

RECEIVED: 28/03/2024



Natura Impact Statement

PRESENTED TO

Marina Quarter Ltd.
Large-scale Residential Development at
Bennetstown, Dunboyne, Co. Meath.

January 2024

DOCUMENT CONTROL SHEET

RECEIVED: 28/03/2024

Client	Marina Quarter Ltd.
Project Title	Large-scale Residential Development at Bennetstown, Dunboyne, Co. Meath.
Document Title	Natura Impact Statement

Revision	Status	Author(s)	Reviewed	Approved	Issue Date
00	Draft for internal review	LG <i>Senior Ecologist</i>	-	-	-
1.0	Draft for Client Review	LG <i>Senior Ecologist</i>	BL <i>Principal Ecologist</i>	LT <i>Technical Director - Ecology</i>	08/09/2023
2.0	Final	LG <i>Senior Ecologist</i>	BL <i>Principal Ecologist</i>	LT <i>Technical Director - Ecology</i>	13/09/2023
3.0	Draft FI Response	LG <i>Senior Ecologist</i>	SOD <i>Principal Ecologist</i>	SOD <i>Principal Ecologist</i>	12/01/2024
4.0	RFI Submission	LG <i>Senior Ecologist</i>	SOD <i>Principal Ecologist</i>	SOD <i>Principal Ecologist</i>	27/02/2024
5.0	RFI Submission FINAL	LG <i>Senior Ecologist</i>	SOD <i>Principal Ecologist</i>	SOD <i>Principal Ecologist</i>	20/03/2024

REPORT LIMITATIONS

Synergy Environmental Ltd. t/a Enviroguide Consulting (hereafter referred to as "Enviroguide") has prepared this Report for the sole use of Marina Quarter Ltd., in accordance with the Agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by Enviroguide.

The information contained in this Report is based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by Enviroguide has not been independently verified by Enviroguide, unless otherwise stated in the Report.

The methodology adopted and the sources of information used by Enviroguide in providing its services are outlined in this Report.

The work described in this Report is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

All work carried out in preparing this Report has used, and is based upon, Enviroguide's professional knowledge and understanding of the current relevant national legislation. Future changes in applicable legislation may cause the opinion, advice, recommendations or conclusions set out in this Report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, Enviroguide has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this Report, Enviroguide will have no obligation to advise the client of any such changes, or of their repercussions.

Enviroguide disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to Enviroguide's attention after the date of the Report.

Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. Enviroguide specifically does not guarantee or warrant any estimate or projections contained in this Report.

Unless otherwise stated in this Report, the assessments made assume that the Site and facilities will continue to be used for their current or stated proposed purpose without significant changes.

The content of this Report represents the professional opinion of experienced environmental consultants. Enviroguide does not provide legal advice or an accounting interpretation of liabilities, contingent liabilities or provisions.

If the scope of work includes subsurface investigation such as boreholes, trial pits and laboratory testing of samples collected from the subsurface or other areas of the Site, and environmental or engineering interpretation of such information, attention is drawn to the fact that special risks occur whenever engineering, environmental and related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with best practice and a professional standard of care may fail to detect certain conditions. Laboratory testing results are not independently verified by Enviroguide and have been assumed to be accurate. The environmental, ecological, geological, geotechnical, geochemical and hydrogeological conditions that Enviroguide interprets to exist between sampling points may differ from those that actually exist. Passage of time, natural occurrences and activities on and/or near the Site may substantially alter encountered conditions.

Copyright © This Report is the copyright of Enviroguide Consulting Ltd. any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.

TABLE OF CONTENTS

LIST OF TABLES.....	IV
LIST OF FIGURES.....	IV
1 INTRODUCTION	5
1.1 BACKGROUND	5
1.2 QUALITY ASSURANCE AND COMPETENCE	5
1.3 DESCRIPTION OF PROPOSED DEVELOPMENT	6
1.3.1 Site Location.....	6
1.3.2 Proposed Development Description.....	7
1.3.3 Construction Phase Description.....	7
1.3.4 Proposed Drainage	11
2 LEGISLATIVE AND POLICY CONTEXT	16
2.1 LEGISLATIVE BACKGROUND	16
2.1.1 Legislative Context.....	16
2.2 POLICY CONTEXT	18
2.2.1 Meath County Development Plan 2021-2027	18
2.2.2 County Meath Biodiversity Action Plan 2015-2020	19
2.3 STAGES OF APPROPRIATE ASSESSMENT	19
2.4 STAGE 1: APPROPRIATE ASSESSMENT SCREENING CONCLUSION	20
3 NIS METHODOLOGY	23
3.1 GUIDANCE	23
3.2 NIS STEPS	23
3.3 DESK STUDY.....	24
3.4 FIELD SURVEYS.....	24
3.5 IMPACT PREDICTION.....	25
3.6 LIMITATIONS	26
4 NATURA IMPACT STATEMENT	27
4.1 EXISTING ENVIRONMENT	27
4.1.1 Desk Study Results.....	27
4.1.2 Site Drainage.....	27
4.2 RELEVANT FIELD SURVEY RESULTS	28
4.2.1 Habitats & Flora	28
4.2.2 Fauna.....	28
4.3 SUMMARY OF RELEVANT EUROPEAN SITES	29
4.3.1 North Dublin Bay SAC (000206).....	29
4.3.2 North Bull Island SPA (004006).....	30
4.3.3 Qualifying Interests and Conservation Objectives	31
4.4 POTENTIAL IMPACTS.....	36
4.4.1 Potential impacts of the Proposed Development on key Species and Habitats.....	36
4.4.2 Potential for In-combination Effects.....	44
4.5 AVOIDANCE AND MITIGATION MEASURES	48
4.5.1 Summary of Potential Effects.....	48
4.5.2 Construction Phase.....	48
4.5.3 Operational Phase	55
4.6 MONITORING	56

RECEIVED: 28/03/2024

4.6.1	Construction Phase.....	56
4.6.2	Operational Phase.....	56
5	CONCLUSION.....	57
6	REFERENCES.....	58

RECEIVED: 28/03/2024

LIST OF TABLES

Table 1.	Field surveys undertaken at the Proposed Development Site.	25
Table 2.	Qualifying Interests (QIs) / Special Conservation Interests (SCIs) and their conservation objectives for the relevant European sites. The conservation status of each QI / SCI was sourced from the relevant Standard Data Form(s) (source: EEA (2023)) and the latest national status is taken from the latest Article 17 Report (NPWS, 2019a & 2019b) and BOCCI respectively.	32
Table 3.	Assessment of the potential impact of the Proposed Development on the QIs and SCIs of the relevant European sites. Those QIs/SCIs for which notable impact pathways were identified have been highlighted in green.	38
Table 4.	Granted and Pending Development applications within 500 m of the Proposed Development. Location and distance given is relative to the Proposed Development.	44

LIST OF FIGURES

Figure 1.	Image adapted from Atkins drng no: 5205505-ATK-ZZ-ZZ-SK-CE-001710 showing overall bridge layout across floodplain.	9
Figure 2.	Image extracted from Atkins drng no: 5205505-ATK-ZZ-ZZ-SK-CE-001703 showing bridge's clear span design.	10
Figure 3.	Image extracted from SSFRA Report (IE Consulting, 2024) showing realignment of drainage channel/ditch in green.	10
Figure 4.	Site Location.....	13
Figure 5.	Proposed Site layout (Extracted from JFA Drwg no: DBN-SP-00-DR-JFA-AR-P1007, FURTHER INFORMATION).	14
Figure 6.	Image extracted from Atkins Drwg no: 5205505-ATK-ZZ-ZZ-SK-CE-000025, showing the southern Link-road as it crosses the Tolka and flood plain.....	15
Figure 7.	Relevant European sites and impact pathway as identified in AA Screening (Enviroguide, 2024).	22

RECEIVED: 28/05/2024

1 INTRODUCTION

1.1 Background

Enviroguide Consulting was commissioned by Marina Quarter Ltd., to prepare an Appropriate Assessment (AA) Screening Report in relation to a Proposed Large-scale Residential Development (LRD), at Bennetstown, Dunboyne, Co. Meath, hereafter referred to as 'Proposed Development' or 'Site', when referring to the application Site area. The AA Screening Report concluded that a degree of uncertainty exists in whether the Proposed Development could give rise to potentially significant effects on the following European sites, namely:

- North Dublin Bay SAC (000206).
- South Dublin Bay and River Tolka Estuary SPA (004024).
- North Bull Island SPA (004006).

Therefore, a Natura Impact Statement (NIS) has been prepared for the Proposed Development. The purpose of this NIS report is to provide information for the relevant competent authority to carry out a Stage 2 Appropriate Assessment in respect of the Proposed Development.

1.2 Quality Assurance and Competence

Enviroguide Consulting is a multi-disciplinary consultancy specialising in the areas of the Environment, Waste Management and Planning. All Enviroguide consultants carry scientific or engineering qualifications and have a wealth of experience working within the Environmental Consultancy sectors, having undergone extensive training and continued professional development.

Enviroguide Consulting as a company remains fully briefed in European and Irish environmental policy and legislation. Enviroguide staff members are highly qualified in their field. Professional memberships include the Chartered Institution of Wastes Management (CIWM), the Irish Environmental Law Association and Chartered Institute of Ecology and Environmental Management (CIEEM).

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. LG, Senior Ecologist with Enviroguide authored this Report and undertook the desktop research and field surveys that informed it. LG and SH conducted the bat surveys carried out at the Site to date. LG, ED and BMcC conducted the various bird surveys carried out at the Site to date.

LG is a Senior Ecologist with Enviroguide and has a B.Sc. in Zoology (Hons) and a M.Sc. (Hons) in Wildlife Conservation and Management from University College Dublin. LG's MSc thesis was a literature scoping review on the ecosystem services provided by Irish bats, and has completed best practise guidance courses on bat survey and mitigation techniques such as: 'Bat Ecology & Survey' and 'Bat Impacts and Mitigation' both held by the Chartered Institute of Ecology and Environmental Management (CIEEM). LG is experienced in desktop research, literature scoping-review, and report writing, as well as practical field skills (Bats, habitats, invasive

species, bird surveys). LG is experienced in compiling Biodiversity Chapters of EIARs, Ecological Impact Assessments (EclA), Appropriate Assessment (AA) screening and Natura Impact Statements (NIS) reports, and in the overall assessment of potential impacts to ecological receptors from a range of developments. LG is a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

ED is an Environmental Consultant and Ornithologist who has worked on a wide range of conservation, research, and ecological monitoring projects across Ireland. ED is the author of the best-selling books, *The Complete Field Guide to Ireland's Birds* and *Finding Birds in Ireland* and is experienced in coordinating and undertaking surveys along with being highly proficient in report writing and data management. ED is highly experienced with all survey methodology and has inputted in various Environmental Impact Assessment Reports, Environmental Assessments and Appropriate Assessments. ED is currently part of the team of field ornithologists undertaking the long-term Dublin Bay Wetlands Survey.

BMcC is a graduate Ecologist and experienced Ornithologist with 12 years of bird survey experience. BMcC is a longstanding and active member of Bird Watch Ireland and has provided Ornithology survey work for ecological consultancies, e.g., vantage points surveys of gulls, terns, raptors, waders and wildfowl; hinterland surveys of the above as well as riverine species; and breeding waders and country birds. BMcC is highly experienced with all survey methodologies and with surveying all species groups of Irish birds and migrants.

Dr SH has a B.Sc. (Hons) in Zoology and a Ph.D. in Marine Ecology from University College Dublin, and a wealth of experience in desktop research, bioinformatics analyses, literature review and reporting, as well as practical field and laboratory experience including habitat mapping, invasive species surveys, terrestrial fauna surveys (incl. mammal presence and bat activity surveys), freshwater and marine fish surveys and environmental DNA analysis. SH has prepared several Stage I and Stage II Appropriate Assessment Reports and Ecological Impact Assessments (EclA). Additionally, SH has authored and supported the preparations of a number of Biodiversity Chapters for Environmental Impact Assessment Reports.

YM has a B.Sc. in Botany from Tokyo University of Agriculture and a M.Sc. in Botany from Hokkaido University, and has experience in desktop research, reporting and GIS work, as well as practical field experience including flora surveys, rare and protected plant species surveys, phytosociological vegetation surveys, habitat mapping and invasive species surveys. YM has prepared several AA screening reports. YM is also a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

1.3 Description of Proposed Development

1.3.1 Site Location

The Site of the Proposed Development is 14.17 Ha. in size with a developable area of 5.18 Ha. There is 9.52 Ha. of undevelopable area which includes non residentially

zoned lands F1 and E3 and a riparian strip along a drainage ditch in the south of the Site.

The Site of the Proposed Development comprises a greenfield site located on the northern outskirts of Dunboyne and in the townland of Bennetstown (Figure 4). The Site currently comprises several agricultural pasture fields and associated vegetated boundaries. The M3 Parkway is located adjacent to the north of the Proposed Development, along with third party lands also marked for development. The R157 Dunboyne Bypass runs adjacent to the west of the Site, with the River Tolka and its flood plain running along the east. The Site is bounded by agricultural fields to the south (See Figure 4 for Site location).

1.3.2 Proposed Development Description

The proposed LRD will consist of the construction of 267 no. residential units, a creche, a new link road between the R157 and the Old Navan Road including a bridge over the River Tolka, 2 no. signalised junctions, upgrade works and road improvements to the R157 and the M3 Parkway access road, and all associated site development works including drainage, landscaping, and boundary treatments. A full description is included in the statutory notices and in Chapter 2 of the Environmental Impact Assessment Report (EIAR) that accompanies this application under separate cover.

The layout of the Proposed Development is shown in Figure 5 below.

1.3.3 Construction Phase Description

1.3.3.1 Main Site Development works

As per the Construction Environmental Management Plan (CEMP) prepared by Paul McGrail Consulting Engineers (PMG) (2023a), the assumed programme presented below is indicative of how the Proposed Development will be constructed. At each stage of the Development some or all of the following activities will be required.

- Archaeological watching brief.
- Geotechnical Investigation.
- Ecology Prep. and establishment of tree protection measures and ecological mitigation measures.
- Site clearance and enabling works.
- External Infrastructure works.
- Internal Service infrastructure works.
- Sub-Structure works.
- Super-Structure works.
- External works and finishes.

The Phasing included in the CEMP is indicative to allow for flexibility in terms of the development. In terms of the Delivery and Phasing of Development the following as detailed in the CEMP (PMG, 2023a) will be the key stages:

Phase 1a – Site Set Up

This task will take up to ca.3 months to complete with approximately up to 20 staff employed and will involve consultation with the Project Arborist, Archaeologist and

Ecologist, Site clearance set up Site offices and contractors compound (in the west of the Site) and secure the construction Site and erection of signage for Site security purposes.

Phase 1b – Setting out of sites and provision of services

Given the significant work involved in the provision of drainage services, this stage will involve significant work and is estimated to take between 4-5 months and will involve up to 40 construction staff. This will involve the laying of sewers within the Site, the installation of attenuation tanks, the provision of footpaths, lighting and roadways. As part of any works (i.e. provision of services) along the public areas/roads in the vicinity of the Site, it will be ensured that the surface of the roads/areas will be re-instated to a high standard. Due to the catchment areas, the Site services associated with the phasing will be constructed as and when required; to ensure that all surface water is attenuated prior to discharging to the existing surface water network.

