concern in relation to air quality is nitrogen oxides. Process operations are mainly aqueous based and will not generate any main emissions to the air. There are 15 no. conditions pertaining to their IPPC licence. Condition no. 5 relates to emissions to the atmosphere; Conditions no's. 11 and 12 relate to monitoring and recording and reporting to the EPA. Results of monitoring are to be submitted to the EPA on a bi-annual basis. Strict conditions in relation to the emission limits have also been applied which can not be exceeded. In the Annual Environmental Report 2012 for Pfizer Ireland Pharmaceuticals, there was 100% compliance relating to the thresholds set for emissions to air.

Takeda Ireland Limited has two sources of emissions to the atmosphere as detailed in their IPPC licence- the Regenerative Carbon Absorber and the Hydrogenator scrubber. As detailed in the Annual Report in 2012 (a condition of their IPPC licence to submit annual environmental reports), no emission limits to air were exceeded above the limits set down by their IPPC licence.

4.7.5 Noise Pollution and Noise Mapping

Noise pollution is considered to be one of the most damaging and prevalent forms of nuisance and pollution within urban areas.

On foot of Directive 2002/49/EC (transposed into the Environmental Noise Regulations), the four local authorities within the agglomeration of Dublin (Dublin City Council, Fingal, Dún Laoghaire-Rathdown and South Dublin County Councils) prepared a Noise Action Plan, including noise maps for the Dublin Agglomeration 2008-2013. Revised noise maps were produced in 2012; the production of the revised noise maps is the first step in the review of the Dublin Agglomeration Noise Action Plan 2008-2013 which is currently draft and is due to be completed by December 2013.

Irish Rail and the Rail Procurement Agency have produced separate maps for Rail and LUAS

[18]Source: EPA Website. www.epa.ie/whatwedo/monitoring/air/data
[19] Pfizer Ireland- IPPC License No: P0652-01; Takeda Ireland Limited- IPPC License No: P0693-01; Source www.epa.ie

sources respectively as part of the review process.

In conducting the noise mapping exercise, night and day time levels of greater than 55 decibels (db) and 70 (db) respectively, were considered to be undesirable. Figure 4.7 (below) is an extract from the Dublin Noise Map for the roads around the Adamstown area. Numerals represent average decibel levels taken over a 24 hour period. Figure 4.8 represents the sound values (Lden) from the adjacent Irish Rail Line over a 24 hour period.

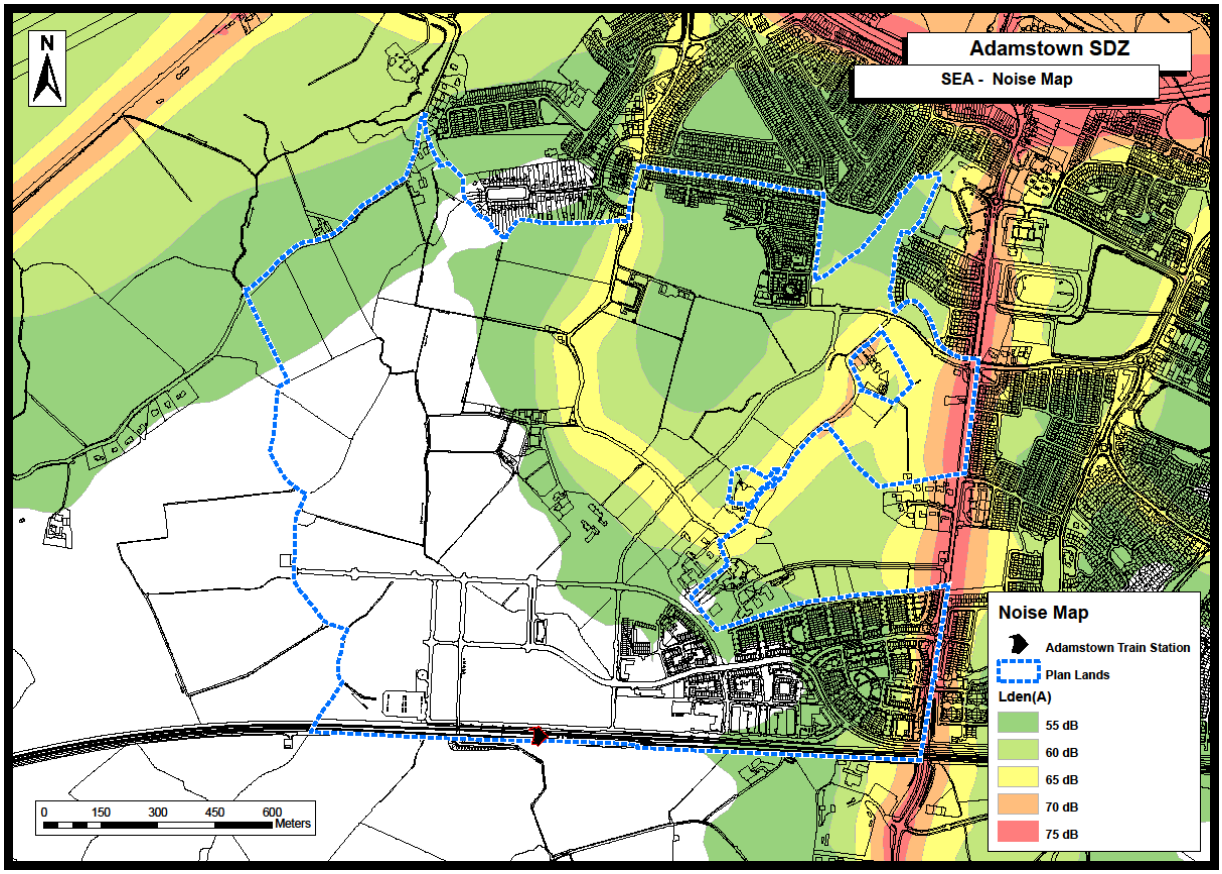
The EU, under Directive 2002/49/EC relating to the assessment and management of environmental noise[20], has introduced indicator Lden, representing long term average sound level over the day, evening and night periods.

The Noise Action Plan proposes measures to reduce the impact of transport generated noise on human health including the following:-

- Abatement measures to reduce traffic flows,
- Speed reduction,
- Traffic relocation,
- Public transport, walking and cycling promotion.

Both of the mapping exercises indicate varying levels of environmental noise within the site, with high levels at both the railway line (65-69 Lden dB(a)) to the south and the R120 road to the east. The R120 road which runs in a north-south direction to the east of the SDZ, indicates a high level of noise (>74 Lden dB(a)) on the road, with the noise levels decreasing to 55-59 decibels as development moves away from the roadway in a westerly direction. There are high levels of noise noted along Tandy's Lane (60 to 69 decibels over the 24hour period), which is a heavily trafficked at present. This roadway, which retains its rural characteristic at present, is to be realigned as part of the planning scheme and will be located within a more built up environment. At present, the road is used as a through road for those getting to the western parts of Lucan; its location within a developed area may reduce the volume of through traffic on this route in the future.

[20] Environmental Noise is defined in the Directive as 'unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic,….'



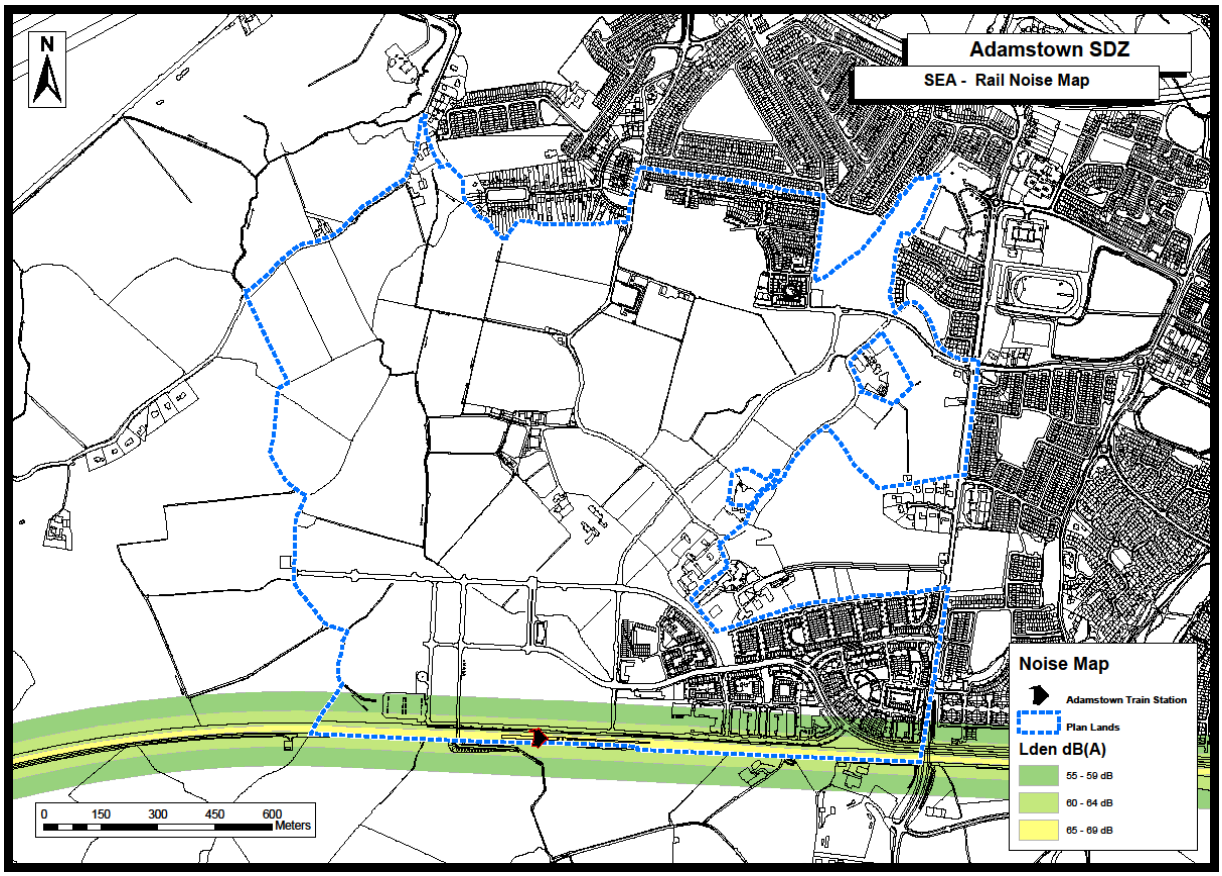


Figure 4.7 and 4.8 Noise Mapping- Roads and Rail

4.7.6 Air Quality and Noise Pollution Issues

Rail and road based traffic appears to be the most likely generator of noise and air pollution within the Adamstown site. Areas of impact should be noted and measures to remediate where necessary. The approved Planning Scheme is based on a sustainable transport vision that seeks to provide alternatives to the private car by aligning development with public transport and creating conditions for sustainable movement within the site. Reduction in private car movements will result in a reduction in emissions such as PM_{10} and NO_x. Short-term noise and airborne pollution levels are also likely to increase in the SDZ during construction periods.

4.7.7 Evolution of Air Quality and Noise Pollution in the Absence of Draft Amendments

The Adamstown SDZ Planning Scheme 2003 will continue to be implemented. Having regard to the nature and extent of proposed amendments, it is considered that the outcome with regard to noise and air pollution would be largely unaltered. As the transition from rural to urban progresses, noise and pollution levels are likely to increase within the site. The proposed electrification of the rail line (Transport 21) would reduce noise and air pollution arising from existing diesel trains.

4.8 Climate Change and Sustainability

4.8.1 Introduction

The Intergovernmental Panel on Climate Change (IPCC) concluded in its 4th assessment report[21] (2007) that warming of the climate system is unequivocal. This report was preceded by Sir Nicholas Stern's 2006 economic review estimating the cost of inaction regarding combating climate change.

Climate change is becoming the greatest challenge facing society today, an issue which affects all citizens at a local, national and international level. It is important that the Council, and its residents, act responsibly at a local level in order to assist in the reduction of greenhouse gas emissions - which are created primarily by the use of non-renewable fossil fuels. Holistically reducing these emissions will require implementing an overarching strategy affecting many aspects of the development of the County.

South Dublin County has no coastline. However, rising sea levels are likely to increase the vertical and horizontal extent of estuaries such as the Liffey and Dodder, resulting in penetration of tides further upstream. Outflow from rivers would be impeded by this, which during times of high rainfall and run-off, would increase chances of flooding.

There is currently no data available at a local level for greenhouse gas emissions. However a number of strategies and initiatives have been developed as part of the National Climate Change Strategy 2007 -2012.

4.8. 2 Potential Solutions

The National Climate Change Strategy Ireland 2007-2012 sets out a range of measures building on those already in place under the first National Change Strategy (2000) to ensure Ireland reaches its target under the Kyoto Protocol. The Strategy provides for action to reduce Ireland's greenhouse gas emissions. The Kyoto Protocol was agreed in 1997 and commits industrialised or developed countries to reduce their combined emissions of the basket of six greenhouse gases by at least 5% compared to below 1990 levels by the first commitment period 2008 -2012.

One such initiative is the Climate Change Strategy 2009-2012 for South Dublin. This strategy indicates sustainable measures relating to planning, energy, transport, waste management and ecosystems, to be undertaken and promoted by the County Council.

Sustainable development within the County requires an integrated approach regarding sustainability and environmental performance. The decisions taken for the design and management of each component of the urban and rural system will give rise to the potential for individual and cumulative environmental effects. Similarly, the performance of components, during the operational stages can not be seen in isolation. Each element of the

[21] The Fifth Assessment Report will be finalised in 2014

County is linked, as are the implications for environmental performance.

At the Planning Scheme level, it is important to ensure development utilises best practice for development which at a minimum meet required Irish standards, in areas such as:-

- Optimising accessibility and use of environmental resources;
- Creating conditions for sustainable communities to develop;
- Promoting design excellence at macro and micro levels;
- Promoting quality public realm design;
- Providing for citizens, businesses and institutions to live and operate sustainably;
- Setting out and defining environmental performance indicators to guide development of the district towards the vision of a sustainable mixed use development.

The existing planning scheme has embraced these opportunities and it is important to ensure that any amendments to the scheme do not deviate away from these standards.

4.8.3 Evolution of Climate Change in the Absence of Draft Amendments

The Adamstown SDZ Planning Scheme 2003 will continue to be implemented. Having regard to the nature and extent of proposed amendments, it is considered that the outcome with regard to climate change would be largely unaltered.

The Planning Scheme seeks to increase sustainability and efficiency through aligning higher density residential development and good quality public transport and by incorporating a mix of uses and services to support sustainable, non car based local movement.

In the short-term the benefits of the approach may not be observed, as the critical mass needed to support a sustainable and self sufficient new district will take time to achieve. There may be a short term increase in car movements to access facilities outside of the plan lands, and pending some key improvements to the regional public transport network. As the area develops the amount of car based movement is likely to reduce.

4.9 Cultural Heritage and Material assets

The Cultural Heritage and Material Assets of the Adamstown SDZ area may be broken down into a number of relevant categories. These are:-

Material Assets.

- Waste Water;
- Drinking Water;
- Energy Infrastructure;
- Transport Infrastructure;

Cultural Heritage Assets.

- Architectural Heritage;
- Archaeological Heritage.

4.9.1 Waste Water

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) transposed into Irish law by the Urban Waste Water Treatment Regulations 2001 (SI 254 of 2001). The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the environment.

In addition, the treatment of wastewater is relevant to the Water Framework Directive which requires all public bodies to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and bring polluted water bodies up to good status by 2015.

Development of Wastewater Treatment Works (WwTw) within the Greater Dublin Area has not kept pace with construction or the amount of zoned lands. The WwTw in Ringsend currently operates at a Population Equivalent (PE) of 1.9 million. The GDSDS SEA (2008) indicates expansion at Ringsend to 2.16 million PE. Surveying and assessment is currently underway to ascertain expansion of the Ringsend WwTw to 2.4 million PE.

The GDSDS Final Strategy Report states that the total 2002 population in the catchment areas was 1,225,545 (958,861 for Ringsend)[22]. This amounts to 79.8% of the population for the full

[22] GDSDS Final Strategy Report. Table 4.3 Population Equivalent loads by foul and WWTW catchment (2005).

Greater Dublin Area (including the functional areas of all seven local Authority areas, the population of which was 1,535,250). The population in the GDSDS catchment areas was predicted to grow to 1,489,962 by 2011 and to 2,054,401 by 2031[23].The population for the Ringsend Catchment was predicted to grow to 1,131700 (2011) and 1,456,590 (2031)[24].

Allowing for development growth without requisite wastewater treatment provision would conflict with the requirements of the Urban Wastewater Treatment Directive which requires the collection and high level treatment of wastewater, specifically those to be discharged to sensitive waters such as Dublin Bay.

Predicted development flows to 2031 indicate a need to plan for the expansion of the existing system. The majority of options examined within the GDSDS indicate the capping of flows to Ringsend at 2.16 million PE and directing additional flows to another facility within the Greater Dublin Area[25].

Aside from some rural areas, almost all of the waste water in the county is currently treated in Ringsend. The waters are treated to a tertiary standard. These waters are discharged to Dublin Bay, which contains a number of Natura 2000 sites. The Dublin City water treatment facilities (including Ringsend) are subject to separate operational consent and licensing procedures which are themselves required to be compliant with all applicable environmental Regulations and Directives, including the Water Framework and Habitats Directives.

Proposed amendments would reduce the extent of development permissible under the Planning Scheme. The loading to WwTw as a result of implementing the proposed amendments would therefore drop and is also offset by reductions in older parts of the county[26] (from a household size of 3.31 in 2002 to 2.18 in 2031) as well as reduced construction and occupation figures for new housing. It is noted that the result of the GDSDS would be to increase the capacity of the WwTw at Ringsend to 2.16 million PE by 2014. It is considered that there would be adequate capacity at Ringsend to accommodate growth within the county until the upgrade is complete in 2014.

Approximately 65% of Adamstown is within the western foul drainage catchment. The foul water sewerage network for this area will feed into the Tobermaclugg Pumping Station on Tubber Lane, which was completed in 2010 to serve the development. Foul sewerage is pumped from here via two new rising mains directly to the existing '9B' branch of the main gravity sewer at Balgaddy. The 9B sewer, which flows into the Grand Canal Trunk Sewer (GCTS) services the plan lands; this sewer flow into the wastewater treatment works in Ringsend.

Approximately 20% of Adamstown is within the north-eastern foul drainage catchment. This area drains to the upgraded Lucan-Esker Pumping Station, which in turn pumps to the existing Lucan Esker pumping station, from which sewerage is pumped directly to the '9B' branch of the main gravity sewer.

Approximately 15% of Adamstown is within the South-East foul drainage catchment. This catchment drains to the upgraded Lucan-Esker Pumping Station, which in turn pumps to the existing Lucan Esker pumping station, from which sewerage is pumped directly to the '9B' branch of the main gravity sewer.

A significant proportion of the wastewater drainage infrastructure required under the approved Planning Scheme is now in place.

4.9.2 Waste Water: Existing Problems / Environmental Considerations

Ensure the satisfactory completion of the wastewater (foul drainage) network

4.9.3 Drinking Water

4.9.3.1 Existing and Future Water Supply

Most of the treated water supply in South Dublin County is currently supplied from Dublin City Council via the Belgard Reservoir which is part of the overall Dublin Metropolitan Area network.

South Dublin is part of the Regional Water Steering Group with Dublin City Council acting

[23] GDSDS Final Strategy Report. Table 4.3 Population Equivalent loads by foul and WWTW catchment (2005).
[24] GDSDS Final Strategy Report. Table 4.3 Population Equivalent loads by foul and WWTW catchment (2005).
[25] Final Environmental Report for the SEA of the GDSDS (May 2008) Section 3.3
[26] GDSDS Final Strategy Report. Table 4.3 Population Equivalent loads by foul and WWTW catchment (2005).

as lead authority in assessing short and long term sources at a regional level to ensure water supply into the future. Consideration is being given at regional level to developing further capacity to meet the projected longer term demands.

The Adamstown SDZ area is served by the Lucan/Palmerstown High Level Water Supply Scheme (LPHLWSS). The Lucan/Palmerstown High Level Water Supply Scheme (LPHLWSS) provides additional water supply and boost pressures in the local area. Works to upgrade the LPHLWSS comprised of the provision of a new storage reservoir near Peamount and a series of network improvements which were fully commissioned in October 2004. This ensures an adequately supply to satisfy demand arising from the development of Adamstown

4.9.3.2 Monitoring Drinking Water

The Environmental Protection Agency (EPA) Provision and Quality of Drinking Water in Ireland Report 2006-2007 is the first assessment on the quality of drinking water in Ireland since new Regulations, the European Communities (Drinking Water) Regulations (No.2), 2007, came into force in March 2007. The EPA is now the supervisory authority over public water supplies and has new powers of enforcement over local authorities in this regard.

The EPA Provision and Quality of Drinking Water in Ireland Report 2011 indicate that South Dublin has exceeded the monitoring requirements as required by the European Communities (Drinking Water) Regulations (No.2), 2007.

