ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME I NON-TECHNICAL SUMMARY

PROPOSED RESIDENTIAL DEVELOPMENT

AT

Clonburris Phase 1A SDZ

Prepared by

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Planning & Development Consultants

Chartered Town Planners & Chartered Surveyors

In Conjunction with

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DOCUMENT CONTROL SHEET

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LIST OF ABBREVIATIONS

AA Appropriate Assessment

ABP An Bord Pleanála

CDP County Development Plan

CMP Construction Management Plan

CSLS Clonburris Southern Link Street

CA Competent Authority (An Bord Pleanála)

CSO Central Statistics Office

DAHG Department of Arts, Heritage and the Gealtacht

DCENR Department of Communications, Energy and Natural Resources

DEHLG Department of Housing, Planning and Local Government

EIA Environmental Impact Assessment

EIAR Environmental Impact Assessment Report

EMP Environmental Management Plan

EPA Environmental Protection Agency

ESRI Economic and Social Research Institute

GDP Gross Domestic Product

GSI Geology Survey Ireland

IAA Irish Aviation Association

IEEM Institute of Ecology and Environmental Management

IFI Inland Fisheries Ireland

LAP Local Area Plan

NHA/pNHA Natural Heritage Area / proposed Natural Heritage Area

NIAH National Archive of Architectural Heritage

NPWS National Parks and Wildlife Service

NRA National Roads Authority

NPF National Planning Framework

OPW Office of Public Works

PBSA Purpose-Built Student Accommodation

PS Planning Scheme

RMP Record of Monuments and Places

RPS Record of Protected Structures

SAC Special Area of Conservation

SDZ Strategic Development Zone

SMR Sites and Monuments Record

SDCC South Dublin County Council

SPA Special Protection Area

SUDS Sustainable Drainage System

TMP Traffic Management Plan

WFD Water Framework Directive

1.0 INTRODUCTION AND METHODOLOGY

John Spain Associates, Planning & Development Consultants, have been commissioned by Cairn Homes Properties Ltd., to prepare an Environmental Impact Assessment Report (EIAR) for a proposed development on a site of c. 17.01 hectares. This NTS was prepared by Rory Kunz, BA (MOD), MScERM, MAT&CP, Dip EIA Mgmt., Executive Director with John Spain Associates, and approved by John Spain, John Spain, BBS, MRUP, MRTPI, MIPI, Managing Director, John Spain Associates.

This '*Non-Technical Summary'* (NTS) relates to the construction of 569 no. dwellings, comprising 173 no. houses, 148 duplex apartments, 248 no. apartments, a creche, and innovation hub, along with open space (4.1 hectares), internal roads, and associated infrastructure (including haul routes) all on a site of c. 17.02 hectares, located within the Clonburris SDZ, and Planning Scheme Clonburris South West Development Area within the townlands of Cappagh, Clonburris Little & Kishoge, Co. Dublin, all on wider lands bounded generally by undeveloped lands and the Dublin-Cork railway line to the north, undeveloped lands and the Grand Canal to the south, the R113 to the east and the R136 to the west.

The central purpose of the Environmental Impact Assessment Report (EIAR) is to undertake an appraisal of the likely and significant impacts on the environment of the proposed development in parallel with the project design process, and to document this process in the EIAR. This is then submitted to the competent/ consent authority to enable it assess the likely significant effects of the project on the environment. This assessment will then inform the decision as to whether the development should be permitted to proceed.

A full description of the proposed development lands together with a description of the proposed development is provided in Chapter 2 of this EIAR document.

1.1 DEFINITION OF EIA AND EIAR

The EIAR is prepared by the developer and is submitted to a Competent Authority (CA) – South Dublin County Council as part of a consent process.

The CA uses the information provided to assess the environmental effects of the project and, in the context of other considerations, to inform its decision as to whether consent should be granted. The information in the EIAR is also used by other parties to evaluate the acceptability of the project and its effects and to inform their submissions to the CA.

The EIAR provides a systematic analysis and evaluation of the potentially significant effects of a proposed project on the receiving environment. The amended EIA Directive prescribes a range of environmental factors which are used to organise descriptions of the environment and these factors must be addressed in the EIAR.

The EIAR should be prepared at a stage in the design process where changes can still be made to avoid adverse effects. This often results in the modification of the project to avoid or reduce effects through redesign.

Where significant and likely environmental effects are identified that are unacceptable, the EIA process aims to quantify and minimise the impact specified development projects have on the environment through appropriate mitigation measures. The preparation of an EIAR requires site-specific considerations and the preparation of baseline assessment against which the likely impacts of a proposed development can be assessed by way of a concise, standardised and systematic methodology.

1.2 EIA PROCESS OVERVIEW

The main purpose of the EIA process is to identify the likely significant impacts on the human environment, the natural environment and on cultural heritage associated with the proposed development, and to determine how to eliminate or minimise these impacts. The EIAR summarises the environmental information collected during the impact assessment of the proposed development.

Several interacting steps typify the early stages of the EIA process and include:

- Screening;
- Scoping;
- Assessing Alternatives; and

- Assessing and Evaluating.

Screening: Screening is the term used to describe the process for determining whether a proposed development requires an EIA.

Scoping: This stage firstly identifies the extent of the proposed development and associated site, which will be assessed as part of the EIA process, and secondly, it identifies the environmental issues likely to be important during the course of completing the EIA process through consultation with statutory and non-statutory stakeholders. Scoping request letters were issued to a range of stakeholders at the commencement of this EIA process and the responses received have been considered as part of the compilation of the EIAR.

Assessing Alternatives: This stage outlines the possible alternative approaches to the proposed development. Consideration of alternative sites and layouts within the final chosen site are set out in Chapter 2 of this EIAR.

Assessing and Evaluating: The central steps of the EIA process include baseline assessment (desk study and field surveys) to determine the status of the existing environment, impact prediction and evaluation, and determining appropriate mitigation measures where necessary. This stage of the EIAR is presented in Chapters 6 to 17.

1.3 SCREENING – REQUIREMENT FOR EIA

Screening is the term used to describe the process for determining whether a proposed development requires an EIA by reference to mandatory legislative threshold requirements or by reference to the type and scale of the proposed development and the significance or the environmental sensitivity of the receiving baseline environment. Annex I of the EIA Directive 85/337/EC requires as mandatory the preparation of an EIA for all development projects listed therein.

Schedule 5 (Part 1) of the Planning & Development Regulations 2001 (as amended) transposes Annex 1 of the EIA Directive directly into Irish land use planning legislation. The Directive prescribes mandatory thresholds in respect to Annex 1 projects.

Annex II of the EIA Directive provides EU Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

The proposed development falls within categories 10(b)(i) and 10(b)(iv) of Part 2 of Schedule 5 of the Planning and Development Regulations 2001-2015. Category 10(b)(i) refers to 'Construction of more than 500 dwellings'.

Category 10(b)(iv) refers to '*Urban development which would involve an area greater than 2 hectares in the case of business district, 10 hectares in the case of other parts of a built up area and 20 hectares elsewhere.'*

For both categories, the proposed development is above the mandatory threshold for EIA at 569 no. dwellings and 17.01 hectares in area, respectively and as such an EIAR is required to be prepared to enable the Competent Authority to assess the proposed development.

1.4 SCOPING

The following topics/issues have been reviewed and addressed in the context of the proposed development:

- Introduction and Methodology,
- Project Description and Alternatives Examined,
- Population and Human Health,
- Biodiversity,
- Land and Soils,
- Water,
- Air Quality and Climate,
- Noise and Vibration,
- Landscape and Visual Impact,
- Material Assets Traffic, Waste and utilities,
- Archaeology, Architectural and Cultural Heritage,

- Risk Management,
- Interactions of the Foregoing,
- Principal Mitigation and Monitoring Measures,
- Non-Technical Summary.

In addition to the above a series of standalone reports have been prepared to accompany the application and which have helped inform the above chapters of the EIAR where relevant. Chapter 2 provides details of the envisaged phased delivery of development on the lands.

A series of meetings have taken place with the technical staff of South Dublin County Council.

1.5 PURPOSE OF THIS EIAR

The objective of this EIAR is to identify and predict the likely environmental impacts of the proposed development; to describe the means and extent by which they can be reduced or ameliorated; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

The EIAR is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.

1.6 INFORMATION TO BE CONTAINED IN A NON-TECHNICAL SUMMARY

This Non-Technical Summary (NTS) has been prepared in accordance with *inter alia* the requirements of the EU 2014 EIA Directive, Planning and Development Acts 2000-2018 as well as the Planning and Development Regulations, 2001, as amended (in particular by the European Union (Planning & Development) (Environmental Impact Assessment) Regulations 2018.

1.7 FORMAT AND STRUCTURE OF THIS EIAR

The structure of the EIAR is laid out in the preface of each volume for clarity. It consists of three volumes as follows:

- **Volume I: Non-Technical Summary**

This is a non-technical summary of the information contained within Volume II.

- **Volume II: Environmental Impact Assessment Report.**

This is the main volume of the EIAR. It provides information on the location and scale of the proposed development, details on design and impacts on the environment (both positive and negative) as a result of the proposed development.

Each of the environmental aspects as listed below are examined in terms of the existing or baseline environment, identification of potential construction and operational stage impacts and where necessary proposed mitigation measures are identified. The interaction of the environmental aspects with each other is also examined. Environmental aspects considered include:

Chapter 3 Population and Human Health;
Chapter 4 Biodiversity;
Chapter 5 Land and Soils;
Chapter 6 Water;
Chapter 7 Climate (Air Quality);
Chapter 8 Air (Noise and Vibration);
Chapter 9 Landscape & Visual;
Chapter 10 Material Assets – Traffic;
Chapter 11 Material Assets - Waste Management;
Chapter 12 Material Assets – Utilities;
Chapter 13 Cultural Heritage (Local History, Archaeology & Architectural Heritage);
Chapter 14 Risk Management;
Chapter 15 Interactions;

Chapter 16 Summary of Mitigation Measures;
Chapter 17 References.

- **Volume III: Technical Appendices**

Volume III contains specialists' technical data and other related reports.

1.7.1 EIAR Volume II Structure

The preparation of an EIAR document requires the assimilation, co-ordination, and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. For clarity and to allow for ease of presentation and consistency when considering the various elements of the proposed development, a systematic structure is used for the main body of this EIAR document.

The structure used in this EIAR document is a Grouped Format structure. This structure examines each environmental topic[1] in a separate chapter of this EIAR document. The structure of the EIAR document is set out in Table 1.2 below.

Table 1.1 – Structure of this EIAR

Chapter	Title	Content
1	Introduction and Methodology	Sets out the purpose, methodology and scope of the document.
2	Project Description and Alternatives Examined	Sets out the description of the site, design and scale of development, considers all relevant phases from construction through to existence and operation together with a description and evaluation of the reasonable alternatives studied by the developer including alternative locations, designs and processes considered; and a justification for the option chosen taking into account the effects of the project on the environment.
3	Population and Human Health	Describes the demographic and socio-economic profile of the receiving environment and potential impact of the proposed development on population, i.e. human beings, and human health.
4	Biodiversity	Describes the existing ecology on site and in the surrounding catchment and assesses the potential impact of the proposed development and mitigation measures incorporated into the design of the scheme.
5	Land and Soils	Provides an overview of the baseline position, the potential impact of the proposed development on the site's soil and geology and impacts in relation to land take and recommends mitigation measures.
6	Water	Provides an overview of the baseline position, the potential impact of the proposed development on water quality and quantity and recommends mitigation measures.
7	Air Quality and Climate	Provides an overview of the baseline air quality and climatic environment, the potential impact of the proposed development, the vulnerability of the project to climate change, and recommends mitigation measures.

[1] In some instances similar environmental topics are grouped.

Chapter	Title	Content
8	Noise and Vibration	Provides an overview of the baseline noise environment, the potential impact of the proposed development and recommends mitigation measures.
9	Landscape & Visual Impact	Provides an overview of the baseline position, the potential impact of the proposed development on the landscape appearance and character and visual environment and recommends mitigation measures.
10-12	Material Assets	Describes the existing traffic, waste management and services and infrastructural requirements of the proposed development and the likely impact of the proposed development on material assets.
13	Archaeology and Architectural and Cultural Heritage	Provides an assessment of the site and considers the potential impact of the proposed development on the local archaeology, architectural and cultural heritage; and recommends mitigation measures.
14	Risk Management	Provides a review of the potential vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned
15	Interactions of the Foregoing	Describes the potential interactions and interrelationships between the various environmental factors
16	Summary of Mitigation and Monitoring Measures	Sets out the key mitigation and monitoring measures included in the EIAR Document for ease of reference.
17	Reference List	List of references within the chapters of the EIAR

1.8 EIAR PROJECT TEAM

1.8.1 EIAR Project Management

The preparation of this EIAR was project managed, co-ordinated and produced by John Spain Associates. John Spain Associates role was to liaise between the design team and various environmental specialist consultants. John Spain Associates were also responsible for editing the EIAR document to ensure that it is cohesive and not a disjointed collection of disparate reports by various environmental specialists. John Spain Associates does not accept responsibility for the input of the competent specialist consultants or the design team.

1.8.2 EIAR Competent Experts/Environmental Specialists

The amended EIA Directive (Directive 2014/52/EU) states the following in relation to the persons responsible for preparing the environmental impact assessment reports:

'Experts involved in the preparation of environmental impact assessment reports should be qualified and competent. Sufficient expertise, in the relevant field of the project concerned, is required for the purpose of its examination by the competent authorities in order to ensure that the information provided by the developer is complete and of a high level of quality'.

The relevant specialist consultants who contributed to the EIAR and their inputs are set out in Table 1.2 below.

Table 1.2 – EIAR List of Competent Experts

Organisation	EIAR Specialist Topics / Inputs
John Spain Associates, Planning & Development Consultants, 39 Fitzwilliam Place, Dublin 2, D02 ND61 T: 01 662 5803 Rory Kunz, BA (MOD), MScERM, MAT&CP, Dip EIA Mgmt	Introduction and Methodology Project Description and Alternatives Examined Population and Human Health Interactions of the Foregoing Principal Mitigation and Monitoring Measures Non-Technical Summary
Bryan Deegan (MCIEEM) Managing Director Altemar Ltd. Marine and Environmental Consultants	Biodiversity
Dr Tina Aughney Bat Eco Services Licenced Bat Specialist - Honours degree in Environmental Science from NUI Galway and Ph.D.	Biodiversity (Bats)
Thomas Carrigg, Civil Engineer, DBFL Consulting Engineers & John Carr, Chartered Civil Engineer [B.Eng MSc CEng], DBFL Consulting Engineers.	Land and Soils/ Population and Human Health
Thomas Carrigg, Civil Engineer, DBFL Consulting Engineers & John Carr, Chartered Civil Engineer [B.Eng MSc CEng], DBFL Consulting Engineers	Water and Hydrogeology Population and Human Health
Danny Pio Murphy, Senior Engineer Transportation DBFL Consulting Engineers	Material Assets-Traffic
Byrne Environmental Ian Byrne Managing Director, MSc, MIOA, Diploma in Environmental & Planning Law	Material Assets (Waste Management)
Margaret Dolan, Tech Cert, BSc (Hons), CEng, MIEI, Chartered Engineer of Waterman Moylan Consulting Engineers	Material Assets (Utilities)
Byrne Environmental Ian Byrne Managing Director, MSc, MIOA, Diploma in Environmental & Planning Law	Air Quality and Climate (Population and Human Health)
Byrne Environmental Ian Byrne Managing Director, MSc, MIOA, Diploma in Environmental & Planning Law	Noise and Vibration (Population and Human Health)
Jim Bloxam Senior Associate MLA MILI, Murray & Associates landscape architecture	Landscape and Visual Impacts
Thomas Carrigg, Civil Engineer, DBFL Consulting Engineers	Risk Management
Faith Bailey MA, BA (Hons), MCIfA Associate Director.	Archaeology, Architectural and Cultural Heritage

1.9 AVAILABILITY OF EIAR DOC

A copy of this EIAR document and Non-Technical Summary of the EIAR document is available for purchase at the offices of South Dublin County Council (Planning Authority) at a fee not exceeding the reasonable cost of reproducing the document. The EIAR and the planning application documentation may also be viewed on the Council's website – www.sdcc.ie

1.10 IMPARTIALITY

This EIAR document has been prepared with reference to a standardised methodology which is universally accepted and acknowledged. Recognised and experienced environmental specialists have been used throughout the EIA process to ensure the EIAR document produced is robust, impartial and objective.

It should be noted that, as highlighted above, an important part of the EIA process is preventative action which causes the project design team to devise measures to avoid, reduce or remedy significant adverse impacts in advance of applying for consent. As a result, where no likely significant impacts have been identified where they might reasonably be anticipated to occur, the design and layout of the proposed development has generally been amended to minimise the potential of any likely significant adverse impacts.

1.11 STATEMENT OF DIFFICULTIES ENCOUNTERED

No particular difficulties, such as technical deficiencies or lack of knowledge, were encountered in compiling any of the specified information contained in this statement, such that that the prediction of impacts has not been possible. Where any specific difficulties were encountered these are outlined in the relevant chapter of the EIAR.

1.12 EIA QUALITY CONTROL AND REVIEW

John Spain Associates is committed to consistently monitoring the quality of EIAR documents prepared both in draft form and before they are finalised, published and submitted to the appropriate competent authority taking into account latest best-practice procedure, legislation and policy. The EPA published draft guidelines on information to be contained in Environmental Impact Assessment Report2 and the Department of Housing, Planning, Community and Local Government have published a consultation paper3, which have been consulted in the preparation of this EIAR. This document includes a detailed EIAR Review Checklist which has been used to undertake a review of this EIAR document.