Phases 1-5 – Construction of Residential Units

The construction of the residential units will, to a certain degree respond to the demand/sale of the units involved. The Proposed Development is expected to take up to four (4) years to complete (subject to planning and market demand). The units will be developed on a sequential basis starting with the southern portion of the Site.

1.3.3.2 Bridge Construction

Proposed Bridge Construction

The Proposed Development entails the installation of a bridge across the River Tolka in the south-east of the Site. The proposed bridge has a clear span of 29.5m and traverses a section of the river (See Figure 1 and Figure 2). As advised by Atkins, consultant engineers for the Proposed Development, the bridge will be constructed using conventional construction methods as outlined below:

- Construct/cast precast beams at an established precast yard in Ireland.
- Establish piling equipment and install piles (including excavation as required). Assumed maximum piling depth of 20m (conservative assumption).
- Construct the foundation and abutments to beam seat level.
- Transport and place precast beams with appropriately sized crane equipment.
- Cast the top slab and deck diaphragms (with formwork supported off beams).
- Construct wing/return walls.
- Backfill behind abutments and wingwalls.
- Install bridge parapets, kerbs, and footpaths.
- Complete roadworks and implement any necessary scour protection measures.
- Landscaping and finish the road reserve.

Bridge Redesign to address Meath CoCo RFI

The Proposed Development originally included works within the River Tolka's flood plain to ensure adequate flood capacity would be present during the operation of the Proposed Development. This previously entailed the excavation of parts of the Tolka's western flood plain to increase capacity, the construction of earthen berms along the eastern length of the main housing development area at the Site, as well as the amendment of the existing flood protection berm present along the eastern bank of the Tolka.

Following a request for further information (RFI) from Meath CoCo, a redesign of the bridge was undertaken to address the council's concerns regarding flooding. The proposed bridge now involves the construction of a continuous structure with longer spans than previously proposed. As a result of this redesign, the Proposed Development now no longer requires the excavation of additional flood capacity within the Tolka's western flood plain, nor does it require the removal of the existing berm located along the eastern bank of the river, except for minor amendments to tie in with the embankments of the proposed link-road and bridge at this location. In addition, a section of existing drainage channel/ditch in the south of the Site that was originally to be culverted beneath the link-road will now be maintained un-culverted once realigned slightly to avoid the western bridge embankments and direct it beneath bridge (See Figure 3).

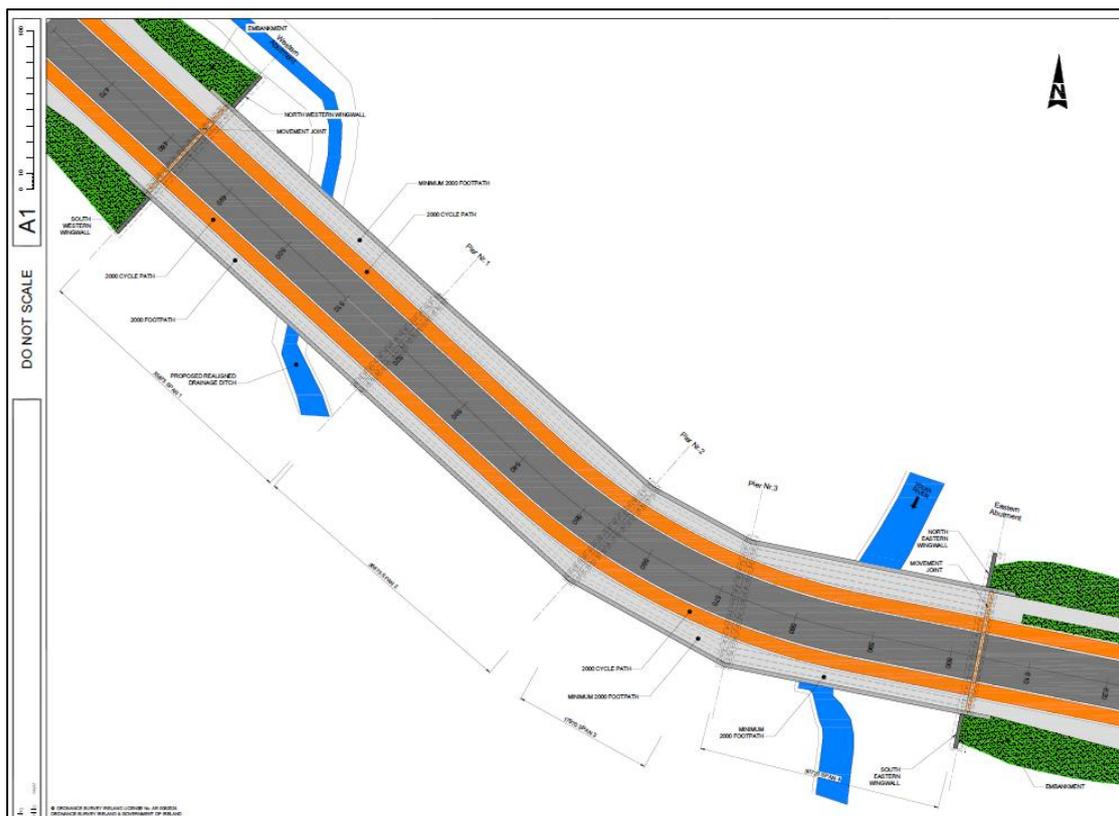


FIGURE 1. IMAGE ADAPTED FROM ATKINS DRNG NO: 5205505-ATK-ZZ-ZZ-SK-CE-001710 SHOWING OVERALL BRIDGE LAYOUT ACROSS FLOODPLAIN.

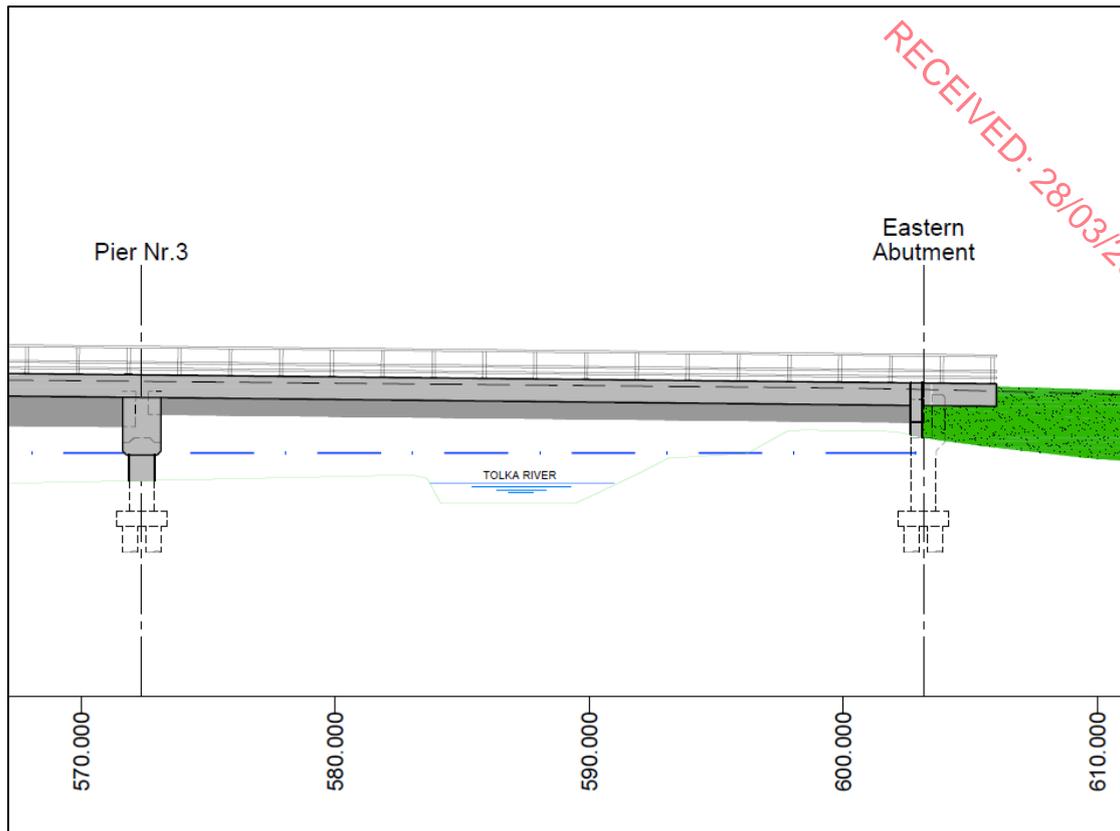


FIGURE 2. IMAGE EXTRACTED FROM ATKINS DRNG NO: 5205505-ATK-ZZ-ZZ-SK-CE-001703 SHOWING BRIDGE'S CLEAR SPAN DESIGN.

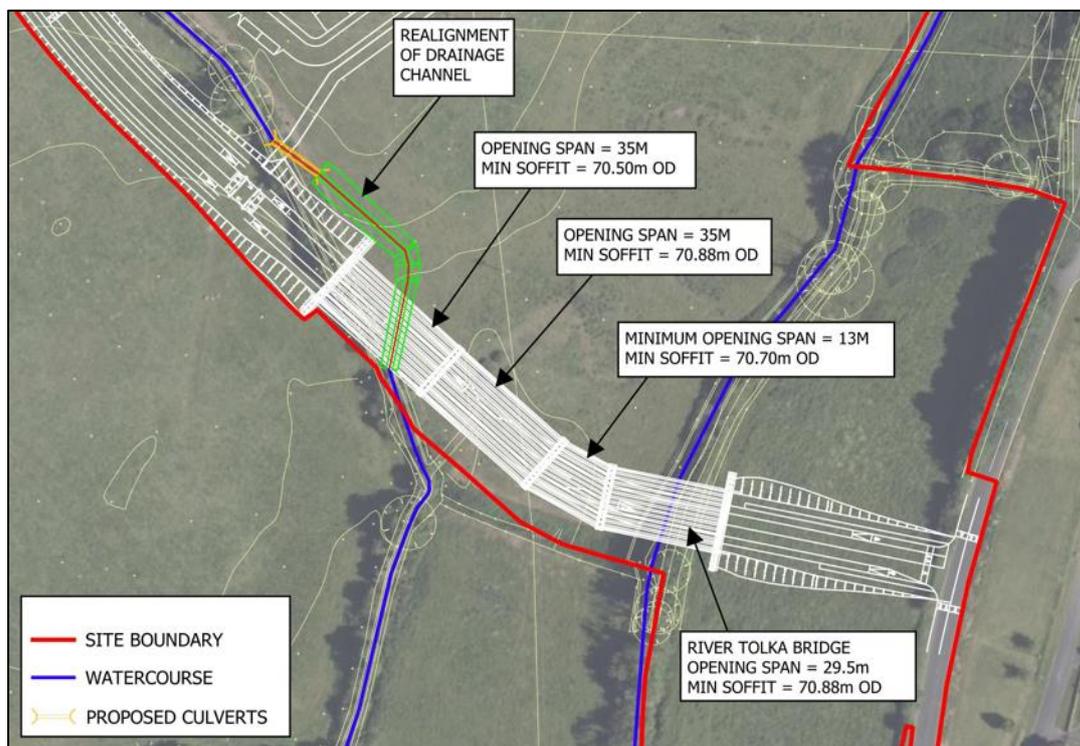


FIGURE 3. IMAGE EXTRACTED FROM SSFRA REPORT (IE CONSULTING, 2024) SHOWING REALIGNMENT OF DRAINAGE CHANNEL/DITCH IN GREEN.

RECEIVED: 28/03/2024

1.3.4 Proposed Drainage

1.3.4.1 Surface Water

Storm and surface water arising from the Site will ultimately discharge to the River Tolka. Although not included within the Proposed Development design specifically for the protection of downstream European Sites, a SUDS system has been included as per best practice and the guidance of the Greater Dublin Strategic Drainage Study (GSDSDS). SUDS measures can therefore be considered as 'embedded mitigation' or 'mitigation by design', as they are not included to mitigate any harmful effects of the Proposed Development on any designated site, however, they will contribute to the general reduction of pollutant input to the Tolka and downstream.

The proposed SUDS will manage and treat surface water generated at the Site for the duration of its operational lifetime. The SUDS system has been designed to collect and attenuate storm/surface water arising from the Site and discharge same at the allowable greenfield runoff rate to the detention basins in the west and north-east of the Site, and the existing drainage ditch section to be retained in the south of the Site; running along the proposed link-road. Maximum discharges are limited to pre-development greenfield runoff rates, further reduced and diffused through the various nature based solution measures designed into the SUDS system. As detailed in the Engineering Report prepared by PMG (2023b), the suite of SUDS measures included in the design are as follows:

- **Permeable Paving:** Porous surfacing (paving block or open graded material) has been designed on private parking spaces and driveways.
- **Swales:** shallow, flat bottomed, vegetated open channels have been included within the proposed road layout along the kerb line.
- **Tree pits:** Tree pits are proposed in the east and north of the Site.
- **Detention Basins & Attenuation Tank:** Detention basins are proposed in the west, south and north-east of the Site to cater for excess flows during periods of heavy rainfall. The attenuation design has been based on the 1:100 year Return Period plus 20% Climate Change required storage volume. This has been achieved with a detention basin above ground for two of the catchments and a concrete tank for the final catchment. The tank was chosen due to the Site levels and the close proximity to the outfall. Prior to entering the tank the surface water will be cleaned with a min three stage SUDS approach.
- **Petrol Interceptors:** Petrol interceptors have been designed before the inlet chamber of each attenuation feature and have sufficient capacity to cater for each catchment area.
- **Hydrobrake Flow Control:** The Hydro-Brake® Flow Control is a self-activating vortex flow control device that reduce the stormwater runoff to greenfield flow rates. Surface water runoff from each surface water catchment, will be attenuated using a Hydrobrake on the surface water outlet.

The SUDS design includes silt removal traps and petrol interceptors within the drainage network. These are the primary mechanisms for preventing contaminated surface water run-off entering the River Tolka during the Operational Phase.

The traps and separators have been designed specifically to the capacity/flow for each part of the Site's drainage network with a minimum retention time to allow immiscible hydrocarbon pollutants to accumulate on the surface and suspended solids to sink to the bottom of the unit.

The most likely sources of contamination of the surface and storm runoff are general grit and silt arising from gardens and hard surfaces, hydrocarbons from vehicle exhausts and fuels or oil spills and leaks, vehicle tyre wear, burning plastics, wastewater from washing cars, pesticides etc., used for gardening and materials used in home maintenance. While these forms of contamination do pose potential risks to the water quality of the River Tolka, the likely volumes are expected to be low and to remain within the design capacity of the traps and interceptors, maintained and cleaned in line with the manufacturer's recommendations. This, along with the significant distance downstream between the Proposed Development and Dublin Bay makes the likelihood of potential impacts at designated sites as a result of the Operational Phase of the Proposed Development negligible.

While the risk of contamination from expected/design volumes of contamination will be removed by the traps and interceptors, functioning normally and maintained and cleaned in line with the manufacturer's recommendations, larger scale incidents such as a property fire could generate larger volumes of contaminated water which will enter the drainage system. As the traps and separators are unlikely, in such cases, to remove all the contaminants it is proposed that run-off associated with fire water run-off be temporarily stored in the detention basins and removed off site via tankers.