South Dublin County Council carried out analysis on 4213 samples in 2012, exceeding the minimum monitoring requirements as outlined in the Regulations. The overall rate of compliance with water standards in South Dublin, 99.9%, was above the national average and the quality of water in South Dublin was in general good

The County Council continually monitor of all known waste depository sites in the County in order to preserve sources of drinking water from contamination. Compliance with the EPA requirements to actively manage risks identified in relevant catchments and continually assess the quality of the source water is required in order to ensure that treatment at plants is optimised.

4.9.4 Energy Infrastructure

Ireland, and South Dublin, is bound by the EU Emissions Trading Scheme (ETS) established by EU Directive 2003/87/EC as part of the Kyoto Agreement. In order to comply with the commitments made as part of the Kyoto Agreement, 13.2% of the Nations power is to be produced from renewable resources. In the face of this, energy demand has increased 20% nationally over the last 5 years.

The White Paper on Energy published March 2007 and the National Climate Change Strategy 2007-2012, indicated that significant potential exists for renewable and bio-energy at regional level. Key points in the establishment of such energy sources include:-

- Securing supply;
- Ensuring supply consistently meets demand;
- Ensuring system can absorb disruptions to supply;
- Supplying reliable and secure networks.

4.9.5 Transport Infrastructure

4.9.5.1 Background

Greater Dublin Area Transport Strategy – 2030 vision

This document sets out the National Transport Authority's Strategic Transport Plan for the Greater Dublin Area for the period up to 2030.

The objective of the transport strategy is to provide a long-term strategic planning framework for the integrated development of transport infrastructure and services in the GDA. At the heart of this strategy is the requirement that land use planning and transport planning need to be considered together in the overall development of the region.

4.9.5.2 Public Transport

In 2011 South Dublin County had the lowest percentage of people in the Dublin Regional Authority area travelling to work or school by train, Dart or Luas. Census 2011 indicates that 60% of the SDZ population commuted to work, school or college by car, with 14% commuting on foot, 1% by bicycle, 15% by bus and 3% by

train. This modal split is similar to the County averages.

The plan lands are situated on the Dublin Kildare rail corridor, which terminates at Heuston Station. A new rail station became operational at Adamstown in 2007. The four tracking of the line was completed in 2010, to allow intercity services and commuter services to run separately (Kildare Route Project Phase 1) and there are currently 22 inbound and 20 outbound services to and from Adamstown. Proposed network improvements city wide, including the Interconnector Tunnel, electrification of the line to Hazelhatch and the proposed use of the Phoenix Park Tunnel to bring passengers directly to the city centre, would facilitate integrated and high-capacity rail services from Adamstown in the future. At present approximately 20 percent of the Adamstown population commute along the rail corridor with significant numbers travelling along the M50 or outer Dublin periphery, showing a mis-match between services and employment destinations

The proposed road network incorporates a north-south and east-west Quality Bus Corridor within Adamstown, connecting to the wider QBC network. Some aspects of the QBC network have been completed in the southern area of the site. A dedicated bus service (25B) from Adamstown to Merrion Square commenced in 2007, and serves south Lucan and Liffey Valley on route.

A draft public transport accessibility study was carried out for the South Dublin County area in late 2010. The study examined the frequency of Main-line Rail, the Luas and bus services, dividing them into the categories high, medium and low accessibility levels. Figure 4.9 outlines the outcomes of this study for Adamstown, showing medium frequency rail services and high frequency bus services.

4.9.5.3 Road Network

The SDZ plan lands are accessible to the national road network, situated between the N4 (National Primary) to the north and the N7 (National Primary) to the south, with the M50 motorway and Outer Ring Road orbital distributor Road to the east. The R120 Regional Route bounds the site to the east. The Outer Ring Road and R120 connect to the N7 to the south and the N4 to the north.

An upgrade of the R120 in the vicinity of the site and completion of the Outer Ring Road and the Adamstown Link Road to the Outer Ring were part of the phasing requirements of the approved scheme and are completed and operational.

Significant progress has also been made on the internal strategic road network, with the road network completed in the vicinity of existing development. There are sections of a north-south link and an east-west link from the R120 to Dodsboro Road in place and in use as haul roads.

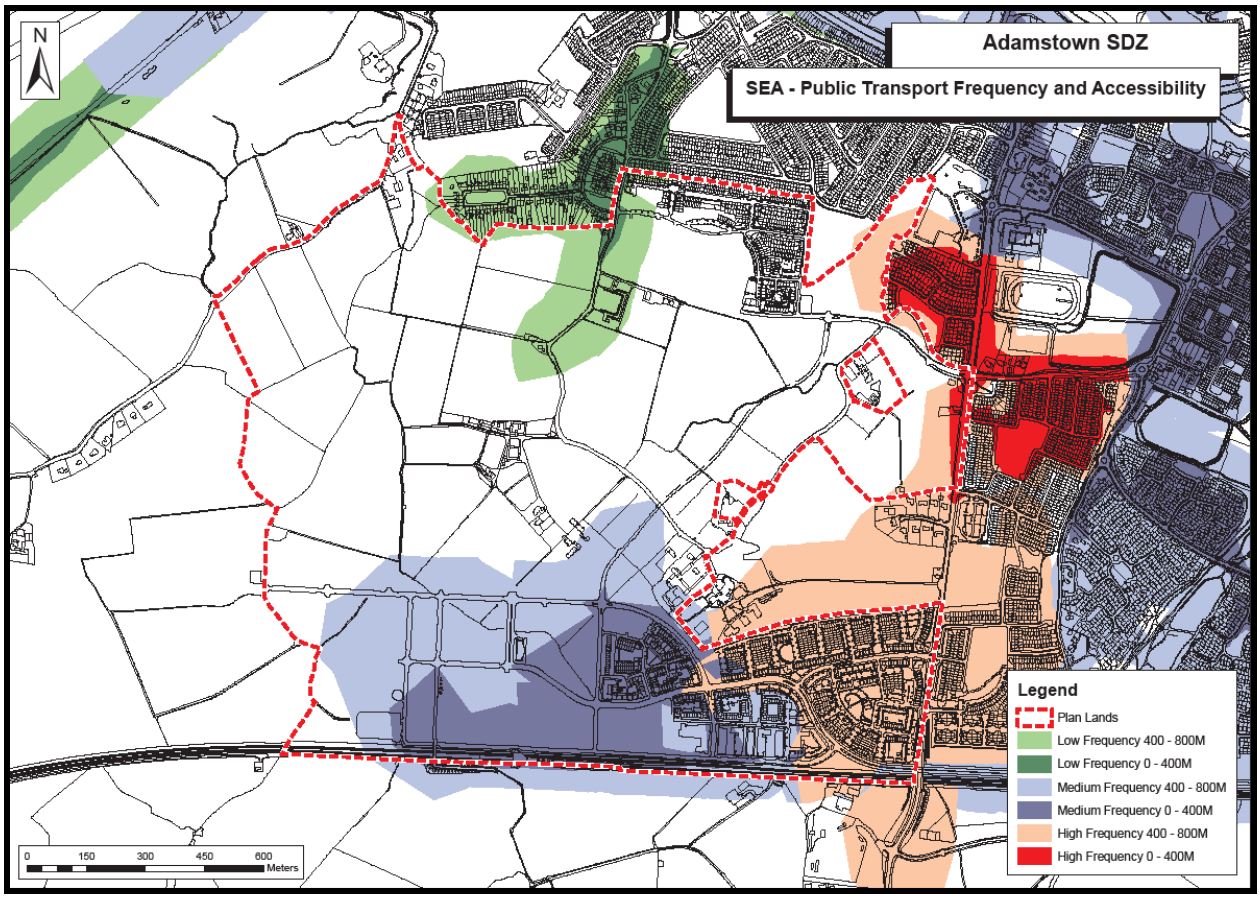


Figure 4.9: Public Transport Frequency and Accessibility Levels (December 2010)

4.9.5.4 Cycle Route Network

A Permeability Strategy has been prepared for the plan area with a view to creating safe and direct pedestrian and cycle links to key destinations. The strategy has been implemented in developed sections of the site and a network of cycle and pedestrian pathways will emerge over time. A pedestrian and cycle link from Adamstown to the Grand Canal Way Green Pedestrian and Cycle Route was completed in 2010 improving access to Lucan, Clondalkin and Dublin City.

4.9.6 Material Assets Issues. Existing Problems / Environmental Considerations

It is considered that the completion of the GDSDS will resolve the majority of issues regarding WwTw constraints in South Dublin up to 2031. This will allow for waste water treatment capable of serving sustainable and in some instances, appropriate higher density development of the county, without any negative impact on the WFD. Notwithstanding the increased capacity of the WwTw for the County, sustainable development along high quality public transport corridors should continue to form the basis for growth. The approved Planning Scheme is based upon this vision.

4.9.7 Evolution of Material Assets in the Absence of Draft Amendments

The Adamstown SDZ Planning Scheme 2003 will continue to be implemented. Having regard to the nature and extent of proposed amendments, it is considered that the outcome with regard to material assets would be largely unaltered.

4.9.8 Cultural Heritage Assets

Heritage, by definition, means inherited properties, inherited characteristics and anything transmitted by past ages and ancestors. It covers everything, from objects and buildings, to the environment. Cultural heritage includes physical buildings, structures and objects complete or in part, which have been left on the

landscape by previous and indeed current generations. The heritage assets which South Dublin possesses are a reminder of the predominantly rural history of the County. These structures and objects store the folk memory of the rural villages, such as Clondalkin, Lucan and Tallaght, now subsumed within the Dublin Metropolitan area.

The most important items of archaeological and architectural heritage in the county are recorded under the Schedules of the South Dublin County Development Plan, 2010-2016. Schedule 1 relates to the Record of Monuments and Places, and Schedule 2 relates to the Record of Protected Structures. There are 154 Recorded Monuments and approximately 526 Protected Structures. The *National Inventory of Architectural Heritage (2002)* undertaken by Duchas and the Department of the Environment also highlights a representative sample of important architecture of the county.

4.9.8.1 Architectural Heritage

There are a number of Protected Structures on the SDZ lands, all of which were identified on the Record of Protected Structures contained in the South Dublin County Development Plan 2010 - 2016. These are St. Helens House (Map Ref. No. 108), Somerton House (Map Ref No. 107) and Airlie House (Map Ref. No. 109) (Figure 4.10).

Finnstown House and Castle (Map Ref. No. 112) lies just outside the western boundary of the site and is also a Protected Structure.

4.9.8.2 Archaeological Heritage

There is one Recorded Monument located within the boundary of the SDZ lands. Tobermaclugg Holy Well (DU017-027) is located in the north-western corner of the plan lands. Adamstown Castle (DU017-029) another Recorded Monument is located immediately adjacent to the south-eastern boundary.

Archaeological Monitoring has been carried out in conjunction with developments in the SDZ lands. Archaeological testing was carried out in the vicinity of the Tobermacclugg Pumping Station, (Planning Register Reference SDZ06A/4), due to its proximity to the Holy Well (DU017-027). Nothing of archaeological significance was identified during the monitoring of the ground disturbances in this area and as a result, no further archaeological mitigation was required.

An archaeological assessment informed planning applications for primary and secondary schools (Planning Register References SDZ06A/2 and SDZ07A/0002). This involved a desktop study and field walking survey carried out in the Finnstown townland. While the reports conclusions note that no previously unrecorded archaeological features were discovered on the proposed development site, it was recommended that there was a distinct possibility of uncovering archaeological features associated with Finnstown House and Adamstown Castle due to its proximity to them and therefore a programme of archaeological test excavations should be undertaken.

In 2007, an archaeological assessment and associated testing was carried out in the south-eastern quadrant of the plan lands, adjacent to the railway line on foot of a condition of planning permission for District Centre enabling works (Planning Register Reference SDZ07A/0003). Eleven test trenches were excavated across the development site with a 1.8 metre wide toothless bucket; nothing of archaeological significance was recorded during the testing and it was recommended that no further archaeological investigations are required on that site.

One of the most significant archaeological discoveries in proximity to the plan lands was the excavation of a burial site in Adamstown during November 2005, close to the site of the old Lucan Station. The excavations were carried out by Ellen O'Carroll (05E1295) on the northern side of the railway line, approximately 0.3km directly east of the existing schools site. The site was greenfield prior to the construction works for the Adamstown Link Road. The burial site was composed of the remains of up to forty five individuals. The date of the burial site is, as yet unknown, but it is known to pre-date the construction of the Dublin/Cork railway line, which was built in 1847.

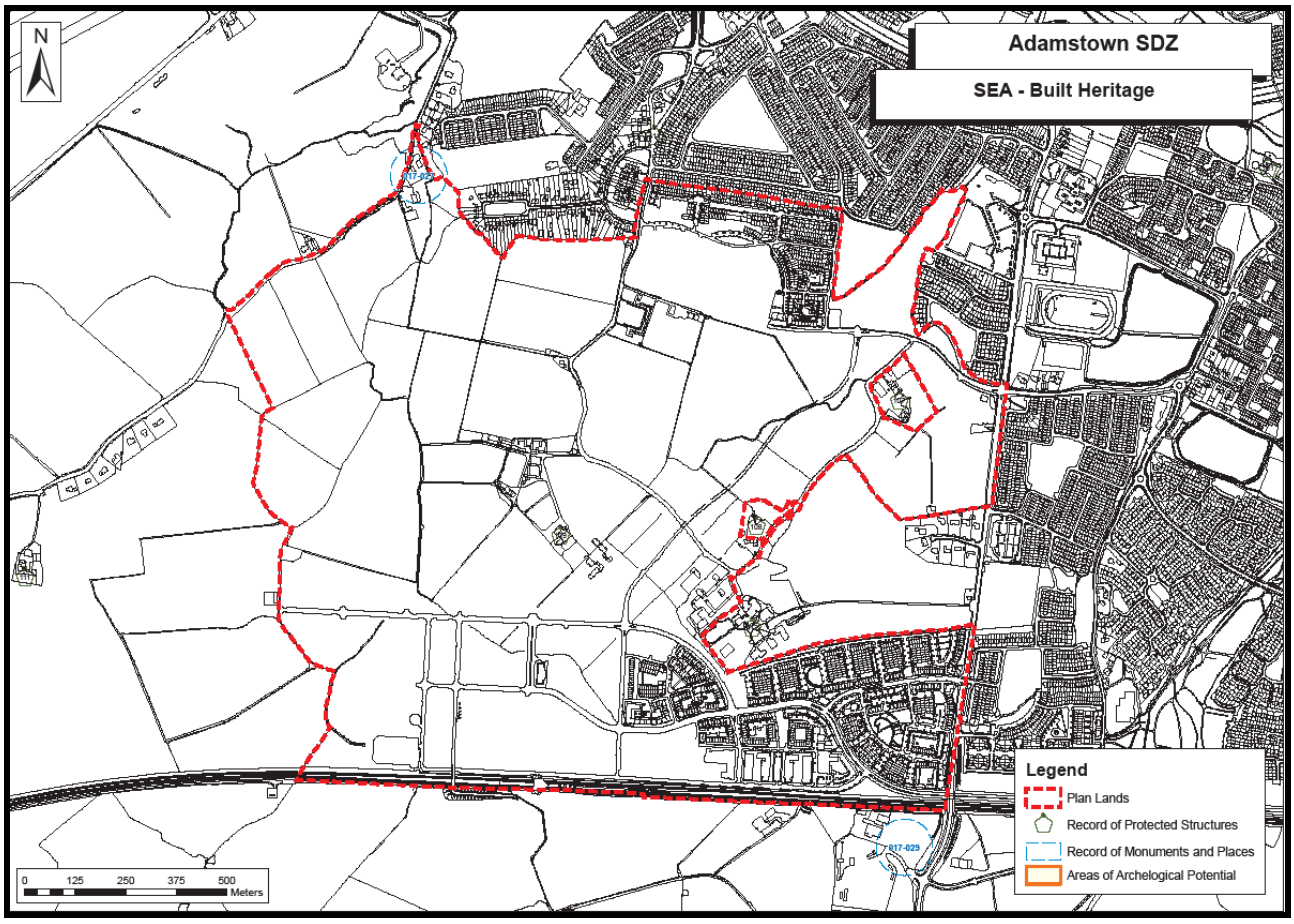


Figure 4.10 : Adamstown Built Heritage

4.9.9 Cultural Assets Issues

The context of archaeological and architectural heritage has changed over time within and surrounding the SDZ lands; however no active conflicts between development and legislative objectives governing archaeological and architectural heritage were identified.

4.9.10 Evolution of Cultural Heritage in the Absence of Draft Amendments

The Adamstown SDZ Planning Scheme 2003 will continue to be implemented. Having regard to the nature and extent of proposed amendments, it is considered that the outcome with regard to Cultural Heritage would be largely unaltered. The protection of buildings and archaeological heritage would take place under either scheme due to the continued protection afforded by the Record of Monuments and Places.

4.10 Landscapes

4.10.1 Introduction

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

South Dublin County Council undertook a partial Landscape Character Assessment in 2004 as part of the preparation of the County Development Plan 2004-2010 (Figure 4.11). The SDZ lands are identified as an urban agglomeration within the Landscape Character Assessment. The SDZ site is situated at the eastern edge of the Lucan Character Area.

4.10.2 Landscape Protection

The Planning and Development Act, 2000 (as amended), introduced requirements for preservation of the character of the landscape and made statutory provision for areas of special amenity and landscape conservation areas[27]. As a result of this requirement, the Department of Environment and Local Government, issued draft *Landscape and Landscape Assessment Guidelines- Consultation Draft of Guidelines for Planning Authorities*, in June 2000, which had several aims including increasing awareness of landscape issues, providing guidance to planners, and also introducing specific requirements for planning control within local authorities.

The Landscape Character Assessment (LCA) is a tool for identifying the features that give a locality its particular 'sense of place' and can be used to categorise the landscape into areas of similar character. LCA grew out of the European Landscape Convention (ELC), the first international convention to focus on the protection, management and planning of all landscapes in Europe. The UK and Ireland ratified the convention and it became binding on 1 March 2007. LCA is another tool in aid of sustainable development and biodiversity protection and is important for planning efforts.

At a national level, it is proposed to consolidate, revise and extend the National Monuments Acts 1930 to 2004. One of the main objectives of the proposed Bill will include the provision of a single piece of consolidated and modernised legalisation to replace the existing National Monuments Acts dating 1930 to 2004. It also proposes to develop a new system for the identification, registration and conservation of historic landscapes.

At a local level, the County Development Plan 2010-2016 contains a number of objectives for the protection of the landscape. In addition, there are a number of objectives to protect views from certain roads; there are no protected views however within the SDZ area or on adjacent lands.

4.10.3 Adamstown SDZ Landscape Character

The Landscape Character Area Assessment for South Dublin County was carried out in 2003 and as such, takes account of the SDZ designation and approved Planning Scheme at Adamstown.

As previously stated, Adamstown SDZ lands are identified as an urban agglomeration. The SDZ site is situated at the eastern edge of the Lucan Character Area.

The Lucan character area runs from the Grand Canal in the south, to the N4, the R404 and the built up area of Lucan to the north. The R120 and R403 and a number of tertiary roads serve the area. Distinctive features within the area are Weston Aerodrome and the railway line which runs through Kishoge, Adamstown and Stacumny. Although the area is quite close to the urban fringe, the landscape retains a rural quality and due to its flat topography, clear views of the open countryside can be obtained.

Development commenced in Adamstown in 2004 and urbanisation to date has focused in the north of Adamstown, at The Paddocks adjoining the existing built up area of Lucan and to the south, at Adamstown Square and Adamstown Castle, just west of the R120. There has also been disturbance of lands with construction of strategic road infrastructure in the eastern and southern areas of the site, a new railway station adjoining the rail line, an office building situated centrally and a foul sewerage pumping station and ESB transformer station to the west of the site.

There is suburban housing to the north and east of the SDZ lands and lands to south and west are largely agricultural, with the Cork-Dublin railway line bounding the site to the south. There is some light industry and retail development in the surrounding area to the south east, primarily. Tubber Lane, a rural roadway bounds the site to the west and the R120 bounds it to the east.

There are no protected views within the SDZ plan lands detailed in the Planning Scheme or on adjacent lands outlined within the County Development Plan 2010-2016.

[27] Landscape Character Assessment in Ireland: Baseline Audit and Evaluation March 2006; Julie Martin Associates

4.10.4 Landscape Issues: Existing Problems / Environmental Considerations

New residential, commercial and transportation developments and site preparation works that have developed as a result of the approved Planning Scheme 2003, have resulted in changes to the visual appearance of lands within and surrounding the Planning Scheme area. However legislative objectives governing landscape and visual appearance are not identified as being conflicted with.

4.10.5 Evolution of Landscape in the Absence of Draft Amendments

The Adamstown SDZ Planning Scheme 2003 will continue to be implemented. Having regard to the nature and extent of proposed amendments, it is considered that the outcome with regard to Landscape would be largely unaltered.