1.13 ERRORS

While every effort has been made to ensure that the content of this EIAR document is error free and consistent there may be instances in this document where typographical errors and/or minor inconsistencies do occur. These typographical errors and/or minor inconsistencies are unlikely to have any material impact on the overall findings and assessment contained in this EIAR.

[2] *Guidelines on the Information to be contained in an Environmental Impact Assessment Report, Environmental Protection Agency, 2017*

3 *Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems - Key Issues Consultation Paper, Department of Environment, Community and Local Government, 2017.*

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT AND ALTERNATIVES EXAMINED

The subject site is located in the south-eastern section of Clonburris SDZ (Strategic Development Zone) and forms a section of the Clonburris Character Area within the Clonburris SDZ. The Clonburris SDZ Planning Scheme comprises 280 hectares and is located to the west of Dublin City Centre and the M50 - within the triangle between Lucan, Clondalkin and Liffey Valley.

The subject site is located in the south-western section of the SDZ lands, within development areas CSW-S3 and CSW-S4 as defined within the Clonburris SDZ Planning Scheme.

Figure 2.1 – Planning Scheme Development Areas

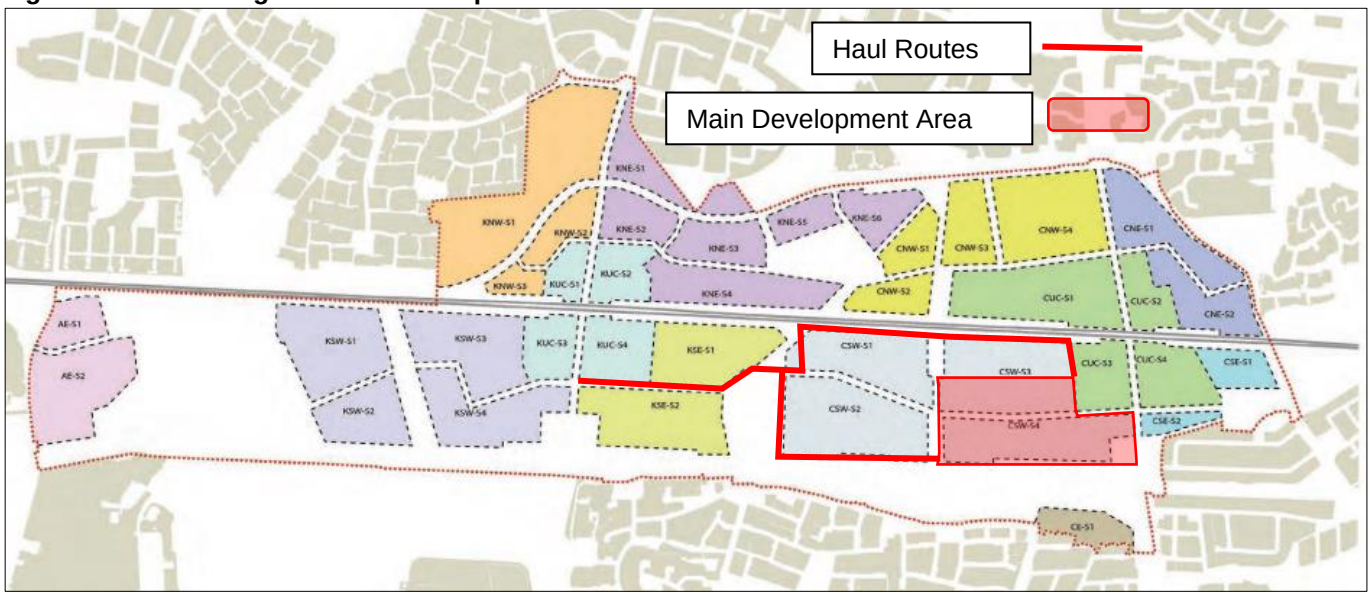


Figure 2.2 – Site Location Map

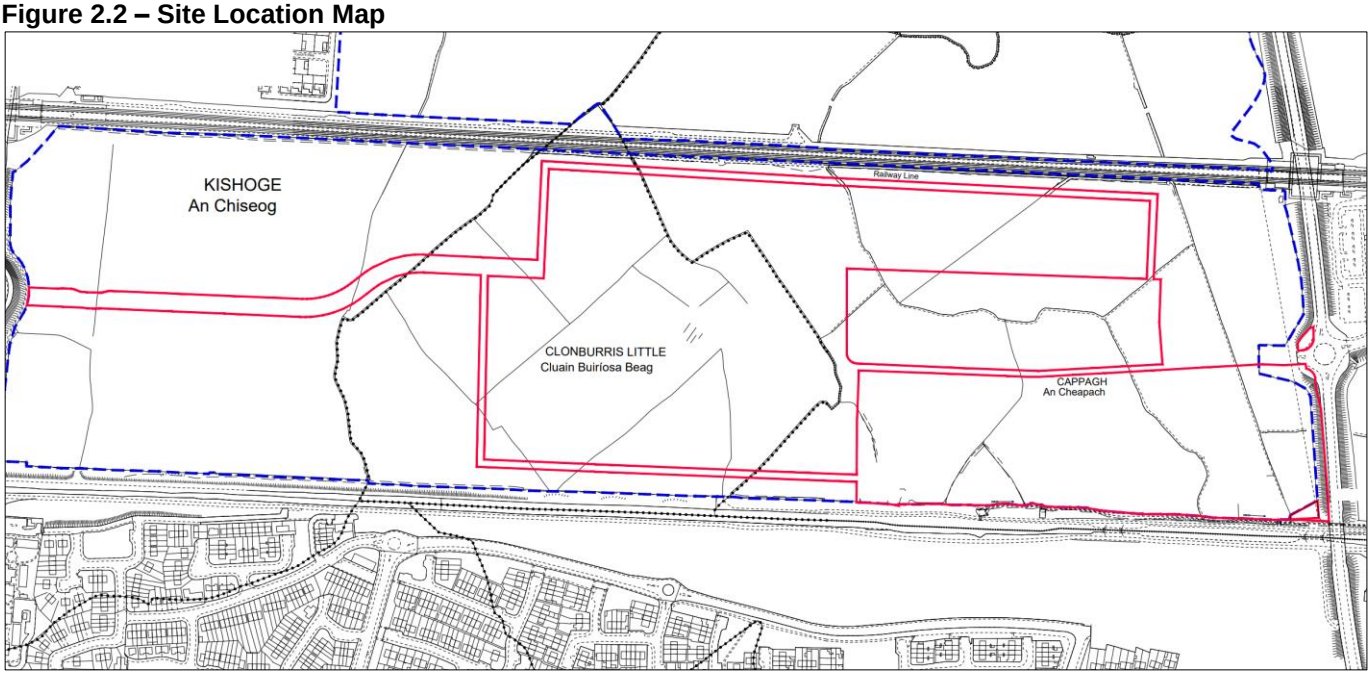


Figure 2.3 – Overall Layout (including Haul Routes)

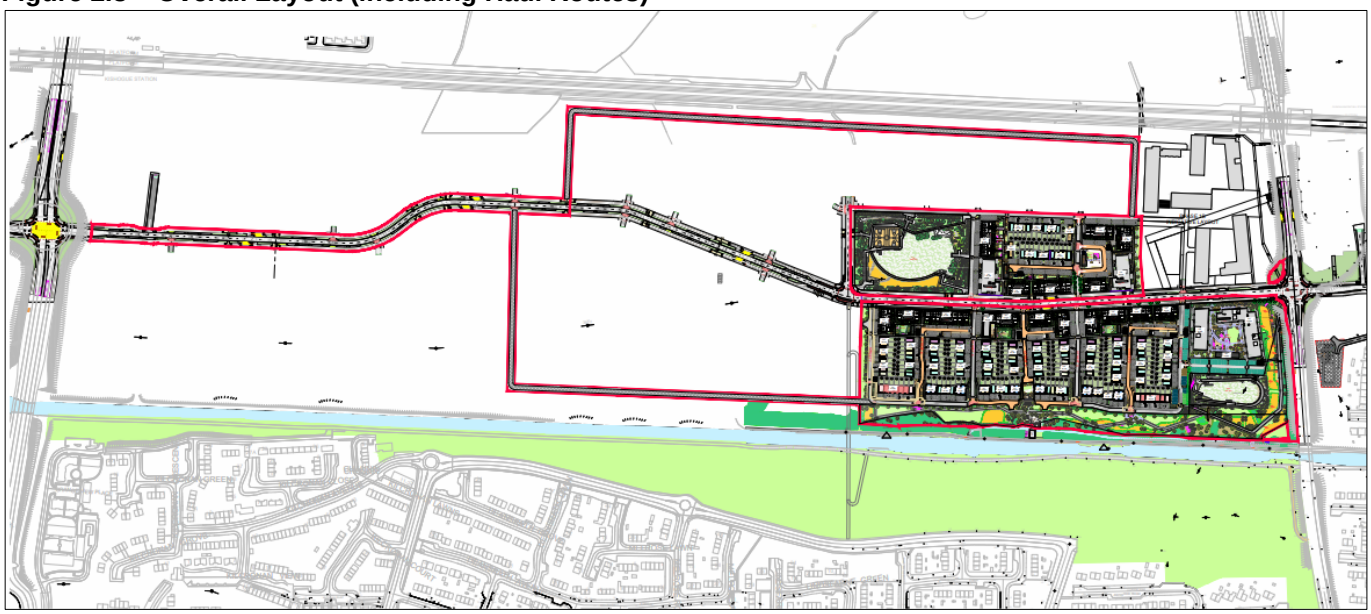
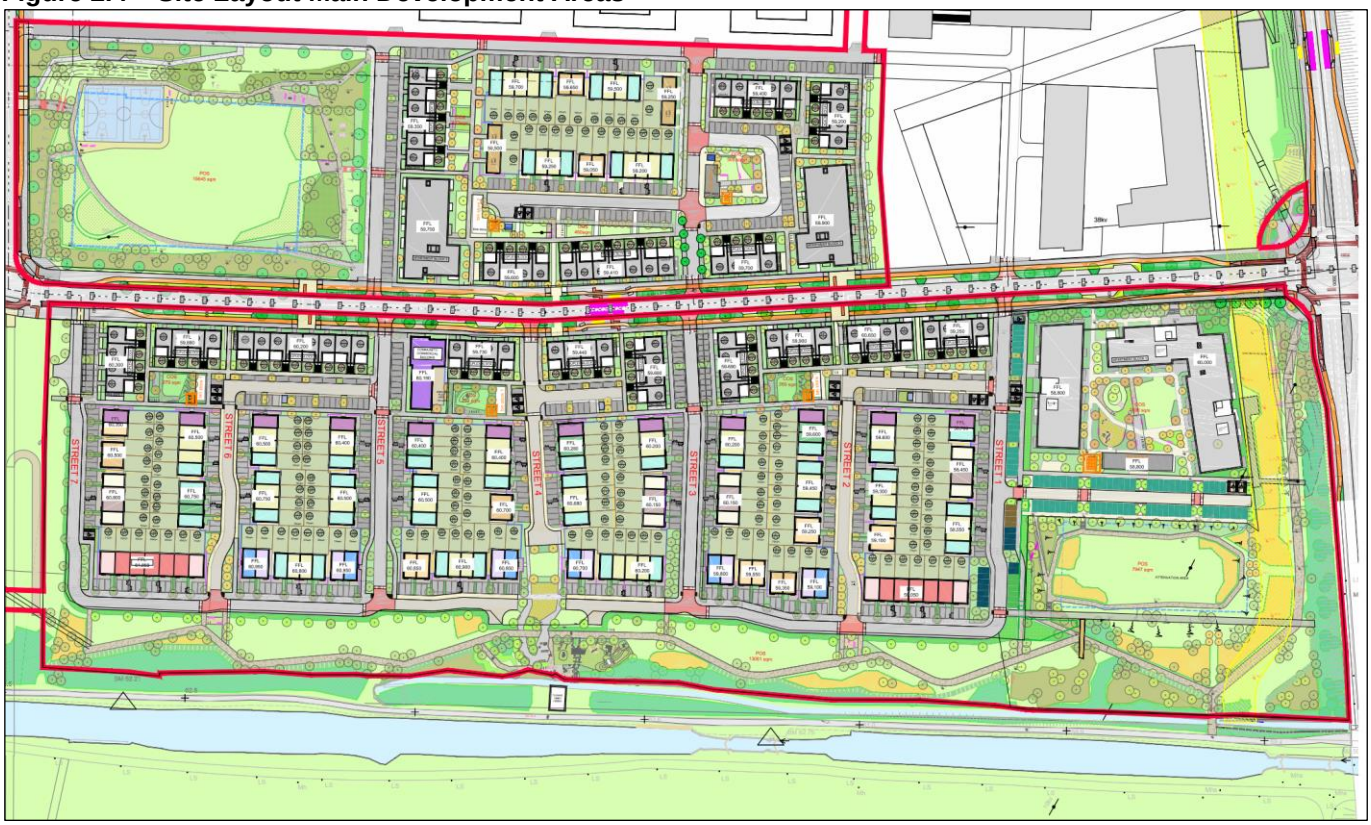


Figure 2.4 – Site Layout Main Development Areas



2.1 DESCRIPTION OF THE PHYSICAL CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The Site Layout Plan (figure 2.3) prepared by MCORM Architects shows the Main Development Area layout in context. The Haul Routes are also shown on the associated site layout plans.

2.1.1 Demolition

There is no demolition of habitable or any other structures relating to the proposed development.

2.1.2 Summary

The overall mix across the 2 no. Development Areas is as follows:

Table 2.1 – Overall Dwelling Mix

	1 bedroom	2 bedroom	3 bedroom	4 bedroom	Overall
Houses		8	153	12	173
Duplex Apartments/Apartments		74	74		148
Apartments	108	135	5		248
Overall Mix	108	217	232	12	569
	18.9%	38.1%	40.7%	2.1%	

Source: MCORM Architects Schedule of Areas

A wide variety of dwelling typologies are included in the proposal, including 2 storey houses, duplex apartments and apartments.

In addition to the above it is proposed to provide a creche of c. 547 sq. m along with an innovation hub of c. 626 sq. m., located centrally within Development Area CSW-S4.

Across the 2 no. Development Areas, it is proposed to provide some 4.12 hectares of public open space in a series of well-distributed large-scale parks. It is also proposed to provide communal open spaces of some 0.39 hectares.

2.1.3 Development Area CSW-S4

Within DA CSW-S4 it is proposed to provide 407 no. dwellings, comprising 172 no. apartments, 88 no. duplex units, and 147 no. houses all within a site of c. 9.75 hectares.

Table 2.2 – Overall Dwelling Mix – Development Area CSW-S4

	1 bedroom	2 bedroom	3 bedroom	4 bedroom	Overall
Houses		8	127	12	147
Duplex Apartments/Apartments		44	44		88
Apartments	76	91	5		172
Overall Mix	76	143	176	12	407
	53.1%	35.1%	43.2%	2.9%	

Source: MCORM Architects Schedule of Areas

2.1.3.1 Houses

The houses are designed as two storey family dwellings, in semi-detached and terrace configurations. Individual plot layouts provide good separation to ensure privacy and minimise overlooking. The end-row and end terrace house types have been used to turn corners, with front doors and windows giving activity and passive supervision to the sides and avoiding large blank gables.

The house types are as follows:

Table 2.3 – House Types – Development Area CSW-S4

House Type		Height	No.
House Type F1	3 Bed - Mid Terrace	2 Storey	37
House Type F2	3 Bed - End Terrace	2 Storey	31
House Type F2s	3 Bed - Terrace Side Entry	2 Storey	11
House Type F3	3 Bed - Semi D	2 Storey	11
House Type F3s	3 Bed - Semi D Side Entry	2 Storey	1
House Type G1	3 Bed - Mid Terrace	2 Storey	8
House Type G2	3 Bed - End Terrace	2 Storey	8
House Type G3	3 Bed - Semi D	2 Storey	6
House Type H1	3 Bed - Mid Terrace	2 Storey	10
House Type H2	3 Bed - End Terrace	2 Storey	4
House Type J3	4 Bed - Semi D	2 Storey	6
House Type J3S	4 Bed - Side entry	2 Storey	6
House Type K1	2 Bed - Mid Terrace	2 Storey	8
Total			147

Source: MCORM Architects Schedule of Areas

The variety of house types provides for a wide choice to suit all potential occupiers and many household types, as well as permitting a very efficient site layout. The mix of house type in any one row creates visual interest and contribute to the specific character of the development, both overall and in each street.

Figure 2.5 – Open Space and Frontage along Southern Edge of Houses

Source: 3D Design Bureau

2.1.3.2 Apartments CSWS4

It is proposed to provide 172 no. apartments in Block 1 which is located in the eastern part of the Development Area; addressing the internal east-west street and the Fonthill Road to the east. The high pressure Gas Networks Ireland gas wayleave is located between the Fonthill Road and the proposed apartments.

Figure 2.6 – Apartments Entrance to Scheme

Source: 3D Design Bureau

Table 2.4 – Apartments – Development Area CSW-S4

Apartment Type		No.	Apartment Size
Type AP _1B	1 Bed (2 Person)	76	49.80
Type AP_2A	2 Bed (3 Person)	5	70.75
Type AP_2B	2 Bed (3 Person)	5	73.00
Type AP_2C	2 Bed (3 Person)	6	74.80
Type AP_ 2D	2 Bed (3 Person)	6	78.40
Type AP_ 2E	2 Bed (4 Person)	24	78.64
Type AP_ 2F	2 Bed (4 Person)	23	79.40
Type AP_2G	2 Bed (3 Person)	6	74.80
Type AP_ 2H	2 Bed (4 Person)	5	81.45
Type AP_ 2J	2 Bed (4 Person)	6	82.15
Type AP_ 2L	2 Bed (4 Person)	5	86.40
Type AP_ 3A	3 Bed (5 Person)	5	105.20
		172	

Source: MCORM Architects Schedule of Areas

The apartment blocks are set out in 2 no. buildings of 6 storeys in height with communal open space, with a southerly aspect of c. 1,698 sq. m located centrally, framed to the north east and west by the apartments. Surface car parking is provided to the south and to the west along with a bike/bin store along the southern part of the communal open space. In addition there are extensive areas of open space located to the east, and further to the south which will link to the wider east-west Grand Canal Park. The open space along the eastern boundary will link ultimately to the north to a future landscaped area (as part of Phase 1B).