These procedures will ensure that in emergency situations larger volumes of contaminated water can be prevented from discharging to the River Tolka.

1.3.4.2 Foul Water

As per the Engineering Report prepared by PMG (2023b), the proposed foul sewer network will connect to the proposed pumping station located in the north of the Site; which will discharge to the existing Uisce Éireann (UÉ) foul sewer network. A Pre-Connection Enquiry has been submitted to UÉ and the Confirmation of Feasibility has been granted.

RECEIVED: 28/03/2024

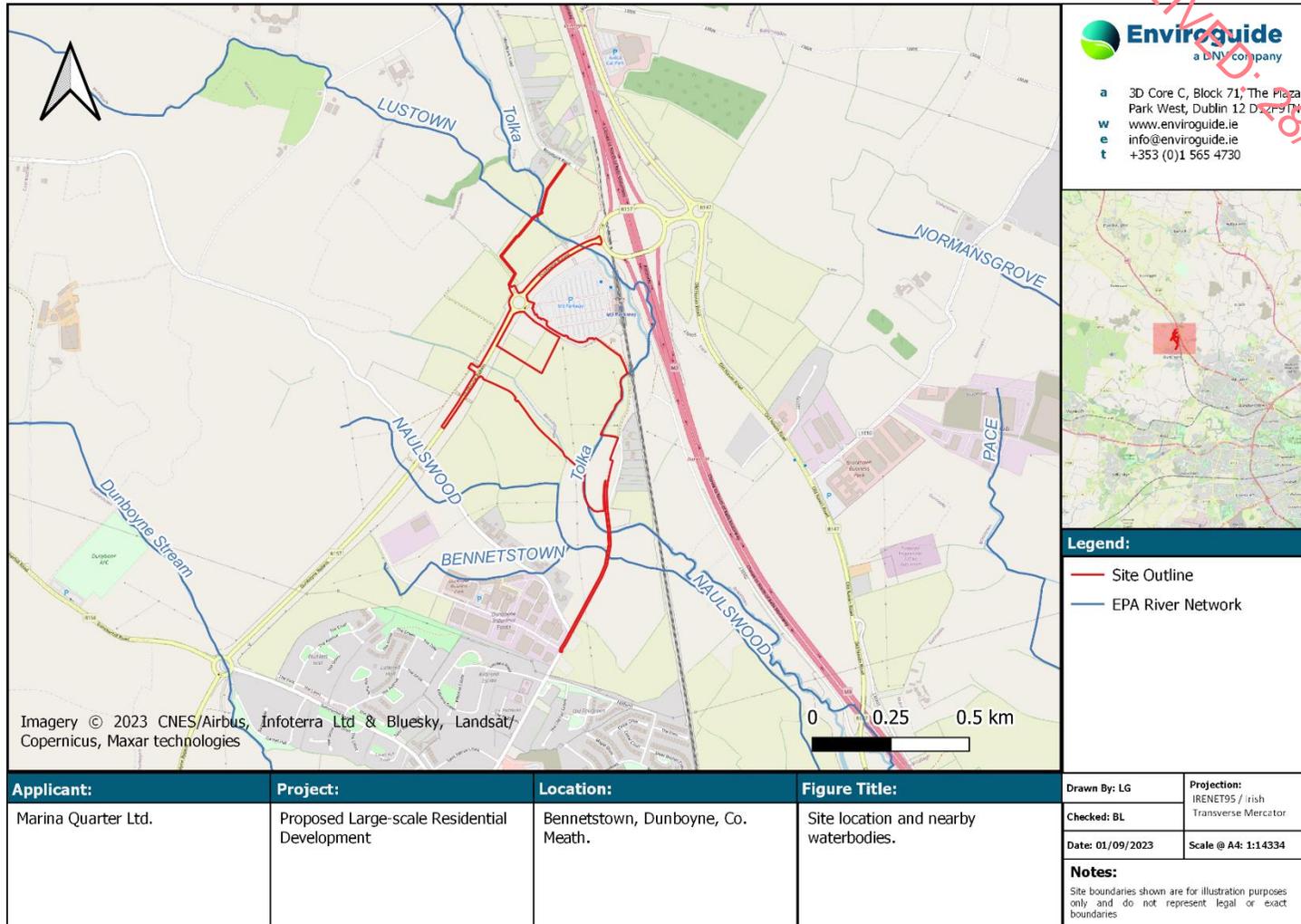


FIGURE 4. SITE LOCATION.

RECEIVED
18/10/2024



FIGURE 5. PROPOSED SITE LAYOUT (EXTRACTED FROM JFA DRWG NO: DBN-SP-00-DR-JFA-AR-P1007, FURTHER INFORMATION).

RECEIVED: 28/03/2024

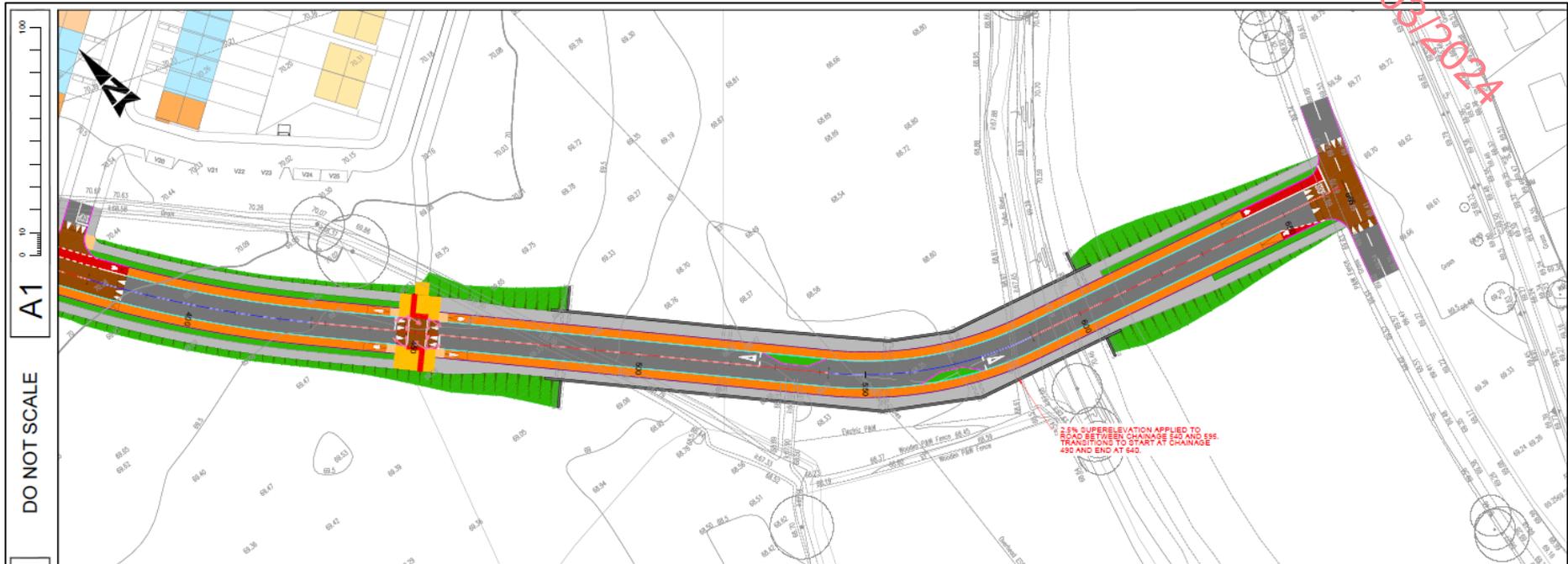


FIGURE 6. IMAGE EXTRACTED FROM ATKINS DRWG NO: 5205505-ATK-ZZ-ZZ-SK-CE-000025, SHOWING THE SOUTHERN LINK-ROAD AS IT CROSSES THE TOLKA AND FLOOD PLAIN.

2 LEGISLATIVE AND POLICY CONTEXT

2.1 Legislative Background

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protected Areas (SPAs). The Habitats Directive has been transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community.

SACs and SPAs are collectively known as “Natura 2000” or “European” sites. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the sites; from these the conservation objectives of the site are derived.

An ‘Appropriate Assessment’ (AA) is an assessment required prior to the grant of planning permission to determine whether a plan or project, based on best scientific knowledge, will have an adverse effect on the integrity of a European site, either alone or in combination with other plans and projects. It is required for any plan or project not directly connected with or necessary to the management of a site but likely to have a significant effect on it.

An AA is required under Article 6 of the Habitats Directive where a project or plan may give rise to significant effects upon a Natura 2000 site. Paragraph 3 states that:

“6(3) Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site, in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

2.1.1 Legislative Context

The obligations in relation to Appropriate Assessment have been implemented in Ireland under Part XAB of the Planning and Development Act 2000, as amended (“the 2000 Act”), and in particular Section 177T and Section 177V thereof in relation to Natura Impact Statements and Appropriate Assessment. The relevant provisions of Section 177T and 177V are set out below:

“177T.— (1) *In this Part— (a) A Natura impact report means a statement for the purposes of Article 6 of the Habitats Directive, of the implications of a Land use plan, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites.*

(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites.

(2) Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites.”

(3) ...

(4) The applicant for consent for proposed development may, or if directed in accordance with subsection (5) by a competent authority, shall furnish a Natura impact statement to the competent authority in relation to the proposed development.

(5) At any time following an application for consent for proposed development a competent authority may give a notice in writing to the applicant concerned, directing him or her to furnish a Natura impact statement.

(6) ...

(7) (a) Without prejudice to subsection (1) a Natura impact report or a Natura impact statement shall include all information prescribed by regulations under section 177AD .

(b) Where appropriate, a Natura impact report or a Natura impact statement shall include such other information or data as the competent authority considers necessary to enable it to ascertain if the draft Land use plan or proposed development will not affect the integrity of the site.”

“177V.— (1) *An appropriate assessment carried out under this Part shall include a determination by the competent authority under Article 6.3 of the Habitats Directive as to whether or not a draft Land use plan or proposed development would adversely affect the integrity of a European site and an appropriate assessment shall be carried out by the competent authority, in each case where it has made a determination under section 177U(4) that an appropriate assessment is required, before—*

(a) the draft Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or

(b) consent is given for the proposed development.

(2) In carrying out an appropriate assessment under subsection (1) the competent authority shall take into account each of the following matters:

(a) the Natura impact report or Natura impact statement, as appropriate;

(b) any supplemental information furnished in relation to any such report or statement;

(c) if appropriate, any additional information sought by the authority and furnished by the applicant in relation to a Natura impact statement;

(d) any additional information furnished to the competent authority at its request in relation to a Natura impact report;

(e) any information or advice obtained by the competent authority;

(f) if appropriate, any written submissions or observations made to the competent authority in relation to the application for consent for proposed development;

(g) any other relevant information.

(3) Notwithstanding any other provision of this Act, or, as appropriate, the Act of 2001, or the Roads Acts 1993 to 2007 and save as otherwise provided for in sections 177X, 177Y, 177AB and 177AC, a competent authority shall make a Land use plan or give consent for proposed development only after having determined that the Land use plan or proposed development shall not adversely affect the integrity of a European site.

(4) Subject to the other provisions of this Act, consent for proposed development may be given in relation to a proposed development where a competent authority has made modifications or attached conditions to the consent where the authority is satisfied to do so having determined that the proposed development would not adversely affect the integrity of the European site if it is carried out in accordance with the consent and the modifications or conditions attaching thereto.”

2.2 Policy Context

2.2.1 Meath County Development Plan 2021-2027

Policies and objectives of the Meath County Development Plan 2021 – 2027 that are of relevance to this Screening Report are outlined below:

- **HER POL 28:** “To integrate in the development management process the protection and enhancement of biodiversity and landscape features wherever possible, by minimising adverse impacts on existing habitats (whether designated or not) and by including mitigation and/or compensation measures, as appropriate.”
- **HER POL 31:** “To ensure that the ecological impact of all development proposals on habitats and species are appropriately assessed by suitably qualified professional(s) in accordance with best practice guidelines – e.g. the preparation of an Ecological Impact Assessment (EclA), Screening Statement for Appropriate Assessment, Environmental Impact Assessment, Natura Impact Statement (NIS), species surveys etc. (as appropriate).”
- **HER POL 32:** “To permit development on or adjacent to designated Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, Statutory Nature Reserves or those proposed to be designated over the period of the Plan, only where the development has been subject to the outcome of the Appropriate Assessment process and has been carried out to the satisfaction of the Planning Authority, in consultation with National Parks and Wildlife.”

- **HER POL 33:** “To have regard to the views and guidance of the National Parks and Wildlife Service in respect of proposed development where there is a possibility that such development may have an impact on a designated European or National site or a site proposed for such designation.”
- **HER POL 34:** “To undertake appropriate surveys and collect data to provide an evidence-base to assist the Council in meeting its obligations under Article 6 of the Habitats Directives (92/43/EEC) as transposed into Irish Law, subject to available resources.”
- **HER OBJ 33:** “To ensure an Appropriate Assessment in accordance with Article 6(3) and Article 6(4) of the Habitats Directives (92/43/EEC) and in accordance with the Department of Environment, Heritage and Local Government Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009 and relevant EPA and European Commission guidance documents, is carried out in respect of any plan or project not directly connected with or necessary for the management of the site but likely to have a significant effect on a Natura 2000 site(s), either individually or in-combination with other plans or projects, in view of the site’s conservation objectives.
- **HER OBJ 34:** “To protect and conserve the conservation value of candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed Natural Heritage Areas as identified by the Minister for the Department of Culture, Heritage and the Gaeltacht and any other sites that may be proposed for designation during the lifetime of this Plan in accordance with the provisions of the Habitats and Birds Directives and to permit development in or affecting same only in accordance with the provisions of those Directives as transposed into Irish Law.”

2.2.2 County Meath Biodiversity Action Plan 2015-2020

The main function of the Meath Biodiversity Action Plan is to provide a framework and series of actions to conserve, enhance and raise awareness of Meath’s rich biodiversity and to maximise the contribution that it makes to the social, economic and environmental well-being of the county, taking into account local, national and international, including European priorities. The Meath Biodiversity Action Plan is set out to protect and improve biodiversity through objectives aimed at protecting biodiversity, and the AA Screening of the plan concluded that “*there is no potential for significant effects by the implementation of the County Meath Biodiversity Action Plan 2015-2020, either alone or in combination with other plans or projects, on any Natura 2000 site.*”

2.3 Stages of Appropriate Assessment

The AA process is a four-stage process. Each stage requires different considerations, assessments and tests to ultimately arrive at the relevant conclusion for each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

The four stages of an AA, can be summarised as follows:

- **Stage 1: Screening.** The Screening for AA considers whether a plan or project is directly connected to or necessary for the management of a European site, or whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.
- **Stage 2: Natura Impact Statement (NIS).** Where Stage 1 determines that significant effects are likely, uncertain or unknown, the preparation of a NIS is required. The NIS must include a scientific examination of evidence and data to classify potential impacts on any European site(s) in view of their conservation objectives in the absence of mitigation. The NIS will identify appropriate mitigation to remove the potential for likely significant adverse effects on any European site(s). If the competent authority determines that the plan or project would have an adverse effect on the integrity of any European site(s) despite mitigation, it can only grant consent after proceeding through stages 3 and 4.
- **Stage 3: Assessment of alternative solutions.** If the outcome of Stage 2 is negative i.e., adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned. This stage examines alternative solutions to the proposal.
- **Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain.** The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a European site, where no less damaging solution exists.