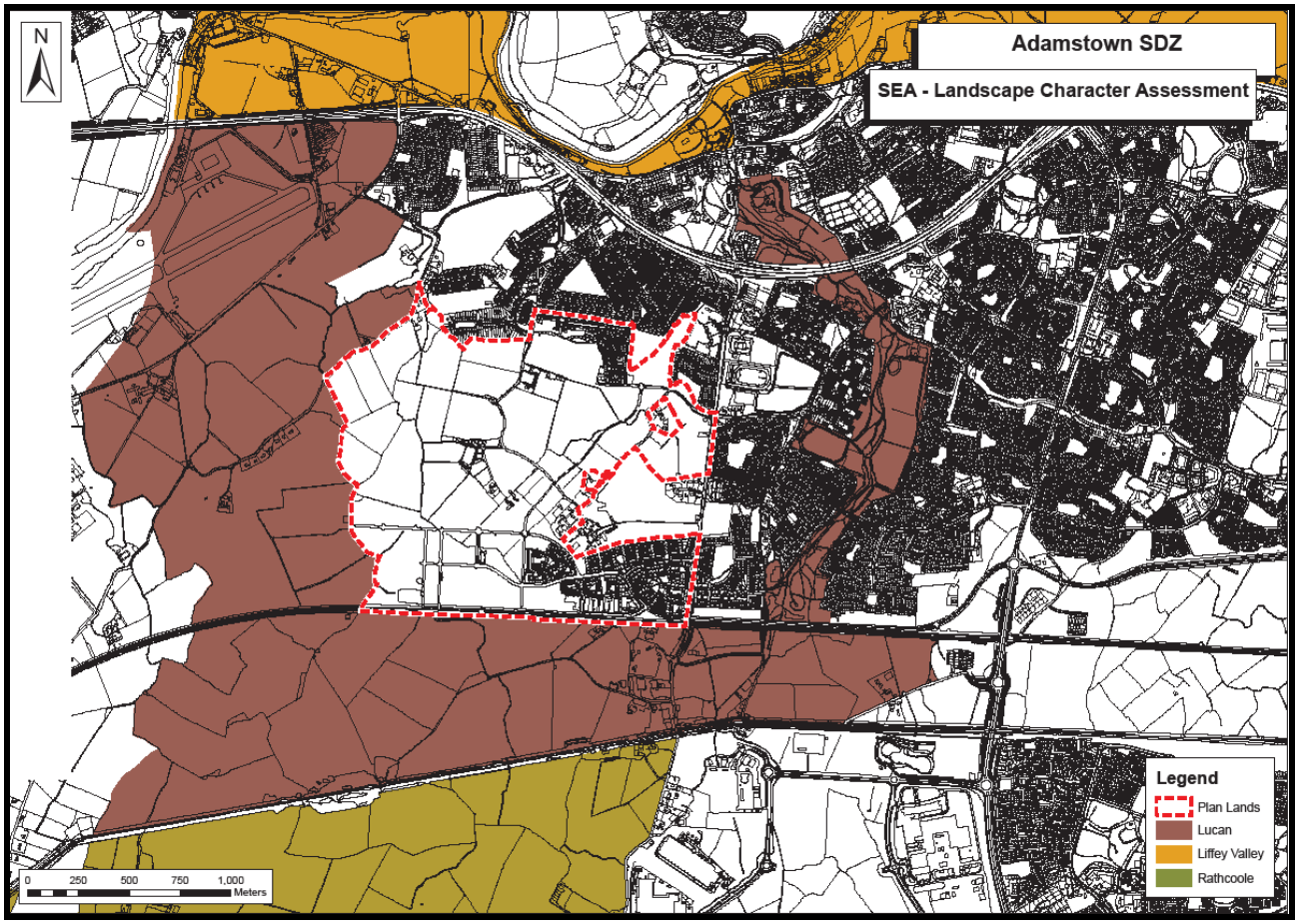


Figure 4.11 Location of Landscape Character areas

4.11 Overlay Mapping of Environmental Sensitivities

4.11.1 Introduction

In order to identify where most sensitivities within the County occur, a number of the environmental sensitivities described above were weighted and mapped overlapping each other.

Environmental sensitivities are indicated by colours which range from extreme vulnerability (brown) to high vulnerability (red) to moderate vulnerability (orange) and low vulnerability (yellow). Where the mapping shows a concentration of environmental sensitivities, there is an increased likelihood that development will conflict with these sensitivities and cause environmental deterioration. Figure 4.12 below provides an overlay of environmental sensitivities in the Adamstown SDZ area. The map was complied based on the following layers of information:

- Ecological Designations (SAC, pNHa etc)
- Cultural and Architectural Heritage
- Protected Views and Prospects
- High Amenity Areas, Green belt and Open Spaces
- Aquifer Vulnerability
- Streams and Watercourses
- Bat Habitat Survey
- Hedgerows
- Noise mapping

The elevated to highly sensitive areas correspond with hedgerows, watercourses and parklands with the SDZ lands. These areas include the northwest around Tobermacclugg Station (Tobermacclugg Park), Tandy's Lane in the centre of the lands and Airlie Park and Tandy's Lane Park, as designated in the Scheme. The boundary between Tandy's Lane and Finnstown House (a Protected Structure) is also indicated as high to extreme sensitive.

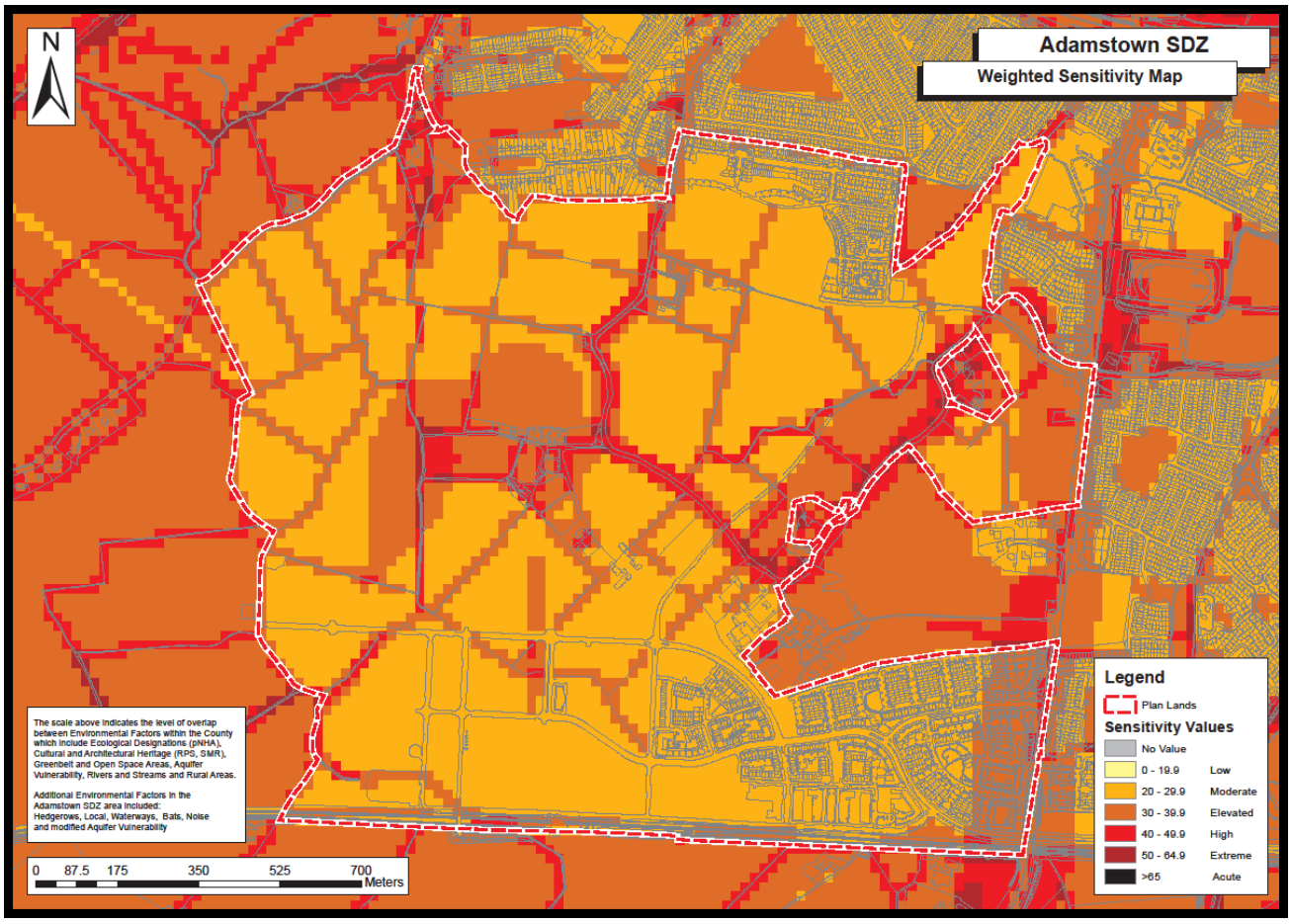


Figure 4.12 Environmental Sensitivity Map

4.12 Conclusion

The following summarises the Existing Problems / Environmental Considerations of note;

- While there are no environmentally designated sites, there is potential for significant loss to the Biodiversity Network due to habitat fragmentation and vegetation removal

- Significant portion of the strategic drainage network has been installed since 2003, with limited reference to Sustainable Urban Drainage technologies.

- There are noise and air pollution impacts from the adjacent railway line to the south and the R120 road to the east

There are also gaps in information on collating the baseline data; these include the absence of a County Biodiversity Plan and also the lack of a National Centralised Database that could make all environmental baseline data for the SDZ lands more readily available.

Section 5 Strategic Environmental Objectives

5.1 Introduction

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

The SEOs are set out under a range of environmental topics and are standards against which the proposed amendments and the alternatives can be evaluated in order to help identify which provisions would be likely to result in significant environmental effects and where such effects would be likely to occur, if - in the case of adverse effects - unmitigated.

SEOs are distinct from the proposed amendments of the approved Planning Scheme although they will often overlap - and are developed from international, national and regional policies which govern environmental protection objectives.

The SEA Directive requires that the evaluation of plans be focused upon the relevant aspects of the environmental characteristics of areas likely to be significantly affected. In compliance with this requirement, SEOs have been developed for the relevant environmental components of this SEA. Focus has been developed throughout the SEA, from the scoping stage to the compilation of the existing environmental baseline. Most attention has been given to environmental components which are likely to be impacted as a result of implementation of the proposed amendments to the planning scheme.

The SEOs are linked to indicators which can facilitate monitoring of the environmental effects of the amendments as well identifying targets which the amendments can help work towards.

5.2 Biodiversity, Flora and Fauna

5.2.1 International, European and National Strategic Actions

5.2.1.1 UN Convention on Biological Diversity 1992

The United Nations Convention on Biological Diversity 1992 requires the promotion of the conservation and sustainable use of biodiversity.

5.2.1.2 National Biodiversity Plan 2011-2016

The preparation and implementation of Ireland's National Biodiversity Plan 2011-2016[28] complies with an obligation under the UN Convention on Biological Diversity. The overall goal of the Plan is to secure the conservation, including where possible the enhancement and sustainable use of biological diversity in Ireland and to contribute to conservation and sustainable use of biodiversity globally. Objectives following on from this goal are to:

- Conserve habitat diversity, including all sites of special biodiversity importance;
- Conserve species diversity;
- Conserve genetic diversity, both wild and domesticated; and,
- Contribute to the conservation and sustainable use of biodiversity and to advancing other obligations of the CBD in the EU, regionally and internationally.

5.2.1.3 Habitats Directive 1992

The European Council Directive on the Conservation of natural habitats and of wild fauna and flora (92/43/EEC), referred to as the Habitats Directive, aims to ensure the conservation of certain natural habitats and species which are at favourable conservation status. Article 10 of the Habitats Directive recognises the importance of ecological networks as corridors and stepping stones for wildlife, including for migration, dispersal and genetic exchange of species of flora and fauna.

[28] Department of Arts, Heritage and the Gaeltacht (2011) *Irelands National Biodiversity Plan* Dublin: Government of Ireland

The Directive requires that ecological connectivity and areas of ecological value outside the network of designated ecological sites are maintained and it recognises the need for the management of these areas through land use planning and development policies.

Special Areas of Conservation (SACs) are designated and protected under the under the Habitats Directive 1992 (92/43/EEC) due to their conservation value for habitats and species of importance in the European Union. In Ireland, the habitats and species occurring in SACs are protected from effects of development occurring outside their boundaries under Section 18 "Prohibition of works on lands outside a European site" of the European Communities (Natural Habitats) Regulations 1997. The Regulations require that where a development is proposed to be carried out, on any land that is not within a protected site and is liable to have an adverse impacts on the protected site in question, including direct, cumulative and indirect impacts, an appropriate assessment, which conforms to an environmental impact assessment, of the likely effects of the proposed development on the site is undertaken. Depending on the conclusions of this assessment such development may be refused planning permission.

The Habitats Directive seeks to establish Natura 2000, a network of protected areas throughout the EU. It is the responsibility of each member state to designate SACs to protect habitats and species, which, together with the SPAs designated under the 1979 Birds Directive, form Natura 2000.

5.2.1.4 Birds Directive 1979

The 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC), referred to as the Birds Directive, - as well as its amending acts - seek to: protect, manage and regulate all bird species naturally living in the wild within the European territory of the Member States, including the eggs of these birds, their nests and their habitats; and regulate the exploitation of these species.

The Directive places great emphasis on the protection of habitats for endangered as well as migratory species, especially through the establishment of a coherent network of Special Protection Areas (SPAs).

Special Protection Areas (SPAs) are provided protection under the Directive and have been designated by the Department of Arts, Heritage and the Gaeltacht due to their conservation value for birds of importance in the European Union.

5.2.1.5 Wildlife Act 1976 and Wildlife (Amendment) Act 2000

The Wildlife Act 1976 is the principle national legislation providing for the protection of wildlife and the control of some activities that may adversely affect wildlife. The Wildlife (Amendment) Act 2000, provides a mechanism to give statutory protection to NHAs, geological and geomorphology sites of importance.

5.2.1.6 European Communities (Birds and Natural Habitats) Regulations 2011

The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the CJEU judgments.

The Regulations have been prepared to address several judgments of the Court of Justice of the European Union (CJEU) against Ireland, notably cases C-418/04 and C-183/05, in respect of failure to transpose elements of the Birds Directive and the Habitats Directive into Irish law.

5.2.1.7 Regional Planning Guidelines for the Greater Dublin Area (RPGGDA) 2010-2022

In June 2010, the Dublin and Mid-East Regional Authorities published the Regional Planning Guidelines, which covers the Councils of Dun Laoghaire-Rathdown, Dublin City, Fingal and South Dublin in the Dublin Region and Kildare, Meath and Wicklow County Council areas in the Mid-East Region. The Regional Planning Guidelines aim to give regional effect to the National Spatial Strategy and to guide the development plans for each county.

Chapter 7 of the Regional Planning Guidelines sets out the concept of green infrastructure (GI)[29], including biodiversity and climate change, and how it is developed and provides a framework to promote a new approach to biodiversity protection. It also details a number of actions/objectives for GI development including development of targeted walkway and cycle ways, integrated as part of opportunities for other projects such as river restoration, biodiversity enhancement as part of process of strengthening connectivity between green spaces and strategic linkages between urban settlements and countryside.

5.2.1.7 Green City Guidelines- Advice for the protection and enhancement of biodiversity in medium to high-density urban developments (2008)

In 2008, the UCD Urban Institute Ireland, in association with Dun Laoghaire-Rathdown County Council and Fingal County Council, published the 'Green City Guidelines' which are aimed at providing practical guidance for planners and property developers on how to integrate biodiversity into new developments, specifically medium to high-density urban schemes.

A number of practical measures for incorporating biodiversity have been outlined in Chapter 5 of the Guidelines, which presents general recommendations to address the main stages of planning and development from early site assessment through to the detailed design and monitoring stages. These include initiating early ecological surveys to assess the suitability of the site for development and identify considerations and opportunities at an early stage; designing the development footprint to avoid habitats of high ecological value and maximising the area of open space and protecting and incorporating semi-natural habitats, especially those of high ecological value and mature features.

[29] Green Infrastructure (GI) is a generic term encompassing the protection, management and enhancement of urban, peri-urban and rural environmental resources (natural and managed) through the identification and provision of multifunctional and interconnected green spaces and provides an opportunity to reassess the manner in which we manage and use our green spaces. (RPGGDA, 2010)

5.2.2 SEOs, Indicators and Targets

The following SEOs, Indicators and Targets have been developed with regard to the environmental baseline and the objectives of the above strategic actions.

SEO B1:	To sustain and enhance ecological habitats within the Adamstown SDZ site.
Indicator B1:	Percentage of ecological habitats within the Adamstown SDZ, which have been lost without remediation.
Target B1:	No loss of ecological habitats without mitigation as a result of implementation of the amendments.

SEO B2:	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
Indicator B2:	Number of significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of the implementation of the proposed amendments
Target B2:	No significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the proposed amendments

SEO B3:	To sustain and enhance key ecological networks that connects to areas of local biodiversity.
Indicator B3:	Percentage of links lost within the local ecological network without mitigation
Target B3:	No loss of ecological connectivity without mitigation as a result of implementation of the amendments.

5.3 Population and Human Health

5.3.1 Population

In order to promote sustainable formats of development - as promoted by the National Spatial Strategy and other high level land use strategic actions - it is essential to consolidate the physical growth of the County. Within the County this can be achieved through the development of vacant, derelict and underutilised lands, in particular where they are in close proximity to public transport routes.

The DOEHLG's Residential Density Guidelines 1999 and the DOEHLG's Sustainable Residential Development in Urban Areas Guidelines 2009 recommend planning authorities to promote higher residential densities, particularly in redeveloping 'brownfield' sites and in proximity to town centres and public transport corridors.

SEO PH1:	To protect and enhance people's quality of life through the provision of high quality and sustainable urban environments that incorporate a full range of services and facilities, support sustainable travel and support sustainable energy use.
Indicator PH1i:	Percentage of dwellings within an 800 metre walk band of key services and facilities (school, community centre, park, shop, playground).
Indicator PH1ii:	Percentage of dwellings within an 800 metre walk band of

	public transport nodes (bus or rail stop) and levels of service within the site.
Indicator PH1iii:	Percentage of population working within or adjacent to Adamstown (POWSCAR).
Indicator PH1iv:	Percentage of dwellings meeting A or B BER ratings.
Target PH1i:	Support the development of a sustainable urban area that incorporates a full range of services and facilities, provision of public transport services and environmental sustainability and sustainable design.

SEO PH2:	To increase efficiencies across the urban system for the good of all citizens through the better alignment of population, services, facilities, employment and transport.
Indicator PH2i:	Density of development along bus and rail corridors.
Indicator PH2ii:	Range of facilities within the site.
Indicator PH2iii:	Travel times to key civic and employment destinations – Tallaght and Dublin City.
Target PH2:	Support efficiencies in the urban system by maximising the potential of a strategic land bank.

5.3.2 Human Health

The impact of implementing proposed amendments to the approved Planning Scheme on human health is determined by the impacts which the proposed amendments have upon environmental vectors. Impacts which the proposed amendments have upon these vectors are influenced by the extent to which new development is accompanied by appropriate infrastructure - this relates to SEO M1; and the interaction between the County's population and the noise generated by the land-uses provided for by the planning scheme.

Emission limits for discharges to air, soil and water are set with regards to internationally recognised exposure limit values. These are generally set to be many times the safe exposure limit - in order to provide protection. In the event that a land-use began to have adverse health effects on surrounding populations, it is likely that it would have been identified as being in breach of such emission standards at a very early stage - and long before the manifestation of any adverse health effects in the population. Nonetheless for the sake of consistency with the requirements of the SEA Regulations this section includes objectives, indicators and targets for health.

5.3.3 Noise

Noise is unwanted sound. It can seriously harm human health and interfere with daily activities at school, at work, at home and during leisure time.

Traffic noise harms the health of almost one third of Europeans[30]. The main health risks of noise identified by the WHO include: pain and hearing fatigue; hearing impairment; annoyance; interferences with social behaviour; interference with speech communication; sleep disturbance and all its consequences; and performance at work and school.

The Noise Directive - Directive 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[31] and use these maps to assess the number of people which may be impacted upon as a result of excessive noise levels;

[30] World Health Organization Regional Office for Europe (2003) T*echnical meeting on exposure-response relationships of noise on health 19-21 September 2002* Bonn, Germany Bonn: WHO

[31] [L_{den} (day-evening-night equivalent level) and L_{night} (night equivalent level)]

- 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.

5.3.4 SEOs, Indicators and Targets

SEO PH3:	To protect human health from hazards or nuisances arising from traffic sources and incompatible land-uses
Indicator PH3:	Percentage of population that are exposed to unacceptable levels of traffic noise (to be defined) or the number of noise sensitive locations that have a score where priority action is required
Target PH3:	Reduce number of people exposed to traffic noise and air quality levels which endanger health and quality of life

5.4 Soil

5.4.1 Proposal for a Soil Framework Directive

To date, there is no legislation which is specific to the protection of soil resources. However, there is currently an EU Thematic Strategy on the protection of soil which includes a proposal for a Soil Framework Directive which proposes common principles for protecting soils across the EU.

Article 5 of the proposed Directive states that for the purposes of preserving the various functions of soil; sealing or the development of artificial surfaces on top of soil resources should be limited.