Figure 2.7 – Apartment Block 1 – CSWS4

2.1.3.3 Duplex Apartment Buildings

Within Development Area CSW-S4, it is proposed to provide 88 no. duplex units (44 no. 2 bedroom units and 44 no. 3 bedroom units) in 10 no. 3 storey buildings, which will front ono the permitted Clonburris Southern Link Street.

Figure 2.8 –Duplex Elevation fronting onto Internal East West Street

Source: 3D Design Bureau

2.1.3.4 Communal Open Space

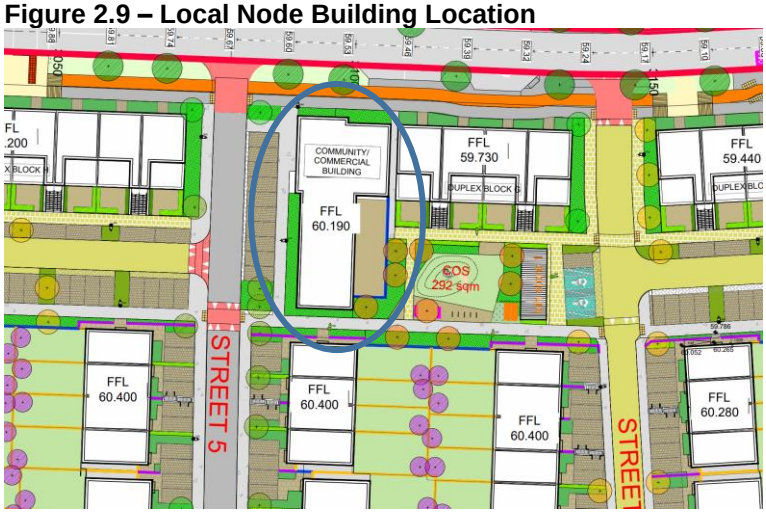
Communal open space is provided within the Development Area consisting of 1,398 sq. m, comprising 1,698 sq.m for the apartments, and 840 sq. m for the duplex units.

2.1.3.5 Car Parking and Bicycle Provision

It is proposed to provide 484 no. car parking spaces (265 for the apartments/duplex units) and 219 no. spaces for the houses. It is proposed to provide 386 no. cycle spaces (for the duplex units and apartments) and 30 visitor spaces for Development Area CSWS4 (416 no. provided).

2.1.3.6 Local Node

Figure 2.9 – Local Node Building Location



It is proposed to provide a two storey creche of c. 547 sq. m along with an external play area, within the local node building, which is located centrally within the CSWS4 Development Area. The local node building also includes commercial space of c. 626 sq. m comprising an innovation hub office space in an overall building of part 3/part 4 storeys.

Figure 2.10 – Local Node Building Elevation

2.1.4 Development Area CSW-S3

The proposed development includes the southern portion of the Development Area CSW-S3 which is located to the north of the permitted Clonburris Southern Link Street and includes 2 no. 4 storey apartment buildings, 6 no. 3 storey duplex buildings and 2 storey houses. The duplex buildings front onto the Clonburris Southern Link Street which in

turn are bookended by the 2 no. apartment buildings. To the west of the proposal, is a substantial local park which includes a MUGA. In addition, communal open space areas are provided close to the apartments and duplex apartments.

Figure 2.11 – Development Area CSW-S3

Within DA CSW-S3 it is proposed to provide 162 no. dwellings, comprising 76 no. apartments, 60 no. duplex units, and 26 no. houses all within a site of c. 4.37 hectares.

Table 2.5 – Overall Dwelling Mix – Development Area CSW-S3

	1 bedroom	2 bedroom	3 bedroom	4 bedroom	Overall
Houses			26		26
Duplex Apartments/Apartments		30	30		60
Apartments	32	44			76
Overall Mix	32	74	56		162
	19.6%	45.7%	34.6%		

Source: MCORM Architects Schedule of Areas

Table 2.6 – House Types – Development Area CSW-S3

House Type		Height	No.
House Type C3	3 Bed - Semi Detached	2 Storey	4
House Type F1	3 Bed - Mid Terrace	2 Storey	10
House Type F2	3 Bed - End Terrace	2 Storey	8
House Type G3	3 Bed - Semi Detached	2 Storey	4
			26

2.1.4.1 Apartments CSWS3

It is proposed to provide 76 no. apartments (32 no. 1 bedroom apartments) and 44 no. 2 bedroom apartments in 2 no. 4 storey apartment buildings.

2.1.4.2 Duplex Buildings

The duplex buildings are located primarily along the southern edge of DA CWSS3 along the Clonburris Southern Link Street and along the eastern and western sides of the development cell.

2.1.4.3 Communal Open Space

Communal open space is provided within the Development Area consisting of 1,398 sq. m, comprising 930 sq.m for the Duplex buildings, and 234 sq. m for Block 2 and 234 sq. m for Block 3.

2.1.4.4 Car Parking and Bicycle Provision

It is proposed to provide 143 no. car parking spaces for the apartments/duplex units and 39 no. spaces for the houses (172 no. provided). It is proposed to provide 206 no. cycle spaces (for the duplex units and apartments) and 20 visitor spaces for Development Area CSWS3 (226 no. provided).

2.1.5 Refuse Storage

Waste storage is provided for the individual Development Areas by the provision of separate single storey bin stores. The refuse stores provide adequate storage space to satisfy the three-bin system for the collection of mixed dry recyclables, organic waste and residual waste.

2.2 INTERNAL ROAD LAYOUT & DMURS

The subject site's internal road layout has been designed with a number of junctions and a meandering alignment through the development to promote traffic calming and discourage "rat running" through the development. The proposed road hierarchy and typologies are generally consistent with those set out in section 2.2.4 of Clonburris SDZ. The proposed Local streets will be 5.5m wide with a 2m wide footpath on the side of residential units. Intimate Scale/Home-Zone Streets are 4.8m wide with a 1.5m vulnerable user / service strip on each side. This design allows enough room for perpendicular parking, accommodates utility infrastructure utilities while creating a safe shared use area for all road users. The development's internal layout has been designed with speed reduction bends to provide traffic calming together with a combination of road vertical and horizontal deflections to reduce speeds.

Flat top table ramps have been provided at strategic locations to calm traffic at junctions in particular at Homezone /vehicular interfaces. Design speed limits of 30km/hr are applied throughout the development as per Design Manual for Urban Roads and Streets (DMURS). It is intended that the roads and footpaths of the proposed development are designed to accommodate pedestrian and cycle links to future infrastructure to be constructed as part of the overall Clonburris SDZ. There are number of vehicular and pedestrian/cycle bridges proposed within the SDZ boundary. It is intended that the road, pedestrian and cycle infrastructure of the proposed development will be extended in the future to provide links to these locations.

The proposed development's road layout is will comprise the following;

- Local Streets – typically 5m to 5.5m wide carriageway with 2m footways and intermittent 2.4m wide private parking bays. Where required to accommodate perpendicular parking either the parking bay width has been increased or the road with increased.

- Intimate Scale / Home-Zone Streets – 4.8m wide home zone with 1.5m vulnerable user strip each side. Road surfaces are to be in a different colour contrast and texture to Local Streets. Vulnerable user strips will be concrete with an exposed aggregate finish.

Maximum road corner radii of 4.5m are provided within the local streets, with the exception of certain turning heads which have corner radii 6m to accommodate refuse vehicles, and 6m on the main access road as per DMURS and the requirements of South Dublin County Council.

2.3 ACCESS, PARKING AND TEMPORARY HAUL ROUTES

The future Clonburris Southern Link Street (CSLS) bisects the proposed development. North of the CSLS the site is within sub sector CSW S3 while the south is within sub sector CSW S4 of the Clonburris South West Development Area. The Clonburris South Link Street which links the R113 to the R136 will provide access to the subject site. The Fonthill Road is located to the east of the proposed development.

The proposed development will be accessed from the Clonburris Southern Link Street (CSLS) which has been granted permission in August 2021 under planning reference SDZ20A/0021. The CSLS includes minor priority-controlled junctions along the street alignment to provide access to future development cells within the Clonburris SDZ including the subject site. The subject site's internal road layout has been designed with a number of junctions

and a meandering alignment through the development to promote traffic calming and discourage "rat running" through the development.

2.3.1 Car Parking and Bicycle Parking

It is proposed to provide 656 no. car parking spaces comprising 172 no. car parking spaces within CSWS3 and 484 no. car parking spaces in CSWS4.

The development includes provision for secure cycle storage. The apartment/duplex blocks will have access to bike stores and the provision is outlined below:

Table 2.7 – Overall Bicycle Provision

	Bicycle Provision
Apartments	358
Duplex units	234
Houses	-
Visitor	80
	672

Source: MCORM Architects Schedule of Areas

2.3.2 Temporary Haul Routes

2 no. temporary haul routes are being proposed to provide access to the subject site. Potions of the haul route coincide with the permitted Clonburris Southern Link Street (CSLS) to be constructed as part of the Clonburris Joint Infrastructure Works (JIW) under planning permission SDZ20A/0021. The proposed haul routes being proposed will be approximately 6.0m wide. These will consist of a temporary road build up as shown on drawing 162119-DBFL-RD-SP-DRC-5203. Generally, the haul routes follow the route of proposed local streets as set out in the overall SDZ. All construction materials, debris, temporary hardstands involved in the construction of these roads will be removed off-site on completion of the works or else will be incorporated as capping material into the future local street network (subject to planning permission.

2.4 LANDSCAPING

The Landscape Design Statement prepared by Murray Associates sets out the Landscaping Strategy for the subject lands.

Figure 2.12 – Landscape Strategy

The design intent is to create a high quality and appropriate landscape for future residents, which will meet their recreational needs and provide an attractive visual setting and associated social amenity spaces. The principles of inclusivity for all age groups, universal accessibility and sustainable development are applied to ensure an inclusive and environmentally responsible design solution. A restrained palette of materials will also be used to integrate the proposed architectural forms and materials within the landscape. There are two main open spaces identified within

the Phase 1 Lands. The Local Park (1.56ha) and a portion of the wider Grand Canal Park (2.85ha), totalling 4.41 Hectares. Out of a net developable area of 14.12 ha, this accounts for 31% public Open Space within the development.

Regarding the Communal Amenity Space there is a requirement over the whole site (as per Design Standards for New Apts (2020) of 2,570sqm. Space provided totals 3,936 sqm over the entire site, with appropriate locations adjacent to the respective duplexes and apartments. This accounts for a 53% increase on the required area. This mosaic of open spaces gives every resident easy and convenient access to recreational amenity and allows distinct landscape treatments and elements to be applied to different spaces. This aids way-finding and contributes towards giving areas within the development a recognisable character.

2.4.1 Local Park CSWS3

Located within the CSWS3 sector, the Local Park provides amenities at neighbourhood level, complimenting the amenity provision within future strategic parks (Griffen Valley Park, Na Cluanite and parts of Grand Canal Park). As set out in the SDZ planning Scheme (Table 2.10.2) a variety of elements have been included within the space. A Multi-Use Games Area is positioned to the north-east of the open space to take advantage of the slope in this area for a natural grassed amphitheatre-type setting. The park allow acts as a detention basin to cater for the 1:100 year stormwater runoff, with a further attenuation facility below the grassed area. The grassed area is accessed by accessible ramps to allow for universal access. The park is enclosed with shelterbelts of native woodland planting. These give shelter from the surrounding roadways while also providing enough visibility through to the park for good passive observation.

Figure 2.13 – Local Park CSWS3

Source Murray Associates

2.4.2 Grand Canal Park

The open space to the south of the proposed site is part of the Grand Canal Park, a large linear open space that runs along the entire southern portion of the SDZ lands, linking in at certain points with the SDZ landscape network via the Griffeen Valley Park and the Na Cluainte Park. The entire SDZ Grand Canal Park encompasses both sides of the canal and contains significant ecological and biodiverse landscape elements, particularly to the northern bank of the Grand Canal.

The canal is covered by a Proposed Natural Heritage Area (pNHA) designation, with no significant development within 50 metres of the pNHA boundary. As such, the proposed landscape layout takes the retention of this strategic ecological corridor as of prime importance within the park design, and is designed to ensure that future expansion of the park to the west is easily achieved, with the linear landscape structure of the existing vegetation to the northern banks being retained and enhanced with additional native planting where needed. While the existing vegetation to the northern bank is retained, there is also additional planting of native woodland, native meadows, native hedgerows and native trees within the open space, with the intention of enhancing and increasing the ecological diversity along this important strategic green infrastructure corridor

Figure 2.14 – Grand Canal Park

Source: 3D Design Bureau

Figure 2.15 – Grand Canal Park

Source Murray Associates

A single wide path catering for pedestrians and cyclists weaves through the space from east to west, off which various spaces and routes open up. The path links together grassed kickabout spaces, native meadows, woodland spaces, a large natural play area, seating spaces and allows for further connection to the west. A proposed further link utilising the existing crossing over the overflow stream from the existing canal towpath northwards towards the Fonthill Road gives additional pedestrian/cycle connectivity. There is also opportunity to link the development with the canal at certain points, to future detailed design and agreement with the relevant authorities.

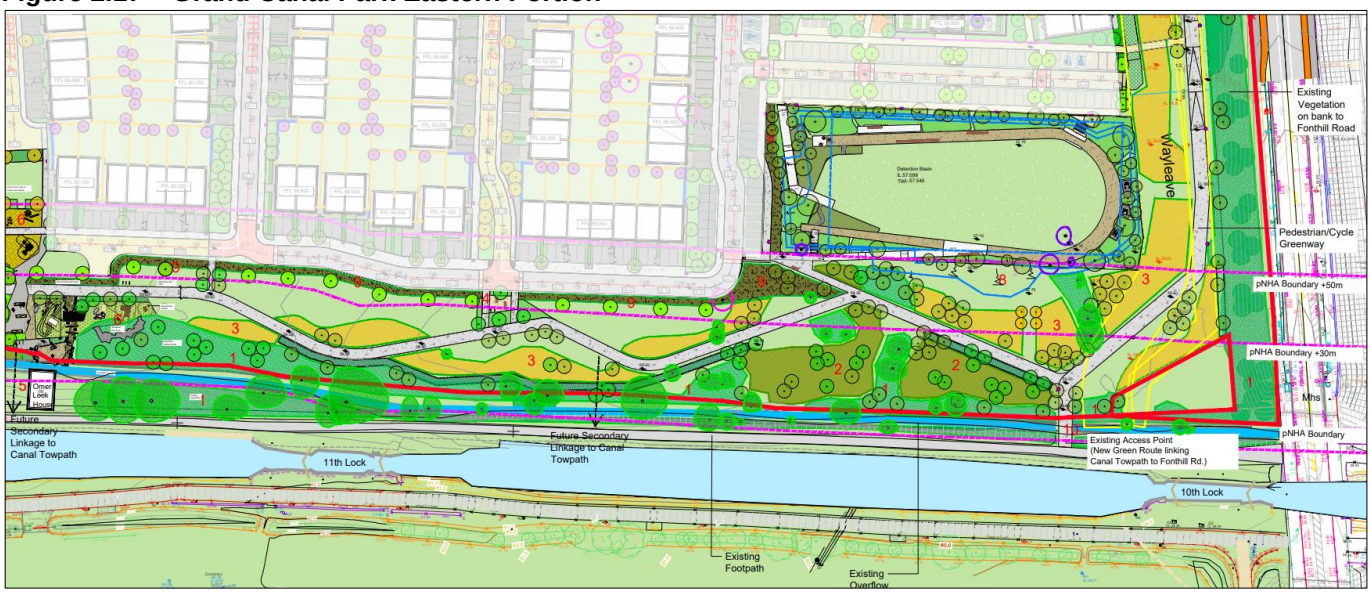
There is a large neighbourhood play area to the north within the Local Park and a large neighbourhood play area to the south, within the Canal Park. Within the Local Park there is a multi-use games area, a natural & formal play

space, and large open kickabout area. Younger children are also catered for within this space. The neighbourhood play space within the Canal Park incorporates natural and formal elements and also caters for younger children. This space also incorporates a sensory woodland garden area, and there is scope to include play areas closer to the overflow stream, that allows for water and sand play spaces. Local Play spaces within the development include smaller intimate play spaces for local use by adjacent residents within the communal amenity spaces. Young children, up to six years of age, are catered for in these spaces