The Habitats Directive promotes a hierarchy of avoidance, mitigation, and compensatory measures. First the project should aim to avoid any negative effects on European sites by identifying possible effects early in the planning stage and designing the project to avoid such effects. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, a refusal for planning permission may be recommended. In this case, the project will generally only be considered where no alternative solutions are identified and the project is required for IROPI, or, in the case of priority habitats, considerations of health or safety, or beneficial consequences of primary importance for the environment or to other IROPI. Then compensation measures are required for any remaining adverse effects.

2.4 Stage 1: Appropriate Assessment Screening Conclusion

An AA Screening Report was prepared for the Proposed Development by Enviroguide Consulting in September 2023 and updated as part of the a further information response to Meath CoCo in January 2024.

The conclusion of the AA Screening Report is as follows:

“The Proposed Development at Bennetstown, Dunboyne, Co. Meath has been assessed taking into account:

- *The nature, size and location of the proposed works and possible impacts arising from the construction works.*
- *The QIs and conservation objectives of the European sites.*
- *The potential for in-combination effects arising from other plans and projects.*

*In conclusion, upon the examination, analysis and evaluation of the relevant information and applying the precautionary principle, it is concluded by the authors of this report that the possibility **cannot be excluded** that the Proposed Development will have a significant effect on any of the European sites listed below:*

- *North Dublin Bay SAC (000206).*
- *South Dublin Bay and River Tolka Estuary SPA (004024).*
- *North Bull Island SPA (004006).*

In carrying out this AA screening, mitigation measures have not been taken into account. Standard best practice construction measures and development standards which have been included primarily to mitigate any effects on any European sites have similarly not been taken into account.

On the basis of the screening exercise carried out above, it can be concluded, on the basis of the best scientific knowledge available and objective information, that the possibility of any significant effects on the above listed European sites, whether arising from the project itself or in combination with other plans and projects, cannot be excluded in light of the above listed European sites' conservation objectives. Thus, there is a requirement to proceed to Stage 2 of the Appropriate Assessment process; and a NIS has been prepared and accompanies this submission under separate cover."

As such, this NIS will assess the potential effects of the Proposed Development on

- *North Dublin Bay SAC (000206).*
- *South Dublin Bay and River Tolka Estuary SPA (004024).*
- *North Bull Island SPA (004006).*

These sites are linked to the Proposed Development via a hydrological pathway in the form of the River Tolka.

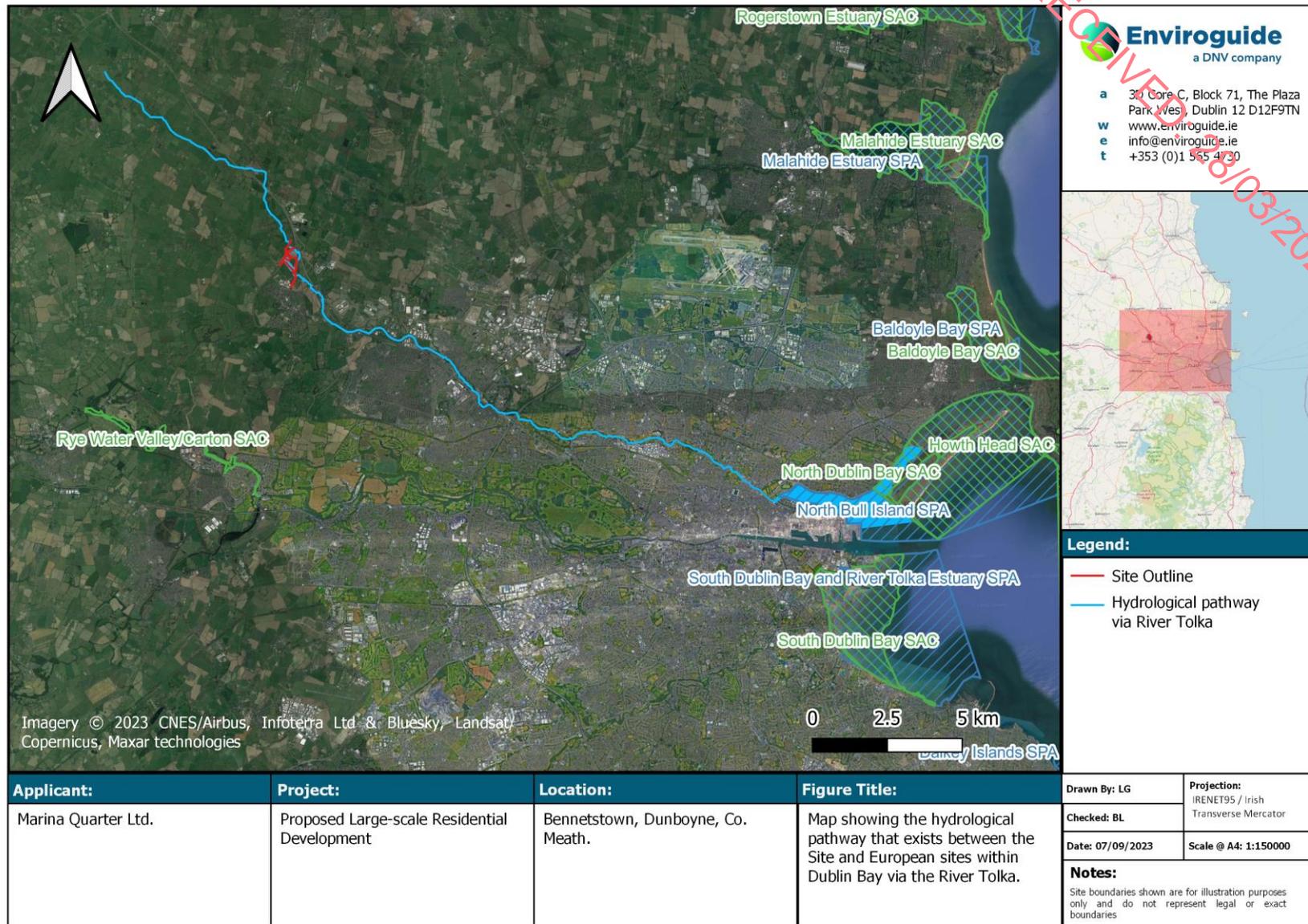


FIGURE 7. RELEVANT EUROPEAN SITES AND IMPACT PATHWAY AS IDENTIFIED IN AA SCREENING (ENVIROGUIDE, 2024).

3 NIS METHODOLOGY

3.1 Guidance

This NIS has been undertaken in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10;
- *Communication from the Commission on the precautionary principle* (European Commission, 2000);
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019);
- *Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021);
- *Appropriate Assessment Screening for Development Management, OPR Practice Note PN01, Office of the Planning Regulator March 2021; and*
- *Amendments to section 42 of the Planning and Development Act 2000, as amended and associated Planning and Development Regulations 2001. Department of the Environment, Heritage and Local Government. (2021). Circular Letter: EUIPR 01/2021.*

3.2 NIS Steps

This NIS has been prepared following the steps described below:

- Description of the baseline existing environment at the Site of the Proposed Development;
- Review and description of available data for the relevant European site(s) potentially affected as identified in the Screening Report (Enviroguide, 2024);
- Identification and description of potential effects on the relevant European site(s) and their designated QIs/SCIs;
- Assessment of the likely significance of the effects and/or impacts identified on the relevant QIs/SCIs in view of their Site-Specific Conservation Objectives (SSCOs) where available;
- Description and characterisation of other projects or plans that in combination with the Proposed Development have the potential for having significant effects on the relevant QIs/SCIs;

- Identification of appropriate mitigation measures to remove the likelihood of significant effects on any European site(s) and their QIs/SCI; and
- Exclusion of sites where it can be objectively concluded that there will be no significant effects once mitigation measures are adhered to.

3.3 Desk Study

A desktop study was carried out to collate and review available information, datasets and documentation sources relevant for the completion of the NIS. The desk-top study, completed in September 2023, relied on the following sources:

- Information on the network of European sites, relevant boundaries, QIs and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at www.npws.ie and the European Environment Agency (EEA) at <https://natura2000.eea.europa.eu/>;
- Information on the status of EU protected habitats and species in Ireland, obtained from the NPWS Article 17 reports;
- Text summaries of the relevant European sites taken from the respective Site Synopses for each site, available at www.npws.ie;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.gis.epa.ie;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at www.gsi.ie;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland; and
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and their design team.

A comprehensive list of all the specific documents and information sources consulted in the completion of this report is provided in Section 6 - References.

3.4 Field Surveys

A range of surveys have been carried out across the application Site since 2021, including habitat and flora surveys, bat surveys, bird surveys and mammal surveys. Survey data is typically considered to be valid for 3 years at the most (CIEEM 2019). As such, field survey dates from 2021 to 2023 are summarised in Table 1 (no surveys were carried out in 2020). For full details on the methods and results of the field surveys carried out by Enviroguide, please refer to the EIAR (Chapter 13: Biodiversity) accompanying this submission under separate cover.

TABLE 1. FIELD SURVEYS UNDERTAKEN AT THE PROPOSED DEVELOPMENT SITE.

Survey Type	Date of Survey	Surveyor
Preliminary Site Walkover	18 th February 2022	LG
Amphibian Survey		
Habitat & Flora Survey	28 th July 2022	LG
Invasive Flora Survey	16 th August 2023	
Mammal Survey		
Breeding Bird Surveys	8 th June 2022 27 th June 2022	BMcC
Winter Bird Surveys	18 th February 2022 13 th March 2022 23 rd March 2022	LG, ED
Potential Bat Roost (PBR) Survey & Dusk Bat transect survey	23 rd September 2021	LG
Potential Bat Roost (PBR)/ Habitat Suitability Survey & Dusk Bat transect survey	6 th September 2022	LG, SH
Dusk Bat transect survey	16 th August 2023	LG
Static Bat Detector Survey of proposed bridge crossing of River Tolka (5 days)	16 th August – 21 st August 2023	LG
Otter <i>Lutra lutra</i> and Kingfisher <i>Alcedo atthis</i> Survey of stretch of River Tolka adjacent the Site (150m upstream and downstream)	16 th August 2023	LG
Hedgerow Appraisal of hedgerows within the main Site area	16 th August 2023	YM

3.5 Impact Prediction

Potential impacts on the relevant European site(s) identified during the AA Screening are based on information regarding their QIs and/or SCI species, and the attributes and targets relating to their SSCOs where available. These have been informed by the desk study and any field surveys carried out prior to the preparation of this report.

Impact prediction is based on the Source-Pathway-Receptor (S-P-R) model. The following describes the steps of the S-P-R approach taken in this NIS:

- Potential sources of effects were identified based on the Proposed Development description and details, including changes to potentially suitable *ex-situ* habitats at the Site (i.e., habitats utilised by Species of Conservational Importance (SCI) bird species outside of their designated SPAs).

- Up-to-date GIS spatial datasets for water catchments as well as any information from relevant site investigations and/or field surveys were used to identify the QIs/ SCIs within the relevant European site(s) that have a notable S-P-R connection to the Proposed Development:
 - The catchment data were used to establish or discount potential hydrological connectivity between the Proposed Development and any QIs/SCIs.
 - Groundwater and bedrock information used to establish or discount potential hydrogeological connectivity between the Proposed Development and any QIs/SCIs.
 - Air and land connectivity assessed based on Proposed Development details and proximity to QIs/SCIs.
 - Consideration of potential indirect pathways, e.g., impacts to flight paths, *ex-situ* habitats, etc.
- Identification of potential impacts for those QIs/SCIs linked to the Proposed Development via notable S-P-R connections.

Where the preceding steps identified any potential for adverse impacts on any QIs/SCIs for the relevant European site(s), appropriate mitigation measures to eliminate the potential for significant adverse effects are identified in this report.

3.6 Limitations

No limitations were encountered which would prevent robust conclusions being drawn as to the potential impacts of the Proposed Development on the relevant European sites.

It is noted that the Proposed Development is located a significant distance from the nearest downstream European sites located within Dublin Bay (over 20km) and as such the potential for likely significant effects to occur at these Sites is unlikely. Nevertheless, a potential impact pathway has been considered during the Construction Phase, as discussed further in Section 4.5.1. A precautionary approach has been adopted in this NIS, considering the largely unquantifiable number of developments potentially underway along the River Tolka; between the Site of the Proposed Development and Dublin Bay, which could act synergistically to contribute to an overall reduction in water quality within Dublin Bay through pollution events, in the absence of mitigation measures. This has been considered in the impact prediction detailed in Table 3.

4 NATURA IMPACT STATEMENT

4.1 Existing Environment

4.1.1 Desk Study Results

4.1.1.1 Hydrology, Geology and Hydrogeology

The application Site is located in the Liffey and Dublin Bay Catchment (Catchment I.D 09) and in the Tolka_SC_010 Sub-catchment (Sub-catchment ID 09_10) (EPA, 2023).

The River Tolka flows along the eastern boundary of the Proposed Development. The Naulswood and another watercourse; the Bennetstown, flow in a south-easterly direction before joining with the Tolka approx. 1.4km to the south-east of the Site. These rivers flow as the main Tolka channel due south-east through Blanchardstown and central Dublin, before outflowing into Dublin Bay approx. 20km downstream of the Site (EPA, 2023). Another watercourse, the Lustown, also runs to the north of the main Site area and intersects with the north-western services arm of the Proposed Development as it flows south-east before joining the Tolka.

These waterbodies are identified with the same EU code (IE_EA_09T010600) and are assessed as a single entity under the Water Framework Directive (WFD) ID TOLKA_020. The WFD status of these waterbodies is *Moderate* and they have been projected to be *At Risk* of not achieving their WFD objectives (EPA 2023). The reported Q-value results from station 'Dunboyne Rd Br u/s Clonee' (located approx. 1.6km south-east of the Site) of 3-4 indicate that water quality in the TOLKA_020 is *Moderate* downstream the Site. Additionally, a prominent drainage ditch with a confirmed flow towards the Tolka was noted along the southern boundary of the Site during the walkover ecological surveys.

The Site of the Proposed Development is situated on the Dublin (IE_EA_G_008) groundwater body that has been assessed as having *Good* WFD status for the period 2016-2021. The bedrock aquifer identified beneath the Site is mapped as "Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones" (L) (GSI, 2023). The Groundwater Vulnerability Rating assigned to groundwater beneath the Site ranges from largely *Low (L)* for most of the Site to *Moderate (M)* along the Tolka (GSI, 2023).

4.1.2 Site Drainage

The agricultural lands containing the Site currently drain to a network of deep drainage ditches in the north, east and south of the Site. This network of drainage ditches has a confirmed flow towards the Tolka, as was noted during the walkover ecological surveys. This ditch is steep with banks ca.2.5m high in some places. This ditch was dry during the bat survey in September 2021, and observed to carry a fast flow during a Site visit in February 2022 after heavy rainfall. The ditch was observed as dry in July 2022, with a flow recorded during the walkover survey in August 2023. This ditch likely holds transient flows during periods of high rainfall and directs them to the River Tolka to the south-east.