5.4.2 SEOs, Indicators and Targets

SEO S1:	To protect the quality of soils within Adamstown SDZ.
Indicator S1:	Number of contaminated sites identified and remediated
Target S1:	Limit activities that would give rise to soil contamination.

SEO S2:	To minimise the amount of soil sent to landfill and reuse soil within the site.
Indicator S2:	Quantum of soil sent to landfill.
Target S2:	All soil should be reused within the site and national and EU targets on the recycling of municipal waste and its diversion from landfill should be adhered to.

5.5 Water

5.5.1 The Water Framework Directive 2000

5.5.1.1 Introduction

Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD has been transposed into Irish legislation by the European Communities (Water Policy) Regulations 2003 (SI No. 722 of 2003). The WFD requires that all member states implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving good status by 2015.

5.5.1. Quality Standards and Threshold Values for Ground Water

Detailed provisions to achieve the aims of the WFD for ground water have been presented in a Groundwater Daughter Directive (Directive 2006/118/EC on the protection of groundwater against pollution and deterioration).

This Directive sets up environmental objectives of good groundwater quantitative and chemical status, as well as ensuring a continuity to the 1980 Groundwater Directive (Directive 80/68/EEC on the protection of groundwater against pollution caused by dangerous substances) which is due to be repealed under the WFD by the end of 2013.

Article 3 of the 2006 Groundwater Daughter Directive required that the assessment of the chemical status of groundwater use both quality standards identified in Annex I of the Directive and threshold values to be set by individual member states.

Groundwater quality standards are environmental quality standards expressed as the concentration of a particular pollutant, group of pollutants or indicator of pollution in groundwater, which should not be exceeded in order to protect human health and the environment. Annex I of the Directive sets standards for two pollutants: Nitrates - 50mg/l - and; Active substances in pesticides[32], including their relevant metabolites, degradation and reaction products - 0,1 µg/l and 0,5 µg/l (total[33]).

Irish groundwater threshold values[34] are currently in the process of being set by the EPA.

5.5.2 Eastern River Basin Management Plan

Adamstown is located in the Eastern River Basin District (ERBD) for which the Eastern River Basin Management Plan and Programme of Measures has been prepared. The Plan and Programme provide for the implementation of measures to enable the achievement of the requirements of the WFD.

[32] 'Pesticides' means plant protection products and biocidal products as defined in Article 2 of Directive 91/414/EEC and in Article 2 of Directive 98/8/EC, respectively.
[33] 'Total' means the sum of all individual pesticides detected and quantified in the monitoring procedure, including their relevant metabolites, degradation and reaction products.
[34] Threshold values are to be established by Member States for all pollutants and indicators of pollution which characterise groundwater bodies classified as being at risk of failing to achieve good groundwater chemical status under the WFD. Threshold values are required to be established in a way that, should the monitoring results at a representative monitoring point exceed the thresholds, this will indicate a risk that one or more of the conditions for good groundwater chemical status - with regard to the ability of groundwater to support human uses and with regard to waters used for the abstraction of drinking water - are not being met.

5.5.3 Flooding

5.5.3.1 EU Floods Directive

European Directive 2007/60/EC on the assessment and management of flood risks aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive applies to inland waters as well as all coastal waters across the whole territory of the EU.

The Directive requires Member States to carry out a preliminary assessment by 2011 in order to identify the river basins and associated coastal areas at risk of flooding. For such zones flood risk maps are required to be drawn up by 2013. By 2015 flood risk management plans focused on prevention, protection and preparedness must be established by 2015.

The Directive is to be carried out in coordination with the Water Framework Directive and flood risk management plans and river basin management plans being coordinated.

5.5.3.2 DOEHLG Flood Risk Management Guidelines (2009)

In November 2009, the DOEHLG, in association with the Office of Public Works (OPW), published Planning Guidelines on the Planning System and Flood Risk Management which are aimed at ensuring a more consistent, rigorous and systematic approach to fully incorporate flood risk assessment and management into the planning system.

The Guidelines require the planning system to, among other things, avoid development in areas at risk of flooding, particularly flood plains, unless there are proven sustainability grounds that justify appropriate development and where flood risk can be reduced or managed to an acceptable level, without increasing flood risk elsewhere. It also requires the planning system to adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and mitigation of flood risk.

5.5.4 SEOs, Indicators and Targets

The following SEOs, Indicators and Targets have been developed with regard to the environmental baseline and the objectives of the above strategic actions.

SEO W1:	To maintain and improve, where possible, the quality of the River Liffey and Griffeen, its tributaries and surface water.
Indicator W1i:	Biotic Quality Rating (Q Value)[35] and Risk Assessment
Target W1ia:	To maintain a biotic quality rating of Q4, in line with the requirement to achieve good water status under the Water Framework Directive, by 2015
Target W1ib:	To improve biotic quality ratings, where possible, to Q5
Target W1iia:	To achieve a minimum trophic status of mesotrophic, in line with the requirement to achieve good water status under the WFD, by 2015

SEO W2:	To prevent pollution and contamination of ground water
Indicator W2:	Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC
Target W2:	Compliance with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC

[35] The Biotic Index values, are assigned to rivers in accordance with biological monitoring of surface waters – low Q ratings, such as Q1, are indicative of low biodiversity and polluted waters, and high Q ratings, such as Q5, are indicative of high biodiversity and unpolluted waters, Good status as defined by the Water Framework Directive equates to approximately Q4 in the national scheme of biological classification of rivers as set out by the EPA.

SEO W3:	To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk[36]
Indicator W3:	Number of developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk
Target W3:	Compliance with the Floods Directive and with the OPW/ DoEHLG's Flood Risk Management Guidelines in the planning process.

5.5.5 Air and Climatic Factors

5.5.5.1 Air Quality and Climatic Factors

Monitored air quality in South Dublin meets current standards and is good relative to built up areas located in other European countries. However, the occurrence of traffic congestion and new development means that it is likely that *traffic hotspots* within or adjoining the SDZ lands are likely to have elevated levels of air pollution and noise levels due to traffic congestion. Traffic hotspots are located along the main road routes - especially at intersections - and provide for a harsh sensory environment which may impact upon human health.

In order to reduce greenhouse gas emissions, the internationally agreed Kyoto Protocol established emissions reduction targets for developing countries. Ireland's emission target for greenhouse gases is to limit the increase in their combined emissions during the five-year period 2008-2012 to 13 per cent above 1990 levels.

The impact of implementing the draft amendments to the approved planning scheme on air quality and climatic factors will be determined by the impacts which the planning

[36]The flood risk information in relation to the Catchment is limited to provisional data (OPW initial Preliminary Flood Risk Assessment - PFRA), alluvial soils as a surrogate for Flood Risk and OPW recorded Flood Events.

scheme has upon the traffic levels which relate to SEO C1**.**

5.5.6 SEOs, Indicators and Targets

The following SEOs, Indicators and Targets have been developed with regard to the environmental baseline description and the objectives of the above strategic actions.

SEO C1:	To minimise increases in travel related greenhouse emissions
Indicator C1[37]:	Percentage of population within the planning scheme area travelling to work or school by non-mechanical means or public transport
Target C1:	An increase in the percentage of the population within the plan area travelling to work or school by public transport or non-mechanical means

5.6 Material Assets

5.6.1 Waste Water

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) transposed into Irish law by the Urban Waste Water Treatment Regulations 2001 (SI 254 of 2001). The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the environment. The Regulations stipulate that sewage treatment facilities are in place in all towns by 2005.

5.6.2 Drinking Water

The environmental effects of abstracting, transporting and treating water from a major new source in order to meet the long term drinking water needs of the Greater Dublin Area - including those of future populations to be provided for in South County Dublin - is currently being considered by a Strategic Environmental Assessment. Having regard to the EU principle of subsidiary, the environmental effects which are being identified and evaluated by that SEA are not identified or evaluated by this SEA.

The environmental baseline with regard to drinking water demand and supply, however, is identified in Section 4.6 and measures have been integrated into the planning scheme in order to help ensure a clean and wholesome water supply.

5.6.3 SEOs, Indicators and Targets

The following SEO's, Indicator's and Target's have been developed with regard to the environmental baseline and the objectives of the above strategic actions.

SEO M1:	To provide adequate wastewater treatment, water distribution networks and drainage networks.
Indicator M1:	Number of new developments granted permission which cannot adequately be served by waste water treatment systems, water distribution networks and drainage networks.
Target M1:	No new developments granted permission which cannot be adequately served by waste water treatment systems, water distribution networks and drainage networks.

[37] As measured by the Central Statistics Office

SEO M2:	To maintain and improve the quality of drinking water supplies.
Indicator M2:	Drinking water quality standards, (Microbiological, Chemical and Indicator parameters)
Target M2:	To maintain and improve drinking water quality in South Dublin County to comply with requirements of the European Communities (Drinking Water) Regulations 2000.

5.7 Cultural Heritage

5.7.1 Archaeological Heritage

5.7.1.1 Valletta Convention 1992

The European Convention on Protection of the Archaeological Heritage known as the Valletta Convention of 1992. This was ratified by Ireland in 1997 and requires that appropriate consideration be given to archaeological issues at all stages of the planning and development process.

5.7.1.2 National Heritage Plan for Ireland 2002

The core objective of the National Heritage Plan for Ireland 2002[38] is to protect Ireland's heritage. In this regard, the 'polluter pays' principle and the precautionary principle are operable.

5.7.1.3 National Monuments Acts

Archaeology in Ireland is protected under the National Monuments Acts 1930 to 2004.

Recorded monuments are protected by inclusion on the list and marked on the map which comprises the Record of Monuments and Places set out County by County under Section 12 of the National Monuments (Amendment) Act, 1994 by the Archaeological Survey of Ireland. The definition includes Zones of Archaeological Potential in towns and all other monuments of archaeological interest which have so far been identified.

Any works at or in relation to a recorded monument requires two months notice to the Department of the Environment, Heritage and Local Government under section 12 of the National Monuments (Amendment) Act, 1994.

Direct impacts on national monuments in State or Local Authority care or subject to a preservation order require the consent of the Minister for the Environment, Heritage and Local Government under Section 14 of the National Monuments Act 1930 as amended by Section 5 of the National Monuments (Amendment) Act 2004.

5.7.2 Architectural Heritage

The Record of Protected Structures (RPS) included in the current Development Plan is legislated for under Section 51 of the Planning and Development Act 2000 (as amended) and includes structures which form part of the architectural heritage and which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

5.7.3 SEOs, Indicators and Targets

The following SEOs, Indicators and Targets have been developed with regard to the environmental baseline and the above strategic actions.

SEO CH1:	To protect, conserve and enhance the archaeological heritage of the Adamstown SDZ.
Indicator CH1i:	Appropriate mitigation strategies in planning applications.
IndicatorCH1ii:	Publication in www.excavations.ie of any archaeological excavations occurring in area.
Target CH1:	Appropriate protection of Monuments and Places recorded on the Record of Monuments and Places (and/or their context within the surrounding landscape where relevant).

[38] Department of Arts, Heritage, Gaeltacht and the Islands (2002) *National Heritage Plan for Ireland* Dublin: Government of Ireland

SEO CH2:	To protect, conserve and enhance the architectural heritage of the Adamstown SDZ.
Indicator CH2:	Appropriate mitigation strategies in planning applications.
Target CH2:	Appropriate protection of structures recorded on the Record of Protected Structures (and their context within the surrounding landscape where relevant).

5.8 Landscape

5.8.1 European Landscape Convention 2000

Ireland signed and ratified the European Landscape Convention (2000) in 2002 with the Convention entering into force in Ireland in 2004. The aims of the Convention include: to conserve and maintain the significant or characteristic features of a landscape, justified by its heritage value derived from its natural configuration and/or from human activity; to harmonise changes in the landscape which are brought about by social, economic and environmental processes, and to enhance landscapes.

5.8.2 SEOs, Indicators and Targets

The following SEOs, Indicators and Targets have been developed with regard to the environmental baseline and the above strategic action.

SEO L1:	Improve overall landscape character and quality in the area
Indicator L1i:	Provision of high quality landscaped areas
Indicator L1ii:	Open Spaces to be easily accessible and to be designed to encourage use by members of the public
Target L1i:	Landscape design to be of high quality and appropriate to the scale and context of its surroundings
Target L1ii:	Provision of high quality public open spaces within the SDZ.
SEO L2:	To protect and enhance the natural and historic landscape features within and adjacent to the Adamstown SDZ, including views of adjacent countryside, protected structures and key features.
Indicator L2:	Number or percentage of natural and historic landscape features preserved.
Target L2:	The preservation of natural and historic landscape features, where appropriate, and their integration into the landscape proposal for the site.

SEO Code	SEO
B1	To sustain and enhance ecological habitats within the Adamstown SDZ site.
B2	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
B3	To sustain and enhance key ecological networks that connect to areas of local biodiversity
PH1	To protect and enhance people's quality of life through the provision of high quality and sustainable urban environments that incorporate a full range of services and facilities, support sustainable travel and support sustainable energy usage.
PH2	To increase efficiencies across the urban system for the good of all citizens through the better alignment of population, services, facilities, employment and transport.
PH3	To protect human health from hazards or nuisances arising from traffic sources and incompatible land-uses.
S1	To protect the quality of soils within Adamstown SDZ.
S2	To minimise the amount of soil sent to landfill and reuse soil within the site.
W1	To maintain and improve, where possible, the quality of the River Liffey and Griffeen, its tributaries and surface water.
W2	To prevent pollution and contamination of ground water.
W3	To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk.[39]
C1	To minimise increases in travel related greenhouse emissions.
M1	To provide adequate wastewater treatment, water distribution networks and drainage networks.
M2	To maintain and improve the quality of drinking water supplies.
CH1	To protect, conserve and enhance the archaeological heritage of the Adamstown SDZ.
CH2	To protect, conserve and enhance the architectural heritage of the Adamstown SDZ.
L1	Improve the overall landscape character and quality in the area.
L2	To protect and enhance the natural and historic landscape features within and adjacent to the Adamstown SDZ, including views of adjacent countryside, protected structures and key features.

Strategic Environmental Objectives (SEOs) [40]

Figure 5.1 SEO Summary Table

[39]The flood risk information in relation to the Catchment is limited to provisional data (OPW initial Preliminary Flood Risk Assessment - PFRA), alluvial soils as a surrogate for Flood Risk and OPW recorded Flood Events.

[40] Strategic Environmental Objectives (SEOs) are methodological measures which are developed from international, national and regional policies which generally govern environmental protection objectives and against which the environmental effects of the proposed amendments to the approved planning scheme can be tested. The SEOs are used as standards against which the development strategies, policies and objectives of the proposed amendments to the approved planning scheme can be evaluated in order to help identify areas in which significant adverse impacts are likely to occur, if unmitigated against.

Section 6 Description of Alternative Scenarios

6.1 Introduction

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative scenarios for accommodating future growth at the SDZ lands in Adamstown.

This section identifies and describes different alternative scenarios, taking into account higher level strategic actions as well as the geographical scope of the SDZ lands. These alternative scenarios are realistic – development and implementation of each could be undertaken in compliance with environmental legislation although the resources required for mitigation would vary between scenarios – and capable of implementation.

The scenarios are evaluated in Section 7 resulting in the identification of potential effects and informing the selection of a preferred alternative for the draft amendments to the approved Planning Scheme. The policies and objectives which are required to realise the preferred alternative are evaluated in Section 8.

6.2 Excluding the do-nothing scenario

A 'do-nothing' alternative is not considered in this section, nor is it required by the SEA Directive.

However, Annex I of the SEA Directive specifies that information should be provided in the environmental report on *inter alia* 'the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme'. Section 4 of the Environmental Report identifies the evolution of each component of the environment in the absence of implementing the proposed amendments to the approved Planning Scheme.

6.3 Description of Alternative Scenarios

6.3.1 Introduction

The following summarises a series of alternative scenarios which provide alternative visions of how the continued future development of the SDZ lands might occur. These are neither predictions nor preferences - instead they offer a range of plausible and internally consistent narratives of the outcome of different planning and development strategies. These provide the basis for the comparative evaluation of the likely environmental effects of each scenario, which in turn serves the purpose of identifying which features of the alternatives are likely to be sensitive or robust over the widest range of circumstances.

6.4 Alternative Scenarios

Scenario 1 - Implement Approved Adamstown SDZ Planning Scheme

Scenario 1 involves the continued implementation of the Adamstown SDZ Planning Scheme, 2003.

The Planning Scheme sets out a coherent planning framework for the development of a medium density (53-64 dwellings per hectare), mixed-use urban district adjacent to a rail corridor.

Under this scenario, the total net development area of 155 hectares would remain unchanged. The scheme facilitates between 8,250 and 10,150 dwellings and up to 125,500sq.metres of non-residential floor space, 29,775sq.metres of retail floorspace and 5,500sq.metres of community floor space. The forecast population upon completion is c. 25,000 people.

The plan incorporates three density zones with prescribed min-max density ranges for each.

Highest densities are in the urban zones proximate to the rail corridor (75-90 dwellings per hectare); medium densities are in intermediate areas (50-78 dwellings per hectare); and lowest densities are in transitional areas adjoining established housing (35-54 per hectare).

The alignment of higher densities in proximity to a public transport corridor and the incorporation of local facilities and services within the site support sustainable travel and would reduce the need for car based trips. The mix of uses that is supported would support the development of sustainable residential communities.

This scenario necessitates the delivery of housing formats (apartments and duplex units dominate) that are unlikely to be supported by the market in the short to medium term (Landowner submissions and NTA Report, Planning and Development of Large Scale Rail Focused Residential Areas in Dublin, May 2013 refers). Landowner submissions indicate that a failure to amend the scheme to take account of the revised market context could stifle development at this location in the short to medium term.

Scenario 2 – Adjusted Medium Density Approach

Scenario 2 involves amending the Planning Scheme to reduce permissible development quanta by 15-16 percent and to incorporate additional requirements for energy efficiency and enhancement of the green infrastructure network, whilst maintaining the overall plan structure.

The resulting Planning Scheme would set out a coherent planning framework for the development of a medium density (c.45-51 dwellings per hectare), mixed-use urban district adjacent to a rail corridor, albeit at lower densities than the approved scheme. The forecast population upon completion is c. 18,000-23,000 people.

Under this scenario, the total net development area of 155 hectares would remain unchanged. The scheme would facilitate between c. 6700 and 8,145 dwellings and up to 125,500sq.metres of non-residential floor space, c. 25,000 sq.metres of retail floorspace and c. 2000sq.metres of community floor space. The forecast population upon completion is c. 20,000 people.

The plan would incorporate six density zones based on proximity to public transport and proposed district and local centres, with prescribed min-max density ranges for the 11 Development Areas. Highest densities are in the urban zones proximate to the rail corridor; medium densities are in intermediate areas; and lowest densities are in transitional areas adjoining established housing.

This scenario is considered market responsive, and supports the delivery of housing formats (houses with compact format dominate) within the site that are deliverable in the short to medium term, based on economic forecasts, whilst continuing to conform to planning guidelines and realising the infrastructure capacity and the environmental constraints of this strategic land bank.

This scenario involves a relatively modest reduction in density so as to better align the scheme with short to medium term market pressures, whilst still achieving a medium density mixed use urban district based on a strategic rail corridor.

Scenario 3 – Low Density Scenario

Scenario 3 involves amending the Planning Scheme to reduce permissible development quanta by 35 percent.

The resulting Planning Scheme would set out a coherent planning framework for the development of a low density (35-42 dwellings per hectare), mixed-use suburban district adjacent to a rail corridor.

Under this scenario, the total net development area of 155 hectares would remain unchanged. The scheme would facilitate c. 5400 to 6500 dwellings and up to 82,000sq.metres of non-residential floor space, 19,000sq.metres of retail floorspace and 3500sq.metres of community floor space. The forecast population upon completion is c. 15,000 people.

The plan would incorporate one density zone throughout.

This scenario plans for low density suburban development across the SDZ site. The focus of

this scenario would be to provide houses almost exclusively. This scenario would be a market led response supporting housing formats and building costs in response to the current economic context and would not conform with planning guidelines for lands adjacent to a public transport corridor or realise the longer term infrastructure potential of the site.

Significantly lowering the densities at this strategic site would create pressure to provide further housing elsewhere on lands that can achieve the critical mass population required to make public transport efficient, in particular at locations where major infrastructural investment has been made (Planning and Development of Large-Scale, Rail Focused Residential Areas in Dublin – Final Report May 2013). An increase in the number of unsustainable traffic patterns with a decrease in public transport journeys would give rise to the production of greenhouse gases.

Section 7 Evaluation of Alternative Development Scenarios

7.1 Introduction

The objective of this section is to determine the relative merits of three alternative scenarios for accommodating continued future growth at the SDZ lands in Adamstown. This determination sought to understand whether each alternative was likely to improve conflict with or have a neutral interaction with the receiving environment.

7.2 Methodology

7.2.1 Strategic Environmental Objectives (SEO's)

Scenarios are evaluated in a succinct and focused way for environmental effects against both the existing environment and Strategic Environmental Objectives (SEOs). Planning pros and cons which were identified by the Review Team provided alongside the environmental effects for each scenario. In order to comply with the SEA Directive, SEOs have been grouped under relevant parent components such as water and landscape. Based on an understanding of the existing and emerging environmental conditions in Adamstown, a series of SEOs were identified and developed in order to assess the likely significant environmental effects which would be caused by implementation of each of the three alternative scenarios described in Section 6.