Figure 2.16 – Play Areas

Source Murray Associates

Figure 2.17 – Grand Canal Park Eastern Portion



Source Murray Associates

Figure 2.18 – Grand Canal Park Western Portion

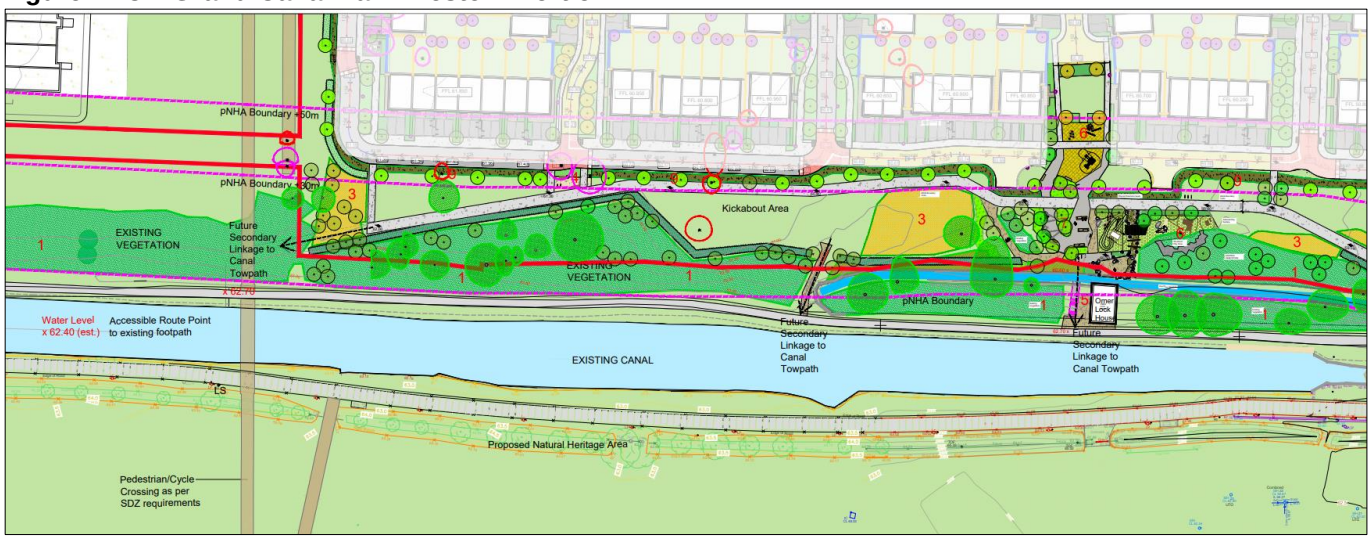
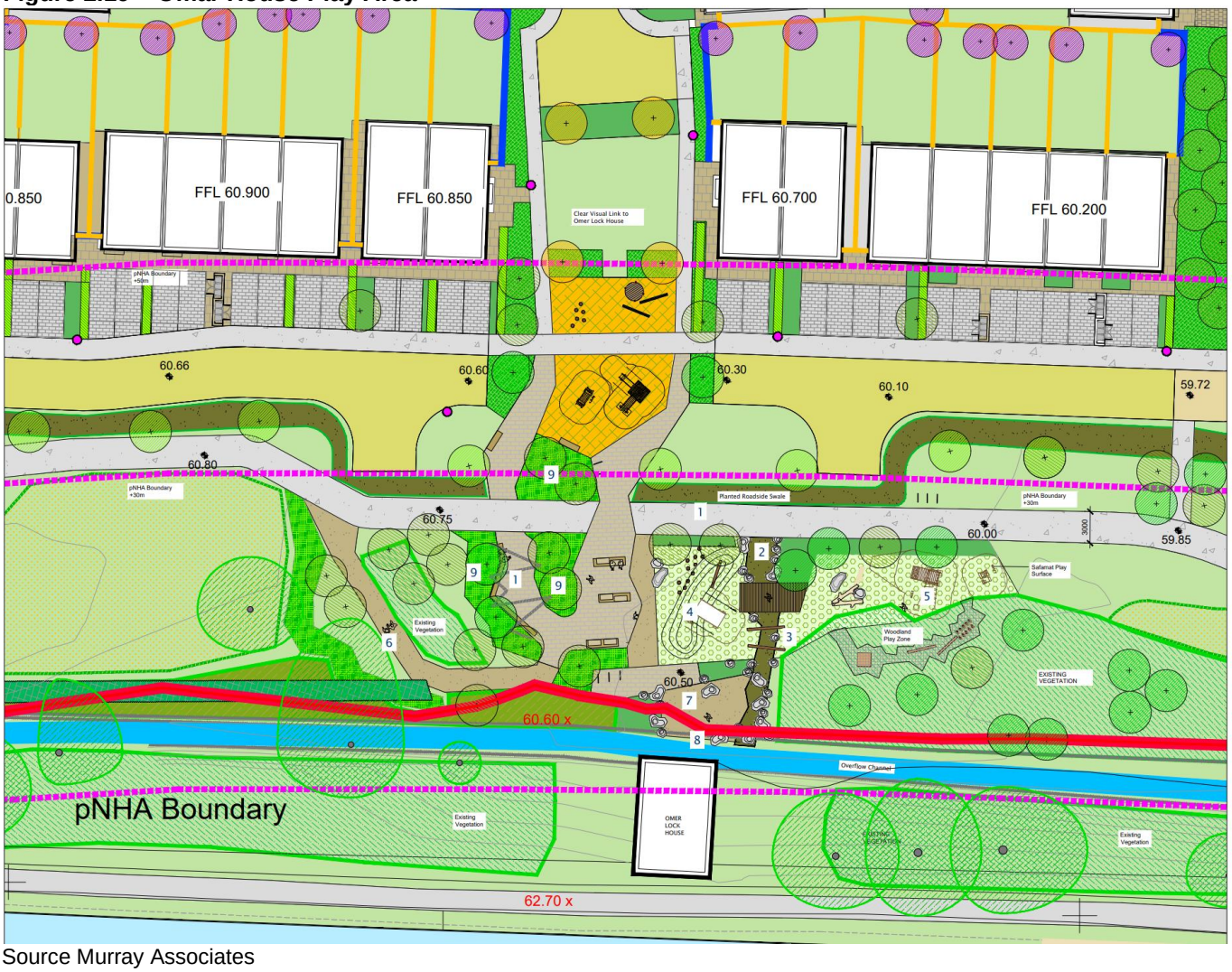


Figure 2.19 – Omar House Play Area



Source Murray Associates

2.4.3 Communal Open Space

With reference to Appendix 1 of the Apartment Guidelines, communal open space the proposed development would require a communal open space provision of 2,714 sq. m. The communal open space provided of c. 3,936 sq. m is substantially above the requirements.

Table 2.8 – Communal Open Space Requirement

Communal Open Space	Requirement	No. of Units	Requirement	Provided
Overall Development				
1 bed	5 sq.m.	108	540	
2 bed	7 sq.m.	209	1,463	
3 bed	9 sq.m.	79	711	
		396	2,714 sq. m	3,936 sq. m
Development Area CSWS4				
1 bed	5 sq.m.	76	380	
2 bed	7 sq.m.	135	945	
3 bed	9 sq.m.	49	441	
		260	1,766 sq. m	2,538 sq. m
Development Area CSWS3				
1 bed	5 sq.m.	32	160	
2 bed	7 sq.m.	74	518	
3 bed	9 sq.m.	30	270	
		136	948 sq. m	1,398 sq. m

2.4.4 Planting Strategy

The various open spaces and public realm areas will have a defined appearance by the use of different varieties of trees and planting within certain character areas. This reinforces the architectural placemaking and aids wayfinding within the development. In order to minimise the need for mowing, extensive lawn areas are avoided where possible; meadow areas or wilder, natural open space areas are included in their place. Where mown areas are required they should cater for informal play. Native trees and shrub species are predominantly used throughout the areas where possible, and suited to the micro-climactic conditions. Where native species are not proposed, planting should have reference to the All-Ireland Pollinator Plan. Ornamental shrubs, perennials and hedging are proposed adjacent to seating areas and entrances to add interest in these intensively used spaces. This intensification of planting can also be proposed around other thresholds and pedestrian nodes, and can aid wayfinding. These public realm planting mixes are to be selected for vigour and once established should require minimal maintenance.

While there are 84no. trees to be removed (51no. due to construction, 34no. due to poor condition), including all bare-root woodland areas, in total there will be approximately 7,426 new trees planted with the development and the open spaces. Within this, there are 1,842 standard trees proposed. Of this, 40no. trees are on-curtilage to the street, with 172no. in rear gardens. This accounts for 16% of the total trees planted. Additionally, within the open spaces here will be 5,260 sqm of native woodland and 5,770 sqm of native meadow planting. Also included is 510 linear metres of native hedgerow planting (1305m removed due to construction). Also within the development area there will be approximately 11,505sqm of shrub and perennial planting. Where native planting is not specified, specific attention will be paid to species specified with the All-Ireland Pollinator Plan. This additional planting associated with the proposed development will greatly enhance the existing habitat and landscape potential of the lands, leading to a strongly positive impact on the landscape in the medium to long term.

2.5 SERVICES

The proposed site will benefit from trunk infrastructure proposed as part of the Clonburris Infrastructure Development for which planning has been granted in August 2021 under planning reference SDZ20A/0021. The CSLS includes trunk road, drainage, watermain and utility infrastructure to serve the Clonburris Strategic Development Zone lands to the south of the Kildare/Cork Railway Line which includes the subject site.

2.5.1 Surface Water Drainage and Attenuation

DBFL Consulting Engineers have undertaken a "Surface Water Management Plan" (SWMP) for the overall Clonburris Strategic Development Zone (SDZ). The SWMP for the SDZ been submitted to SDCC and agreed with SDCC. The SWMP outlines the surface water strategy for the overall SDZ lands and the requirements for each individual site within the SDZ which includes the subject site. The SWMP includes the strategy for attenuation design, SUDS features, run off rates and trunk infrastructure layout. The subject site has been designed in accordance the strategy agreed upon in the SWMP.

The proposed site will benefit from trunk surface water infrastructure proposed as part of the Clonburris Infrastructure Development for which planning was granted under reference SDZ20A/0021. The planning application included trunk surface water sewers and regional attenuation to serve the subject site, this strategic infrastructure aligns with the SWMP proposals and allows for a treatment train of Suds measures within individual sites and within the regional features.

It is intended that the stormwater run-off generated from the proposed development will be collected in a new gravity sewer and discharged to the regional attenuation systems constructed as part of the JIW. The subject site spans across two separate catchments within the SWMP.

In accordance with the GDSDS it is proposed to use Sustainable Urban Drainage systems (SUDS) for managing storm-water for the proposed development. The aim of the SUDS strategy for the site will be to;

- Attenuate storm-water runoff.
- Reduce storm-water runoff.
- Reduce pollution impact.
- Replicate the natural characteristics of rainfall runoff for the site.
- Recharge the groundwater profile

The proposed layout of the drainage and SUDS is detailed on drawings 162119-DBFLCS-SP-DR-C-1301 to 1304.

The attenuation systems for the CSLS have been approved under planning reference SDZ20A/0021. Minor amendments to the plan footprints permitted under SDZ20A/0021 are proposed as part of the current application however the overall general arrangement, levels and attenuation volumes are to be maintained as per the permitted application.

2.5.2 Foul Sewer

The existing site is predominantly greenfield and therefore has no foul loading at present. The planning application SDZ20A/0021 includes the trunk foul sewers which the subject site will connect into. The subject sites foul layout will be designed to connect into the trunk foul sewers.

The overall SDZ lands are relatively flat therefore the pumping of wastewater is required. It is proposed that the wastewater generated from the new houses and apartments for this application will be collected by new gravity sewers that discharges to the trunk sewer within the new Link Road. This in turn discharges to a future Irish Water pumping station (Pumping Station #1 as shown in Figure 4.2) adjacent to the R113 Fonthill Road. This future pumping station and its rising main connection to the existing 9B trunk sewer on Fonthill Road is being delivered by Irish Water as part of the Irish Water Clonburris Local Infrastructure Housing Activation Fund (LIHAF) Scheme. The pump station is currently at planning application stage with SDCC under planning reference SDZ21A/0006.

This application comprises 569 residential units, 540m2 of creche/employment area with 623m2 of community/civic space above. The development will discharge to Pumping Station 1. The estimated average daily load from the development is 236m3.

2.5.3 Water Supply

The proposed site will benefit from trunk watermain infrastructure proposed as part of the Clonburris Infrastructure Development for which was granted permission under planning reference SDZ20A/0021. The planning application includes a 400mm diameter watermain running along the Proposed CSLS at the north of the subject site.

The subject section of the site will connect into the CLSL trunk watermain infrastructure at two locations creating a two separate 150mm watermain loops serving the north and south sections of the site. The 150mm loops within the subject site will then feed smaller 100mm distribution watermains.

The connection to the public water main will include a metered connection with sluice valve arrangement in accordance with the requirements of Irish Water. Individual houses will have their own connections to the distribution main via service connections and boundary boxes. Individual service boundary boxes will be of the type to suit Irish Water and to facilitate domestic meter installation. Hydrants are provided for fire-fighting at locations to ensure that each dwelling is within the required Building Regulations distance of a hydrant.

The average daily demand (litres per day) is estimated at 244,664 litres or 244.6 m3.

The development's proposed water-main distribution system is shown on drawings 162119-DBFL-WM-SP-DR-C-1351,1352, 1353 & 1354.

2.5.4 ESB Networks

The existing overhead services on the site will be undergrounded and diverted as required. A new Medium Voltage below ground network will be provided in the proposed development which will connect to the existing ESB Networks infrastructure in the area. Up to 4 new "unit sub-stations" will be provided throughout the site to meet the electrical demands associated with the new houses and duplex units while a further 1no "in-building" sub-station will be provided to serve the apartments.

The exact extent and location of the connections will be agreed with ESB Networks during the design stage of the project.

2.6 CONSTRUCTION MANAGEMENT STRATEGY

2.6.1 Introduction

It is envisaged that the development of the lands will occur for up to approximately 2-3 years having regard to the nature of the project and the need for flexibility to respond to market demand. A Preliminary Construction Management Plan has been prepared by DBFL and is included with the application. The CMP will be developed and agreed between the contractor and South Dublin County Council prior to commencement of development. The contractor shall also incorporate all mitigation measures outlined in the EIAR.

2.6.2 Coordination

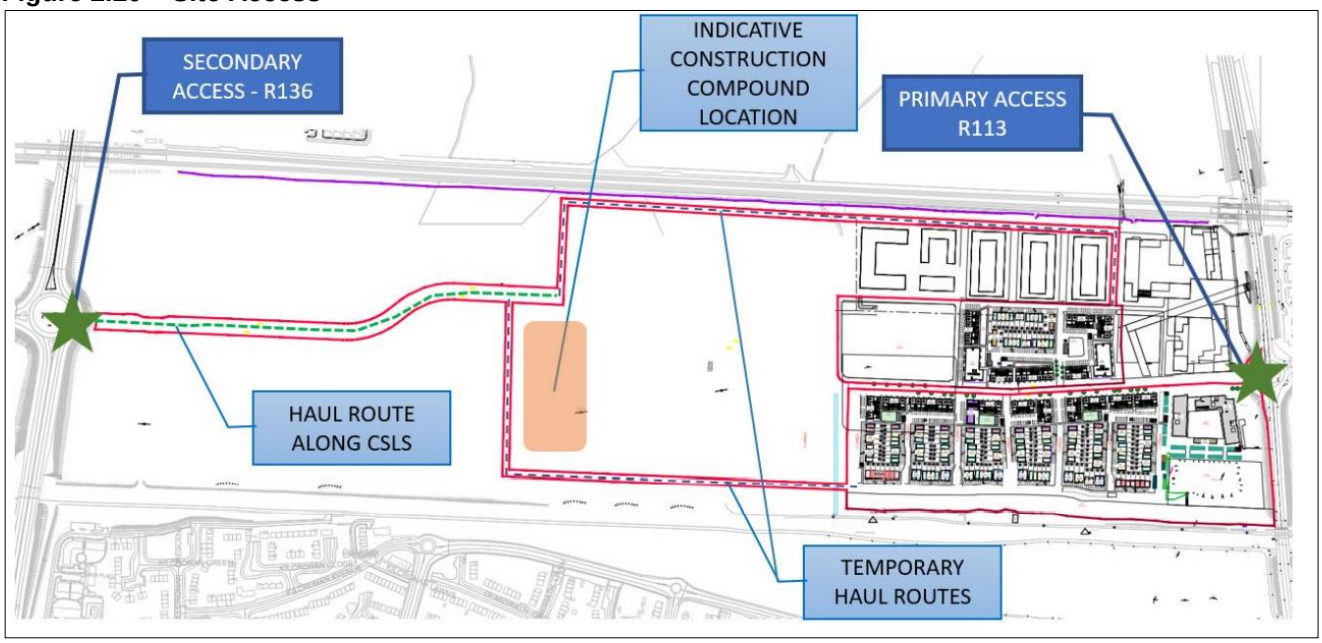
The proposed development is intended to be constructed in parallel with the permitted Clonburris Southern Link Street (CSLS) works (ref SDZ20A/0021). Therefore, interactions will be required between the two developments throughout the works.

2.6.3 Site Access

The primary site access is to be from the R113 where an existing stubbed access has been formed from the Roundabout. This location coincides with the intended location for the junction of the CSLS with the R113.

As outlined above, there may be certain times when access from this location is constrained due to works as part of the CSLS, for example during works to modify the existing roundabout to a signalised junction. Therefore alternative routes to access the site are provided via haul routes from the west. The haul routes initially follow the route of the permitted CSLS from the R136 before diverging to provide a route to both the northern and southern development parcels. The routes are generally designed to follow the future road network identified in the SDZ to minimise environmental impacts.

Figure 2.20 – Site Access



2.6.4 Working Hours

For the duration of the proposed infrastructure works, the maximum working hours shall be 07:00 to 19:00 Monday to Friday (excluding bank holidays) and 09:00 to 13:00 Saturdays, subject to the restrictions imposed by the local authority. No working will be allowed on Sundays and Public Holidays. Subject to the agreement of the local authority, out of hours working may be required for water main connections, foul drainage connections etc.

2.6.5 Construction Phasing

At present it is envisaged that the development will be constructed in 5 phases. The project is currently at planning stage and subject to approval and detailed design. It is estimated that the works would be tendered in the first quarter of 2022 with commencement expected in the second quarter of 2022. The development would have an estimated site program of 24 - 36 months depending on construction phasing. The construction works will be phased. An indicative construction phasing plan is presented below.

It is envisaged that the open space will be delivered within each phase.

Figure 2.21 – Indicative Phasing

However, the project may be constructed over in a number of phases for commercial reasons. The exact number of phases and the make-up of each will be subject to market conditions and commercial considerations at the time.