RECEIVED: 28/03/2024

RECEIVED: 28/03/2024

4.2 Relevant Field Survey results

4.2.1 Habitats & Flora

The majority of the Site is comprised of agricultural grassland (Fossits code: GA1), with some linear stretches of treeline (WL2) and hedgerow (WL1) located along in the west, south and north-east of the Site. A prominent drainage ditch (FW4) mirrors the hedgerows and treelines in the west and south/south-east of the Site. Wet grassland (GS4) habitat is present in the form of the River Tolka's floodplain, located along the eastern section of the Site. Some pockets of scrub (WS1) and dry meadows (GS2) are present across the Site where grazing has been restricted. The River Tolka represents lowland depositing river habitat (FW2).

Overall, the grassland habitats are agriculturally influenced and are species poor, with grasses such as Perennial ryegrass (*Lolium perenne*) dominating. Cattle and sheep were recorded grazing the lands within and to the south of the Site and the swards were notably short during Site visits.

4.2.2 Fauna

Winter Bird Surveys were conducted at the Site on the 18th February, 13th March and 23rd March, 2022, and lasted 5 hours each.

The main area of the Site is a large area of agricultural land with mature hedgerows separating the fields and along some sections of the boundary. The Site was walked on each date and viewed for the use by wintering birds, with a special emphasis on water birds.

Limited waterbird usage of the lands were recorded during the three surveys. One Snipe (*Gallinago gallinago*) was flushed in the wet grassland to the east of the Site and outside of the Site boundary, during the February survey. Ten (10 No.) Herring Gull (*Larus argentatus*) were observed swimming in the Tolka flood waters to the south-east of the Site.

The only bird of note observed on both March survey days was a single Common Buzzard (*Buteo buteo*). A flock of ca. 30 Redwing (*Turdus iliacus*) was observed in the eastern part of the Site foraging on the fields by the flood plain during the early part of the February survey. This flock grew to approx. 120 birds (a mix of Redwing and Starling (*Sturnus vulgaris*)) an hour later located on the field in the east of the Site.

No significant usage of the Site as *ex-situ* roosting foraging habitat by waterbird species was recorded.

4.3 Summary Of Relevant European Sites

The following descriptions of the relevant habitats and species occurring within the European sites considered in this NIS have been extracted from the Site Synopses (NPWS 2013b, 2014 & 2015c) and any supporting documents available for the relevant sites.

4.3.1 North Dublin Bay SAC (000206)

The following descriptions of the North Dublin Bay SAC (000206) are extracted from the Site Synopsis (NPWS, 2013b) for the site:

“This site covers the inner part of north Dublin Bay, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island is the focal point of this site.”

*“North Bull Island is a sandy spit which formed after the building of the South Wall and Bull Wall in the 18th and 19th centuries. It now extends for about 5 km in length and is up to 1 km wide in places. A well-developed and dynamic dune system stretches along the seaward side of the island. Various types of dunes occur, from fixed dune grassland to pioneer communities on foredunes. Marram Grass (*Ammophila arenaria*) is dominant on the outer dune ridges, with Lyme-grass (*Leymus arenarius*) and Sand Couch (*Elymus farctus*) on the foredunes. Behind the first dune ridge, plant diversity increases with the appearance of such species as Wild Pansy (*Viola tricolor*), Kidney Vetch (*Anthyllis vulneraria*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Common Restharrow (*Ononis repens*), Yellow-rattle (*Rhinanthus minor*) and Pyramidal Orchid (*Anacamptis pyramidalis*). In these grassy areas and slacks, the scarce Bee Orchid (*Ophrys apifera*) occurs.”*

“Saltmarsh extends along the length of the landward side of the island. The edge of the marsh is marked by an eroding edge which varies from 20 cm to 60 cm high. The marsh can be zoned into different levels according to the vegetation types present.”

*“The island shelters two intertidal lagoons which are divided by a solid causeway. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. The north lagoon has an area known as the "Salicornia flat", which is dominated by *Salicornia dolichostachya*, a pioneer glasswort species, and covers about 25 ha. Beaked Tasselweed (*Ruppia maritima*) occurs in this area, along with some Narrow-leaved Eelgrass (*Zostera angustifolia*). Dwarf Eelgrass (*Z. noltii*) also occurs in Sutton Creek. Common Cordgrass (*Spartina anglica*) occurs in places but its growth is controlled by management. Green algal mats (*Enteromorpha* spp., *Ulva lactuca*) cover large areas of the flats during summer. These sediments have a rich macrofauna, with high densities of Lugworms (*Arenicola marina*) in parts of the north lagoon. Mussels (*Mytilus edulis*) occur in places, along with bivalves such as *Cerastoderma edule*, *Macoma balthica* and *Scrobicularia plana*. The small gastropod *Hydrobia ulvae**

occurs in high densities in places, while the crustaceans Corophium volutator and Carcinus maenas are common. The sediments on the seaward side of North Bull Island are mostly sands. The site extends below the low spring tide mark to include an area of the sublittoral zone.”

4.3.2 North Bull Island SPA (004006)

The following descriptions of the North Bull Island SPA (004006) are extracted from the Site Synopsis (NPWS, 2014) for the site:

“This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head.”

“The North Bull Island SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. The site supports internationally important populations of three species, Light-bellied Brent Goose (1,548), Black-tailed Godwit (367) and Bar-tailed Godwit (1,529) - all figures are mean peaks for the five winters between 1995/96 and 1999/2000. The site is one of the most important in the country for Light-bellied Brent Goose. A further 14 species have populations of national importance – Shelduck (1,259), Teal (953), Pintail (233), Shoveler (141), Oystercatcher (1,784), Grey Plover (517), Golden Plover (2,033), Knot (2,837), Sanderling (141), Dunlin (4,146), Curlew (937), Redshank (1,431), Turnstone (157) and Black-headed Gull (2,196). The populations of Pintail and Knot are of particular note as they comprise 14% and 10% respectively of the all-Ireland population totals.”

The North Bull Island SPA is an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is of international importance on account of both the total number of waterfowl and the individual populations of Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. Also of significance is the regular presence of several species that are listed on Annex I of the E.U. Birds Directive, notably Golden Plover and Bar-tailed Godwit, but also Ruff and Short-eared Owl. North Bull Island is a Ramsar Convention site, and part of the North Bull Island SPA is a Statutory Nature Reserve and a Wildfowl Sanctuary.”

4.3.2.1 South Dublin Bay and River Tolka Estuary SPA (004024)

The following descriptions of the South Dublin Bay and River Tolka Estuary SPA (004024) are extracted from the Site Synopsis (NPWS, 2015c) for the site:

“The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included.”

“In the south bay, the intertidal flats extend for almost 3 km at their widest. The sediments are predominantly well-aerated sands. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs

*at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The landward boundary is now almost entirely artificially embanked. There is a bed of Dwarf Eelgrass (*Zostera noltii*) below Merrion Gates which is the largest stand on the east coast. Green algae (*Ulva* spp.) are distributed throughout the area at a low density. The macroinvertebrate fauna is well-developed, and is characterised by annelids such as Lugworm (*Arenicola marina*), Nephthys spp. and Sand Mason (*Lanice conchilega*), and bivalves, especially Cockle (*Cerastoderma edule*) and Baltic Tellin (*Macoma balthica*). The small gastropod Spire Shell (*Hydrobia ulvae*) occurs on the muddy sands off Merrion Gates, along with the crustacean *Corophium volutator*. Sediments in the Tolka Estuary vary from soft thixotropic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. The site includes Booterstown Marsh, an enclosed area of saltmarsh and muds that is cut off from the sea by the Dublin/Wexford railway line, being linked only by a channel to the east, the Nutley stream. Sea water incursions into the marsh occur along this stream at high tide. An area of grassland at Poolbeg, north of Irishtown Nature Park, is also included in the site.”*

“The South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. It is of note that four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern. Sandymount Strand/Tolka Estuary is also a Ramsar Convention site.”

4.3.3 Qualifying Interests and Conservation Objectives

The QIs/SCIs and their respective conservation objectives for each of the relevant European site(s) are detailed in Table 2 below.

TABLE 2. QUALIFYING INTERESTS (QIs) / SPECIAL CONSERVATION INTERESTS (SCIs) AND THEIR CONSERVATION OBJECTIVES FOR THE RELEVANT EUROPEAN SITES. THE CONSERVATION STATUS OF EACH QI / SCI WAS SOURCED FROM THE RELEVANT STANDARD DATA FORM(S) (SOURCE: EEA (2023)) AND THE LATEST NATIONAL STATUS IS TAKEN FROM THE LATEST ARTICLE 17 REPORT (NPWS, 2019A & 2019B) AND BOCCI¹ RESPECTIVELY.

QI / SCI (* = priority habitat)	Conservation Status	National Status	Conservation Objective
North Dublin Bay SAC (000206)			
1140 Mudflats and sandflats not covered by seawater at low tide	Good	Inadequate	To maintain the favourable conservation condition of these habitats in North Dublin Bay SAC.
1210 Annual vegetation of drift lines	Good	Inadequate	To restore the favourable conservation condition of these habitats in North Dublin Bay SAC.
1310 Salicornia and other annuals colonising mud and sand	Excellent	Favourable	
1320 <i>Spartina</i> swards	<i>Non-significant presence</i>	No status available	<i>No CO for this QI habitat has been published to date.</i>
1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	Good	Inadequate	To maintain the favourable conservation condition of these habitats in North Dublin Bay SAC.
1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	Good	Inadequate	
2110 Embryonic shifting dunes	Excellent	Inadequate	To restore the favourable conservation condition of these habitats in North Dublin Bay SAC.
2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)	Good	Inadequate	
2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)	Excellent	Bad	
2190 Humid dune slacks	Excellent	Inadequate	
1395 <i>Petalophyllum ralfsii</i> (petalwort)	Good	Favourable	To maintain the favourable conservation condition of this species in North Dublin Bay SAC.
North Bull Island SPA (004006)			
A054 Pintail (<i>Anas acuta</i>)	Excellent	Amber	To maintain the favourable conservation condition of these species in North Bull Island SPA.
A056 Shoveler (<i>Anas clypeata</i>)	Excellent	Red	

¹ Birds of Conservation Concern in Ireland (BOCCI) 2020-2026 (Gilbert, Stanbury & Lewis, 2021). The colours represent the species designation on the various BOCCI lists.

QI / SCI (* = priority habitat)	Conservation Status	National Status	Conservation Objective
A052 Teal (<i>Anas crecca</i>)	Excellent	Amber	RECEIVED: 28/03/2024
A050 Wigeon (<i>Anas Penelope</i>)	Excellent	Amber	
A053 Mallard (<i>Anas platyrhynchos</i>)	Excellent	Amber	
A169 Turnstone (<i>Arenaria interpres</i>)	Excellent	Amber	
A222 Short-eared Owl (<i>Asio flammeus</i>)	Good	Amber	
A046 Light-bellied brent goose (<i>Branta bernicla hrota</i>)	Excellent	Amber	
A144 Sanderling (<i>Calidris alba</i>)	Excellent	Green	
A149 Dunlin (<i>Calidris alpina</i>)	Excellent	Red	
A143 Knot (<i>Calidris canutus</i>)	Excellent	Red	
A147 Curlew Sandpiper (<i>Calidris ferruginea</i>)	Good	Red	
A145 Little Stint (<i>Calidris minuta</i>)	Good	Green	
A137 Ringed Plover (<i>Charadrius hiaticula</i>)	Excellent	Amber	
A130 Oystercatcher (<i>Haematopus ostralegus</i>)	Excellent	Red	
A182 Common Gull (<i>Larus canus</i>)	Excellent	Amber	
A179 Black-headed gull (<i>Chroicocephalus ridibundus</i>)	Excellent	Amber	
A157 Bar-tailed godwit (<i>Limosa lapponica</i>)	Excellent	Red	
A156 Black-tailed godwit (<i>Limosa limosa</i>)	Excellent	Red	

QI / SCI (* = priority habitat)	Conservation Status	National Status	Conservation Objective
A069 Red-breasted Merganser (<i>Mergus serrator</i>)	Excellent	Amber	
A160 Curlew (<i>Numenius arquata</i>)	Excellent	Red	
A151 Ruff (<i>Philomachus pugnax</i>)	Good	Amber	
A140 Golden plover (<i>Pluvialis apricaria</i>)	Good	Red	
A141 Grey plover (<i>Pluvialis squatarola</i>)	Excellent	Red	
A048 Shelduck (<i>Tadorna tadorna</i>)	Excellent	Amber	
A161 Spotted Redshank (<i>Tringa erythropus</i>)	Good	Amber	
A164 Greenshank (<i>Tringa nebularia</i>)	Excellent	Green	
A162 Redshank (<i>Tringa totanus</i>)	Excellent	Red	
A999 Wetlands	No status available	N/A	To maintain the favourable conservation condition of the wetland habitat in North Bull Island SPA as a resource for the regularly occurring migratory waterbirds that utilise it.
South Dublin Bay and River Tolka Estuary SPA (0040224)			
A169 Turnstone (<i>Arenaria interpres</i>)	Good	Amber	To maintain the favourable conservation condition of these species in South Dublin Bay and River Tolka Estuary SPA.
A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)	Excellent	Amber	
A144 Sanderling (<i>Calidris alba</i>)	Excellent	Green	
A149 Dunlin (<i>Calidris alpina</i>)	Good	Red	
A143 Knot (<i>Calidris canutus</i>)	Good	Red	

RECEIVED: 28/03/2024

QI / SCI (* = priority habitat)	Conservation Status	National Status	Conservation Objective
A137 Ringed Plover (<i>Charadrius hiaticula</i>)	Good	Amber	RECEIVED: 28/03/2024
A130 Oystercatcher (<i>Haematopus ostralegus</i>)	Good	Red	
A182 Common Gull (<i>Larus canus</i>)	Good	Amber	
A176 Mediterranean Gull (<i>Larus melanocephalus</i>)	Excellent	Amber	
A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	Good	Amber	
A157 Bar-tailed Godwit (<i>Limosa lapponica</i>)	Good	Red	
A069 Red-breasted Merganser (<i>Mergus serrator</i>)	Good	Red	
A160 Curlew (<i>Numenius arquata</i>)	Good	Red	
A017 Great Cormorant (<i>Phalacrocorax carbo</i>)	Good	Amber	
A141 Grey Plover (<i>Pluvialis squatarola</i>)	Good	Red	
A005 Great Crested Grebe (<i>Podiceps cristatus</i>)	Good	Amber	
A192 Roseate Tern (<i>Sterna dougallii</i>)	Excellent	Amber	
A193 Common Tern (<i>Sterna hirundo</i>)	Excellent	Amber	
A194 Arctic Tern (<i>Sterna paradisaea</i>)	Excellent	Amber	
A162 Redshank (<i>Tringa totanus</i>)	Good	Red	
A999 Wetlands	No status available	N/A	To maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Estuary SPA as a resource for the regularly occurring migratory waterbirds that utilise it.

4.4 Potential Impacts

This section follows the S-P-R method as outlined in section 3.5 to identify if and how any of the QIs/SCIs of the relevant European site are linked to the Proposed Development. Once the connections have been identified the potential impacts of the Proposed Development on the North Dublin Bay SAC (000206), North Bull Island SPA (004006) and South Dublin Bay and River Tolka Estuary SPA (004024) in light of their QIs/SCIs are assessed.

For the purposes of objectivity and clarity, mitigation measures **are not considered in the impact prediction**. This includes all measures that will act limit or eliminate the potential for significant adverse impacts on the relevant European site.