The alternatives are evaluated using compatibility criteria (see Table 7.2) in order to determine how they would be likely to affect the status of the SEOs. The SEOs and the alternative scenarios are arrayed against each other to identify which interactions - if any - would cause effects on specific components of the environment.

Where the appraisal identifies a likely conflict with the status of an SEO, the relevant SEO code is entered into the conflict column - e.g. B1 which stands for SEO likely to be affected - in this instance 'to sustain and enhance ecological habitats within the Adamstown SDZ site'

The interactions identified are reflective of likely significant environmental effects;

1. Interactions that would be likely to improve the status of a particular SEO would be likely to result in a significant positive effect on the environmental component to which the SEO relates.

2. Interactions that would probably conflict with the status of an SEO and would be unlikely to be mitigated would be likely to result in a significant negative effect on the environmental component to which the SEO relates.

3. Interactions that would potentially conflict with the status of an SEO and would be likely to be mitigated would be likely to result in potential significant negative effects however these effects would be likely to be mitigated by measures which have been integrated into draft amendments to the approved Planning Scheme.

7.2.2
A conclusion is then arrived at after reviewing the alternative evaluations.

Table 7.1 Criteria for appraising the effect of the proposed amendments to the approved Planning Scheme on Strategic Environmental Objectives

Likely to **Improve** status of SEOs	Probable **Conflict** with status of SEOs- unlikely to be mitigated	Potential **Conflict** with status of SEOs- likely to be mitigated	**No Likely** interaction with status of SEOs

SEO Code	SEO
B1	To sustain and enhance ecological habitats within the Adamstown SDZ site.
B2	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
B3	To sustain and enhance key ecological networks that connect to areas of local biodiversity
PH1	To protect and enhance people's quality of life through the provision of high quality and sustainable urban environments that incorporate a full range of services and facilities, support sustainable travel and support sustainable energy usage.
PH2	To increase efficiencies across the urban system for the good of all citizens through the better alignment of population, services, facilities, employment and transport.
PH3	To protect human health from hazards or nuisances arising from traffic sources and incompatible land-uses.
S1	To protect the quality of soils within Adamstown SDZ.
S2	To minimise the amount of soil sent to landfill and reuse soil within the site.
W1	To maintain and improve, where possible, the quality of the River Liffey and Griffeen, its tributaries and surface water.
W2	To prevent pollution and contamination of ground water.
W3	To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk.[41]
C1	To minimise increases in travel related greenhouse emissions.
M1	To provide adequate wastewater treatment, water distribution networks and drainage networks.
M2	To maintain and improve the quality of drinking water supplies.
CH1	To protect, conserve and enhance the archaeological heritage of the Adamstown SDZ.
CH2	To protect, conserve and enhance the architectural heritage of the Adamstown SDZ.
L1	Improve the overall landscape character and quality in the area.
L2	To protect and enhance the natural and historic landscape features within and adjacent to the Adamstown SDZ, including views of adjacent countryside, protected structures and key features.

Table 7.2 Strategic Environmental Objectives (SEOs)

[41]The flood risk information in relation to the Catchment is limited to provisional data (OPW initial Preliminary Flood Risk Assessment - PFRA), alluvial soils as a surrogate for Flood Risk and OPW recorded Flood Events.

7.3 Evaluation of Alternatives against SEOs

	Likely to **Improve** status of SEOs	Probable **Conflict** with status of SEOs unlikely to be mitigated	Potential **Conflict** with status of SEOs- likely to be mitigated	**No Likely** interaction with status of SEOs
Alternative Scenario 1: **Implement Approved Adamstown SDZ Planning Scheme**	**PH1 PH2 PH3 C1 L1**		**W1 W2 W3 CH1 CH2 B1 B2 B3 L2 M1 M2**	

This scenario will contribute significantly to the future city growth and will contribute to sustainable living patterns, sustainable energy usage and reduced urban sprawl **(SEO PH1).** This scenario would contribute towards maximising the uptake in more sustainable modes of transports by maintaining densities adjacent to the train station and other public transport routes **(SEO PH2).** The uptake in more sustainable modes of transport would decrease the dependency on car based transport, thus decreasing car based emissions and exposure to noise levels and improving air quality **(SEO PH3 C1).**

The use of Sustainable Urban Drainage Systems (SUDS) however would not be prevalent within the SDZ lands; the use of underground attenuation tanks, if continued, could impact on water quality and flood risk **(SEO W1W2 W3).** There would be potential conflict with the status of habitats, species and ecological connectivity because of the population provided for by this scenario and the footprint of development **(SEO B1 B2 B3)**; it is likely however that this potential conflict would be mitigated against.

There is some potential conflict with archaeological and architectural heritage of the area; architectural/archaeological heritage is protected under legislation however and while there would be development pressures in certain areas of the lands, significant impacts would likely be mitigated **(SEO CH1 CH2)**

This scenario allows for opportunities to incorporate high quality open spaces and green corridors into the overall landscape **(SEO L1);** while development in the area could have the potential to have adverse impacts on the landscape of the area **(SEO L2)**, the medium level of development coupled with the identification of key areas for the higher level of development allows for development to be located away from the natural and historic landscape features of the area. Water services infrastructure and capacity would be needed to ensure that potential conflicts are mitigated **(SEO M1 M2).** This scenario would potentially impact on soil function, but any impact would likely be mitigated **(SEO S1 S2).**

	Likely to **Improve** status of SEOs	Probable **Conflict** with status of SEOs unlikely to be mitigated	Potential **Conflict** with status of SEOs- likely to be mitigated	**No Likely** interaction with status of SEOs
Alternative Scenario 2: **Adjusted Medium Density Approach**	**B1 B2 B3 CH1 CH2 W1 W2 W3 PH1 PH2 PH3 L1 L2 C1**		**M1 M2 S1 S2**	
This scenario will contribute significantly to the future city growth and will contribute to sustainable living patterns, sustainable energy usage and reduced urban sprawl **(SEO PH1).** By providing a Green Infrastructure network alongside reduced densities and integrating environmental considerations into the planning scheme, this scenario would improve the status of habitats, species, ecological connectivity **(SEO B1 B2 B3)** and water quality protection **(SEO W1)** as well as facilitating flood risk management **(SEO W3)**. The Green Infrastructure uses would also contribute towards the minimisation of impacts on the landscape **(SEO L1),** archaeological/architectural heritage **(SEO CH1 CH2)** and groundwater status **(SEO W2)** as well as allowing for the provision of high quality open spaces **(SEO L2)**. The adjusted medium density of development proposed would potentially impact on soil function, but any impact would likely be mitigated **(SEO S1 S2).** This scenario would contribute towards maximising the uptake in more sustainable modes of transports by maintaining densities adjacent to the train station and other public transport routes **(SEO PH2).** The uptake in more sustainable modes of transport would decrease the dependency on car based transport, thus decreasing car based emissions and exposure to noise levels and improving air quality **(SEO PH3 C1).** Water services infrastructure and capacity would be needed to ensure that potential conflicts are mitigated **(SEO M1 M2)**				
	Likely to **Improve** status of SEOs	Probable **Conflict** with status of SEOs unlikely to be mitigated	Potential **Conflict** with status of SEOs- likely to be mitigated	**No Likely** interaction with status of SEOs
Alternative Scenario 3: **Low Density Scenario**	**B1 B2 B3 W1 W2 W3 L1 L2 CH1 CH2**	**PH1 PH2 PH3 C1**	S1 S2 M1 M2 **B1 B2 B3L1 CH1 CH2 W1-W3 M1M2** (Blue indicates indirect impact)	
By providing for a reduced quantum of development across the plan lands, Scenario 3 would improve the status of habitats, species, ecological connectivity **(SEO B1,B2, B3)** and water quality protection **(SEO W1 W2)** as well as facilitating flood risk management **(SEO W3).** This quantum would also contribute towards the minimisation of impacts upon the natural and historic sensitivities on the landscape **(SEO L2)** and protect the archaeological/architectural heritage of the area **(SEO CH1 CH2).**				

Due to potentially fragmented piecemeal developments and the low quanta proposed, this could lead to isolated development which has inadequate connectivity and legibility and lack of planned social and civic infrastructure **(SEO PH1)**, and therefore would conflict with efforts to achieve sustainable mobility patterns **(SEO PH2).** As a result this would lead to an increase in unsustainable car based transport, thus impacting on/increasing noise and air quality/emissions **(SEO C1 PH3).** The low quanta of development proposed would minimise the impact on soil function, with any impact likely to be mitigated **(SEO S1 S2).** Water services infrastructure and capacity would be need to ensure that potential conflicts are mitigated **(SEO M1 M2).** The provision of low density development, however, on the plan lands area could result in development occurring in other sensitive areas outside the SDZ lands **(SEO B1-B3, L1W1- W3 M1M2).**

7.4 Summary of Evaluation: the Alternative Scenario for the Planning Scheme

Each of the Alternative Scenarios was examined under the Strategic Environmental Objectives.

Scenario No. 1 (the implementation of the 2003 approved planning scheme) would continue to facilitate and support sustainable living patterns. There would be potential conflicts with biodiversity and water quality issues, although these are likely to be mitigated.

Scenario No. 2 (adjusted medium density) is likely to bring about better environmental outcomes because of its ability to integrate a green infrastructure strategy into the existing infrastructure, therefore protecting and enhancing biodiversity, landscape and water quality. The contribution to future city growth and sustainable living patterns would still be realised, whilst contributing towards the protection of the environment and conforming to high level planning objectives.

Scenario 3 (Low Density) would improve a range of environmental objectives including biodiversity, water quality and landscape character due to the significant reduction in the quantum of development. An increase in the number of unsustainable traffic patterns with a decrease in public transport journeys would give rise to the production of greenhouse gases.

Significantly lowering the densities at this strategic site would create pressure to provide further housing elsewhere on lands that can achieve the critical mass population required to make public transport efficient, in particular at locations where major infrastructural investment has been made (Planning and Development of Large-Scale, Rail Focused Residential Areas in Dublin – Final Report May 2013).

The Proposed Development Scenario that has emerged from the plan preparation process has a close correlation to Scenario 2.

SEO Code	SEO
B1	To sustain and enhance ecological habitats within the Adamstown SDZ site.
B2	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
B3	To sustain and enhance key ecological networks that connect to areas of local biodiversity
PH1	To protect and enhance people's quality of life through the provision of high quality and sustainable urban environments that incorporate a full range of services and facilities, support sustainable travel and support sustainable energy usage.
PH2	To increase efficiencies across the urban system for the good of all citizens through the better alignment of population, services, facilities, employment and transport.
PH3	To protect human health from hazards or nuisances arising from traffic sources and incompatible land-uses.
S1	To protect the quality of soils within Adamstown SDZ.
S2	To minimise the amount of soil sent to landfill and reuse soil within the site.
W1	To maintain and improve, where possible, the quality of the River Liffey and Griffeen, its tributaries and surface water.
W2	To prevent pollution and contamination of ground water.
W3	To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk.[42]
C1	To minimise increases in travel related greenhouse emissions.
M1	To provide adequate wastewater treatment, water distribution networks and drainage networks.
M2	To maintain and improve the quality of drinking water supplies.
CH1	To protect, conserve and enhance the archaeological heritage of the Adamstown SDZ.
CH2	To protect, conserve and enhance the architectural heritage of the Adamstown SDZ.
L1	Improve the overall landscape character and quality in the area.
L2	To protect and enhance the natural and historic landscape features within and adjacent to the Adamstown SDZ, including views of adjacent countryside, protected structures and key features.

Strategic Environmental Objectives (SEOs)[43]

[42]The flood risk information in relation to the Catchment is limited to provisional data (OPW initial Preliminary Flood Risk Assessment - PFRA), alluvial soils as a surrogate for Flood Risk and OPW recorded Flood Events.

[43] Strategic Environmental Objectives (SEOs) are methodological measures which are developed from international, national and regional policies which generally govern environmental protection objectives and against which the environmental effects of the proposed amendments to the approved Planning Scheme can be tested. The SEOs are used as standards against which the provisions of the proposed amendments to the approved Planning Scheme can be evaluated in order to help identify areas in which significant adverse impacts are likely to occur, if unmitigated against.

Section 8- Detailed Assessment of the Draft Amendments to the Approved Planning Scheme

8.1 Methodology

This section evaluates the draft amendments to the approved Adamstown SDZ Planning Scheme, 2003. Strategic Environmental Objectives (SEOs) are used as outlined under Section 5 in order to evaluate the relevant measures of the proposed amendments to the approved Planning Scheme. Use has been made of the environmental baseline descriptions and the maps of the individual components for this purpose.

The interactions between the SEOs and the draft amendments to the approved Scheme policies determine the effects of implementing the proposed amendments. These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects. The assessment response is given in terms of the impact on the Strategic Environmental Objectives, where appropriate, as used in the Environmental Report and is colour coded, as below, to signify the type of impact (**Blue** indicates indirect or cumulative impacts).

The amendments highlighted in **BLUE** below refer to Material Amendments. Full detail and descriptions of the draft amendments are contained in the accompanying draft amendments report

The table below brings together all the SEOs which have been developed from international, national and regional policies which generally govern environmental protection objectives.

Likely to **Improve** status of SEOs	**Probable Conflict** with status of SEOs- Unlikely to be mitigated	**Potential Conflict** with status of SEOs- likely to be mitigated	**No Likely** interaction with status of SEOs

Amendment No.	Section	Description	Evaluation of Proposed Amendments
1	1.3 Background and Process	Insert additional sections 1.3.9 and 1.3.10 advising of current process and relocation of text to facilitate additions	No impact on SEOs
2	1.6 Planning Context	Amendments to Sections 1.6.1-1.6.6 to reflect relevant, updated and new national, regional and local guidance. Insert figure reflecting these changes. Regional Planning Guidelines 2010-2022, Retail Strategy for the Greater Dublin Area 2008-2016 Greater Dublin Area Draft Transport Strategy 2011-2030 South Dublin County Development Plan 2010-2016 Design Manual for Urban Roads and Streets 2013 National Transport Strategy 2012-2030 (Ch 9 Walking and Cycling)	No impact on SEOs
3 MA1	1.7 Area Characterisation	Section 1.7.3 and Table 1.1 updated to reflect adjustments to net development areas and density bands.	Likely to **Improve** status of SEOs: **B1 B2 B3 CH1 CH2 W1 W2 W3 PH1 PH2 PH3 L1 L2 C1** **Potential Conflict** with status of SEOs- likely to be mitigated: **M1 M2 S1 S2** Would contribute towards maximising the uptake in more sustainable modes of transports by maintaining densities adjacent to the train station and other public transport routes **(SEO PH2).** The uptake in more sustainable modes of transport would decrease the dependency on car based transport, thus decreasing car based emissions and exposure to noise levels and improving air quality **(SEO PH3 C1).** Water services infrastructure and capacity would be needed to ensure that potential conflicts are mitigated **(SEO M1 M2)** By providing a Green Infrastructure network alongside reduced densities and integrating environmental

			considerations into the planning scheme, this would improve the status of habitats, species, ecological connectivity **(SEO B1 B2 B3)** and water quality protection **(SEO W1)** as well as facilitating flood risk management **(SEO W3)**. The Green Infrastructure uses would also contribute towards the minimisation of impacts on the landscape **(SEO L1),** archaeological/architectural heritage **(SEO CH1 CH2)** and groundwater status **(SEO W2)** as well as allowing for the provision of high quality open spaces **(SEO L2)**. The adjusted medium density of development proposed would potentially impact on soil function, but any impact would likely be mitigated **(SEO S1 S2).**
4	2.1 Types of Development	Amend text and Table 2.1 to reflect the type of development which may be permitted with development areas.	Likely to **Improve** status of SEOs : C1 PH1 PH2 The provision of high quality amenities will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1);** provision of facilities within the SDZ lands will improve the quality of life/living environment for residents **(SEO PH1 PH2).**
5 MA2	2.2 Extent of Development	Amend table 2.3 to reflect proposed changes in Minimum and Maximum extent of development.	Likely to **Improve** status of SEOs : B1 B2 B3 PH1 PH2 M1 M2 S2 **Potential Conflict** with status of SEOs- likely to be mitigated: **PH3 B1 B2 B3 S1W1**
6	2.2(ii) Breakdown of Total Extent	Replace section title 'Breakdown of Total Extent' with 'Total Extent of Residential Development' and amend	Likely to **Improve** status of SEOs: **B1 B2 B3 CH1 CH2 W1 W2 W3 PH1 PH2 PH3 L1 L2 C1**

MA3		Table 2.2 to reflect up dated residential figures: Min 6,655 Max 8,145	**Potential Conflict** with status of SEOs- likely to be mitigated: **M1 M2 S1 S2** Would contribute towards maximising the uptake in more sustainable modes of transports by maintaining densities adjacent to the train station and other public transport routes **(SEO PH2).** The uptake in more sustainable modes of transport would decrease the dependency on car based transport, thus decreasing car based emissions and exposure to noise levels and improving air quality **(SEO PH3 C1).** Water services infrastructure and capacity would be needed to ensure that potential conflicts are mitigated **(SEO M1 M2)** By providing a Green Infrastructure network alongside reduced densities and integrating environmental considerations into the planning scheme, this would improve the status of habitats, species, ecological connectivity **(SEO B1 B2 B3)** and water quality protection **(SEO W1)** as well as facilitating flood risk management **(SEO W3)**. The Green Infrastructure uses would also contribute towards the minimisation of impacts on the landscape **(SEO L1),** archaeological/architectural heritage **(SEO CH1 CH2)** and groundwater status **(SEO W2)** as well as allowing for the provision of high quality open spaces **(SEO L2)**. The adjusted medium density of development proposed would potentially impact on soil function, but any impact would likely be mitigated **(SEO S1 S2).**
7 MA4	2.2 Landmark Buildings	Amend section 2.2.8 and 2.2.9 to reflect proposed provision for landmark buildings.	Likely to **Improve** status of SEOs: PH1 PH2 L1 **Potential Conflict** with status of SEOs: L2 Provision of infill development will contribute towards achievement of sustainable mobility **(SEO PH1 PH2)**. Landmark buildings can enhance the overall visual

			character and quality of the area **(SEO L1).** There is a potential conflict with regards to impact on the natural/historic features and key features/views (**SEO L2**); however the restriction of these landmark buildings to certain locations within the lands is likely to mitigate against the probable conflict on the landscape
8 MA5	2.2 Additional Employment	Insert new section to reflect proposed future provision of employment use within the site in lieu of a certain no of residential units.	Likely to **Improve** status of SEOs: PH1 PH2 PH3 C1 **Potential Conflict** with status of SEOs: B1 B2 B3 W3 **No Likely** interaction with status of SEOs: **M1 M2** The provision of employment opportunities locally will reduce the number of car journeys to services outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1)**; provision of employment within the SDZ lands will improve the quality of life/living environment for residents and facilitate more sustainable development **(SEO PH1 PH2).** The location of employment/non-residential uses in close proximity to the railway station will minimise the impact of noise levels on residents **(SEO PH3).** Potential conflict with biodiversity/ecological networks (**SEO B1-B3**) and groundwater quality **(SEO W2);** these are likely to be mitigated against however
9	2.2 School Sites	Remove section 2.2 to reflect development which has occurred to date.	No impact on SEOs

10 MA6	2.2 (iii) New Title Social and Affordable Housing	Replace title 2.2(iii) Total Residential Development with 'Social and Affordable Housing'. Amend text to reflect requirements to comply with Part V of the Planning Development Act, 2000 (as amended) and the provisions of the South Dublin County Council Housing Strategy. Text amended to reflect additional traveller accommodation unit. Add additional traveller accommodation site to Figure 2.4.	No impact on SEOs
11 MA7	2.2(iv) Total Non Residential Development	Relocate 2.2.13 to end of Section 2.2(ii) and amend text to reflect proposed minimum and maximum quantum of residential development Amend text to reflect proposed maximum (125,500q.m) extent of non-residential development and proposed minimum (24,175sq.m) extent of non-residential development. Amend tables 2.5 and 2.6 to reflect this.	Likely to **Improve** status of SEOs: PH1 PH2 C1 **Potential Conflict** with status of SEOs: B1 B2 B3 W1 W2 W3 The provision of high quality amenities and services will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1)**; provision of facilities and services within the SDZ lands will improve the quality of life/living environment for residents **(SEO PH1 PH2).** There is potential negative impact upon habitat networks, streams and hedgerows in the plan lands and surrounding area **(SEO B1- B3)** as well as impact on quality of water **(SEO W1)** and contamination of groundwater **(SEO W2)** and risk of flooding **(SEO W3)** ; however design and layout has taken these issues into account in the overall framework and are likely to be mitigated against
12	2.3 (i) Design Statement	Amend text 2.3.3 affirming the Adamstown urban design approach which is to move towards a more sustainable, compact and integrated urban format.	Likely to **Improve** status of SEOs: L1 This will help to improve and enhance the existing urban landscape character of the area **(SEO L1)**