2.7 DIRECT AND INDIRECT EFFECTS RESULTING FROM USE OF NATURAL RESOURCES

Details of significant direct and indirect effects arising from the proposed development are outlined in Chapters 3-15 which deal with *'Aspects of the Environment Considered'*. No significant adverse impact is predicted to arise from the use of natural resources.

2.8 DIRECT AND INDIRECT EFFECTS RESULTING FROM EMISSION OF POLLUTANTS, CREATION OF NUISANCES AND ELIMINATION OF WASTE

Details of emissions arising from the development together with any direct and indirect effects resulting from same have been comprehensively assessed and are outlined in the relevant in Chapters 3-15 which deal with '*Aspects of the Environment Considered'*. There will be no significant direct or indirect effects arising from these sources.

2.9 FORECASTING METHODS USED FOR ENVIRONMENTAL EFFECTS

The methods employed to forecast and the evidence used to identify the significant effects on the various aspects of the environment are standard techniques used by each of the particular individual disciplines. The general format followed was to identify the receiving environment, to add to that a projection of the *"loading"* placed on the various aspects of the environment by the development, to put forward amelioration measures, to lessen or remove an impact and thereby arrive at net predicted impact.

Where specific methodologies are employed for various sections they are referred to in the Receiving Environment (Baseline Scenario) sections in the EIAR. Some of the more detailed/specialised information sources and methodologies for a number of the environmental assessments are outlined hereunder.

2.10 TRANSBOUNDARY IMPACTS

Large-scale transboundary projects[4] are defined as projects which are implemented in at least two Member States or having at least two Parties of Origin, and which are likely to cause significant effects on the environment or significant adverse transboundary impact.

Having regard to the nature and extent of the proposed development, which comprises a residential development, located within the Clonburris SDZ, within the administrative area of South Dublin County Council, transboundary impacts on the environment are not considered relevant, in this regard.

2.11 ALTERNATIVES CONSIDERED

Chapter 2 of the EIAR (volume II) also includes a summary of alternatives which were considered for the proposed development of the subject lands. These options were considered as the scheme progressed and the key considerations and amendments to the design having regard to the key environmental issues pertaining to the lands are summarised in this section of the EIAR.

Alternatives may be described at three levels:

- Alternative Locations.
- Alternative Designs.
- Alternative Processes.

2.11.1 Alternative Locations

The South Dublin County Council County Development Plan 2016-2022 zoning map notes the subject site as being within the Clonburris SDZ. As such the Clonburris SDZ Planning Scheme applies to this site. Given the project

[4] The definition is based on Articles 2(1) and 4 of the EIA Directive and Article 2(3) and (5) of the Espoo Convention, respectively. http://ec.europa.eu/environment/eia/pdf/Transboundry%20EIA%20Guide.pdf

comprises the development of a site within the Clonburris SDZ and Planning Scheme area, the consideration of alternative locations is not relevant in this instance.

The Clonburris SDZ Planning Scheme was prepared by SDCC to provide a framework for the future development of the subject lands. The Planning Scheme itself was subject to the Strategic Environmental Assessment (SEA) process.

The Draft EIAR Guidelines also note that:

"Higher level alternatives may already have been addressed during the strategic environmental assessment of relevant strategies or plans. Assessment at that level is likely to have taken account of environmental considerations associated, for example, with the cumulative impact of an area zoned for industry on a sensitive landscape."

On the strategic or 'higher' matters of already determined policy, we refer to the SDZ designation of the lands and the supporting Planning Scheme of Clonburris 2019, which support the development of the lands.

In this regard, it is worth highlighting that by virtue of the development in question being located in the Clonburris SDZ and where the acceptability of any development is determined by compliance with the Clonburris Planning Scheme, the extent of any alternatives that in fact open to be considered have been reduced as compared to a development located outside of an SDZ.

A do-nothing approach would be contrary to the Council's objectives to promote the development of the SDZ, in accordance with the adopted Planning Scheme and an opportunity to achieve efficient and compact development which will benefit from existing and improved public transport (Dart+ programme) would be lost. A do nothing approach is considered to be inappropriate and an unsustainable use of zoned land in close proximity to public transport.

2.11.2 Alternative Uses

The proposed development is located in the Clonburris SDZ and subject of a Planning Scheme. The proposed residential development with creche, innovation hub and open space is consistent with the zoning and related uses of the Clonburris Planning Scheme 2019. The location of new residential development at this site has therefore been pre-empted in the adopted Planning Scheme which itself was subject to Strategic Environment Assessment (SEA) and the consideration of alternatives for this site and area.

2.11.3 Description of Alternative Processes

This is not considered relevant to this EIAR having regard to the nature of the proposed (residential) development. It is noted the proposed construction works comprise relatively standard building construction processes. As such there are no specific alternative construction processes identified. With reference to the operational phase, no new, unusual or technically challenging operational techniques are required, as such no alternative operational processes have been considered.

2.11.4 Alternative Designs and Layouts

The project architects undertook an extensive appraisal to determine the appropriate scale, massing and layout of the proposed development. We refer the Planning Authority to the Architectural Design Statement prepared by MCORM Architects.

The analysis includes an assessment of:

- The characteristics of the subject site and wider environs
- Site constraints such as high-pressure gas pipeline & the Grand Canal to the south.
- The provisions of the Clonburris Planning Scheme which provides a range of design standards and objectives uses, masterplan form, and a range of building heights.

The masterplan for the site has been informed by the guidance set out in the Clonburris Planning Scheme 2019, with respect to the placement of blocks on the site, including the fixed elements which relate to the permitted Clonburris

Southern Link Street, which bounds the CSWS3 to the south and CSWS4 to the north. To the east, the alignment of the Fonthill Road is fixed as is the high-pressure Gas Networks Ireland gas main wayleave, which is located along the western side of the Fonthill Road.

The principle of all designated streets under this Planning Scheme is fixed and the alignment of each street including its centre line (see Figure 2.8.5 in Section 2.8 – Building Centre Line & Urban Grain) are either fixed or flexible depending on typology. The planned street hierarchy for the SDZ lands is illustrated in Figure 2.2.1. The arterial streets and Link streets are fixed whereas the local streets are flexible.

It is noted the Planning Scheme outlines that some slight plot adjustment for each Sub Sector may be acceptable provided that this would not affect prescribed dwelling numbers/densities or non-residential floorspace for any Sub Sector; would not significantly affect the gross or net development area of any Sub Sector.

In this regard the main alternative would have been to present the blocks closer to the Fonthill Road. However, given the location of the Gas Networks Ireland wayleave which prohibits development over the wayleave, from a Human Health and Safety, as well as Risk Management perspective, that particular alternative was discounted as not possible.

The proposed layout of the preferred alternative will not affect the alignment or centre line of any fixed street; would not significantly affect prescribed building lines of any fixed street; would not adversely impact on the environment or environmental objectives contained in the SEA Environmental Report (including required setback from the Grand Canal); and would not have any implications in relation to European Sites.

2.11.5 Proposed Preferred Alternative

The key structuring principles of the Planning Scheme Development Area CSW3 and CSW4 within which the proposed development is located was also taken into account. The proposal will support the range of densities identified in the Planning Scheme.

The key environmental and practical considerations which have influenced the design of the proposed development and the alternative layouts on the subject lands have been influenced by the following:

- The need to achieve an appropriate density in the context of the Sustainable Residential Development in Urban Areas Guidelines for Planning Authorities (2009) having regard to the location of the site within the Clonburris Planning Scheme.
- Transition in scale between proposed buildings on site.
- Building heights proposed and compliance with the Planning Scheme.
- The need to ensure any residential development provides a good mix of housing typologies which meet current market demand and which are deliverable in the short to medium term.
- Interface of proposed buildings and constructed roads to ensure as much passive surveillance as possible for animation and security.
- Building heights proposed in compliance with the Planning Scheme 2019.
- The need to provide a sustainable level of housing provision on the residential zoned lands.
- The need to deliver good quality open space in appropriate locations with a clear hierarchy as set out in the Clonburris Planning Scheme
- Protection of existing trees and hedgerows where possible,

The final layout proposed is not considered to give rise to any significant adverse environmental impacts. Mitigation measures to be implemented at construction and operational phases of the project are summarised in Chapter 16 (Summary of Mitigation and Monitoring Measures).

With reference to Population and Human health (and Biodiversity), the potential impacts are broadly similar with the preferred alternative providing additional open space in the eastern portion of CSWS4, and therefore slightly more positive.

With regard to Landscape and Visual Impact, the preferred alternative would result in a reduced landscape and visual impact compared to Alternative no. 1 which proposed additional apartments in the southern portion of the CSWS4.

Air and noise impacts from the alternatives are broadly similar. Principally these impacts will occur as a result of the construction phase of the development as operational impacts would be largely restricted to traffic and these volumes are generally low. As these impacts can be largely mitigated through good construction practices, the residual impact is considered low and temporary in all cases.

The inclusion of pedestrian links through the site, facilitating access to the southern open space along the Canal, which will link to a strategic network of open spaces, is a positive aspect of the proposal. The potential impacts relating to archaeology are considered to be broadly similar as the previously unrecorded features, will be preserved *in situ*. With regard to Material Assets (Utilities and Waste Management), it is considered the alternatives are similar as they would require servicing and also ESB etc.

With reference to the final layout, the iterative process outlined above, which included alternative site layouts were considered with the objective of producing a new high quality residential development, which has undergone a robust consideration of relevant alternatives having regard to the comparison of environmental effects and meets the requirements of the EIA Directive, based on the multidisciplinary review across all environmental topics.

2.12 DESCRIPTION OF THE OPERATION STAGE OF THE PROJECT

The primary likely and significant environmental impacts of the operation of the proposed development are fully addressed in the EIAR document; and relate to Population and Human Health, Landscape and Visual Impact and Noise and Air impacts associated with the traffic generated. The proposed development also has the potential for cumulative, secondary and indirect impacts particularly with respect to such topics as traffic – which in many instances – are often difficult to quantify due to complex inter-relationships. However, all cumulative secondary and indirect impacts are unlikely to be significant; and where appropriate, have been addressed in the content of this EIAR document.

2.12.1 Description of Secondary and Off-Site Developments

No significant secondary enabling development is deemed necessary to facilitate the proposed development. The planning application includes details of the necessary road works, which are required to facilitate this development. These works are assessed within this Environmental Impact Assessment Report.

2.12.2 Risks of Major Accidents and/or Disasters

The surrounding context consists of a mix of residential, agricultural, employment, educational and open space public amenity lands. It does not include any man-made industrial processes (including SEVESO II Directive sites (96/82/EC & 2003/105/EC) which would be likely to result in a risk to human health and safety.

Article 3 of the Environmental Impact Assessment (EIA) Directive 2014/52/EU, requires the assessment of expected effects of major accidents and/or disasters within an EIA. Article 3(2) of the Directive states that *"The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned".*

2.13 RELATED DEVELOPMENT AND CUMULATIVE IMPACTS

The proposed development also has the potential for cumulative, secondary and indirect impacts particularly with respect to such topics as traffic which in many instances are often difficult to quantify due to complex inter-relationships. However, all cumulative, secondary and indirect impacts are unlikely to be significant and, where appropriate, have been addressed in the content of this EIAR document.

Each Chapter of the EIAR includes a cumulative impact assessment of the proposed development with other planned projects in the immediate area. The potential cumulative impacts primarily relate to traffic, dust, noise and other nuisances from the construction of the development, with other planned or existing projects, and each of the following EIAR chapters has regard to these in the assessment and mitigation measures proposes.

3.0 NON-TECHNICAL SUMMARY OF EIAR CHAPTERS

3.1 POPULATION AND HUMAN HEALTH

It should be noted that there are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. Issues such as the potential likely and significant impacts of the proposed development on landscape and visual impact, biodiversity, archaeology, architectural and cultural heritage, air quality and climate, noise and vibration, water, land and soils, material assets including traffic and transport impacts, residential amenity etc. are of intrinsic direct and indirect consequence to human health. The specific chapters of the EIAR (4-14) assess the environmental topics outlined in the EIA Directive.

The subject site is located in the south-eastern section of Clonburris SDZ (Strategic Development Zone) and forms a section of the Clonburris Character Area within the Clonburris SDZ. The Clonburris SDZ Planning Scheme comprises 280 hectares and is located to the west of Dublin City Centre and the M50 - within the triangle between Lucan, Clondalkin and Liffey Valley.

The subject site is located in the south-western section of the SDZ lands, within development areas CSW-S3 and CSW-S4 as defined within the Clonburris SDZ Planning Scheme.
The subject lands comprise an undeveloped, greenfield site of c. 17.1 hectares and is situated to the north of the Grand Canal and to the west of the Fonthill Road (R113). The site is located approximately 200m from Clondalkin Train Station, 500m from Banougue Neighbourhood centre and c. 1km from Clondalkin Centre. There is a vehicle access point to the site from Fonthill Road which is currently unused.

3.1.1 Predicted Residual Impacts

There are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. For detailed reference to the residual impacts of particular environmental topics please refer to the relevant corresponding chapter of the EIAR (land and soils, water and hydrology, air quality and climate, noise and vibration, traffic, and risk management).

The construction phase of the proposed development will primarily consist of site clearance, excavation and construction works, which will be largely confined to the proposed development site (including haul routes). Notwithstanding the implementation of remedial and mitigation measures there will be some minor temporary residual impacts on population (human beings) and human health most likely with respect to nuisance caused by construction activities, predominantly related to noise and traffic as detailed in chapters, 8 and 10.

It is anticipated that subject to the careful implementation of the remedial and mitigation measures proposed throughout this EIAR document, and as controlled through the Construction and Environmental Management Plan, any adverse likely and significant environmental impacts will be avoided. The overall predicted likely impact of the construction phase will be short-term not significant, and neutral. A CEMP has been submitted with the application which will be developed by the contractor and agreed with the Local Authority.

Slight, positive short-term impacts are likely to arise due to an increase in employment and economic activity associated with the construction of the proposed development.

The proposed development will result in a generally positive alteration to the existing undeveloped site in terms of the provision of residential units to serve the growing residential population of the area in accordance with the objectives of the South Dublin County Council Development Plan and the Clonburris Planning Scheme 2019. Positive impacts on population and human health will include health benefits associated with the provision of a significant quantity of open space, pedestrian and cyclist/green routes, a highly permeable layout which will connect to adjacent development areas within the Planning Scheme. The provision of creche and employment facilities on site enhances the quality of the development and helps to create sustainable communities.

The implementation of the range of remedial and mitigation measures included throughout this EIAR document is likely to have the impact of limiting any adverse significant and likely environmental impacts of the operational phase of the proposed development on population and human health (as set out in relevant chapters land and soils, water and hydrology, air quality and climate, noise and vibration, traffic, and risk management).

Chapter 3 of the EIAR has provided an assessment of the likely impact of the proposed development on population and human health. The proposed development will result in a long-term positive impact on housing and is not likely

to result in any significant negative effects on population and human health, and will result in some other positive impacts, including settlement patterns of a sustainable density at an appropriate location and economic benefits derived from the employment opportunities within childcare facility and employment hub proposed. Through generating additional economic activity in the area, and providing for a high standard of residential accommodation, there will be a slight positive impact arising from the proposed development in the short-term (for economic activity) and in the long term for residential accommodation.

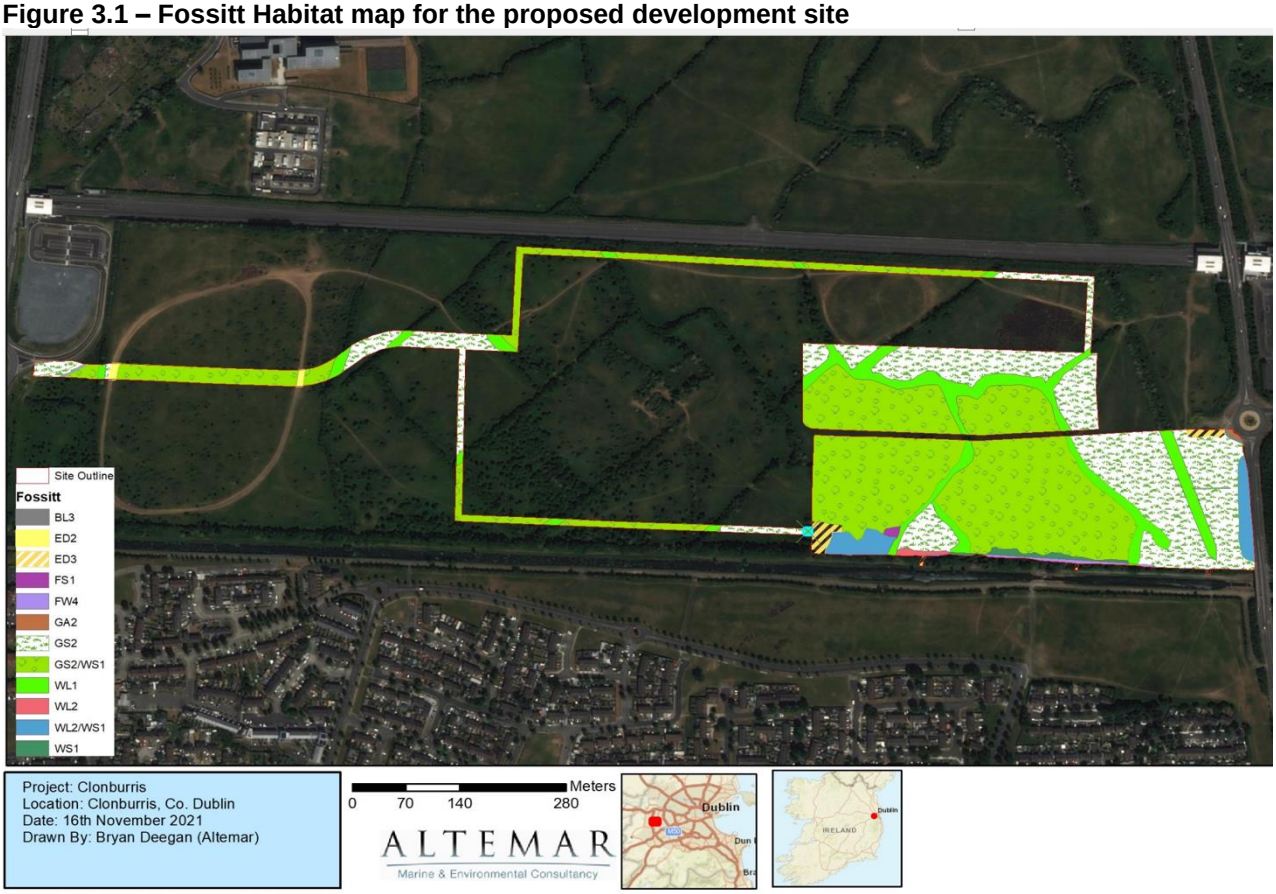
3.2 BIODIVERSITY

A series of site visits were undertaken over a number of years relating to Terrestrial Ecology, Wintering Bird Surveys, Breeding Bird Surveys, Barn Owl Survey, Badger/Mammal Surveys, Non-avian Fauna Winter Survey and bat surveys (over a number of years). These are listed in Section 4.3 of the Biodiversity Chapter with reports contained in Appendix F of Volume III of the EIAR.