4.4.1 Potential impacts of the Proposed Development on key Species and Habitats

The following elements of the Proposed Development were identified and assessed for their potential to cause likely significant effects on European sites.

Construction Phase (*Estimated duration: 4 years*)

- Uncontrolled releases of silt, sediments and/or other pollutants to air due to earthworks;
- Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies or surface water network via the existing drainage ditches;
- Surface water run-off containing silt, sediments and/or other pollutants into the local groundwater;
- Waste generation during the Construction Phase comprising soils and construction wastes;
- Increased noise, dust and/or vibrations as a result of construction activity;
- Increased dust and air emissions from construction traffic;
- Increased lighting in the vicinity as a result of construction activity; and
- Increased human presence and activity as a result of construction activity.

Operational Phase (*Estimated duration: Indefinite*)

- Surface water drainage from the Site of the Proposed Development;
- Increased lighting at the Site and in the vicinity emitted from the Proposed Development; and
- Increased human presence and activity at the Site and in the vicinity as a result of the Proposed Development.

The QIs/SCIs for the relevant European sites are described in Table 3 below. Descriptions are sourced from the relevant Conservation Objectives and supporting documents (NPWS 2013, NPWS 2015a, NPWS, 2015b), Standard Data Forms (EEA, 2023) as well as the surveys carried out at the Site.

Table 3 below outlines the identified pathways between the Proposed Development and the relevant QIs/SCIs, and assesses the potential significant effects of the Proposed Development on these. The assessment outlined below does not consider mitigation measures that will be implemented as part of the Proposed Development,

but the nature of mitigation, if any, that will be required to eliminate the potential for significant adverse impacts is identified in the table.

RECEIVED: 28/03/2024

TABLE 3. ASSESSMENT OF THE POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT ON THE QIs AND SCIs OF THE RELEVANT EUROPEAN SITES. THOSE QIs/SCIs FOR WHICH NOTABLE IMPACT PATHWAYS WERE IDENTIFIED HAVE BEEN HIGHLIGHTED IN GREEN.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
North Dublin Bay SAC (000206)			
1140 Mudflats and sandflats not covered by seawater at low tide			
Habitat area was estimated using OSi data as 578ha. This habitat is present within the lagoons west and north of North Bull Island, and along its eastern shoreline.	<u>Weak hydrological connection.</u> The River Tolka outflows into Dublin Bay approx. 3.5km to the west of the SAC and this habitat type.	Significant effects within this habitat type are considered unlikely. However, in a worst case scenario, construction related pollution events at the Site could contribute to a reduction in water quality in the SAC. This precautionary approach is also adopted considering the largely unquantifiable number of developments underway along the River Tolka between the Site of the Proposed Development and Dublin Bay; which could act synergistically to contribute to an overall reduction in water quality through pollution events, in the absence of mitigation measures.	Construction Phase: Surface and ground water protection measures as detailed in Section 4.5.2.
1210 Annual vegetation of drift lines			
This habitat was recorded from both North Bull and South Bull sub-sites by the Coastal Monitoring Project (CMP) (Ryle et al., 2009) but was only recorded in South Bull by the Sand Dune Monitoring Project (SDM) (Delaney et al., 2013). This habitat is very difficult to measure in view of its dynamic nature, which means that it can appear and disappear within a site from year to year.	No impact pathway exists between the Proposed Development and recorded locations of this habitat.	No likelihood of significant effects. Pressures on this habitat type are associated with activities such as recreation and coastal defences, which can interfere with sediment dynamics and result in physical losses of habitat.	No mitigation required.
1310 Salicornia and other annuals colonising mud and sand			
Habitat surveyed and mapped at a single sub-site, giving a total estimated area of 29.10ha including mosaics. Salicornia is an	<u>Weak hydrological connection.</u> The River Tolka outflows into Dublin Bay approx.	Significant effects within this habitat type are considered unlikely. However, in a worst case scenario, construction related pollution events at the Site could contribute to a reduction in water quality in the SAC. This precautionary approach is also adopted considering the largely	Construction Phase: Surface and ground water protection measures as detailed in Section 4.5.2.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
<p>annual species, so its distribution can vary significantly from year to year. The largest area of Salicornia flats occurs north of the central causeway. Sediment supply is particularly important for this pioneer saltmarsh community, as its distribution depends on accretion rates. Wildfowl and water birds graze and forage on the Salicornia flats at Bull Island.</p>	<p>3.5km to the west of the SAC.</p>	<p>unquantifiable number of developments underway along the River Tolka between the Site of the Proposed Development and Dublin Bay; which could act synergistically to contribute to an overall reduction in water quality through pollution events, in the absence of mitigation measures.</p>	<p></p>
<p>1320 <i>Spartina</i> swards</p>			
<p>This habitat was added to the QI list of this SAC in the latest SDF update in 2020. No site specific conservation objectives have been released for this habitat in this SAC. This habitat is noted as having a “non-significant presence” in the SDF document, and as such no detailed information on the distribution of this habitat within the SAC is currently available. However, <i>Spartina</i> typically grows in coastal salt muds and is therefore assumed to be located along the intertidal areas of this SAC.</p>	<p><u>Weak hydrological connection.</u> The River Tolka outflows into Dublin Bay approx. 3.5km to the west of the SAC.</p>	<p>Significant effects within this habitat type are considered unlikely. However, in a worst case scenario, construction related pollution events at the Site could contribute to a reduction in water quality in the SAC. This precautionary approach is also adopted considering the largely unquantifiable number of developments underway along the River Tolka between the Site of the Proposed Development and Dublin Bay; which could act synergistically to contribute to an overall reduction in water quality through pollution events, in the absence of mitigation measures.</p>	<p>Construction Phase: Surface and ground water protection measures as detailed in Section 4.5.2.</p>
<p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p>			
<p>Atlantic salt meadow (ASM) surveyed and mapped at a single site, giving an estimated area of 81.84ha Saltmarsh Monitoring</p>	<p><u>Weak hydrological connection.</u> The River Tolka outflows into Dublin Bay approx.</p>	<p>Significant effects within this habitat type are considered unlikely. However, in a worst case scenario, construction related pollution events at the Site could contribute to a reduction in water quality in the SAC. This precautionary approach is also adopted considering the largely</p>	<p>Construction Phase: Surface and ground water protection measures as detailed in Section 4.5.2.</p>

RECEIVED: 28/03/2024

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Project (SMP) (McCorry, 2007). This habitat is found on the northern shores of Bull Island.	3.5km to the west of the SAC.	unquantifiable number of developments underway along the River Tolka between the Site of the Proposed Development and Dublin Bay; which could act synergistically to contribute to an overall reduction in water quality through pollution events, in the absence of mitigation measures.	
1410 Mediterranean salt meadows (<i>Juncetalia maritim</i>)			
The MSM is restricted to the area north of the causeway along the boundary with dune habitats and of St Annes Golf Course; the extent of the habitat here is likely to have been greater in the past but is currently 7.98ha. MSM is found high up in the saltmarsh but requires occasional tidal inundation.	<u>Weak hydrological connection.</u> The River Tolka outflows into Dublin Bay approx. 3.5km to the west of the SAC.	Significant effects within this habitat type are considered unlikely. However, in a worst case scenario, construction related pollution events at the Site could contribute to a reduction in water quality in the SAC. This precautionary approach is also adopted considering the largely unquantifiable number of developments underway along the River Tolka between the Site of the Proposed Development and Dublin Bay; which could act synergistically to contribute to an overall reduction in water quality through pollution events, in the absence of mitigation measures.	Construction Phase: Surface and ground water protection measures as detailed in Section 4.5.2.
2110 Embryonic shifting dunes			
Embryo dunes were surveyed and mapped at two sub-sites, giving a total estimated area of 6.07ha. Habitat is very difficult to measure in view of its dynamic nature and is more extensive on North Bull than South Bull. Mechanical beach cleaning may be contributing to limited distribution of this habitat, particularly at South Bull. Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat.	No impact pathway exists between the Proposed Development and recorded locations of this terrestrial habitat.	No likelihood of significant effects to this terrestrial habitat. The only impact pathway between the Proposed Development and this European Site is through a hydrological connection via the Tolka.	No mitigation required.
2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)			

RECEIVED: 28/03/2024

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
<p>These dunes were surveyed and mapped at two sub-sites, giving a total estimated area of 3.18ha. Habitat is very difficult to measure in view of its dynamic nature. At South Bull and North Bull this habitat forms a continuous strip at or near the seaward edge of the dunes.</p>			
2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)			
<p>Habitat was surveyed and mapped at two sub-sites to give a total estimated area of 104.85ha with the main area occurring along the southern shore of Bull Island. One of the main pressures on this habitat is increased pedestrian trampling and grazing by rabbits (<i>Oryctolagus cuniculus</i>). Pedestrian tracks that are devoid of vegetation occur throughout the island.</p>	<p>No impact pathway exists between the Proposed Development and recorded locations of this terrestrial habitat.</p>	<p>No likelihood of significant effects to this terrestrial habitat. The only impact pathway between the Proposed Development and this European Site is through a hydrological connection via the Tolka.</p>	<p>No mitigation required.</p>
2190 Humid dune slacks			
<p>The dune slack on North Bull consists of a long stretch of habitat that lies between successive dune ridges over a distance of approx. 700m. The dune slack topography is similar on South Bull with a number of individual long slacks between dune ridges. Habitat was surveyed and mapped at two sub-sites to</p>	<p>No impact pathway exists between the Proposed Development and recorded locations of this terrestrial habitat.</p>	<p>No likelihood of significant effects to this terrestrial habitat. The only impact pathway between the Proposed Development and this European Site is through a hydrological connection via the Tolka.</p>	<p>No mitigation required.</p>

RECEIVED: 28/03/2024

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
<p>give a total estimated area of 12.11ha. On Bull Island there is some concern that the alder marsh at the North Bull is becoming increasingly brackish in nature. There is also the potential problem of fertiliser run-off, leading to an increase in nutrient levels. Water abstraction could result in a lowering of the water table, negatively affecting the dune slacks.</p>			
<p>1395 Petalwort <i>Petalophyllum ralfsii</i></p>			
<p>The known population of <i>Petalophyllum ralfsii</i> at Bull Island occurs along the track that cuts through the Alder marsh, south and east of St. Anne's Golf Club. The width of the track is estimated to be about 1m. The length, measured by GPS co-ordinates, is 741m. The maximum area is thus 741m². <i>Petalophyllum ralfsii</i> grows in compacted, sandy ground, maintained at this site by rabbit grazing and trampling (by walkers).</p>	<p>No impact pathway exists between the Proposed Development and recorded locations of this terrestrial species.</p>	<p>No likelihood of significant effects to this species. The only impact pathway between the Proposed Development and this European Site is through a hydrological connection via the Tolka.</p>	<p>No mitigation required.</p>
<p>North Bull Island SPA (004006)</p>			
<p>SCI bird species (see Table Table 2 for detailed list)</p>			

RECEIVED: 28/03/2024

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
<p>This Site support nationally and internationally important numbers of migratory and resident shorebird species.</p>	<p><u>Weak hydrological connection.</u> The River Tolka outflows into Dublin Bay approx. 3.5km to the west of the SPA.</p>	<p>Significant effects within the SPA are considered unlikely. However, in a worst case scenario, construction related pollution events at the Site could contribute to a reduction in water quality in the SPA; which could adversely affect the feeding resources of the bird species for which it is designated.</p> <p>This precautionary approach is also adopted considering the largely unquantifiable number of developments underway along the River Tolka between the Site of the Proposed Development and Dublin Bay; which could act synergistically to contribute to an overall reduction in water quality through pollution events, in the absence of mitigation measures.</p>	<p>Construction Phase:</p> <p>Surface and ground water protection measures as detailed in Section 4.5.2.</p>
<p>South Dublin Bay and River Tolka Estuary SPA (004024)</p>			
<p>SCI bird species (see Table Table 2 for detailed list)</p>			
<p>This Site support nationally and internationally important numbers of migratory and resident shorebird species.</p>	<p><u>Weak hydrological connection.</u> The River Tolka outflows directly into Dublin Bay and the SPA.</p>	<p>Significant effects within the SPA are considered unlikely. However, in a worst case scenario, construction related pollution events at the Site could contribute to a reduction in water quality in the SPA; which could adversely affect the feeding resources of the bird species for which it is designated.</p> <p>This precautionary approach is also adopted considering the largely unquantifiable number of developments underway along the River Tolka between the Site of the Proposed Development and Dublin Bay; which could act synergistically to contribute to an overall reduction in water quality through pollution events, in the absence of mitigation measures.</p>	<p>Construction Phase:</p> <p>Surface and ground water protection measures as detailed in Section 4.5.2.</p>

RECEIVED: 18/03/2024

4.4.2 Potential for In-combination Effects

4.4.2.1 Existing Planning Permissions

A search of planning applications located within a 500m radius of the Site of the Proposed Development was conducted using online planning resources such as the National Planning Application Database (NPAD) (MyPlan.ie) and Meath County Council Planning Applications online map. Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on the relevant European sites. Long-term developments granted outside of this time period were also considered where applicable. The larger developments within the vicinity of the Site are listed in Table 4 below:

TABLE 4. GRANTED AND PENDING DEVELOPMENT APPLICATIONS WITHIN 500 M OF THE PROPOSED DEVELOPMENT. LOCATION AND DISTANCE GIVEN IS RELATIVE TO THE PROPOSED DEVELOPMENT.