13	2.3 (ii) Layout	Amend text 2.3.4 and 2.3.5 and omit 2.3.6 and 2.3.7 to reflect guidance detailed in the Design Manual for Urban Roads and Streets (DMURS), DoTTs & DoEC&LG 2013, the National Cycle Manual, NTA, 2011 and the Adamstown Street Design Guide (ASDG), SDCC 2009	Likely to **Improve** status of SEOs: PH1 PH2 PH3 C1 L1 L2 **No Likely** interaction with status of SEOs: **M1 M2 CH1 CH2** Adherence to these national guidelines will serve to enhance the quality of life for residents through the provision of a high quality urban environment and improving efficiencies **(SEO PH1, PH2)**; it will improve the surrounding environment for pedestrians/cyclists to utilise thereby encouraging use of sustainable modes of transport and reducing car based emissions **(SEO C1, PH3).** Enhance overall visual character and quality of the area (**SEO L1**) and protect the existing landscape features **(SEO L2).**
14 MA8	2.3(v) Development Density	Amend Section 2.3.20 and table 2.7 to reflect proposed densities and plot ratios. Amend Section 2.3.21 to provide for infill development, clarify density requirements (allowing for development to fall below or above density ranges) with provision made for addressing any shortfall within relevant landholding or development area.	Likely to **Improve** status of SEOs: **B1 B2 B3 CH1 CH2 W1 W2 W3 PH1 PH2 PH3 L1 L2 C1** **Potential Conflict** with status of SEOs- likely to be mitigated: **M1 M2 S1 S2** Would contribute towards maximising the uptake in more sustainable modes of transports by maintaining densities adjacent to the train station and other public transport routes **(SEO PH2).** The uptake in more sustainable modes of transport would decrease the dependency on car based transport, thus decreasing car based emissions and exposure to noise levels and improving air quality **(SEO PH3 C1).** Water services infrastructure and capacity would be needed to ensure that potential conflicts are mitigated **(SEO M1 M2)** By providing a Green Infrastructure network alongside reduced densities and integrating environmental considerations into the planning scheme, this would

			improve the status of habitats, species, ecological connectivity **(SEO B1 B2 B3)** and water quality protection **(SEO W1)** as well as facilitating flood risk management **(SEO W3)**. The Green Infrastructure uses would also contribute towards the minimisation of impacts on the landscape **(SEO L1),** archaeological/architectural heritage **(SEO CH1 CH2)** and groundwater status **(SEO W2)** as well as allowing for the provision of high quality open spaces **(SEO L2)**. The adjusted medium density of development proposed would potentially impact on soil function, but any impact would likely be mitigated **(SEO S1 S2).**
15	2.3(iv) Residential Yield	Omit Section 2.3.23 (Reference to Adamstown LAP-not relevant)	No impact on SEOs
16 MA9	2.3 (vii) Road/Street Width	Amend Section (vii) title to 'Road and Street Network' Amend text to reflect guidance detailed in the Design Manual for Urban Roads and Streets (DMURS), DoTTs & DoEC&LG 2013, the National Cycle Manual, NTA, 2011 and the Adamstown Street Design Guide (ASDG), SDCC 2009. Omit Table 2.8. Omit Figures 2.11 and 2.12. Amend Figure 2.10 Road/Street Type Updated to reflect the new layout and system of classification used within the ASDG/DMURS	Likely to **Improve** status of SEOs: PH1 PH2 PH3 C1 L1 L2 **No Likely** interaction with status of SEOs: **M1 M2 CH1 CH2** Adherence to these national guidelines will serve to enhance the quality of life for residents through the provision of a high quality urban environment and improving efficiencies **(SEO PH1, PH2)**; it will improve the surrounding environment for pedestrians/cyclists to utilise thereby encouraging use of sustainable modes of transport and reducing car based emissions **(SEO C1, PH3).** Enhance overall visual character and quality of the area (**SEO L1**) and protect the existing landscape features **(SEO L2).**
17	2.3(x) Building Language and Finishes	Amend section 2.3.46 to reflect DMURS	Likely to **Improve** status of SEOs: PH1 PH2 PH3 C1 L1 L2 **No Likely** interaction with status of SEOs: **M1 M2 CH1 CH2**

			Adherence to these national guidelines will serve to enhance the quality of life for residents through the provision of a high quality urban environment and improving efficiencies **(SEO PH1, PH2)**; it will improve the surrounding environment for pedestrians/cyclists to utilise thereby encouraging use of sustainable modes of transport and reducing car based emissions **(SEO C1, PH3).** Enhance overall visual character and quality of the area (**SEO L1**) and protect the existing landscape features **(SEO L2).**
18 MA10	2.3(xi) Dwelling Size	Amend text to reflect the *Sustainable Urban Housing: Design Standards for New Apartments (2007)* and *Quality Housing for Sustainable Communities (2007)*. The Scheme is referenced in both of these documents. Amend Table 2.11 to reflect provisions of these document.	Likely to **Improve** status of SEOs: PH1 The revisions to the minimum internal floor areas in accordance with national guidance will improve the quality of life for residents through the provision of high quality housing **(SEO PH1).**
19	2.3(xii) Dwelling Type	Amend text to reflect requirements of *Quality Housing for Sustainable Communities (DoEHLG, 2007)* guidelines. Omit text 2.3.55. Reference not relevant. Provisions of SDCC Housing Strategy apply	Likely to **Improve** status of SEOs: PH1 This will improve the quality of life for residents through the provision of high quality housing and provide a more sustainable community **(SEO PH1)**
20	2.3(xiii) Private Amenity Space	Amend text to reflect provisions of *Sustainable Urban Housing: Design Standards for New Apartments (2007)* and *Quality Housing for Sustainable Communities (2007)*.	Likely to **Improve** status of SEOs: PH1 PH2 Adherence to these national guidelines will serve to enhance the quality of life for residents through the provision of a high quality urban environment and improving efficiencies **(SEO PH1, PH2)**
21	2.3 (xv) Electricity Supply	Text amended to reflect diversion of 200kv line which traversed site and granting of permission for 110kv Transformer Station within the SDZ lands.	No impact on SEOs

22	2.4(i) Road Network	Sections 2.4.1-2.4.4 Text amended to reflect updated modelling exercise carried by NTA as part of scheme review	Likely to **Improve** status of SEOs: PH3 PH2 C1 Contribute towards maximising the uptake in more sustainable modes of transports by maintaining densities adjacent to the train station and other public transport routes **(SEO PH2).** The uptake in more sustainable modes of transport would decrease the dependency on car based transport, thus decreasing car based emissions and exposure to noise levels and improving air quality **(SEO PH3 C1)**
23	2.4(ii) Road Improvements	Sections 2.4.5-2.4.8 amended to reflect upgrades to road network since 2003. ORR, Adamstown Line Road and improvements to M50 and N4	Likely to **Improve** status of SEOs: PH1 PH2 PH3 C1 The provision of additional roads, links and increased connectivity will encourage more sustainable transport modes
24	2.4(iii) Suburban Rail	Sections 2.4.9-2.4.16 amended to reflect suburban rail upgrades, Adamstown Railway Station, twin tracking of Kildare line	Likely to **Improve** status of SEOs: PH1 PH2 PH3 C1 **Potential Conflict** with status of SEOs: PH3 This will contribute towards maximising/encouraging more sustainable modes of transport, thereby reducing car based emissions **(SEO PH1 PH2 PH3**); potential conflict with impact of noise **(SEO PH3);** however this is likely to be mitigated against through the location of non-residential development in close proximity to the railway station
25	2.4(iv) Busway/QBC	Section 2.4.17-2.4.22 amended to reflect current QBC and bus provision in Adamstown. QBC provided on opposite sides of Adamstown Link Road. QBC linking Adamstown with N4 and ORR provided.	Likely to **Improve** status of SEOs: C1 PH1 PH3 Encourages provision of sustainable modes of transport, thereby reducing traffic movements and car based emissions and improving quality of life for residents **(SEO C1 PH1PH3)**
26	2.4 (v) Transport Interchange	Section 2.4.23-2.4.28 text amended to reflect works carried out on Transport Interchange since 2003	Likely to **Improve** status of SEOs: C1 PH1 PH3 Encourages provision of sustainable modes of transport, thereby reducing traffic movements and car based emissions and improving quality of life for

			residents **(SEO C1 PH1PH3)**
27	2.4(vi) Walking and Cycling	Add Section 2.29 to reflect guidance detailed in the Design Manual for Urban Roads and Streets (DMURS), DoTTs & DoEC&LG 2013, the National Cycle Manual, NTA, 2011 and the Adamstown Street Design Guide (ASDG), SDCC 2009.	Likely to **Improve** status of SEOs: C1 PH1 PH3 Encourages provision of sustainable modes of transport, thereby reducing traffic movements and car based emissions and improving quality of life for residents **(SEO C1 PH1PH3)**
28	2.5(i) Water Supply	Sections 2.4.1-2.5.5 amended to reflect upgrades to update details of service provision	Likely to **Improve** status of SEOs: W1 W2 W3
29	2.5(ii) Surface Water Drainage	Sections 2.5.6-2.5.19 amended to update details of service provision	Likely to **Improve** status of SEOs: W1 W2 W3
30	2.5(iii) Foul Sewerage	Sections 2.5.20-2.5.31 amended to update details of service provision	Likely to **Improve** status of SEOs: W1 W2 W3
31	2.5 (iv) Telecommunications / Information Technology	Update section to reflect current telecommunications infrastructure provision.	No impact on SEOs
32 MA11	2.5 (v) Environmental Sustainability and Sustainable Design	New Section to reflect the provisions of the National Climate Change Strategy 2007-2012 and the South Dublin Climate Change Strategy 2009-2020. Text highlights the fact that scheme sets out a coherent framework for sustainable development through consideration of aspect, orientation, location, mix and scale of development.	Likely to **Improve** status of SEOs: C1 PH1 PH2 W1 W2 W3 The promotion of innovative building design and the use of renewable energy sources as well as suitable drainage systems will contribute towards reducing overall energy usage and positively impact on climate change (SEO C1) and protection of groundwater/flood risk (SEO W1-W3). The use of sustainable design will also contribute to a high quality environment for residents (SEO PH1 PH2)
33 MA12	2.6(i) Major Parks and Public Open Spaces	2.6.1-2.6.5 amended in order to specify minimum requirements for active recreational facilities in each Park and to update text where necessary. Amendments to specify the requirements for the retention of natural features in parks. Amend Table 2.16 to reflect these changes	Likely to **Improve** status of SEOs: C1 PH1 PH2 L1 L2 **Potential Conflict** with status of SEOs- likely to be mitigated: B1 B2 B3 The provision of high quality amenities will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving

			human health **(SEO C1)**; provision of facilities within the SDZ lands will improve the quality of life/living environment for residents **(SEO PH1 PH2).** The provision of playing pitches on the plan lands may have some impact on the existing ecological habitats and biodiversity network within the site, but this is likely to be mitigated against through measures incorporated into the scheme i.e. through the retention and enhancement of existing natural trees and hedgerows in all open spaces will serve to protect and enhance the ecological habitats within the SDZ lands **(SEO B1 B2 B3).** This will also improve the overall landscape character of the area **(SEO L1)** and protect the existing natural features within the area **(SEO L2).**
34 MA13	2.6 (ii) Green Infrastructure	Section added to formalise the requirement to protect, enhance and link key assets of public space network	Likely to **Improve** status of SEOs: B3 L1 L2 W1 W2 W3 CH1 CH2 S1 S2 PH1 The provision of a green infrastructure/public space network will allow for effective operation of wildlife movements and habitat use and retention of existing trees and hedgerows within the area **(SEO B3)**; it will also serve to protect and enhance existing landscape features **(SEO L1).** The provision of parks within new developments will reduce the need for unsustainable travel modes to access these facilities elsewhere **(SEO PH1 C1**). The incorporation of open spaces as part of the overall Green Infrastructure network will maintain the quality of the River Liffey and the Griffeen; it will help contain contamination of the groundwater and will lessen the potential likelihood of flood risk **(SEO W1-W3).**
35	2.6 (iii) Education	Sections 2.6.10-2.6.12 amended to provide update on	No impact on SEOs

	/Schools	school provision in Adamstown. Schools campus is now developed and incorporates 2 no 16-classroom primary schools and secondary school with capacity for up to 1,000 pupils. Updated scheme reflects this provision. Also reflects proposals to relocate primary school adjacent to Tandy's Lane Village.	
36 MA14	2.6 (iv) Childcare Facilities	Section 2.6.13-2.6.16 amended to reflect current thinking on childcare provision. Childcare provision to be linked to development of District and Local Centres and to reflect demand for childcare needs to be met in existing private residential properties or other flexible use buildings.	Likely to **Improve** status of SEOs: C1 PH1 PH2 The provision of high quality amenities will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1);** provision of facilities within the SDZ lands will improve the quality of life/living environment for residents **(SEO PH1 PH2).**
37 MA15	2.6 (vi) Children's Play Facilities	New Section's 2.6.15-2.6.17 and new Table 2.6.18 to reflect SDCC's desire to provide a range of secure outdoor play facilities within appropriate distances of homes to encourage varied physical and active play. Playgrounds to be provided in each of 4 Major Parks and equipped play facilities in each development areas. Public realm design also to provide for informal play opportunities.	Likely to **Improve** status of SEOs: C1 PH1 PH2 The provision of high quality amenities will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1);** provision of facilities within the SDZ lands will improve the quality of life/living environment for residents (**SEO PH1 PH2).**
38 MA16	2.6(vii) Community Buildings	Section 2.6.17-2.6.23 amended to reflect current practice in community building provision in SDCC. Pro rata provision not considered appropriate due to delivery and management issues. Provision of 1-2 facilities across the site is now considered more appropriate in terms of delivery and management. Omit table 2.18 Update Figure 2.38	Likely to **Improve** status of SEOs: C1 PH1 PH2 The provision of high quality amenities will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1);** provision of facilities within the SDZ lands will improve the quality of life/living environment for residents (**SEO PH1 PH2).**
39	2.6 (vi) Shopping and Retail Services	Update Text and Table 2.19 to reflect Minimum and Maximum retail provision resulting from proposed	Likely to **Improve** status of SEOs: C1 PH1 PH2 The provision of high quality amenities will increase

MA17		reductions in non-residential floorspace across scheme	local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1);** provision of facilities within the SDZ lands will improve the quality of life/living environment for residents (**SEO PH1 PH2).**
40 MA18	2.6(viii) Health Emergency/Religious	Amend Section 2.6.40 to include provision of Primary Health Care Facility as per Amendment No1. Adopted 2006.Amend section 2.6.41 to provide for public worship to be 'open to consideration' in all areas subject to appropriate safeguards including within community buildings	Likely to **Improve** status of SEOs: C1 PH1 PH2 The provision of high quality amenities will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1);** provision of facilities within the SDZ lands will improve the quality of life/living environment for residents (**SEO PH1 PH2).**
	Overarching Changes- Reflected in Mapping		
41	Neighbourhood Boundaries	Minor amendments made to Development Area Boundaries within the scheme	No impact on SEOs
42	Road Layouts	Minor amendments made to the road layout within the scheme	No impact on SEOs
43	Flexible Use Buildings	Minor amendments made to the distribution of flexible use buildings within the scheme	No impact on SEOs
44	Open Space	Minor amendments made to the distribution of open space within the scheme	No impact on SEOs
45	North Eastern School Site	Relocation of the designated school site in Tandy's Lane Village to the north to facilitate access ahead of development of this area.	No impact on SEOs
Section 3	**Development and Amenity Areas**		

46	Amenity Areas	Update tables setting out statistical and physical parameters to reflect proposed amendments.	Likely to **Improve** status of SEOs: C1 PH1 PH2 The provision of high quality amenities will increase local usage and reduce the number of car journeys to amenities outside of the SDZ lands, thereby reducing the amount of car based emissions and improving human health **(SEO C1);** provision of facilities within the SDZ lands will improve the quality of life/living environment for residents (**SEO PH1 PH2).**
Section 4	**Phasing and Implementation**		
47 MA 19	4.2 Sequence	Amend section 4.2.1-4.2.5 to reflect proposed amendments to phasing bands and overall min-max development potential. Amend phasing tables to reflect proposed amended phasing bands and to reflect current infrastructural developments to date and changing infrastructural requirements in the scheme.	Likely to **Improve** status of SEOs: M1 M2 W1 W2 W3 S1 B1 B2 B3 PH1 PH2 The purpose of phasing is to ensure that infrastructure, services, facilities and amenities are provided together with residential and employment development. The phasing would contribute towards the timely and appropriate provision of water services infrastructure and capacity (**SEOs M1 and M2**) and drainage infrastructure (**SEO W3**), indirectly contributing towards the protection of the status of water bodies, soil function and ecology (**SEOs W1 W2 S1 B1 B2 B3**). The phasing would also contribute towards efforts relating to the achievement of sustainable mobility (**SEO PH1 PH2**).
48	4.3 Operation	Amend section 4.3.1-4.3.3 to reflect proposed phasing bands and operation of the scheme to date.	Likely to **Improve** status of SEOs: M1 M2 W1 W2 W3 S1 B1 B2 B3 PH1 PH2 The purpose of phasing is to ensure that infrastructure, services, facilities and amenities are provided together with residential and employment development. The

			phasing would contribute towards the timely and appropriate provision of water services infrastructure and capacity (**SEOs M1 and M2**) and drainage infrastructure (**SEO W3**), indirectly contributing towards the protection of the status of water bodies, soil function and ecology (**SEOs W1 W2 S1 B1 B2 B3**). The phasing would also contribute towards efforts relating to the achievement of sustainable mobility (**SEO PH1 PH2**).
49 MA 20	4.4 Timing	Amend section 4.4.1-4.4.5 to reflect operation and development of the scheme to date and the proposed amendments to phasing bands.	Likely to **Improve** status of SEOs: M1 M2 W1 W2 W3 S1 B1 B2 B3 PH1 PH2 The purpose of phasing is to ensure that infrastructure, services, facilities and amenities are provided together with residential and employment development. The phasing would contribute towards the timely and appropriate provision of water services infrastructure and capacity (**SEOs M1 and M2**) and drainage infrastructure (**SEO W3**), indirectly contributing towards the protection of the status of water bodies, soil function and ecology (**SEOs W1 W2 S1 B1 B2 B3**). The phasing would also contribute towards efforts relating to the achievement of sustainable mobility (**SEO PH1 PH2**).

Section 9 Mitigation Measures

9.1 Introduction

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the draft amendments to the approved Planning Scheme.

Potential beneficial effects of implementing the proposed amendments to the approved Planning Scheme have been and will be maximised and potential adverse effects have been and will be avoided, reduced or offset through:

- The consideration of alternatives for the proposed amendments to the Planning Scheme;
- Mitigation through communication of environmental considerations and integration of these considerations into the amended Planning Scheme Land Uses Layout Map; and
- Adherence to measures which have been integrated into the approved Planning Scheme.

Additional detailed mitigation measures to those listed below and those integrated into the amended Planning Scheme would be likely to be required by the development management and EIA processes of individual projects.

Accordingly mitigation measures contained hereafter are recommended to be incorporated in their entirety - or omitted. The degree of undertaking should remain as that the measure 'shall' or 'will' be implemented. The substitution of these words with the words 'should', 'ought' or 'may' is not in accordance with best practice and should be avoided.

9.2 Mitigation Measures

9.2.1 Mitigation through the Integration of Environmental Considerations into the Planning Scheme Land Use Maps

Environmental considerations (see Section 4 'Environmental Baseline') were communicated to the Planning team throughout the process of preparing the Planning Scheme. This allowed them to integrate these considerations into the Primary Land Uses Map (Figure 2.4 in amended maps for Planning Scheme). The environmental considerations taken into consideration and that informed the production of the final map includes:

1. Biodiversity- the retention and enhancement of existing trees and hedgerows to be incorporated into the four parks provided within the Scheme. This allows for the protection of the ecological network on the plan lands and surrounding

2. The Uses, Densities and Access and Movement throughout the site have been informed by sustainable mobility considerations and will contribute towards the achievement of sustainable mobility patterns.

3. Building Heights and Frontages- the transition of the area from urban to rural landscape has been protected by the location of lower densities on the outer perimeters of the lands adjacent to existing agricultural lands.

4. Commercial and Employment Uses- These have generally been provided along the railway line to the south, contributing towards the protection

of human health by reducing the noise impact for residents.