The designated conservation sites within 15km of the proposed combined development site were examined for potential impact. Sites beyond 15km have no direct or indirect pathways or are across the marine environment where significant dilution, mixing and settlement would occur and given the scale of the proposed development, impacts on sites beyond 15km would be at negligible levels. This assessment included sites of international importance; Natura 2000 sites (Special Areas of Conservation (SAC), Special Protection Areas (SPA)) and Ramsar sites and sites of National importance ((Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA). Up to date GIS data were acquired and plotted against 1, 5, 10 and 15km buffers from the proposed development site. A data search of rare and threatened species within 10km of the proposed site (GIS shapefile) was provided by NPWS. Additional information on rare and threatened species was researched through the National Biodiversity Data Centre maps.

It should be noted that no species of conservation importance were noted on site, based on NPWS and NBDC records.

Figure 3.1 – Fossitt Habitat map for the proposed development site



The site is essentially a series of agricultural grassland fields with interstitial hedgerows that borders the Grand Canal pNHA. There are no habitats on site that support populations of qualifying interest species of nearby Natura 2000

sites. As a result of lack of use over recent years scrub has commenced encroaching on the grassland in several of the fields.

Several areas of bare ground are noted on site. These areas have undergone relatively recent disturbance and are being recolonised by opportunistic species. Numerous hedgerows are present across the site. The majority of hedgerows are single hedgerows but several double hedgerows are present with interstitial drainage ditches.

The fields on site appear to have been unmanaged for several years and are suffering from various levels of scrub encroachment. The scrub element in the grassland areas consisted of predominantly the tree and bramble elements of the hedgerow habitat beginning to encroach across the site. A small area of FS1 Reed and large sedge swamps, was located within the hedgerows proximate to the canal. This consisted primarily of common reed (Phragmites australis) although some bulrush (*Typha latifolia*) was noted.

No plant species that are rare or are of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded in the vicinity of the proposed site. No invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb, Himalayan balsam or giant hogweed were noted on site.

It should be noted that an additional faunal assessment was carried out by Bryan Deegan (MCIEEM) on the 14th November 2021 in the areas of the proposed development not covered by the Chris Smal terrestrial fauna surveys. These areas primarily consist of the narrow lines for construction haul routes outside the main development areas. No evidence of faunal species of conservation importance were noted in this survey.

A wintering bird assessment was carried out by Scott Cawley (Appendix F1 of Volume III) on the full Clonburris Strategic Development Zone lands which includes the Grand Canal. It should be noted that as the surveys covered the full SDZ including the Grand Canal, many of the species outlined above were not located within the proposed development area. These included coot, grey heron, little grebe, tufted duck, However, black headed gull, lesser black backed gull, common gull, mallard, herring gull were noted within the proposed housing development area while lapwing, cormorant were noted within proximate to a north west section of the proposed infrastructure links.

Barn owl was not confirmed to be breeding within the Clonburris SDZ during the surveys undertaken between November 2020 and June 2021, however the presence of the species cannot be ruled out due to sighting records within the SDZ lands from recent years, and due to a potential barn owl pellet found at the Grange Castle. (a full report is included in Appendix F).

Breeding bird and raptor surveys were also carried out by Scott Cawley for the Wider SDZ in 2020 and was submitted in conjunction with the road infrastructure development in the SDZ lands which includes the proposed development area as well as the western element of the SDZ lands.

Breeding birds use various habitats, including trees, structures, grasslands and scrub, for nesting. The presence of several bird species with territories and with young within the proposed development site indicate that it is likely to be used for breeding by various species. No nests were observed during the surveys; however, they are usually camouflaged and therefore well hidden.

Four raptor species were recorded within the proposed development site during the raptor surveys undertaken in June 2020. These included buzzard, long-eared owl *Asio otus*, peregrine and sparrowhawk Accipiter nisus. In addition, barn owl Tyto alba and long-eared owl were recorded during bat activity surveys. Of these species, barn owl is Red-listed (a species of High Conservation Concern) and sparrowhawk is Amber-listed (a species of Moderate Conservation Concern) by Colhoun & Cummins (2013). Peregrine is listed under Annex I of the EU Birds Directive and the nearest designated site for this species is the Wicklow Mountains SPA, located c.12.3km south of the proposed development site.

A Bat Assessment of the proposed development was carried out by Dr Tina Aughney of Bat Eco Services (Appendix F5). The report states that "*Five bat species were recorded in total by the array of bat surveys completed for this survey site. Three of the bat species recorded were common pipistrelle, Leisler's bat and soprano pipistrelle and these are the three most common bat species in Ireland.*

Prior to the implementation of mitigation measures the proposed development of the combined site has the potential to impact on biodiversity during both the construction and operational phases of the project. The proposed development will involve the removal of the existing terrestrial habitats on site, re-profiling, excavations and the

construction of roads, footpaths, residential units and associated services including landscaping works and foul, surface water, and water supply services.

The construction of the proposed development is likely to impact on the existing ecology of the site and the surrounding area within the Zone of Influence. These potential construction impacts would include impacts that may arise during the site clearance, enabling works and the building phases of the proposed development. Potential construction impacts on habitats and species are outlined in Table 4.7 and Table 4.8 (of Volume II of the EIAR). Construction phase mitigation measures are required on site particularly as reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to direct loss of species and silt laden and contaminated runoff.

A small portion of the proposed development is located within the Grand Canal pNHA. Runoff during site works, re-profiling, and the construction of project elements could impact on the Grand Canal pNHA, with potential for water quality impacts. This is primarily due to the drainage ditch proximate to the site, that contains overflow water from the canal that is reintroduced back into the canal further downstream. If silt or pollution were to enter this overflow it has potential to be reintroduced back into the canal.

There is no direct pathway to Natura 2000 sites. There are indirect pathways to the designated conservation sites located within the marine environment at Dublin Bay including Natura 2000 sites, via the proposed foul and surface water drainage strategy. However, the nearest conservation site along this network is a minimum of 11.9 km from the proposed development site. Significant mixing, dilution and settlement will take place within the surface water network in the marine environment over the 11.9 km. Any silt or pollutants within foul wastewater discharge will be treated along the public network in Ringsend WwTP. Given the significant distance to the conservation sites from the subject site, across the marine environment no significant impacts are foreseen in the absence of mitigation measures on site. The project must comply with Water Pollution Acts and prevent silt laden runoff leaving the site but these measures are not necessary for the protection of European sites.

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. It would be expected that the ecological impacts in the long term would be minor adverse as the majority of the site will be build land.

With the successful implementation of outlined mitigation measures including a strong and biodiversity enhancing landscape strategy, no significant long term impacts are foreseen from the construction or operation of the proposed project. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works and would be short-medium term, until the landscape strategy matures.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on biodiversity and designated conservation sites through the application the standard construction and operational phase controls as outlined above. In particular, mitigation measures to ensure compliance with Water Pollution Acts will satisfactorily address the potential impacts on downstream biodiversity. No significant adverse impacts on biodiversity or designated sites are likely from the proposed works following the mitigation described above.

In relation to downstream impacts it is essential that the measures outlined in the EIAR are complied with, to ensure that the proposed development does not have “downstream” environmental impacts. These measures are to protect the groundwater/surface water, which are potentially the primary vectors of impacts from the site.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors. The overall impact on the ecology of the proposed development will result in a not significant low adverse impact on the ecology of the area and locality overall, with non significant adverse impact on birds in the long term. This is primarily as a result of the loss of terrestrial habitats on site, supported by strong construction and operational phase mitigation and the creation of additional biodiversity features and complexity within a strong biodiversity targeted landscaping strategy.

3.3 LAND AND SOILS

The assessment of the potential effect of the activity on geology, soil and land was carried out according to best practice and the methodology specified in the available guidance documents. Various bodies including; Transport Infrastructure Ireland (TII, formally National Roads Authority); the Institute of Geologist Ireland (IGI); and the

Environmental Protection Agency (EPA) provide detailed guidance to the preparation and content required for an EIAR in relation to the geological environment.

The existing site is predominately greenfield. Overall, the topography of the site is relatively flat. There is a slight fall with a gradient of approximately 0.5% from east to west over the majority of the site. A number of drainage ditches are located throughout the site.

Topsoil was encountered in all the exploratory holes and was present to a maximum depth of 0.40m BGL. The results showed a brown slightly sandy gravelly topsoil.

Limestone bedrock underlies the entire site. The bedrock is described in geological mapping as a Dark Limestone & Shale.

No existing areas of contaminated ground have been identified within the subject site. Environmental testing carried out as part of ground investigations indicate that soils would be classed as inert under the EPA Waste acceptance Criteria.

The proposed development will alter the current land use from vacant land to residential development. creche and public open space and landscape areas. The impact on land, soil, geology, and hydrogeology from accidental spillages of fuel and lubricants used during the construction phase of the development is predicted to be minimal when stored and used in a responsible manner. After implementation of the mitigation measures recommended above for the construction phase, the proposed development will not give rise to any significant long term adverse impact.

Implementation of the measures outlined in Section 5.6 of Volume II of the EIAR, will ensure that the potential impacts of the development on soils and the geological environment are minimised during the construction phase and that any residual impacts will be short term, and imperceptible.

Residual Impacts from earthworks haulage and the risk of contamination of groundwater are deemed to be of minor risk. The residual impacts for a residential housing development, creche and open space are deemed to be imperceptible post construction (during the operational phase).

Implementation of the mitigation measures will ensure that potential significant effects of the proposed development on land, soils and geology do not occur during the construction phase and that any residual effects will be short term and not significant.

3.4 WATER AND HYDROLOGY

The existing site is predominately greenfield. Overall, the topography of the site is relatively flat. Much of the primary road network bounding the site is situated at a significantly higher level There is a slight fall with a gradient of approximately 0.5% from east to west over the majority of the site. A number of drainage ditches are located throughout the site. There are 2no. local high points on site. One located to the southwest and another to the east north of the future CSLR.

The overall Clonburris SDZ is within the River Liffey Catchment. The study area affects two primary hydrological sub-catchments, the Griffeen & the Camac. The subject site for this development is located within the “Camac” sub catchment (*EPA Ref:* IE_EA_09C020500*)*. The Grand Canal is located to the south of the subject site.

The River Liffey is approximately 3.8km to the north of the subject site. A canal overflow channel runs alongside the canal towpath north of the canal before re-entering the canal downstream, it does not appear that local drainage connects to this overflow channel.

There are a number of existing drainage ditches located throughout the site. These ditches are noted to generally have extremely flat or inconsistent gradients and are poorly maintained and appear to discharge beneath the R113 to the east.

The lands east of the R113 and south of the railway, drain to the south-east to existing stormwater networks on Ninth Lock Road, as per Figure 6.4 below. The drainage run continues south on Ninth Lock Road where it splits into parallel runs along Station Road which later merge and discharge to an open watercourse within the industrial estate and eventually discharge to the Camac River.

The existing site is greenfield. It appears that surface water run-off drains via infiltration and to the existing drainage ditches dispersed across the site.

Groundwater was encountered at a depth of 2m during the Preliminary Ground Investigations for the overall Clonburris SDZ. Groundwater Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. Groundwater vulnerability is classed as “High” or greater on the proposed site due to the shallow depth to bedrock. Areas of highest vulnerability correspond to areas of near surface bedrock and thin soil depths. It is noted that the aquifer vulnerability classification does not consider the nature of the underlying ‘receiving’ aquifer with respect to resource value or significance of pollution occurring and is only a reflection on the protection afforded to the aquifer by overlying deposits.

As part of the desktop study, historic and predicted flood risk mapping published by the OPW on the Flood Hazard Mapping Website http://www.floodinfo.ie/ was reviewed.

Historical flood maps/data indicate there are no recorded flood events within the proposed site boundary. There are to recorded recurring flood events within 1km of the proposed site. The first is a recurring flood event at the Cappaghmore Culvert located approximately 500m to the east of the site. The Second is located at the Beech Row Bungalows approximately 380m to the east of the site.

The Eastern CFRAM (Catchment Flood Risk Assessment and Management) study details the predicted risk for a variety of fluvial and coastal flood scenarios. The mapping does not include the watercourse reaches affected by the proposed scheme and only maps downstream flooding. The proposed development is therefore outside of the Q100 and Q1000 flood extents and is therefore in within Flood Zone C (low risk of flooding).

It is considered that by implementing the proposed construction and operational phase mitigation measures in Section 6.6 of the EIAR Volume II, that the significance of the identified impacts will be reduce to a “Not significant” residual impact on the identified hydrological/ hydrogeological receptors.

3.5 AIR QUALITY AND CLIMATE

The nearest representative synoptic meteorological station to the subject site at Clonburris is at Casement Aerodrome which is located approximately 3km south of the site and as such, long-term measurements of wind speed/direction, rainfall and air temperature for this location are representative of prevailing conditions experienced at the subject site.

Precipitation data from the Casement Aerodrome meteorological station for the period 2018-2021(Aug) indicates a mean annual total of about 754 mm. This is within the expected range for most of the eastern half of the Ireland which has between 750 mm and 1000 mm of rainfall in the year.

The annual mean temperature at Casement Aerodrome meteorological station for the period 2018-2021(Aug) is 9.6ºC.

Wind is of key importance for both the generation and dispersal of air pollutants. Meteorological data for Casement Aerodrome indicates that the prevailing wind direction is from the West and Southwest. The mean annual wind speed in the local area between 2015-2019 is 5.5 m/s.

The existing ambient air quality at and in the vicinity of the site is typical of an urbanised location and as such, domestic and commercial heating sources and road traffic are identified as the dominant contributors of hydrocarbon, combustion gases and particulate emissions to ambient air quality.

Annual air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities. The most recent annual report on air quality “*Air Quality in Ireland 2019* details the range and scope of monitoring undertaken throughout Ireland. Clonburris which is in the Dublin conurbation is catagorised as Zone A.

The most recent 2019 EPA publication includes a number of Zone A monitoring locations which would be broadly comparable to the expected air quality at the subject site. The various Zone A air quality monitoring stations within

Ireland provide a comprehensive range of air quality monitoring data sets which have been selected as part of this assessment to describe the existing ambient air quality at the subject site.

Based on published EPA air quality data for the Zone A area in which the subject site is located together with site specific monitoring data, it may be concluded that the existing baseline air quality at the subject site may be characterised as being good with no exceedances of the National Air Quality Standards Regulations 2011 (S.I No. 180 of 2011) limit values of individual pollutants. There is therefore currently sufficient atmospheric budget to accommodate the development without adversely impacting existing ambient air quality. The quality of existing air quality at the subject site must be maintained and improved where possible as a result of the proposed development to ensure that local human health and the ecological environment is not adversely affected.

Various elements associated with the construction phase of the proposed development have the potential to impact local ambient air quality, human health and climate. However, the potential construction phase impacts shall be mitigated as detailed above to ensure there is no adverse impact on ambient air quality for the duration of all construction phase works. It is predicted that the construction phase of the development will not generate air emissions that would have an adverse impact on local ambient air quality or on local human health or on the local micro-climate or the wider macro-climate.

The predicted construction phase residual impacts on air quality will be negative, slight and short-term.

The sustainable features that are incorporated into the design of all residential units will ensure that the operational phase of the development will not have an adverse impact on human health, local air quality or on local or global climate patterns. The residential units will be designed to ensure that they can withstand the potential changes in climate which may generate more extreme and prolonged meteorological events in the future.

It is predicted that fossil fuel combustion gas emissions including Carbon Dioxide, Sulphur Dioxide, Nitrogen Oxides, Carbon Monoxide and hydrocarbon particulate emissions will be slight and will not have an adverse significant impact on the existing ambient air quality in the vicinity of the proposed development site.

Motor vehicles are a major source of atmospheric emissions which contribute to climate change, however, vehicle exhaust emissions generated from vehicles associated with the development will have a negligible impact on the macro-climate given modern technological developments in cleaner and more efficient vehicle engines. Current trends suggest that vehicle manufacturers are ceasing the manufacture of large diesel engines for private cars and instead adopting hybrid engine and all electric technologies which will contribute to the reduction of engine exhaust emissions including particulate matter, Nitrogen Oxides, Sulphur Dioxide, Carbon Dioxide and Carbon Monoxide.

To further reduce the climatic impact of the operational phase of the development, electric vehicle charging points shall be installed in dedicated parking spaces and cycle parking shall be provided to facilitate residents who own electric vehicles and to encourage other residents to purchase electric vehicles.