Planning Reference	Planning Authority	Status	Location
P822022	Meath CoCo	Part 8	Approx. 300m SW of Proposed Development (along R157)
<p>Dunboyne Link Road – Dunboyne Business Park and the R157. Development Description: The proposed development will consist of:</p> <ul style="list-style-type: none"> • The provision of a new Link Road (approximately 340m long), from the existing Dunboyne Business Park Road to a new priority junction on the R157. • The provision of a new Access Road (approximately 50m long), to provide access to the Recycling and Civic Amenity Centre, and other adjacent landholdings. • Provision of footpaths and raised cycle tracks on both sides of the proposed Link Road. • Provision of a footpath on the eastern side of the proposed Recycling Centre Access Road. • Priority junction implementation between the proposed Link Road and the R157. • Priority junction implementation between the proposed Link Road and proposed Recycling Centre Access Road. • Provision of off-line bus stops on both sides of the proposed Link Road. <p>Public lighting, accommodation and fencing/boundary works, landscaping works, drainage/attenuation works, and ancillary infrastructure and utility works.</p>			
23/424	Meath CoCo	Decision due: 13/06/2023	Adjacent to the NW
<p>Bennetstown, Pace, Dunboyne, Co. Meath The development will consist of: i. Construction of 3 no. office buildings with a cumulative gross floor area (GFA) of 13,729 sq.m ranging in height from 3 to 4- storeys and shall comprise the following: a. Building 1 (3,597 sq.m GFA) 3-storeys in height (12.35 metres to top of parapet), with a set back louvred screen 2m above parapet level. b. Building 2 (5,336 sq.m GFA) 4-storeys in height (16.125 metres to top of parapet), with a set back louvred screen 2m above parapet level. c. Building 3 (4,796 sq.m GFA) 4-storeys in height (16.125 metres to top of parapet), with a set back louvred screen 2m above parapet level. ii. Roof mounted solar PV panels (c. 180 sq.m combined area); iii. Provision of a 4-arm signalised junction replacing the existing Pace roundabout to include a new northern arm with segregated cycleway and footpath; iv. Access to the development is proposed from the new northern arm, with 6m wide internal access roads to serve the development; v. Upgrade works to the R157 and M3 Parkway access road to facilitate junction improvements; vi. A total of 275 surface car parking spaces including 14 disabled access bays and 55 electric car charging points; vii. 280 bicycle parking spaces in 3 secure cycle storage areas adjacent to the buildings; viii. Site signage is to be erected, all spot-lit and back-lit illuminated, including 2 no. type 1 entrance signs (6.15m x 2.4m) and 3 no. type 2</p>			

Planning Reference	Planning Authority	Status	Location
			building signs (1.35m x 2.4m); ix. 3 standalone electricity substations; x. Foul sewer connection to existing public system including pumping station on site with rising mains along Kennedy Road and Navan Road; xi. Watermain connection to the north east of site at Pace for connection to Irish Water Infrastructure; xii. Permission is also sought for associated landscaping, boundary treatments, public lighting, plant, waste storage and all ancillary site and development works. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development.
2360065	Meath CoCo	Further Info Requested: 221/07/2023	Adjacent to the NW
<p>A 10-year permission for development in the Townlands of Bennetstown, Pace, and Dunboyne. The subject site (2.79ha) encompasses an area of 0.87ha situated to the south-west of the M3 Parkway and south-east of the Dunboyne Bypass (R157) located in the Townland of Bennetstown, and the balance (1.92ha) located in the Townlands of Pace, Bennetstown and Dunboyne including the Dunboyne Bypass (R157) and M3 Parkway access, Kennedy Road and Navan Road for infrastructure works. The development will consist of: i. Construction of a single-storey commercial building with a cumulative gross floor space (GFS) of 2,160 sq.m comprising: a. A supermarket with delivery, store and service area (1,880 sq.m), including net retail floorspace of 1,510 sq.m, and b. 2 commercial units (combined 280 sq.m) to facilitate Class 1 (Shop), Class 2 (Financial, Professional and Other Services) or Café (food and beverage) uses. ii. Provision of a 4-arm signalised junction replacing the existing Pace roundabout to include a new northern arm with segregated cycleway and footpath; iii. Upgrade works to the existing R157 and M3 Parkway access road to facilitate junction improvements; iv. Access to the development is proposed via a new 3-arm priority-controlled junction from the upgraded southern arm of the proposed 4-arm signalised junction, with 6m wide internal access roads to serve the development; v. A total of 118 surface level car parking spaces including 6 disabled access bays and 4 electric car charging points; vi. 20 short-stay bicycle parking spaces; vii. 1 Electricity substation / switch room; viii. Foul sewer connection to existing public system including pumping station on site with rising mains along Kennedy Road and Navan Road; ix. Permission is also sought for hard and soft landscaping, lighting, attenuation and drainage and all ancillary site development works.</p>			

The granted and pending developments listed above were all accompanied by the appropriate environmental reports. These reports, where necessary, included relevant mitigation to avoid potential negative impacts to the surrounding environments as well as to any European and other designated sites. Based on the tenuous nature of the impact pathway linking the Proposed Development to European sites in Dublin Bay (i.e., approx. 20km of the River Tolka), it is deemed that no potential for significant in-combination effects on any European sites is likely to occur from the Proposed Development together with any of the above granted and pending developments.

However, the potential for cumulative impacts in the form of a combined reduction in water quality in Dublin Bay; as a result of a worst case scenario pollution events at the Site and other unknown ongoing developments located along the Tolka between the Proposed Development and its outfall in Dublin bay, have been considered in the impact prediction detailed in Table 3.

4.4.2.2 Relevant Policies and Plans

The local policies and plans detailed in section 2.2 were reviewed and considered for possible in-combination effects with the Proposed Development. Each of these plans has undergone AA, and where potential for likely significant effects has been identified

(e.g., in the case of the Meath County Development Plan), an NIS has been prepared which identifies appropriate mitigation. As such, it is considered that the plans and policies listed will not result in in-combination effects with the Proposed Development. The Meath County Development Plan 2021-2027 has directly addressed the protection of European sites and biodiversity through specific objectives. The above listed plans are not being relied upon to rule out potential significant effects on European sites.

4.4.2.3 Operation of Ringsend WwTP

This section addresses in more detail the general issue of potential in-combination effects with Ringsend WwTP arising from the Operational Phase of the Proposed Development and other Developments, including future developments.

In summary, the impact of the Proposed Development and any future development has already been appropriately considered and assessed as part of the application process for the existing planning permissions pertaining to Ringsend WwTP.

The 2012 Ringsend WwTP application for planning permission (Ref. PL.29N.YA0010) was for a PE of 2.4 million and was predicated on the findings of the 2005 GSDSDS. The GSDSDS set out the drainage requirements for the Greater Dublin Area (GDA) up to 2031. The GSDSDS relied on the Regional Planning Guidelines (RPGs) and the National Spatial Strategy (NSS) in order to estimate the future projected population increases for the GDA. The studies indicated a predicted growth in population from 1.2 million in 2002 to just over 2 million in 2031 for the GDA region.

In June 2018 Irish Water applied for and subsequently received planning permission in 2019 for upgrade works to the Ringsend WwTP facility. The first phase of upgrade works to Ringsend WwTP was completed in December 2021, which increased the capacity of the plant by 400,000 P.E. These works, together with the future works permitted will ultimately increase the capacity of the facility from 1.6 million P.E. to 2.4 million P.E. by 2025 (Irish Water website: <https://www.water.ie/projects/local-projects/ringsend/>)

Therefore, both the initially permitted 2012 upgrade and the permitted 2019 revised upgrade (Ref. ABP-301798-18) for Ringsend WWTP take account of population growth up to 2.4 million PE. Both applications were subject to EIA and therefore an EIAR, and accompanied by an AA screening report and NIS.

Under the heading of "*Potential impact – Discharge of treated effluent, impacts on water quality, effects on qualifying interests*", the NIS (Irish Water, 2018b) for the Ringsend WwTP 2019 revised upgrade provides as follows:

"In the operational phase, the proposed upgrade of the Ringsend WwTP Component will result in an increase in the plant capacity and also an improvement in the final effluent quality. This will result in a reduction in the licensed parameters discharged into the receiving water, with significantly reduced quantities in respect of ammonia and phosphorous."²

² Section 4.5.1 at page 32

This NIS goes on to state as follows:

"Overall, no significant adverse effects on are foreseen and indeed, a slight positive effect is possible. Effects of discharge during the operational phase of the project from the upgrade project will therefore have imperceptible impact on habitats listed within these European sites."³

In respect of this issue, the NIS concludes as follows:

"Thus, there is no potential for in-combination impacts of any other plan and project with the Ringsend WwTP Component of the proposed Upgrade Project."⁴

The EIAR for the ongoing upgrade at Ringsend WwTP (Irish Water, 2018a) also details the lack of any significant impacts to European sites observed as a result of the current stormwater overflow discharge levels at the WwTP. During storm events, once the capacities of the holding tanks are surpassed, the WwTP releases overflow via an outfall at Pigeon House Rd into the lower Liffey estuary.

The EIAR carried out in relation to said upgrade concluded that in the 'do nothing' scenario, i.e., wherein the upgrade is not carried out; the current existing levels of nutrient input to Dublin Bay as a result of stormwater overflow from the WwTP, are not deemed to pose significant threats to the integrity of European sites located within or adjacent to Dublin Bay, or any of their Conservation Objectives regardless of said upgrade.

The EIAR report acknowledges that under the do-nothing scenario *"the areas in the Tolka Estuary and North Bull Island channel will continue to be affected by the cumulative nutrient loads from the river Liffey and Tolka and the effluent from the Ringsend WwTP"*, which could result in a decline in biodiversity and the deterioration of the biological status of Dublin Bay (Irish Water, 2018a). Nevertheless, these negative impacts of nutrient over-enrichment are considered "unlikely". This is because historical data suggests that pollution in Dublin Bay has had little or no effect on the composition and richness of the benthic macroinvertebrate fauna. The EIAR notes that *"although a localised decline could occur, it is not envisaged to be to a scale that could pose a threat to the shellfish, fish, bird or marine mammal populations that occur in the area."* Furthermore, the EIAR notes that significant impacts on waterbird populations foraging on invertebrates in Dublin Bay due to nutrient over-enrichment are "unlikely" to occur. What is important to note is that the do-nothing scenario predicts that nutrient and suspended solid loads from the WwTP will *"continue at the same levels and the impact of these loadings should maintain the same level of effects on marine biodiversity"* and that *"if the status quo is maintained there will be little or no change in the majority of the intertidal faunal assemblages found in Dublin Bay which would likely continue to be relatively diverse and rich across the bay."*

Therefore, it can be concluded that likely significant effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP

³ Section 4.5.1 at page 33

⁴ Section 4.5.1 at page 34

are unlikely. Importantly, this conclusion is not dependent upon any future works to be undertaken at Ringsend. Thus, in the absence of any upgrading works, significant in-combination effects to European sites in this regard are not deemed likely to arise, and therefore likely significant effects involving foul waters produced by the Proposed Development also do not have the potential to occur.

4.5 Avoidance and Mitigation Measures

The following sections outline the avoidance and mitigation measures identified to eliminate the potential for significant adverse impacts on the relevant European sites. Once the recommended measures outlined in the following sections are implemented in full, no adverse impacts on the relevant European sites or their QIs/SCIs are anticipated as a result of the Proposed Development. These mitigation measures will be included in a CEMP that will be prepared prior to commencing works by the appointed construction contractor.

4.5.1 Summary of Potential Effects

Potential significant effects arising from the **Construction Phase** include water quality impacts in designated sites arising from contaminated surface water run-off during the Construction Phase.

There are no likely significant effects with the potential to arise during the **Operational Phase**. However, embedded design features that will help further reduce any potential for water quality reductions downstream during the Operational Phase are detailed in Section 1.3.4.1 for reference.

The following mitigation measures will ensure that no likely significant effects arise in designated sites as a result of the Proposed Development, either alone or in-combination with other projects.

4.5.2 Construction Phase

4.5.2.1 Mitigation 1: Construction Environmental Management Plan (CEMP)

A CEMP based on the mitigation commitments presented in the various EIAR Chapters and this NIS, will be prepared for the Construction Phase.

A planning stage CEMP has been prepared for submission with the planning application (PMG, 2023b), which entails an Environmental Management Section. This outline document provides a framework for the contractor to develop further as the project moves into the Construction Phase.

The Construction Phase CEMP will collate and set out the environmental control measures required to minimise, and control adverse environmental impacts associated with the Proposed Development. It is intended that the CEMP will be a live document, which will capture all Construction Phase environmental mitigation measures included within the EIAR, NIS and any other measures which become apparent through the EIA consultation process and/or are prescribed through planning conditions etc. The CEMP will include enabling and decommissioning works.

- All construction and operations are to be carefully planned and implemented with a series of environmental management and control procedures. The CEMP will detail the general pollution prevention principles and measures which are to be implemented, water and sediment management measures to prevent pollution during the Construction Phase and measures to ensure the potential for pollution fuel, oil, chemicals and other construction materials is minimised.
- **The Contractor shall engage a suitably experienced ecologist, the Project Ecologist**, who will be a full member of a relevant professional institute such as CIEEM, have relevant experience in the management of ecological constraints during construction. The Project Ecologist shall be appointed sufficiently in advance of construction to arrange for any mitigation requirements to be incorporated into the CEMP and any site-specific method statements.
- The construction management of the Site will take account of the recommendations of the Construction Industry Research and Information Association (CIRIA) guides '*Control of Water Pollution from Construction Sites*' and '*Groundwater control - design and practice*' to minimise as far as possible the risk of pollution.
- The Contractor shall take all necessary precautions **to prevent pollution or siltation of surface or groundwaters** from construction activities; with a particular focus on the protection of existing drainage ditches and the River Tolka. The following management, control and mitigation measures will be implemented:
 - Any groundwater temporarily dewatered during the construction of the attenuation basins and any deep building foundations will be treated via the installation of a temporary *in-situ* water treatment system;
 - This system should be designed and sized to ensure that all pumped groundwater water is treated prior to discharge to a selected onsite location (via a temporary soakaway).
 - The Contractor will be required to provide a site-specific dewatering plan, clearly setting out proposed excavation methodology, estimated dewatering rates, details of the proposed treatment system, and discharge location.
 - Surface water attenuation measures are to be designed which will not be overwhelmed by one-off adverse precipitation events.
 - Where practical, cut-off V drains will be utilised to divert water entering Site and reduce the amount of water to be managed on-Site. Attention will be given to the maintenance and protection of all drains and temporary channels to minimise scour and the mobilisation of suspended solids (e.g. lining with hessian or clean stone, check dams, silt fencing etc.).
 - Mud will be controlled at entry and exits to the site using wheel washes and/or road sweepers, and tools and plant will be washed out and cleaned

in designated areas. Wheel washings will be contained and treated prior to discharge.

- Runoff will be directed to and intercepted by temporary settlement lagoons. The size of the settlement lagoon will be determined from predicted flow rates and retention times based on sediment particle size and density.
- Neither groundwater nor surface water runoff from the working areas will be permitted to discharge directly to the environment (e.g., existing ditches or River Tolka). Runoff generated within the site during construction will be filtered and treated to remove hydrocarbons and sediment. Total Suspended Solids (TSS), pH/EC and colour will be monitored daily and outlets from sedimentation ponds will incorporate a turbidity monitor with alarm at a high level.
- Subject to consent, water that is unpolluted, aside from its silt content, may be pumped out over adjacent vegetated ground, where appropriate, with consideration given to groundwater level and saturation, wildlife importance and proximity to drainage channels.
- In the event of surface water failing to meet the required standards water will be recirculated to the inlet of the sediment pond to provide further time for settlement. A penstock will be provided on the outlet from the sediment pond to control discharge from the site.
- The performance of the surface water drainage network will be maintained and monitored throughout the construction of the Proposed Development, noting that the proposed storm system will include permanent hydrocarbon separators.
- Where the Contractor utilises pumping to drain works areas, a back-up pump and generator must be provided on Site for use in the event of the primary pump failing.
- Procedures are to be put in place to ensure the identification, remediation and correct reporting of any silt or other pollution incidents that may occur.
- **During localised construction works along the existing drainage ditch in the west and south of the Site** (to facilitate the realignment and culverting of parts of the ditch and construction of headwalls/outfalls), a construction methodology will be drawn up. This will detail the approach to the construction and installation of culverts along the southern drainage ditch (both the western and eastern sections) and the slight realignment of the western section of said ditch (See Figure 3).
- Any such works e.g., realignment/re-profiling of ditch and channel, are to take part in dry weather conditions, when the ditch bed is dry, to minimise sedimentation of watercourses downstream.
- Any minor volumes of stripped soils from these works will be stockpiled a minimum distance of 10m from the channel and will be appropriately covered. A temporary stormwater management system will be implemented by the Contractor.