9.2.2 Mitigation by Addition of Objectives.

Additional objectives have been provided within the proposed amendments for the Planning Scheme that addresses the likely significant effects of implementing the amended Planning Scheme, if unmitigated. The integration of these measures was communicated through the SEA process to the plan team and includes the following:

Energy Efficient Building Design and Layout/

- **MA11 - 2.5 (v) Environmental Sustainability and Sustainable Design**

2.5.1 The Planning Scheme supports environmental sustainability through ensuring a coherent framework for sustainable development at Adamstown, ensuring that sustainable design is integral to the development of the area and aligning new development with public transport. This will assist greatly towards meeting the aims contained in the National Climate Change Strategy and the Councils Climate Change Strategy. Environmental sustainability is promoted in Adamstown through four approaches:

- *A mix of use types in the area, to support the development of sustainable residential communities.*
- *Buildings to be designed and constructed to energy standards prescribed by the Building Regulations Part L – Dwellings as a minimum. 2011 requirements prescribe that a building shall be designed and constructed so as to ensure that the energy performance of the building is such as to limit the amount of energy required for the operation of the dwelling and the amount of carbon dioxide (CO_2) emissions associated with this energy use. The regulations also prescribe that a reasonable proportion of the energy consumption to meet the energy performance of a dwelling should be provided by renewable energy sources.*
- *Encouraging high levels of use of sustainable modes of transport by promoting walking, cycling and public transport.*
- *Promoting and supporting improvements in the public realm which reduce energy consumption, support Sustainable Urban Drainage Systems (SUDS), increase carbon sequestering and support CHP (combined heat and power) schemes.*

2.5.2 Through the implementation of a coherent framework for sustainable development, new development should have an inherently low carbon footprint. The proximity of local, well established amenities should lessen travel needs and the proximity of public transport shall reduce the need for car based trips from the site. New developments within the SDZ area should, where possible, seek to maximise energy efficiency through their location and design. In combination with the materials chosen and physical attributes of building design, sustainability should also inform key urban design elements such as creating attractive micro climates in key public or private public spaces, maximising passive solar gain, reducing overshadowing and addressing wind tunnel impacts. A key part of sustainable building and reduced carbon footprint is the energy consumption of heat, light and power of a building. Opportunities to source energy from sustainable sources should be exploited where possible.

2.5.3 All development proposals shall be accompanied by a sustainability statement to illustrate measures proposed to increase energy efficiency, reduce resource consumption and minimise waste generation.

Protection and Incorporation of Natural Heritage

- **MA 12- 2.6 (i) Major Parks and Public Open Spaces**

2.6.4 For each of the major parks, a plan to include a detailed schedule of work shall be agreed with South Dublin County Council. Existing trees and natural features shall be retained and enhanced in all parks and open spaces, where possible. All public open spaces, regardless of size, will include a significant amount of hard and soft landscaping and sensitive boundary treatment. Children's play areas and sports courts will be provided in both Airlie Park and on the Central Boulevard. Airlie Park shall also include all-weather playing pitch and changing facilities.

2.6.5 It is an important feature of the Adamstown SDZ that all public open spaces are linked by a network of 'green' walking and cycling routes.

Green Infrastructure

- **MA13 -2.4 (ii) New Section- Green Infrastructure**

2.6.5 The green infrastructure strategy for Adamstown is to achieve a rich and varied biodiversity through the protection and enhancement of key landscape and ecological assets.

2.6.6 The public open space network shall provide the basis for a green infrastructure network. Key landscape and ecological features within this network shall be retained and enhanced, as far as is practical. Public open spaces shall be linked by a network of 'green' routes that retain and enhance existing landscape and ecological features such as trees, hedgerows and watercourses and incorporate new elements such as street planting and sustainable urban drainage systems. Opportunities to extend this green infrastructure network into individual schemes should also be explored where possible through use of sustainable design techniques at the local level that have beneficial environmental impacts.

Section 10 Monitoring Measures

10.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. This environmental report puts forward proposals for monitoring the draft amendments to the approved Planning Scheme.

Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. In addition to this, monitoring can also play an important role in assessing whether the Planning Scheme is achieving its environmental objectives and targets - measures which the Planning Scheme can help work towards - whether these need to be reexamined and whether the proposed mitigation measures are being implemented.

10.2 Indicators and Targets

Monitoring is based around the indicators which were chosen earlier in the process. These indicators allow quantitative measures of trends and progress over time relating to the Strategic Environmental Objectives used in the evaluation. Focus will be given to indicators which are relevant to the likely significant environmental effects of implementing the proposed amendments to the approved Planning Scheme and primarily to existing monitoring arrangements in order to monitor the selected indicators. Each indicator to be monitored will be accompanied by the relevant target(s) - measures which the planning scheme can help work towards - which were identified with regard to the relevant legislation (Section 5). Table 10.1 below shows the indicator and targets which have been selected with regard to the monitoring of the proposed amendments to the planning scheme.

10.3 Sources

Existing monitoring sources exist for many of the indicators and include those maintained by South Dublin County Council and the relevant authorities e.g. the Environmental Protection Agency and the Central Statistics Office.

The *Development Management Process* in South Dublin County Council will provide additional monitoring of certain indicators and targets on an application by application basis. These will be recorded on an on-going basis by the Council's SEA Monitoring System. Where significant adverse effects - including positive, negative, cumulative and indirect - are likely to occur upon, for example, ecological networks as a result of the undertaking of individual projects or multiple individual projects, such instances will be identified and recorded and will feed into the monitoring evaluation for the proposed amendments.

10.4 Excluded Indicators and Targets

As noted on Table 10.1 below, monitoring data on Indicator W2 (Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC) may not be available for the preliminary monitoring evaluation as the groundwater threshold values to which this indicator relates have not yet been identified by the EPA.

In addition, future monitoring data for Indicators C1i (Percentage of population

within the County travelling to work or school by public transport or non-mechanical means) will not be available until the results of the next CSO Census are made available. It is recommended that data for this indicator be sourced for the SEA at the time of presenting the first monitoring report.

10.5 Reporting

A preliminary monitoring evaluation report on the effects of implementing the proposed amendments will be prepared when the Planning Scheme concludes Phase 6 of the development. A further report will be prepared when the Scheme commences Phase 10. The Council is responsible for collating existing relevant monitored data, the preparation of a monitoring report, the publication of this report and, if necessary, the carrying out of corrective action

10.6 Responsibility

South Dublin County Council are responsible for collating existing relevant monitored data, the preparation of a monitoring report, the publication of this report and, if necessary, the carrying out of corrective action.

10.7 Thresholds

Thresholds at which corrective action will be considered are as follows:

- boil notices on drinking water;
- fish kills;
- court cases taken by the DOAHG regarding impacts upon archaeological heritage including entries to the Record of Monuments and Places; and,
- complaints received from statutory consultees regarding avoidable impacts resulting from development which is granted permission under the approved Planning Scheme.

Environmental Component	Selected Indicator(s)	Selected Target(s)	Sources
Biodiversity, Flora and Fauna	B1: Percentage of ecological habitats within the Adamstown SDZ, which have been lost without remediation.	B1: No loss of ecological habitats without mitigation as a result of implementation of the amendments.	Designated ecological sites mapping, CORINE Mapping, National Parks and Wildlife Service Records & Development Management Process in SDCC
	B2: Number of significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the proposed amendments	B2: No significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the proposed amendments	Designated ecological sites mapping, Development Management Process in SDCC Council & Consultation with the National Parks and Wildlife Service
	B3: Percentage of links lost within the local ecological network without mitigation	B3: No loss of ecological connectivity without mitigation as a result of implementation of the amendments.	Primary ecological corridors mapping, CORINE mapping and Development Management Process in SDCC
Population and Human Health	Indicator PH1i: Percentage of dwellings within an 800 metre walk band of key services and facilities (school, community centre, park, shop, playground).	Target PH1: Support the development of a sustainable urban area that incorporates a full range of services and facilities, provision of public transport services and environmental sustainability and sustainable design.	Central Statistics Office
	Indicator PH1ii: Percentage of dwellings within an 800 metre walk band of public transport nodes (bus or rail stop) and levels of service within the site		Central Statistics Office
	Indicator PH1iii: Percentage of population working within or adjacent to Adamstown (POWSCAR).		Central Statistics Office: (POWSCAR)
	Indicator PH1iv: Percentage of dwellings meeting A or B BER ratings		Development Management Process in

			SDCC
	Indicator PH2i: Density of development along bus and rail corridor Indicator PH2ii: Range of facilities within the site	Target PH2: Support efficiencies in the urban system by maximising the potential of a strategic land bank.	
	Indicator PH2iii: Travel times to key civic and employment destinations – Tallaght and Dublin City		Central Statistics Office
	Indicator PH3: Percentage of population that are exposed to unacceptable levels of traffic noise (to be defined) or the number of noise sensitive locations that have a score where priority action is required	Target PH3: Reduce number of people expose to traffic noise and air quality levels which endanger health and quality of life.	

Environmental Component	**Selected Indicator(s)**	**Selected Target(s)**	**Sources**
Soil	Indicator S1: Number of contaminated sites identified and remediated Indicator S2: Quantum of soil sent to landfill	S1: Limit activities that would give rise to soil contamination S2: All soil should be reused within the site and national and EU targets on the recycling of municipal waste and its diversion from landfill should be adhered to	Development Management Process in SDCC As above
Water	Indicator W1i: Biotic Quality Rating (Q Value) and risk assessment	W1ia: To maintain a biotic quality rating of Q4, in line with the requirement to achieve good water status under the Water Framework Directive, by 2015 W1ib: To improve biotic quality ratings, where possible, to Q5	Environmental Protection Agency
	W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	W2: Compliance with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	Data may not be available for this indicator when the monitoring evaluation is being prepared.

Environmental Component	Selected Indicator(s)	Selected Target(s)	Sources
Water (cont.)	W3: Number of developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk	W3: Minimise developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk	Development Management Process in South Dublin County Council
Air and Climatic Factors	C1i: Percentage of population within the planning scheme travelling to work or school by public transport or non-mechanical means	C1i: An increase in the percentage of the population within the planning scheme travelling to work or school by public transport or non-mechanical means	Central Statistics Office: National Transport Authority

Environmental Component	Selected Indicator(s)	Selected Target(s)	Sources
Material Assets	M1: Number of new developments granted permission which cannot be adequately served by waste water treatment systems, water distribution networks and drainage networks	M1: No new developments granted permission which cannot be adequately served by waste water treatment systems, water distribution networks and drainage networks.	Development Management Process in SDCC
	M2: Drinking water quality standards, (Microbiological, Chemical and Indicator parameters)	M2: To maintain and improve drinking water quality in South Dublin County to comply with requirements of the European Communities (Drinking Water) Regulations 2000	Environmental Protection Agency, Development Management Process in SDCC
Cultural Heritage	CH1i: Appropriate mitigation strategies in planning applications CH1ii: Publication in www.excavations.ie of any archaeological excavations occurring in area.	CH1: Appropriate protection of Monuments and Places recorded on the Record of Monuments and Places (and/or their context within the surrounding landscape where relevant)	Development Management Process in South Dublin County Council; Complaints from statutory consultees
	CH2: Appropriate mitigation strategies in planning applications	CH2: Appropriate protection of structures recorded on the Record of Protected Structures (and their context within the surrounding landscape where relevant)	Development Management Process in South Dublin County Council; Complaints from statutory

			consultees

Environmental Component	Selected Indicator(s)	Selected Target(s)	Sources
Landscape	L1i: Provision of high quality landscaped areas	L1i: Landscape design to be of high quality and appropriate to the scale and context of its surroundings	Development Management Process in South Dublin County Council
	L1ii: Percentage of Open Spaces easily accessible and designed to encourage use by members of the public	L1ii: Provision of high quality public open spaces within the SDZ in order to improve landscape	
	L2: Number or percentage of natural and historic landscape features preserved	L2: The preservation of natural and historic landscape features, where appropriate, and their integration into the landscape proposal for the site.	

Table 10.1 Selected Indicators, Targets and Monitoring Sources

Appendix I
NON TECHNICAL SUMMARY

ENVIRONMENTAL REPORT

OF THE

DRAFT AMENDMENTS TO THE APPROVED ADAMSTOWN SDZ PLANNING SCHEME, 2003

STRATEGIC ENVIRONMENTAL ASSESSMENT

South Dublin County Council

County Hall

Tallaght

Dublin 24

OCTOBER 2013

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1.0 Non Technical Summary

1.1 Introduction

This is the Non Technical Summary of the Environmental Report of the proposed amendments to the Adamstown SDZ Planning Scheme, 2003.

Over the ten year period since the Planning Scheme approval, the economic and policy context within which the Scheme operates has changed. While there is no legal requirement to review a Planning Scheme, the Planning Authority considered it timely to review and update the approved Planning Scheme to take account of this changed context.

Strategic Environmental Assessment is a process which was adopted into Irish Law in 2004. The Adamstown SDZ Planning Scheme, 2003 pre-dates the 2004 SEA Regulations. The Planning Scheme does incorporate a comprehensive Environmental Appraisal.

While there is no mandatory requirement to undertake Strategic Environmental Assessment for amendments to a Planning Scheme, South Dublin County Council determined that having regard to the nature and extent of likely amendments, the potential for significant environmental effects could not be screened out and that Strategic Environmental Assessment would therefore be appropriate in this instance.

The SEA has been carried out in order to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in Adamstown. This report should be read in conjunction with the proposed amendments and the Adamstown SDZ Planning Scheme.

The Environmental Report which follows has guided the preparation of objectives, policies and development scenarios for the amendments to the Planning Scheme with an ultimate goal of achieving continued sustainable development in Adamstown that can be absorbed into the landscape without causing adverse impacts on the environment.

1.2 Strategic Environmental Assessment Methodology

A Scoping Issues Paper was prepared containing baseline environmental data which was sent to the Environmental Authorities on the 25th March 2013. Submissions were received from the Environmental Protection Agency (EPA) and Department of Agriculture, Food and the Marine.

Some of the issues in the submissions and in the scoping report identified the need to protect and enhance key landscape and ecological features and establishment of a green infrastructure network; a commitment to implementing the recommendations of the Eastern River Basin District Management Plan and associated Programme of Measures; need to manage the transition from rural to urban landscape and the need to manage the effects of the noise and air pollution from the road and rail transport.

These submissions were taken into consideration during the preparation of the proposed amendments to the Planning Scheme and the Environmental Report.

1.3 The Planning Scheme: Philosophy, Structure and Content

The Government designated 214 hectares of privately owned land at Adamstown as a site for the establishment of a Strategic Development Zone for residential development on 1st July 2001. The

designation of Adamstown as an SDZ was made taking into consideration the deficiency in the supply of housing in the Greater Dublin Area and to facilitate the delivery of key infrastructural facilities and services in tandem with residential and non-residential uses.

The Planning Scheme aims to create sustainable communities. The Scheme was prepared with regard to best practice in the planning and design of new urban communities based on a holistic approach that integrates: Urban Design, Land Use, Housing, Transportation, Ecology and Landscape, Conservation, Energy Efficiency and Phased Delivery.

The structure of the Adamstown SDZ Planning Scheme, 2003 is as follows;

- Part 1 Introduction: Introduces the concept and explains the background to the Adamstown SDZ process.
- Part 2 Proposals for Development: Sets out the development parameters for the overall Adamstown site, including the type, extent and design of development, requirements for transportation, services and amenities and divides the site into 15 sub-areas (11 development areas and 4 amenity areas).
- Part 3 Development and Amenity Areas: Details development parameters for each of the 15 sub-areas.
- Part 4 Phasing and Implementation: Indicates the required phasing of development.
- Part 5 Environmental Appraisal: Environmental appraisal of the Scheme

The approved Planning Scheme specifies the type and extent of development that can be delivered on lands that are subject to the Scheme. The approved Scheme facilities the delivery of 8,250 to 10,150 dwelling units and 32,600sq.m to 125,000sq.m of non-residential development, a railway station/transport interchange, four primary schools, one secondary school, a fire station, a primary health care centre and community centres

To date, the delivery of housing and facilities has focused in the north of Adamstown, at The Paddocks and to the south, at Adamstown Square and Adamstown Castle, with 1,249 new homes occupied (SDCC House County August 2013).

A series of amendments are proposed to the approved Planning Scheme. These include changes to the nature and extent of development permissible, resulting in a reduction in the overall density on the lands and also in the phased delivery of infrastructure.

1.4 Relationship of the Plan with other Relevant Plans and Programmes

The proposed amendments to the Planning Scheme and accompanying Environmental Report fit into a hierarchy of strategic legislation, plans and policy documents. A number of higher-level strategic plans such as the National Spatial Plan and the Regional Planning Guidelines for the Greater Dublin Area and the County Development Plan set the context for the Planning Scheme and proposed amendments.

1.5 Summary of Baseline Environment/ Existing Environmental Problems

The Environmental Report contains a range of baseline information under key environmental headings such as Population and Human Health, Biodiversity (Flora and Fauna), Landscape/Geology/Soil, Water Quality, Air Quality, Waste Management, Material Assets, Cultural Heritage and Climate Change and Sustainability.

1.5.1 Population and Human Health

The main population issues in South Dublin are the depopulation in older established areas and of population growth in greenfield areas at the periphery of the urban fringe. Adamstown is located on the outer edge of the consolidated urban expansion area and represents a strategic land bank to accommodate the future population of the Greater Dublin Area. Adamstown is located with the Electoral Division of Lucan St Helens. Between 2002 to 2006, this ED experienced a 6% population decline (7,045 persons to 6,592 persons). However it recorded a 30% increase in population from 2006 to 2011 (6,592 persons to 9,450 persons). Adamstown is the only significant development area within the ED, and as such the population increase from 2006 to 2011 is attributed primarily to the Adamstown site (Census 1991-2011).

The main threats in terms of human health and population include increased amounts of traffic and the effect of emissions and traffic noise on human quality of life.

1.5.2 Biodiversity

The enhancement of biodiversity, preservation of natural amenities, and integrity of wildlife corridors and protection of the natural environment are all important issues to be addressed in the preparation of the proposed amendments to the approved Planning Scheme and in the accompanying Environmental Report.

There are no designated biodiversity areas affected by the proposed amendments to the Planning Scheme which have a recognised National, European Union or International protection status. The Adamstown SDZ lands are all located within the catchment area of the Rivers Liffey and Griffeen.

There remain a significant amount of land undeveloped within the SDZ; approximately 37 hectares of the total 214 hectares have been developed in the northern and south eastern sections to date with the remaining 186 hectares relatively untouched. Sections of the lands however, particularly in the south west, have been disturbed to facilitate the construction of the road and drainage networks.

The main threats to biodiversity include the loss of habitat due to extensive tree and hedgerow removal thus impacting on the ecological networks in the area. The issue of using Sustainable Urban drainage methods as a means of retaining existing biodiversity and developing biodiversity is required to bee addressed.

A lack of a Biodiversity Plan for the County constrains detailed assessment of valuable habitats at local level.

1.5.3 Landscape

The Landscape Character Area Assessment for South Dublin County was carried out in 2003 and as such, takes account of the SDZ designation and approved Planning Scheme at Adamstown.

Adamstown SDZ lands are identified as an urban agglomeration. The SDZ site is situated at the eastern edge of the Lucan Character Area. The Lucan character area runs from the Grand Canal in the south, to the N4, the R404 and the built up area of Lucan to the north. Distinctive features within the area are Weston Aerodrome and the railway line which runs through Kishoge, Adamstown and Stacumny. Although the area is quite close to the urban fringe, the landscape retains a rural quality and due to its flat topography, clear views of the open countryside can be obtained.

1.5.4 Geology and Soil

The underlying bedrock of Adamstown is Carboniferous limestone bedrock overlain by glacial till deposits.

No sites of geological interest are listed for protection under the Planning Scheme or are in close proximity to the SDZ lands.

There are no Contaminated Sites within or in close proximity to the SDZ lands

1.5.5 Water

The Adamstown SDZ lands are located within the Rivers Griffeen and River Liffey catchment areas.

1.5.5.1 The Water Framework Directive

Water Management in the European Union is governed by Directive 2000/60/EC (the Water Framework Directive, (WFD). The WFD sets out that a Member State shall implement the necessary measures to prevent deterioration of the status of all bodies of surface, ground, estuarine and coastal water, and shall protect, enhance and restore all bodies of surface and ground water with the aim of achieving good status by 2015.

1.5.5.2 River Basin Management Plan

The WFD work has culminated in the adoption of a River Basin Management Plan for the Eastern River Basin District (ERBD) in 2009. The management plan proposes a programme of protection and improvement of waters in the County with the aim of achieving the required status of the WFD within the county. It is noted within the Programmes of Measures contained within the River Basin Management Plan that the Griffeen Lower is 'Bad' status and will not reach 'Good' water status until 2027. The overall status of the Liffey Lower is moderate. It is an overall objective to restore the status of the river to 'good' by 2027 also.

1.5.5.3 Groundwater

The Geological Survey of Ireland (GSI) has undertaken a Groundwater Protection Scheme for South Dublin County. The overall aim of the Groundwater Protection Scheme, which has been undertaken jointly between the GSI and the Local Authority, is to preserve the quality of groundwater, particularly for drinking water purposes, for the benefit of present and future generations.

The aquifer on which the entire plan lands are located is rated as "Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones".

The groundwater vulnerability within the SDZ lands is predominately 'extreme vulnerability'. There are small areas of extreme vulnerability where rock is generally at or close to the surface located along the southern and south-eastern boundaries of the SDZ site.

None of the water bodies within the Adamstown SDZ area have been listed on the WFD Register of Protected Areas (RPAs).

1.5.5.4 Surface Water

The Adamstown SDZ lands are located within three surface water drainage sub-catchments; these are Tobermaclugg, North East Griffeen Tributary and South East Griffeen Tributary.