The scheme has been designed to provide thermally efficient buildings which will reduce the consumption of fossil fuels within each individual dwelling. This will reduce the impact the operational phase of the development will have on the micro and macro climate. In particular, there will be no “traditional” passive air vents in the apartments which are both thermally and acoustically inefficient. Exhaust Air Heat Pump systems shall be incorporated into the design of all units. These efficient energy reducing systems together with thermally rated window sets will reduce the potential future impacts that the external climate will have in terms of wind and changing temperatures on the internal environment within the residential units. These design features will ensure the units are thermally efficient thus reducing the use of fossil fuels leading to a reduction of the impact on the micro and macro climate.

The thermal efficiency of the buildings will ensure that the development will be sustainable and will be protected against the impacts of future climate change which may include storm events and prolonged colder periods during the winter season. These factors will contribute to reducing the impact the operational development has on the local and global climate which will ultimately contribute in a positive manner in reducing the impact on local and further afield human health.

The predicted residual operational phase impacts on air quality and climate will be negative, imperceptible and long-term.

The operational phases of the subject development and other permitted residential developments in the local area will not generate cumulative air emissions that will have an adverse impact on local ambient air quality. Measured

baseline air quality and National published air quality data confirm that the existing air quality is good and that the operational phases of the subject development and other local proposed developments will have a long-term imperceptible impact on existing air quality.

3.6 NOISE AND VIBRATION

The baseline noise environment in the vicinity of the proposed development site has been defined by field surveys conducted during September 2021. Sound level measurements were conducted in appropriate weather conditions when there was no precipitation and when mean windspeeds were <5m/sec and when Irish Rail timetable were operating normally.

The existing ambient noise climate in the vicinity of the site has been characterised with information obtained from site specific baseline noise surveys conducted in the vicinity of the closest noise sensitive receptors to the subject site.

The impact of the proposed development has been determined through prediction of future noise levels associated with the scheme using established calculation techniques.
Construction noise and vibration impacts have been assessed in accordance with Transport Infrastructure Irelands (TII) guidance document Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (March 2014).

The subject site is located within the Clonburris SDZ in Co. Dublin. The subject site is currently undeveloped and is bordered to the North by the Dublin-Cork Railway Line and the Grand Canal to the South. Lands further to the south and east are comprised of residential areas. The Clondalkin/Fonthill Railway Station is located East of the site and the Fonthill Road (R113) runs along the Eastern site boundary.

The Cork-Dublin Rail Line and the Fonthill Road are the principal existing ambient noise sources that impact the subject site.

Rail traffic noise associated with the Dublin Cork Rail Line which runs along the northern site boundary has been assessed with regard to the EPA's Round 3 Rail Noise Mapping of this line. Rail noise dominates the northern site boundary during the daytime and nightime periods albeit on a non-continuous basis.

This is further confirmed by attended noise surveys conducted at the northern site boundary.

Local road traffic noise associated with the Fonthill Road which runs adjacent to the eastern site boundary has been assessed with regard to the EPA's Round 3 Road Noise Mapping of this road. Road traffic noise dominates the eastern site boundary during the daytime and nightime periods.

This is further confirmed by attended noise surveys conducted at the eastern site boundary.

Baseline noise data in the vicinity of the closest noise sensitive receptors to the proposed development site boundaries has been obtained from noise monitoring surveys conducted by Byrne Environmental Consulting Ltd on 6th - 7th September 2021 when normal traffic levels resumed after the School holiday period and Irish Rail Services were operating at normal capacity.
The impact of the construction phase will result in an increase in daytime noise levels at the closest receptors to the site. With mitigation measures in place, it is predicted that the guideline construction noise limit of 70dB(A) $L_{Aeq,\ 1\text{-}hour}$ can be complied with.

The residual construction noise impact will be negative, temporary to short-term and moderate to significant.

Site activities, in particular ground clearance and piling works will generate perceptible vibration at the closest residential receptors located west of the site. It is predicted that vibration levels associated with construction activities at the closest receptors to the site will not exceed 15 mm/sec PPV. Human response to groundbourne vibrations will be perceptible at levels between 0.14 to 1.0 mm/sec PPV.

The residual construction vibration impact will be negative, short-term and not significant.

The operational phase of the development will not adversely impact the existing noise climate at local receptors.
The residual operational noise impact will be neutral, long-term and not significant.

The operational phase of the development will not generate ground borne vibration levels.

The residual operational vibration impact will be neutral, long-term and imperceptible.

The cumulative noise and vibration impacts associated with the proposed development and future local developments will not result in an increased impact on the closest receptors to the proposed development site.

3.7 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

The site consists of c. 17.02 hectares of historically agricultural lands with associated hedgerow and drainage features. The Dublin-Kildare rail line runs east/west is approximately 170 metres to the north of the development area. The Grand Canal is adjacent to the south of the site, also running east/west. To the east the Fonthill Road (R113) runs north/south with the Clondalkin Fonthill Railway Station approximately 300 metres to the north-east. To the west the agricultural lands are bounded by the elevated R136 roadway running north/south.

The site is relatively flat overall, with gentle undulations over the extent of the land. There is a larger level difference between the site and the raised northern bank of the Grand Canal in some areas, between two and three metres.

Within the site the existing vegetation is mainly comprised of hedgerows and associated tree lines. More recent planting is evident as a result of new infrastructural roadway development (R113 and R136).

Much of the land between the hedgerows has reverted to scrub or re-colonised bare ground following the cessation of agricultural activity or management over the recent decades.

The Grand Canal to the south has significant and established vegetated zones with matures trees on both sides of the water body.

The entire site is within the Clonburris Strategic development Zone (SDZ) Planning Scheme of 2019. The planning scheme states that SDZs are 'a robust and important mechanism in providing for growth and urban expansion in the medium to long term.'

Key underlining principles within the SDZ include:

- To protect, enhance and develop an interconnected green and blue infrastructure network of parks, open spaces, hedgerows, grasslands, protected areas, rivers and streams for amenity and recreation, biodiversity protection, flood management and adaptation to climate change;
- To retain and improve key landscape and ecological features such as hedgerows, the Grand Canal and the Griffeen River;
- To incorporate new elements of Green and Blue Infrastructure such as tree planting, parks and natural open spaces and sustainable urban drainage systems;
- To connect parks and areas of open space with ecological and recreational corridors to aid the movement of biodiversity and people and to strengthen the overall Green Infrastructure network;
- To support native plant and animal species and encourage corridors for their movement; and
- To seek to retain hedgerows, aquatic habitats and established tree lines wherever possible.
- To aid the retention and protection of existing habitat there is a required setback for all buildings from the boundary of the Proposed Natural Heritage Area associated with the Grand Canal. As stated within the SDZ Planning Scheme document,

  '*Development proposals on the SDZ lands close to the Grand Canal shall protect and incorporate high value natural heritage features including watercourses, wetlands, grasslands, woodlands, mature trees, hedgerows and ditches and include for a 50m setback for all buildings and a 30m set-back distance for development (with the exception of bridges and footpaths) from the pNHA boundary to facilitate the continuity of the Grand Canal as a corridor for protected species, biodiversity, and a fully functioning Green Infrastructure network.'*

- A Parks and Landscape Strategy (incorporating a Biodiversity Management Plan) has been prepared for the entire SDZ area that has informed the design of the Cairn Lands to the south-east.

Further planning context within South Dublin County Council development plans include:

- Views and Prospects
There are no listed or protected views within the vicinity

- Green Infrastructure
Within the County Development Plan Policy 6 (New Development in Urban Areas) has specific objectives with regards to hedgerows and associated ecological features (G6 Objective 1). Also included are objectives dealing with connections to wider green infrastructure network (G6 Objective 2) and open space provision within new developments (G6 Objective 3).

- Protected Trees
There are no tree protection orders on trees within the site.

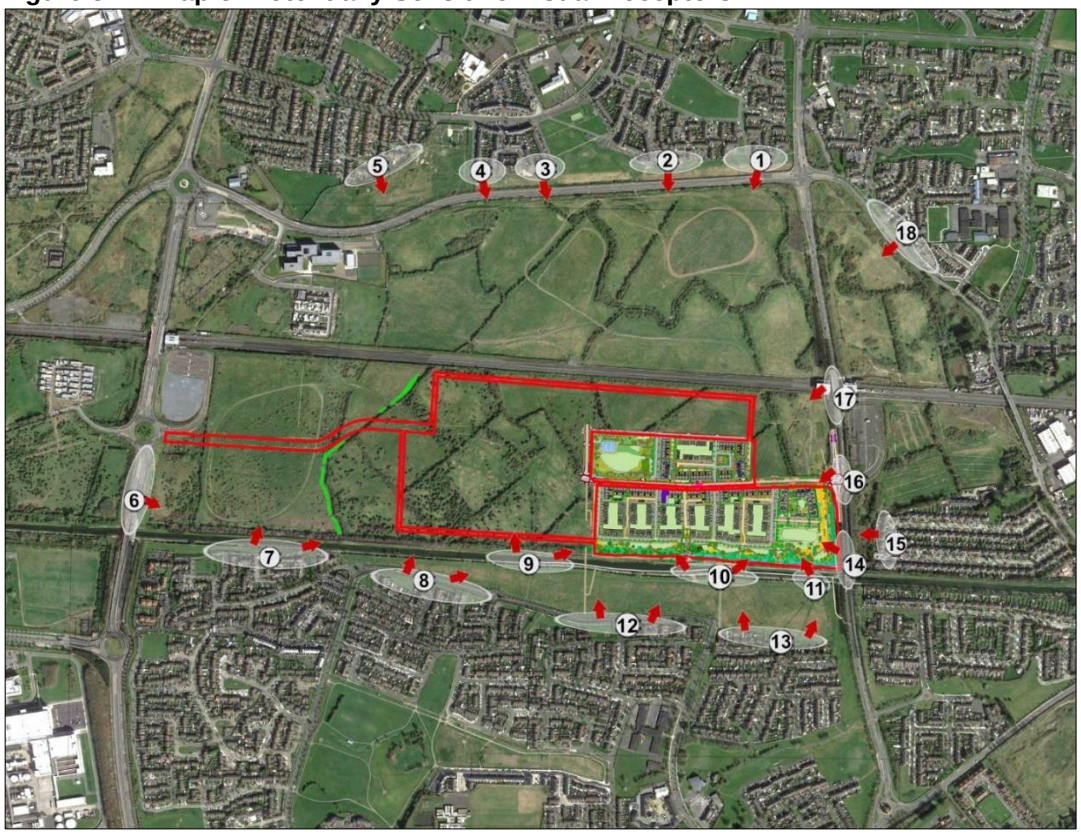
- Protected Structures
There are no protected structures within the site. There is a visual link with the Omer Lock House (a protected structure) to the north of the Grand Canal.

- Architectural Conservation Areas
There are no Architectural Conservation Areas within the site.

The site sits in the Urban Character Area, as defined by the LCA (*Landscape Character Assessment, May 2015, Minogue & Associates*) of South Dublin County.

The proposed site sits in the Urban area, of which a sensitivity is not defined by the LCA. The Urban area can be defined as transitional lands that were largely rural, transforming into suburban or urban derived land use. Development radiates from established settlements and are close to transport links. Land use is generally built land comprising transport, retail/business parks, quarries and urban derived housing. It can be considered that sensitivity within the Urban area can be considered generally to be low.

Figure 3.2 – Map of Potentially Sensitive Visual Receptors



The site is adjacent to the Grand Canal proposed Natural Heritage Area (pNHA), which is judged to have a low-to-medium landscape sensitivity. This is due to the existing SDZ zoning, and the existing abrupt edge conditions along the extent of the canal adjacent to the site. There are some historic elements such as the towpath, locks and Omer Lock House, but generally the historic landscape is no longer present, with late modern large-scale expansion represented by the urban fabric to the south in proximity to the canal.

Therefore, despite the presence of the Grand Canal pNHA, the landscape sensitivity of the immediate area of the site adjacent to the pNHA boundary can still be seen as low-medium, and low towards the northern boundary of the site further away from the pNHA boundary, and the visual sensitivity is medium to high adjacent to the canal, and low where the visual receptors are over 100 metres from the site.

During the construction phase, tree Protection Measures to existing trees to be retained will protect the important ecological corridor to the Grand Canal.

Screening measures implemented will not significantly change the assessment due to the distance from the site of the majority of receptors. The greatest visual impact from mitigation will be to the Grand Canal towpath, a site hoarding element. This is specified for site protection and prevention of access and gives a small amount of amenity screening gain.

In the longer term, the assessment concludes that there will be some not significant negative visual impacts to receptors to the south-west and south of the site with some imperceptibly negative visual impacts to the remaining residential receptors to the north and east.

The visual impact to the users of the R113 and R136 will be not significant negative in the medium to long term. The mitigation measures in Section 9.6 of Volume II of the EIAR, will have only a small effect on the residual impacts on viewpoints that are further away from the site (over 100m).

The development has a moderately negative effect on views from the Canal towpaths due to the proximity and scale of the adjacent development and the medium to high visual sensitivity assigned to this pNHA area. The residual impacts on views from the canal are impacted by the proposed removal of portions of the existing hedgerow and vegetation to create usable public open space, as defined within the Clonburris SDZ Planning Scheme and the associated Parks and Landscape Strategy (by Dermot Foley Landscape Architects, submitted to South Dublin County Council) and facilitate pedestrian links with the development from the canal towpath. This removal is mitigated by the inclusion of additional tree planting, hedgerow planting, woodland planting, resulting in a slight improvement in screening measures to the towpath, though not significantly enough to change the assessment.

Table 3.1 – Predicted Visual Effects

View	Quality	Significance	Magnitude	Probability	Duration	Sensitivity
VP1	Neutral	Imperceptible	Not appreciable	Likely	Long-Term	Low
VP2	Neutral	Imperceptible	Not appreciable	Likely	Long-Term	Low
VP3	Neutral	Imperceptible	Not appreciable	Likely	Long-Term	Low
VP4	Neutral	Imperceptible	Not appreciable	Likely	Long-Term	Low
VP5	Neutral	Imperceptible	Not appreciable	Likely	Short-Term	Low
VP6	Negative	Not Significant	Low	Likely	Long-Term	Low
VP7	Negative	Not Significant	Low	Likely	Long-Term	Low
VP8	Negative	Not Significant	Low	Likely	Long-Term	Low
VP9	Negative	Moderate	Medium	Likely	Long-Term	Medium/High
VP10	Negative	Moderate	Medium-high	Likely	Long-Term	Medium/High
VP11	Negative	Moderate	Medium-high	Likely	Long-Term	Medium/High
VP12	Negative	Not Significant	Low	Likely	Long-Term	Low
VP13	Negative	Not Significant	Low	Likely	Long-Term	Low
VP14	Negative	Not Significant	Low	Likely	Long-Term	Low
VP15	Neutral	Imperceptible	Low	Likely	Long-Term	Low
VP16	Negative	Not Significant	Medium	Likely	Long-Term	None
VP17	Negative	Not Significant	Low	Likely	Long-Term	None
VP18	Neutral	Imperceptible	Low	Likely	Long-Term	Low

3.8 TRAFFIC AND TRANSPORTATION

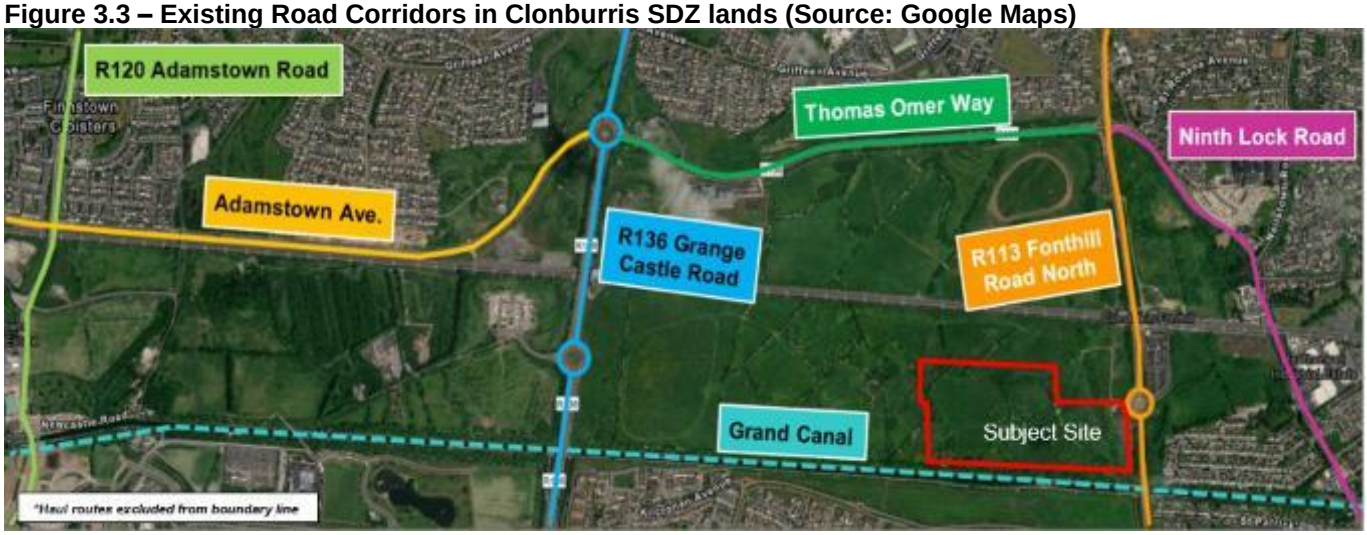
The subject site is located within the Clonburris Strategic Development Zone lands. The subject site is bounded to the east by the R113 Fonthill Road North and to the south by the Grand Canal. The site is bounded by the Dublin Cork Railway Line to the north, and greenfield sites to the west.