- Areas will be designated where stockpiles will be established in order to facilitate the efficient transfers of material within the Site. Stockpiles will be stabilised as soon as possible (e.g. sealed, closed over, seeded or covered using geotextile mats), and bunded by earth or silt fences at the toe to intercept silt-laden runoff during rainfall events.
- Appropriate working practices to avoid the repetitive handling of excavated substrates, minimise vehicle movements, limit the size, number and frequency of stockpiles, reduce the compaction and erosion of soils etc. and control the generation of dust. The implementation of a construction traffic management plan and controls on the locations of plant and materials will minimise the compaction and erosion of soil. Excavation is to be restricted during high winds and heavy rainfall to minimise dust generation and contaminated surface runoff.
- Excavated materials are to be inspected for signs of possible contamination, such as staining or strong odours. Should any be noticed, substrates are to be segregated and samples analysed for contaminants to determine an appropriate means of disposal to licensed/permitted facilities appropriate for the waste classification.
- **In order to prevent any potential surface water/groundwater impacts via. release of hydrocarbon/chemical contaminants** the following standard measures will be implemented:
 - The Contractor will ensure all Site personnel are trained in the handling of materials, the sensitive nature of the receiving environment, the drainage system and the consequences of accidental spillages.
 - Fuels, lubricants and hydraulic fluids for equipment used on the construction Site, as well as any solvents, oils, and paints, will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice;
 - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Proposed Development for disposal or recycling;
 - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the Proposed Development and properly disposed of;
 - All Site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area.
 - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on Site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of groundwater becoming contaminated through Site activity.
 - All oil stored on Site for construction vehicles will be kept in a locked and bunded area;

- Generators, pumps and similar plant will be placed on drip-trays to prevent contamination;
- All temporary construction fuel tanks will also be located in a suitably bunded area and all tanks will be double skinned. Relevant Material Safety Data Sheets along with oil absorbent materials will be kept on Site in close proximity to any fuel storage tanks or bowsers during proposed Site development works; and,
- All fuel/oil deliveries to on Site oil storage tanks will be supervised, and records will be kept of delivery dates and volumes.
- Fixed plant shall be self-bunded; mobile plant shall be in good working order, kept clean, fitted with drip trays where appropriate and subject to regular inspection. Drip trays will be covered, emptied regularly as required and disposed of off Site having regard for local waste management legislation.
- Spill kits and oil absorbent material shall be carried with mobile plant and located at vulnerable locations around the Site to reduce the risk of spillages entering the sub-surface or groundwater environment; booms shall be held on-site for works near drains or dewatering points.
- Procedures are to be put in place to ensure the identification, remediation and correct reporting of any fuel, oil, chemical or other pollution incidents that may occur.
- **In order to prevent any potential surface water/groundwater impacts via. release of cementitious materials** the following measures will be implemented:
 - No mixing of concrete will be carried in close proximity to existing watercourses or drainage ditches as will be detailed in the CEMP. The measures detailed below will be employed where poured concrete is being used in the construction process;
 - The production, transport and placement of all cementitious materials will be strictly planned and supervised;
 - Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed;
 - Any spillages will be cleaned up and disposed of correctly;
 - Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening;
 - Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete;
 - Surplus concrete will be returned to batch plant after completion of a pour; and

- The Contractor will dispose of all alkaline wastewaters and contaminated stormwater offsite having regard for local waste management legislation.
- The Contractor will implement procurement procedures to ensure that aggregate, fill material and topsoil are acquired from reputable sources with suitable environmental management systems as well as regulatory and legal compliance.
- The Contractor will vet the source of aggregate, fill material and topsoil imported to the Site in order to ensure that it is of a reputable origin and that it is “clean” (i.e. it will not contaminate the environment).
- All material to be disposed of off Site to a facility licensed having regard for local waste management legislation. Where material is to be stockpiled on site prior to disposal, the Contractor will control all run-off to prevent contamination of surrounding watercourses (via silt-fencing etc.).
- **The CEMP will include an Emergency Response Plan (ERP)** based on the Contractor’s Risk Assessment, to be reviewed and approved by the Project Ecologist. The ERP will include (but not limited to):
 - Training of relevant staff, including cover staff, in the implementation of the ERP and the use of spill kits;
 - Procedures to be undertaken in the event of the release of any sediment into a watercourse, or any spillage of chemicals, fuel, oil or other hazardous materials or wastes;
 - Procedures to be undertaken in the event of any non-compliance incidents with any permit or licence, or other such risks that could lead to a pollution incident, including flood risks;
 - The number, specification and location of all spill kits which shall be carried/kept on the site; and
 - Information on clean-up and reporting procedures; etc.

While it is expected that the Site drainage system will be installed and commissioned early in the Site construction programme, and will therefore be operational for much of the Construction Phase, there will be a period of the construction phase during which the Site drainage system will not be operational. The CEMP is required to cover this period and to deal with other issues during the Construction Phase.

4.5.2.2 Mitigation 2: Bridge Construction

The installation of a bridge over the River Tolka will bring works close to the river channel. The proposed bridge has a clear span of 29.5m and traverses a section of the river (See Figure 2). Consequently, bridge abutment construction will be several metres away from the channel which will reduce the risk of silt or construction debris entering the watercourse in the event of spillages during the excavation or construction process.

During the construction of the bridge, the Contractor will ensure that the river is protected from any inputs of contaminants/pollutants for the duration of the works. To

minimise risks, best practise Construction measures for works within, or in the vicinity of watercourses will also be followed as per 'Guidelines for the crossing of watercourses during the construction of national road schemes' (Til, 2008) and 'Control of water pollution from linear construction projects - CIRIA C648' (CIRIA, 2006). The below measures will be included in the Contractor's CEMP to prevent the release of hydrocarbons, polluting chemicals, sediment/silt and contaminated waters into the receiving surface water network:

- A **Construction Method Statement** for the bridge construction will be prepared by the Contractor and signed off by the Project Ecologist/ECoW. This Method Statement will detail the mitigation/protection measures that will be put in place to protect the river during these works.
- All works adjacent to the River Tolka will be carried out in accordance with Inland Fisheries Ireland (IFI), "*Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*".
- Prior to commencement on Site, **contact will be made with IFI** to ensure the works comply with the provisions of the Fisheries Act and Habitats Regulations, and that said works will be in accordance with any detailed operational and construction requirements issued by IFI.
- Works will be carried out from the bank side, **and in-stream works will be restricted to the period 1st July through 30th September**, to comply with the seasonal restrictions in salmonid rivers.
- A **suitably qualified ECoW** will be present on-site during the installation of the bridge and associated bank works.
- Wet concrete works in proximity to the watercourse will be avoided as much as practicable and the use of precast elements to form retaining structures and bridge foundations (e.g., segmental retaining walls, driven piles) will form part of the construction specification where feasible in lieu of in-situ concrete alternatives.
- It will be ensured that **all river protection measures will be maintained in good and effective condition** for the duration of the proposed works and checked regularly to ensure that the silt fencing and other mitigation measures are operating effectively.
- To prevent elevated levels of erosion and sedimentation at the Site during the Construction Phase, surface water at the Site will be managed and controlled for the duration of the construction works, until the permanent surface water drainage system (including attenuation and storage) for the Proposed Development is complete.
- Entry to the river channel by vehicles will be avoided, while vehicle usage along the banks will be restricted as much as practicable. Any machines working in the watercourse must be protected against leakage or spillage of fuels, oils, greases and hydraulic fuels.
- Works involving the breaking of river banks e.g., any reprofiling of the river bank, will be carried out with suitable and effective mitigation in place to

minimise/ prevent sediment release to the river i.e., cofferdams, Silt-traps and other suitable in-stream measures for the collection/filtration of sediment.

- Suitable temporary erosion control measures will be employed where required, to prevent sedimentation/erosion arising from any newly profiled banks until new vegetation establishes e.g., **jute/coir mesh blankets** (plastic will be avoided where possible).
- Features such as silt fencing and berms, will be installed prior to the commencement of construction to ensure the protection of the river during construction works. A silt fence set back **at least 10m** from the watercourse will be required, to be constructed of a suitable geotextile membrane to ensure water can pass through, but that silt will be retained.
- An interceptor trench will be required in front of the silt fencing where space allows. The silt fence must be capable of preventing 425µ (micron) and above sediment from passing through. It should also be resistant to damage during deformation resulting from loading by entrapped sediment.
- The silt fences will be monitored to ensure that they remain functional throughout construction of the Proposed Development. Where necessary, maintenance will be carried out on the fences to ensure that they continue to be effective. This will be particularly important after heavy rainfall events. The checks will be undertaken by a suitably qualified person. The frequency of monitoring will depend on the stage of works, and local environmental conditions. Daily checks may be appropriate during the initial site clearance, during works in the vicinity of the watercourse, and during and after storm events. Weekly or bi-weekly checks may be appropriate at other times.
- When cofferdams are being kept dry by pumping, the discharge must be routed to an approved settlement facility before return to the river.
- Every care must be taken to insure against spillage of concrete or leakage of cement grout within cofferdams if being used.
- In a worst case scenario where a spillage of pollutants or cement grout etc into the river occurs during the construction of the bridge, the source of the pollution will be addressed immediately and works will cease until the situation has been rectified.
- Should such a spillage occur, the project ECoW, Meath CoCo and Inland Fisheries Ireland (IFI) will be contacted and informed immediately.

4.5.3 Operational Phase

No potential for likely significant effects as a result of the Operational Phase of the Proposed Development was identified, and therefore no mitigation of same is required.

4.6 Monitoring

4.6.1 Construction Phase

During the Construction Phase, the following monitoring will be detailed in the Contractor's CEMP and will be carried out by the Contractor to ensure the implemented mitigation measures are maintained effectively:

- Surface water and groundwater protection measures (detailed in Section 4.5.2.1) will be checked weekly to ensure they remain effective, and more often during moderate to heavy rainfall events as appropriate.
- The results of the above monitoring be made available to Meath CoCo on request and any remedial measures that are required based on the results of same will be agreed with Meath CoCo if required.

4.6.2 Operational Phase

During the Operational Phase, no additional monitoring is recommended bar the standard maintenance checks that will be carried out to ensure all SUDS measures are operating correctly.

RECEIVED: 20/03/2024

5 CONCLUSION

This NIS details the findings of the Stage 2 AA conducted to further examine the potential direct and indirect impacts of the Proposed Development at lands at Bennetstown, Dunboyne, Co. Meath, on the following European Sites:

- North Dublin Bay SAC (000206).
- South Dublin Bay and River Tolka Estuary SPA (004024).
- North Bull Island SPA (004006).

The above sites were identified by a screening exercise that assessed likely significant effects of a range of impacts that have the potential to arise from the Proposed Development. The AA investigated the potential direct and indirect effects of the proposed works, both during construction and operation, on the integrity and qualifying interests of the above European sites, alone and in combination with other plans and projects, taking into account each site's structure, function and conservation objectives.

Where potentially significant effects were identified, a range of mitigation and avoidance measures have been suggested to avoid them. This NIS has concluded that, once the avoidance and mitigation measures are implemented as proposed, the Proposed Development will not have an adverse effect on the integrity of the above European sites, individually or in combination with other plans and projects. Where applicable, a suite of monitoring has been proposed to ensure the efficacy of said measures in ensuring no adverse impacts on the relevant European sites downstream.

As a result of the complete, precise and definitive findings in of this NIS, it has been concluded, beyond reasonable scientific doubt, that the Proposed Development will have no significant adverse effects on the QIs, SCIs and on the integrity and extent of the relevant European sites.

RECEIVED 28/03/2024

6 REFERENCES

ASU (2011). A survey of mudflats and sandflats in Ireland. An intertidal soft sediment survey of North Dublin Bay. Carried out by ASU for the Marine Institute on behalf of National Parks & Wildlife Service.

DEHLG. (2010). Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. Department of Environment, Heritage and Local Government.

DHPLG. (2018). River Basin Management Plan for Ireland 2018-2021. Department of Housing, Planning and Local Government.

EEA (2023). European Environmental Agency. Natura 2000 [Online Map] Viewer. Available at: <https://natura2000.eea.europa.eu/> [Accessed September 2023]

Enviroguide (2024) Appropriate Assessment Screening Report for Proposed Development at lands at Bennetstown, Dunboyne, Co. Meath. Prepared for Marina Quarter Ltd., in September 2023 and updated in January 2024 as per Meath CoCo RFI.

Environmental Protection Agency. (2022). Guidelines on information to be contained in Environmental Impact Assessment Reports. Environmental Protection Agency, Ireland.

EPA, (2023). Environmental Protection Agency Online Mapping [ONLINE] Available at: <http://www.epa.ie/> [Accessed September 2023].

European Commission. (2001). Assessment of plans and projects significantly affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Communities, Luxembourg.

European Commission. (2019). Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1555085968125&uri=CELEX:52019XC0125\(07\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1555085968125&uri=CELEX:52019XC0125(07))

European Commission, (2021). Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC Brussels, 28.9.2021 C.

GSI, (2023a). Geological Survey Ireland Online Mapping [ONLINE] Available at: <http://www.gsi.ie/> [Accessed September 2023].

GSI. (2023b). Dublin GWB: Summary of Initial Characterisation. [ONLINE] Available at: <https://gsi.geodata.gov.ie/downloads/Groundwater/Reports/GWB/DublinGWB.pdf> [Accessed December 2023].

IE Consulting (2024). Site Specific Flood Risk Assessment. Dunboyne North, Co. Meath. Client: Marina Quarter Limited.

Irish Water. (2018a). Ringsend Wastewater Treatment Plant Upgrade Project. Environmental Impact Assessment Report.

Irish Water. (2018b). Ringsend Wastewater Treatment Plant Upgrade Project. Appropriate Assessment Screening and Natura Impact Statement. Prepared by Natura Environmental Consultants.

Irish Water Website. (2023) Ringsend Wastewater Treatment Plant Upgrade Project. Available at: <https://www.water.ie/projects/local-projects/ringsend/> [Accessed August 2023].

MCC (2023). Meath County Council eplanning database. Available online at: <https://www.eplanning.ie/MeathCC/searchtypes> [Accessed August 2023].

NPWS. (2010). Circular NPW 1/10 & PSSP 2/10. Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government.

NPWS. (2013a). Conservation Objectives: North Dublin Bay SAC [000206]. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013b) Site Synopsis: North Dublin Bay SAC 000206. Version 13. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

NPWS (2014) Site Synopsis: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

NPWS. (2015a). Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA [004024]. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS. (2015b). Conservation Objectives: North Bull Island SPA [004006]. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015c) Site Synopsis: South Dublin Bay and River Tolka Estuary SPA (004024). Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill

OPR, (2021). OPR Practice Note PN01 - Appropriate Assessment Screening for Development Management'.

Paul McGrail Consulting Engineers (2023a) Construction Environmental Management Plan - Proposed Residential Development at Dunboyne, Co. Meath. DOCUMENT REF: 2023-108.

Paul McGrail Consulting Engineers (2023b) Engineering Report - Proposed Residential Development at Dunboyne, Co. Meath. DOCUMENT REF: 2023-108



Head Office

3D, Core C, Block 71, The Plaza, Park West, Dublin 12, D12F9TN, Ireland.

Tel: +353 1 565 4730

Email: info@enviroguide.ie

South West Regional Office

19 Henry Street, Kenmare, County Kerry, V93 CVH0, Ireland.

Tel: +353 646 641932

Email: info@enviroguide.ie

South East Regional Office

M10 Wexford Enterprise Centre, Strandfield Business Park, Rosslare Rd, Strandfield, Kerlogue, Co. Wexford, Y35 W5RD, Ireland.

Tel: +353 1 565 4730

Email: info@enviroguide.ie