Approximately 65% of the SDZ lands drain to the Tobermaclugg Stream, which flows north through the western part of the site and is joined by the Backstown Stream on leaving the SDZ lands and continues along Tubber Lane before draining to the River Liffey to the north.

The established drainage system was considered insufficient to meet the requirements of the approved Scheme and flood events had occurred in the environs of Tubber lane.

A storm water culvert and 5000m³ attenuation pond were installed in 2011 to manage surface water flow in this area. The culvert takes surface water directly from Adamstown to the attenuation pond, bypassing a section of the Tobermaclugg Stream, with outfall to the River Liffey in the vicinity of Lucan Village.

A significant proportion of the surface water drainage infrastructure required under the approved Planning Scheme is now in place. Infrastructure installed to date includes underground attenuation tanks and culverts with a more limited application of a Sustainable Urban Drainage system (SUDs) approach.

1.5.5.5 Flooding

The Office of Public Works (OPW) Draft Preliminary Flood Risk Assessment (PFRA)[44], using fluvial and pluvial data records, has identified a number of areas in and around the plan lands which would have a potential flood risk.

To the southeast of the plan lands, along the R120 Road, fluvial data identifies a 1% Annual Exceedance Probability (AEP) 100 year event occurring in this area, running in a north to southwest direction, within the River Griffeen upper catchment area. Fluvial data also identifies a 1% AEP to the east of the plan lands along the Tobermacclugg stream. It should be noted, however, that extensive flood alleviation works have been carried out on the Tobermacclugg Stream and Griffeen River since the Planning Scheme was adopted which have significantly reduced flood risk in this area.

The pluvial data records identify a 1% AEP 100 year event occurring on a smaller scale in a number of locations throughout the plan lands. No flood events have been recorded by the OPW in the SDZ site or in the proximate vicinity.

Detailed predictive information concerning floodplains for the SDZ area will only become available following the completion of Catchment Flood Risk Assessment Management Studies (CFRAMS) for the River Liffey in 2015.

[44] The OPW Draft Preliminary Flood Risk Assessment is currently closed for public consultation. It is part of the Catchment Flood Risk Management Programmes (CFRAMPs) which is a long-term strategy for the reduction and management of flood risk in Ireland.

1.5.6 Air Quality and Noise Pollution

The Environmental Protection Agency (EPA) maintains one permanent air monitoring station in South Dublin County, at the Old Bawn Road in Tallaght, approximately 12 kilometres from the SDZ lands. The station monitors Sulphur Dioxide and Particulate Matter (PM_{10}) on a continuous basis.

The focus of air pollution monitoring is on benzene, nitrogen oxide (NOx) and particle matter (PM10), which are derived from traffic based sources. The latest available document *'Air Quality in Ireland Report (2011)'* by the EPA indicated that none of the monitoring stations in South Dublin exceeded allowable limits during 2011[45]. While the PM_{10} daily limit of 50ug/m3 was breached four times in 2011, the limit is only deemed breached if more than 35 exceedances occur during a year. An EIS for a proposed mixed use development in Adamstown (Reg. Ref. SDZ08A/0002) included an air quality assessment. The assessment concluded that all monitoring fell within allowable limits and that any increases in emissions during the short term construction period could be mitigated.

Dublin City Council, Fingal, Dún Laoghaire-Rathdown and South Dublin County Councils have prepared a Noise Action Plan, including noise maps for the Dublin Agglomeration 2008-2013. Revised noise maps were produced in 2012; the production of the revised noise maps is the first step in the review of the Dublin Agglomeration Noise Action Plan 2008-2013 which is currently draft (2013-2019) and is due to be completed by December 2013. Irish Rail and the Rail Procurement Agency have produced separate maps for Rail and LUAS sources respectively as part of the review process.

The noise mapping indicated that Rail and road based traffic appears to be the most likely generator of noise and air pollution within the Adamstown site.

[45] Source: EPA Website. www.epa.ie/whatwedo/monitoring/air/data

The approved Planning Scheme is based on a sustainable transport vision that seeks to provide alternatives to the private car by aligning development with public transport and creating conditions for sustainable movement within the site. The noise levels in the SDZ area are likely to increase short-term during the construction period. Reduction in private car movements will result in a reduction in emissions such as PM_{10} and NO_x.

1.5.7 Waste Water

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC). The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the environment.

Wastewater from the SDZ lands, and from almost all of South Dublin is currently treated in Ringsend. The waters are treated to a tertiary standard, which is in compliance with the Urban Wastewater Treatment Directive. These waters are discharged to Dublin Bay, which is a Natura 2000 site. The quality of the discharged waters is within the requirements of the Urban Waste Water Treatment Directive.

Development of Wastewater Treatment Works (WwTw) within the Greater Dublin Area has not kept pace with construction or the amount of zoned lands. The WwTw in Ringsend currently operates at a Population Equivalent (PE) of 1.9 million. The GDSDS SEA (2008) indicates expansion at Ringsend to 2.16 million PE. Surveying and assessment is currently underway to ascertain expansion of the Ringsend WwTw to 2.4 million PE. The Dublin City water treatment facilities (including Ringsend) are subject to separate operational consent and licensing procedures which are themselves required to be compliant with all applicable environmental Regulations and Directives, including the Water Framework and Habitats Directives.

Proposed amendments would reduce the extent of development permissible under the Planning Scheme. The loading to WwTw as a result of implementing the proposed amendments would therefore drop and is also offset by reductions in older parts of the county[46] (from a household size of 3.31 in 2002 to 2.18 in 2031) as well as reduced construction and occupation figures for new housing

The Grand Canal Trunk Sewer (GCTS) services the plan lands; this sewer flows into the wastewater treatment works in Ringsend. The Council is cognisant of the need to ensure the requisite wastewater treatment provision to allow for development growth without which the development would conflict with the requirements of the Urban Wastewater Treatment Directive which requires the collection and high level treatment of wastewater, specifically those to be discharged to sensitive waters such as Dublin Bay (the terms of the recent EPA operating license reinforce this aspect).

1.5.8 Drinking Water

Most of the treated water supply in South Dublin County is currently supplied from Dublin City Council via the Belgard Reservoir which is part of the overall Dublin Metropolitan Area network. Consideration is being given at regional level to developing further capacity to meet the projected longer term demands.

The Adamstown SDZ area is served by the Lucan/Palmerstown High Level Water Supply Scheme (LPHLWSS). The Lucan/Palmerstown High Level Water Supply Scheme (LPHLWSS) provides additional water supply and boost pressures in the local area. Works to upgrade the LPHLWSS

[46] GDSDS Final Strategy Report. Table 4.3 Population Equivalent loads by foul and WWTW catchment (2005).

comprised of the provision of a new storage reservoir near Peamount and a series of network improvements which were fully commissioned in October 2004. This ensures an adequately supply to satisfy demand arising from the development of Adamstown

1.5.8.1 Monitoring Water Quality

The Environmental Protection Agency (EPA) is now the supervisory authority over public water supplies and has new powers of enforcement over Local Authorities in this regard. The overall rate of compliance with water standards in South Dublin, 99.9%, was above the national average and the quality of water in South Dublin was in general good. Compliance with the microbiological, chemical and indicator parametric values was excellent. The County Council continually monitor all known waste depository sites in the County in order to preserve sources of drinking water from contamination.

1.5.9 Energy and Transport Infrastructure

1.5.9.1 Public Transport

In 2011 South Dublin County had the lowest percentage of people in the Dublin Regional Authority area travelling to work or school by train, Dart or Luas. Census 2011 indicates that 60% of the SDZ population commuted to work, school or college by car, with 14% commuting on foot, 1% by bicycle, 15% by bus and 3% by train. This modal split is similar to the County averages.

The plan lands are situated on the Dublin Kildare rail corridor, which terminates at Heuston Station. A new rail station became operational at Adamstown in 2007. The four tracking of the line was completed in 2010, to allow intercity services and commuter services to run separately (Kildare Route Project Phase 1) and there are currently 22 inbound and 20 outbound services to and from Adamstown.

Proposed network improvements city wide, including the Interconnector Tunnel, electrification of the line to Hazelhatch and the proposed use of the Phoenix Park Tunnel to bring passengers directly to the city centre, would facilitate integrated and high-capacity rail services from Adamstown in the future. At present approximately 20 percent of the Adamstown population commute along the rail corridor with significant numbers travelling along the M50 or outer Dublin periphery, showing a mis-match between services and employment destinations

The proposed road network incorporates a north-south and east-west Quality Bus Corridor within Adamstown, connecting to the wider QBC network. Some aspects of the QBC network have been completed in the southern area of the site. A dedicated bus service (25B) from Adamstown to Merrion Square commenced in 2007, and serves south Lucan and Liffey Valley on route

1.5.9.2 Roads

The SDZ plan lands are accessible to the national road network, situated between the N4 (National Primary) to the north and the N7 (National Primary) to the south, with the M50 motorway and Outer Ring Road orbital distributor road to the east. The R120 Regional Route bounds the site to the east. The Outer Ring Road and R120 connect to the N7 to the south and the N4 to the north.

An upgrade of the R120 in the vicinity of the site and completion of the Outer Ring Road and the Adamstown Link Road to the Outer Ring were part of the phasing requirements of the approved scheme and are completed and operational.

Significant progress has also been made on the internal strategic road network, with the road network completed in the vicinity of existing development. There are sections of

a north-south link and an east-west link from the R120 to Dodsboro Road in place and in use as haul roads.

A Permeability Strategy has been prepared for the plan area with a view to creating safe and direct pedestrian and cycle links to key destinations. The strategy has been implemented in developed sections of the site and a network of cycle and pedestrian pathways will emerge over time. A pedestrian and cycle link from Adamstown to the Grand Canal Way Green Pedestrian and Cycle Route was completed in 2010 improving access to Lucan, Clondalkin and Dublin City.

1.5.10 Cultural Heritage

There are a number of Protected Structures on the SDZ lands, all of which were identified on the Record of Protected Structures contained in the South Dublin County Development Plan 2010 - 2016.

There is one Recorded Monument located within the boundary of the SDZ lands and another Recorded Monument is located immediately adjacent to the south-eastern boundary. Archaeological Monitoring has been carried out in conjunction with developments in the SDZ lands to date. Nothing of archaeological significance has been identified to date within the plan lands.

1.5.11 Climatic Factors

The main issue facing South Dublin in relation to the development of zoned lands and climate change relate to increased amounts of greenhouse gas emissions from transport movements. Reducing car movement at the neighbourhood level through increasing ease of pedestrian movement must be the foundation for an overall decrease in emissions.

The Planning Scheme seeks to increase sustainability and efficiency through aligning higher density residential development and good quality public transport and by incorporating a mix of uses and services to support sustainable, non car based local movement. A Permeability Strategy has been prepared for the plan area with a view to creating safe and direct pedestrian and cycle links to key destinations. The strategy has been implemented in developed sections of the site and a network of cycle and pedestrian pathways will emerge over time. This will contribute towards a reduction in car based movement through increasing ease of pedestrian movement, thereby reducing emissions.

South Dublin County Council has prepared the 'Climate Change Strategy 2009-2012' indicating sustainable measures relating to planning, energy, transport, waste management and ecosystems, to be undertaken and promoted by the County Council. Sustainable development within the County requires an integrated approach regarding sustainability and environmental performance. The Adamstown SDZ Planning Scheme is based on the principle of sustainable communities by incorporating a mix of uses and services to support sustainable, non car based local movement.

1.5.12 Identified Data Gaps within the Baseline Information

There are still a number of data gaps in the Baseline information. These are;

- The lack of a Biodiversity Plan for South Dublin.
- Lack of a national centralised Data Source

Some, though not all, of the information gaps caused by the absence of a Biodiversity Plan have been addressed under the auspices of the Heritage Plan 2010 – 2015. The lack of a national centralised data source which could make all environmental baseline data for the approved Planning Scheme area both readily available and in a consistent format posed a challenge to the SEA process

1.5.13 The likely evolution of the environment without the implementation of the proposed amendments to the approved Planning Scheme

In the absence of the proposed amendments to the approved Planning Scheme, urbanisation of the SDZ lands will continue in accordance with the terms of the approved scheme.

Habitat loss and fragmentation has occurred during construction works with vegetation and hedgerow removal. A significant portion of the strategic drainage network has been installed since 2003, with limited reference to Sustainable Urban Drainage technologies.

Having regard to the nature and extent of proposed amendments, the impact on noise and air pollution would be largely unaltered and development would continue in line with the approved Planning Scheme.

The approved Planning Scheme requires the installation of waste water infrastructure to serve the site. The strategic network has been largely installed since 2003. This is in keeping with South Dublin policies to achieve WFD commitments. It is not considered that the Water Supply aspects would be significantly affected in the absence of the proposed amendments to the Planning Scheme

1.6 Strategic Environmental Protection Objectives

The proposed amendments are subject to a number of high level national, international and regional environmental protection policies and objectives. A series of Strategic Environmental Objectives (SEO's), see table below, have been derived from these sources which cover the range of environmental aspects and reflect a local dimension.

Examples of Strategic Environmental Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States – and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater. The proposed amendments must be consistent with these objectives and the Planning Scheme must be capable of implementing these objectives at the local level.

SEO Code	SEO
B1	To sustain and enhance ecological habitats within the Adamstown SDZ site.
B2	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
B3	To sustain and enhance key ecological networks that connect to areas of local biodiversity
PH1	To protect and enhance people's quality of life through the provision of high quality and sustainable urban environments that incorporate a full range of services and facilities, support sustainable travel and support sustainable energy usage.
PH2	To increase efficiencies across the urban system for the good of all citizens through the better alignment of population, services, facilities, employment and transport.
PH3	To protect human health from hazards or nuisances arising from traffic sources and incompatible land-uses.
S1	To protect the quality of soils within Adamstown SDZ.
S2	To minimise the amount of soil sent to landfill and reuse soil within the site.
W1	To maintain and improve, where possible, the quality of the River Liffey and Griffeen, its tributaries and surface water.
W2	To prevent pollution and contamination of ground water.
W3	To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk.[1]
C1	To minimise increases in travel related greenhouse emissions.
M1	To provide adequate wastewater treatment, water distribution networks and drainage networks.
M2	To maintain and improve the quality of drinking water supplies.
CH1	To protect, conserve and enhance the archaeological heritage of the Adamstown SDZ.
CH2	To protect, conserve and enhance the architectural heritage of the Adamstown SDZ.
L1	Improve the overall landscape character and quality in the area.
L2	To protect and enhance the natural and historic landscape features within and adjacent to the Adamstown SDZ, including views of adjacent countryside, protected structures and key features.

[1]The flood risk information in relation to the Catchment is limited to provisional data (OPW initial Preliminary Flood Risk Assessment - PFRA), alluvial soils as a surrogate for Flood Risk and OPW recorded Flood Events.

1.7 Description of Alternatives

The evaluation of the likely environmental consequences of a range of alternative strategies for accommodating future development in the Adamstown area is part of the SEA process.

The scenarios provide alternative visions of how the future development of Adamstown might occur. The scenarios chosen were;

Scenario 1- Implement Approved Adamstown SDZ Planning Scheme

Scenario 2- Adjusted Medium Density Approach

Scenario 3- Low Density Scenario

1.7.1 Scenario 1 – Implement Approved Adamstown SDZ Planning Scheme

This scenario involves the continued implementation of the Adamstown SDZ Planning Scheme, 2003.

Under this scenario, the total amount of land for development remains unchanged at 155 hectares (net).

The plan incorporates three density zones with a min-max density range for each zone. Higher densities would be located in the urban areas closest to the rail corridor (75-90dwellings per hectare); medium densities are in intermediate areas (50-78 dwellings per hectare); and lowest densities are in transitional areas adjoining established housing (35-54 per hectare). The forecast population upon completion is c. 20-25,000 people.

The alignment of higher densities in proximity to a public transport corridor and the incorporation of local facilities and services within the site support sustainable travel and would reduce the need for car based trips

This scenario necessitates the delivery of housing formats (apartments and duplex units dominate) that are unlikely to be supported by the market in the short to medium term. Failure to amend the scheme to take account of the revised market context could stifle development at this location in the short to medium term based on a report from the National Transport Authority, May 2013.

1.7.2 Scenario 2 – Adjusted Medium Density Approach

This scenario involves amending the Planning Scheme to reduce permissible development quanta by c.16-17 percent and to incorporate additional requirements for energy efficiency and enhancement of the green infrastructure network, whilst maintaining the overall plan structure

Under this scenario, the total amount of land for development remains unchanged at 155 hectares (net). The resulting Planning Scheme would set out a coherent planning framework for the development of a medium density (45-55 dwellings per hectare), mixed-use urban district adjacent to a rail corridor, albeit at lower densities than the approved scheme. The forecast population upon completion is c. 18,000-23,000 people.

The plan would incorporate six density zones based on proximity to public transport and proposed district and local centres, with prescribed min-max density ranges for the 11 Development Areas. Highest densities are in the urban zones proximate to the rail corridor; medium densities are in intermediate areas; and lowest densities are in transitional areas adjoining established housing

This scenario involves a relatively modest reduction in density so as to better align the scheme with short to medium term market

pressures, whilst still achieving a medium density mixed use urban district based on a strategic rail corridor

1.7.3 Scenario 3 – Low Density Scenario

This scenario involves amending the Planning Scheme to reduce permissible development quanta by 35 percent.

Under this scenario, the total net development area of 155 hectares (net) would remain unchanged. The scheme would facilitate approximately 5400 to 6500 dwellings and up to 82,000 sq.metres of non-residential floor space 19,000 sq.metres of retail floorspace and 3,500sq.metres of community floor space. The forecast population upon completion is c. 15,000 people.

This scenario would provide for one density zone across the plan lands. A significant reduction in density would result in a reduced level of infrastructure provision and a revised phasing of development. The provision of low density development would not confirm with planning guidelines for lands adjacent to a public transport corridor.

A significant reduction in the quantum of development on the lands would delay the delivery of key services and facilities within the lands as the critical mass population to sustain these services would not be achieved, in particular at locations where major infrastructural investment has been made (Planning and Development of Large-Scale, Rail Focused Residential Areas in Dublin – Final Report May 2013). This would lead to the population accessing the services and facilities outside of the plan lands, thereby increasing the reliance on unsustainable modes of transport.

1.8 Evaluation of Alternative Plan Scenarios

Each of the Alternative Scenarios were examined under the Strategic Environmental Objectives.

Scenario No. 1 (the implementation of the 2003 approved planning scheme) would continue to facilitate and support sustainable living patterns. There would be potential conflicts with biodiversity and water quality issues, although these are likely to be mitigated.

Scenario No. 2 (adjusted medium density) is likely to bring about better environmental outcomes because of its ability to integrate a green infrastructure strategy into the existing infrastructure, therefore protecting and enhancing biodiversity, landscape and water quality. The contribution to future city growth and sustainable living patterns would still be realised, whilst contributing towards the protection of the environment and conforming to high level planning objectives

Scenario 3 (Low Density) would result in a range of environmental conflicts including biodiversity, water quality and landscape character; these however would likely be mitigated due to the significant reduction in dwelling numbers constructed. An increase in the number of unsustainable traffic patterns with a decrease in public transport journeys would give rise to the production of greenhouse gases.

Significantly lowering the densities at this strategic site would create pressure to provide further housing elsewhere on lands that can achieve the critical mass population required to make public transport efficient, in particular at locations where major infrastructural investment has been made (Planning and Development of Large-Scale, Rail Focused Residential Areas in Dublin – Final Report May 2013).

The Proposed Development Scenario that has emerged from the plan preparation

process has a close correlation to Scenario 2.

1.9 Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the proposed amendments to the approved Planning Scheme. Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration is given in the first instance to preventing such effects or, where this is not possible for stated reasons, to lessening or offsetting those effects.

The introduction of the concept of Green Infrastructure and Environmental Sustainability to the Planning Scheme, alongside the reduction in the density of development ensures the conservation and enhancement of biodiversity; the provision of accessible parks, open spaces and recreational facilities and the maintenance of landscape character. Particular mitigation measures are recommended in the Environmental Report for the following topics:

- Biodiversity: Existing Trees and Hedgerows
- Landscape: Transition from rural to urban environment
- SUDS as means of surface water disposal

1.10 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Environmental Report puts forward proposals for monitoring the proposed amendments to approved Planning Scheme which are adopted alongside the proposed amendments. Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. In addition to this, monitoring can also play an important role in assessing whether the proposed amendments are achieving its environmental objectives and targets - measures which the proposed amendments can help work towards - whether these need to be re-examined and whether the proposed mitigation measures are being implemented.

The Environmental Report identifies indicators - which allow quantitative measures of trends and progress in the environment over time. Measurements for indicators come from a range of existing monitoring sources and from a series of meaningful indicators that can be derived from the Development Management system using the Council's SEA Monitoring System.

A preliminary monitoring evaluation report on the effects of implementing the proposed amendments will be prepared when the Planning Scheme concludes Phase 6 of the development. A further report will be prepared when the Scheme commences Phase 10. The Council is responsible for collating existing relevant monitored data, the preparation of a monitoring report, the publication of this report and, if necessary, the carrying out of corrective action.

1.11 Conclusion

The Environmental Report of the proposed amendments to the approved Adamstown SDZ Planning Scheme 2003 contains the full detail and maps of the information summarised above.