The SDZ is located to the west of Dublin City Centre and the M50. It is conveniently positioned between Lucan to the north-west, Clondalkin to the south-east and Liffey Valley to the north-east. The lands are intersected in an east-west orientation by the Kildare railway line and by the Grand Canal to the south.

The Clonburris SDZ lands have an approximate land area of 280 hectares and is predominately agricultural in nature or greenfield sites. In recent years, Lucan East Educate Together National School and two secondary school; Griffeen Community College and Kishoge Community College, have been constructed on the lands. The lands also contain a number of private residences, together with traveller accommodation which has been provided by South Dublin County Council. There are two train stations constructed within the SDZ; the Clondalkin-Fonthill station which is currently operational whilst the Kishoge station is constructed but has not been operational to date.

Clonburris is located to the west of Dublin City Centre and is well connected to the National Road Network, served by several key strategic routes. The Clonburris SDZ boundary is broadly bounded by the Arterial corridors of Adamstown Avenue and Thomas Omer Way to the north, Ninth Lock Road to the east, the Arterial corridor of Newcastle Road to the west, the Grand Canal to the south.

Figure 3.3 – Existing Road Corridors in Clonburris SDZ lands (Source: Google Maps)



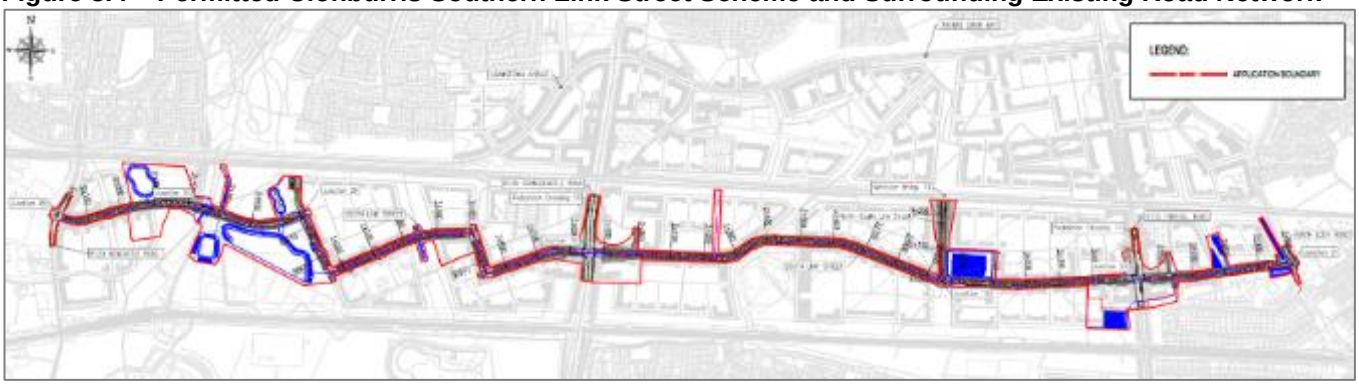
At present, the Clonburris SDZ lands are largely a greenfield site and as such there is limited cycle network within the lands. However, the Grand Canal Greenway, which links Adamstown to the City Centre, passes through the area along the Grand Canal.

There are a number of roads in the immediate area that have bus priority in the form of Quality Bus Corridors (QBC's).

The proposed development is situated on the Kildare railway line. At its intersection with the Fonthill Road North lies the Clondalkin-Fonthill station. This station is served by commuter services to Heuston Station. Intercity trains do not serve this station. Following the recent upgrading of the Phoenix Park Tunnel, services calling at Clondalkin-Fonthill Station now offer connections to Drumcondra, Connolly, Tara Street, Pearse and Grand Canal Dock.

The permitted Clonburris Southern Link Street (CSLS) Scheme is a cited objective of the South Dublin County Council Development Plan 2016-2022 under the Plan's 'Strategic Road and Street Network' and the proposed scheme forms part of the Clonburris SDZ Planning Scheme (2019) as road infrastructure to support the development of SDZ lands in conjunction with the Clonburris Northern Link Street. The Clonburris Southern Link Street has recently been granted planning permission allowing the southern lands of the SDZ to be opened up for development and allowing access for the road network for future residents. The Link Street will transverse through the subject development.

Figure 3.4 – Permitted Clonburris Southern Link Street Scheme and Surrounding Existing Road Network



3.9 MATERIAL ASSETS – WASTE MANAGEMENT

The construction and operation of the proposed residential development will introduce new volumes of waste into the local area in terms of the short-term generation of construction waste and the longer-term generation of domestic waste when the development is occupied.

There closest recycling centre in the local South Dublin area is Ballymount Civic Amenity.

The Construction and Operational Waste Management Plans prepared as part of the application shall be implemented throughout the construction phase and operational stage of the development to ensure the following:

- That all site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials.

- To ensure that all waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 and all associated Waste Management Regulations.

- The Operational Phase Waste Management Plan, a copy of which accompanies this application, for the development which will ensure that users of the development are provided with sufficient facilities to store, segregate and recycle waste.

The management of wastes generated during the construction of the proposed development will be in accordance with a Site-Specific Construction Phase Waste Management Plan. With regard to how it has been demonstrated how construction wastes will be managed through design, management and waste reduction and recycling initiatives at the proposed development, it is predicted that the impact of the construction phase of the development will not have an adverse impact on the receiving environment, existing material assets and local and regional waste management services.

The Table below summarises the identified likely significant effects of the proposed development during the construction phase post application of mitigation measures.

Table 3.2 – Summary of Construction Phase Likely Significant Effects with Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Regional Construction Waste Infrastructure	Negative	Not Significant	Regional	Likely	Short-Term	Residual

The development shall be designed to provide adequate domestic waste infrastructure and storage areas for all apartments. This will promote the appropriate segregation at source of domestic generated waste from all residential units at the development and thus reduce the potential for the generation of mixed un-recyclable domestic waste streams.

The Table below summarises the identified likely significant effects of the proposed development during the operational phase post application of mitigation measures.

Table 3.3 – Summary of Operational Phase Likely Significant Effects with Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Regional Construction Waste Infrastructure	Negative	Not Significant	Regional	Likely	Long-Term	Residual

3.10 MATERIAL ASSETS - UTILITIES

The proposed development site is located in the Local Authority area of South Dublin County Council (SDCC) and is part of the Clonburris Strategic Development Zone (SDZ). The subject site for this development is situated in the southern area of the Clonburris SDZ lands to the south of the Kildare/Cork railway adjacent to the R113 Font Hill Road. The Grand Canal forms the southern boundary of the site.
The topography of the subject site is reasonably flat. Much of the primary road network bounding the site is situated at a significantly higher level. Site levels outside road embankments and watercourses generally range between 58m – 62m. There are a number of existing drainage ditches located throughout the subject site. These ditches are noted to generally have extremely flat or inconsistent gradients and are poorly maintained appearing to discharge beneath the R113 to the east.

The lands east of the R113 and south of the railway, drain to the south-east to existing stormwater networks on Ninth Lock Road, as per Figure 6.3 below. The drainage run continues south on Ninth Lock Road where it splits into parallel runs along Station Road which later merge and discharge to an open watercourse within the industrial estate and eventually discharge to the Camac River. A canal overflow channel runs alongside the canal towpath north of the canal before re-entering the canal downstream, it does not appear that local drainage connects to this overflow channel.

According to wastewater drainage records from Irish Water, there is an existing network of three 600mm foul sewers located to the south of the Grand Canal, to the south of the subject site. There is a network of existing 225mm foul sewers to the south-east of the subject site within the Cappaghmore development which cross under the canal and discharge to a 900mm diameter sewer to the south.

To the north of the subject site, a foul sewer ranging from 750mm to 900mm runs in a west to east direction along the length of Thomas Omer Way to the Fonthill Road where it connects to the 1050mm diameter 9B sewer running southwards along the R113 Fonthill Road. The 9B sewer then turns east through the SDZ lands north of the railway line and outfalls to the east towards Ringsend Wastewater Treatment Plant. The existing 9B sewer has been identified as the main outfall for the overall future SDZ development.
There is an existing 600mm watermain running adjacent to Fonthill Road at the bottom of the road embankment on the west side of the R113.

There are existing ESB Networks (ESBN) infrastructure within the site in the form of Medium Voltage overhead power lines which traverse south east corner of the site.

Eir and Virgin Media have been contacted and the existing network maps for the area surrounding the proposed development have been obtained.

Gas Networks Ireland (GNI) have been contacted and an existing gas network map for the area surrounding the proposed development has been obtained. There is an existing gas transmission line which runs parallel to R113 in the form of High Pressure (70bar) mains pipework.

Implementation of the measures outlined in Section 12.6 of Volume II of the EIAR, will ensure that the potential effects of the proposed development on infrastructure, services and public utilities do not occur during the construction phase and that any residual effects will be short term and not significant.

As surface water drainage, foul water drainage, watermain and utilities design has been carried out in accordance with the relevant guidelines, there are no predicted significant negative residual effects on the drainage and water supply arising from the operational phase. All utilities ducting and diversions will be carried out as per the supplier instructions, therefore no predicted residual effects are expected from the operational phase.

3.11 CULTURAL HERITAGE

The proposed development area is located within the townlands of Kishoge, Clonburris Little and Cappagh, within the Clonburris SDZ, Dublin 22. There are two recorded monuments located in close proximity to the haul roads associated with the development, both of which are listed as enclosures (DU017-035 and DU017-036). Neither possess any upstanding remains.

There are no protected structures located within the proposed development area, although three structures are located within 250m of the development. All three of these features are also listed in the NIAH Survey and relate to the Grand Canal, which bounds the site to the south. There is one former demesne landscape partially within the proposed development area. The demesne of Clonburris Cottage is located to the north of the southern stretch of the proposed haul route within the proposed development area and extends south into within the site boundary.

A programme of archaeological testing has been carried out as part of the now permitted infrastructure works for the Clonburris SDZ (O. Neill 2020, Licence 20E0390). This resulted in the identification of three areas of post-medieval brick production and three areas of archaeological potential comprising small pits or charcoal production sites, two of which are partially within the proposed development area (AA1, AA2) and one which is within the proposed haul route (Kiln Area 3). Metal detecting was also carried out during the course of testing, but no archaeological artefacts were recovered. These sites will be subject to preservation by record as part of the permitted development.

A bronze axehead (IA/163/1996) is recorded in the topographical files of the National Museum of Ireland as potentially originating from within the Clonburris SDZ, although no detail as to the circumstances of the find is contained in the record.

Cartographic sources depict the proposed development area as primarily agricultural greenfield throughout the post-medieval period. A number of townland boundaries traverse the proposed development area, including the Cappagh-Clonburris Little boundary and the Clonburris Little- Kishoge boundary. Both of which are substantially extant. The Clonburris Little-Kishoge townland boundary also marks the Barony boundary between Uppercross and Newcastle.

A field inspection has been carried out as part of the assessment. The site of both the recorded monuments were inspected and no upstanding archaeological remains were identified. No other areas of archaeological potential were noted. The lands are overgrown and scrubby in nature with no active management in recent years. Omer Lock House, which is a protected structure, is located to the immediate south of the development area and whilst the structure is upstanding, it is overgrown and is very poor condition. The Grand Canal and associated locks (also listed in the RPS) remain present and in good condition. No additional structures of architectural merit were noted in the development area or its study area.

Following implementation of mitigation measures, no impacts are predicted upon the archaeological resource.

The proposed development is predicted to have an indirect moderate positive impact on the Grand Canal and Omer Lock House. This is due to the fact that the heritage features will be utilised by the residential development and this may also lead to the re-use or restoration of the Omer Lock House, which is an RPS and in very poor condition.

Following implementation of mitigation measures, there are no impacts predicted upon the cultural heritage resource.

3.12 RISK MANAGEMEMT

The surrounding land usage consists of a mix of residential and agricultural. It does not include any man-made industrial processes (including SEVESO II Directive sites (96/82/EC & 2003/105/EC) which would be likely to result in a risk to human health and safety.

The construction phase of the proposed development may give rise to short-term impacts associated with construction traffic, migration of surface contaminants, dust, noise, and littering. Secondary impacts may include resulting increased traffic arising from hauling building materials to and from the proposed development site which are likely to affect population and human health distant from the proposed development site, including adjacent to aggregate sources and landfill sites. Potential spillage (diesel and petrol) has the potential to occur.

Construction impacts are likely to be short term and are dealt with separately in the relevant chapters of this EIAR document and will be subject to control through the Outline Construction Management Plan. The construction methods employed, and the hours of construction proposed will be designed to minimise potential impacts. The

development will comply with all Health & Safety Regulations during the construction of the project. Where possible, potential risks will be omitted from the design so that the impact on the construction phase will be reduced.

The main risk identified during operation is the risk of fire. It should be noted that the proposed uses are considered normal hazard fire risks as would be encountered in most residential developments and do not include any hazards which would be regarded as presenting an exceptional environmental fire hazard.

The Outline Construction & Environmental Management Plan and the Health and Safety Plan, in addition to good housekeeping practices, will limit the risk of accidents during construction. Fire safety will be dealt with under the Fire Safety Code at design and construction stage.

The proposed development will involve the ground works to facilitate the proposed development. A site investigation has been carried out and has not identified any hazardous material. Further testing will be carried out prior to construction to inform the detailed design. In the event that any hazardous material is identified the appropriate measures will be taken in accordance with the requirements of the EPA. The excavation and movement of soil from the site will be undertaken by a registered specialist contractor and removed to a licensed facility.

The man risks arise during the construction period. Consequences may be limited but severe for the individuals concerned. Geographical widespread environmental consequences are not anticipated.

Through the implementation of mitigation measures, there are no identified incidents or examples of major accidents and or natural disasters that present a sufficient combination of risk and consequence that would lead to significant residual impacts or environmental effects.

The cumulative interactions with Population and Human Health, Land, Soils, Geology and Hydrogeology, Surface Water, Noise, Climate and Air, Material Assets, Traffic and Transport, Landscape and Visual, and Cultural Heritage. However, subject to implementation of mitigation measures, good working practices and codes, the interactions between these areas have been sufficiently considered in relation to risk management.

Works on the public road and the laying of underground pipes would be carried out on behalf of the relevant statutory undertakers and would be subject to separate construction management plans.

4.0 CUMULATIVE IMPACTS

The EIAR where relevant the EIAR also takes account of other development within the area. These impacts have been addressed in the relevant chapters of the EIAR.

To determine traffic impacts in Chapter 10 the traffic generated by the proposed development is combined with the baseline traffic generated by the traffic on the road network in the area. The potential traffic impacts from other developments were also considered in the assessment.

For the noise impact assessment in Chapter 8 the potential noise emissions arising from the proposed development during construction and operation are combined (using cumulative AADT figures from Traffic chapter) with background noise levels (predominantly road traffic) were assessed.

Each of the relevant specialists has considered the potential for cumulative impact in preparing their assessments. While there is the potential for negative impacts to occur during the construction stage of the scheme, with the implementation of the appropriate mitigation outlined in the EIAR, the residual cumulative impact is not considered to be significant.

There will be some short term impacts during the construction phase as the pipes are laid, particularly in respect of traffic management with regards to sensitive receptors. This may cause local short term inconvenience and disturbance to residents and business in the vicinity of the works. However the works would normally be undertaken in sections on a phased/rolling programme so that the number of persons experiencing local inconveniences at any one time is kept to a minimum.

5.0 INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

Chapter 15 of the EIAR (Volume II) provides detail on the interaction and interdependencies in the existing environment. John Spain Associates in preparing and co-ordinating this EIAR ensured that each of the specialist consultants liaised with each other and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process. This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001-2018. The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR.

In addition to the individual assessments of impacts on human beings, fauna and flora, soil, water, air, climate factors, the landscape and material assets, including architectural, archaeological and cultural heritage, the inter-relationships between these factors was also taken into account as part of the EIAR scoping and impact assessment. Where the potential exists for interaction between two or more environmental topics, the relevant specialists have taken these potential interactions into account when making their assessment and, where possible, complementary mitigation measures have been proposed. These are set out in Chapter 15 of the EIAR (Volume II).

The primary interactions can be summarised as follows:

Table 5.1 – Matrix of summary of interactions between the environmental factors

Interaction	Population & Human Health	Biodiversity	Land and Soils	Water	Air Quality/Climate	Noise/Vibration	Landscape and Visual	MA-Traffic	MA-Waste/Utilities	Cultural Heritage	Risk Mgmt
Population & Human Health		×	×	×	✓	✓	✓	×	✓	×	×
Biodiversity	×		✓	✓	×	×	×	×	✓	×	×
Land and Soils	×	✓		✓	✓	×	×	×	×	✓	×
Water	×	×	✓		×	×	×	×	✓	×	×
Air Quality/Climate	✓	✓	×	✓		×	×	✓	×	×	×
Noise/Vibration	✓	✓	×	×	×		×	×	×	×	×
Landscape and Visual	✓	✓	×	×	×	✓		×	×	×	×
MA-Traffic	✓	✓	✓	✓	✓	✓	×		✓	×	×
MA-Waste/Utilities	✓	✓	✓	✓	✓	✓	×	✓		×	×
Cultural Heritage	×	×	×	×	×	×	×	×	×		×
Risk Mgmt	✓	×	✓	✓	✓	✓	×	✓	×	×	

✓ = Interaction envisaged; × = no interaction envisaged

The relevant consultants liaised with each other and the project architects, engineers and landscape architects where necessary to review the proposed scheme and incorporate suitable mitigation measures where necessary. As demonstrated throughout this EIAR, most inter-relationships are neutral in impact when the mitigation measures proposed are incorporated into the design, construction or operation of the proposed development.

6.0 SUMMARY OF EIA MITIGATION AND MONITORING MEASURES

Chapter 16 of the EIAR (Volume II) provides a summary of all the mitigation and monitoring measures proposed throughout the EIAR document for ease of reference for South Dublin County Council and all other interested parties.