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Natura Impact Statement

THE ORCHARD,
CARPENTERSTOWN ROAD,
DUBLIN 15,
CO. FINGAL

2025

REPORT NO:	PE_NIS_10339	**AUTHOR:**	Soraia Branco, MSc.
DATE:	1st September 2025		

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EXECUTIVE SUMMARY

Panther Ecology Ltd. was commissioned by the Thornton O'Connor Town Planning, on behalf of the client, to prepare an Appropriate Assessment Report for a proposed development located at Carpenterstown Road, Dublin 15, Co. Fingal.

This report identified the presence of European sites within the potential zone of influence of the proposed development: South Dublin Bay and River Tolka Estuary SAC (Site Code: 000781), the North Dublin Bay SAC (Site Code: 000206), the North Bull Island SPA (Site Code: 004006) and the South Dublin Bay SAC (Site Code: 000210). The potential for impacts to European sites as a result of the proposed development such as potential surface water quality impacts, introduction of invasive species, habitat destruction and impacts from noise and dust were considered and the level of risk posed assessed.

Under Regulation 49(2) of the European Communities Birds and Natural Habitats) Amendment (S.I. No. 355 of 2015) of Regulations 2011-2015, save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence. Materials containing invasive species are considered "controlled waste", and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011, it is a legal requirement to obtain a license to move "vector materials" listed in the Third Schedule, Part 3.

The NIS will allow for the inclusion of water quality mitigation measures.

Due to the recommended control measures and standard practice during the construction phase, it is considered that there would be no significant risks to the conservation objectives of the habitats and species for which the aforementioned designated sites have been designated. It is considered that there would be no significant risk of negative impact, either alone or in combination with other plans or projects, to the integrity of the Natura 2000 network.

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1.0 INTRODUCTION

Panther Ecology Ltd was commissioned by Thornton O'Connor Town Planning, on behalf of the client, to prepare an Appropriate Assessment Screening Report. The client is seeking planning permission for the construction of a residential development and all ancillary site works at Carpenterstown Road, Dublin 15, Co. Dublin

The screening programme shall be undertaken in accordance with the guidance outlined in "Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities" (DoEHLG, 2010) and "Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites" (EC, Nov 2001). Assessment of plans and projects significantly affecting Natura 2000 sites (November 2001) and Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive (2018). The principal aim of this study is to assess whether significant effects to European sites (the Natura 2000 network) are likely to occur as a result of this project in accordance with Article 6(3) of the Habitats Directive and the Planning and Development (Amendment) Act, 2001, as amended. This report has been prepared with regards to the European Communities (Natural Habitats) 1997 (S.I. No. 94 of 1997), and the later amendment regulations (S.I. No. 233 of 1998; S.I. No. 237 of 2005; S.I. No. 477 of 2011 and S.I. No. 355 of 2015).

A study was undertaken by Ms Soraia Branco who has a MSc in Management and Conservation of Nature from Azores University and a BSc in Biology from Coimbra University, with significant experience in wildlife surveys. This comprised a review of the proposed development, two site visits on the 13th June 2025 to examine the ecological context of the proposed development, a desk study of the information on European sites within the potential zone of influence of the site and an analysis of the information in the context of the guidance to determine if a Natura Impact Statement is required.

The Appropriate Assessment and Natura Impact Statement shall be undertaken in accordance with the guidance outlined in "*Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*" (DoEHLG, Dec 2010) and "*Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites*" (EC, 2021) and "*Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive*" (EC, 2018).

- DoEHLG (2010) "*Appropriate Assessment of Plans & Projects in Ireland*"
- Environment DG, European Commission (2021) "*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*".
- Department of the Environment Heritage and Local Government (DoEHLG) Circular Letter SEA 1/08 and NPWS 1/08.
- Department of the Environment Heritage and Local Government (DoEHLG) Circular letter NPWS 1/10 and PSSP 2/10
- OPR Practice Note PN01 (2021) "*Appropriate Assessment Screening for Development Management*"

2.0 LEGISLATIVE CONTEXT

The EU Habitats Directive (92/43/EEC) on the conservation of natural habitats and of wild fauna by council directive 97/62/EC, 2006/105/EC, and Regulation EC1882/2003 of September 2003, as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/11), provides the framework for legal protection for habitats and species of European importance. The Natura 2000 network provides an ecological infrastructure for the protection of sites that are of particular importance for rare, endangered or vulnerable habitats and species within the EU. The Natura 2000 network in Ireland is made up of European Sites which include:

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)

Article 6(3) of the Habitats Directive establishes the requirement for appropriate assessment when planning new developments that might affect a Natura 2000 site. Article 6(3) of the Habitats Directive states; "*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.*

Stage 1: Screening for Appropriate Assessment (AA)

This stage involves an initial screening assessment of the potential impacts of the project, either alone or in combination with other projects, upon a Natura 2000 site. If it can be concluded that there would be no significant impacts upon Natura 2000 sites, the assessment stops at this stage. If not, or if further assessment is required, the assessment proceeds to Stage 2.

Stage 2: Appropriate Assessment / Natura Impact Statement (NIS)

This stage assesses the impact of the project, alone or in combination with other projects or plans, on the integrity of the Natura 2000 site, with respect to the site's conservation objectives, the site's ecological structure and function and its overall integrity. The output of this stage is an NIS, which also includes any mitigation measures required to avoid, reduce or offset negative impacts of the project. If this stage determines that adverse effects on the Natura 2000 site cannot be excluded, then the plan or project should proceed to Stage 3 or be abandoned.

3.0 METHODOLOGY

Stage 1 - Screening

Screening is the first stage in the Appropriate Assessment process, and is carried out to determine whether a Stage 2 Appropriate Assessment and a Natura Impact Statement (NIS) is required. Screening addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3);

1. Whether a plan or project is directly connected to or necessary for the management of the European (Natura 2000) site; and

2. Whether a plan or project, alone or in combination with other plans or projects, is likely to have significant effects on a European (Natura 2000) site, in view of its conservation objectives.

Screening should be undertaken without the inclusion of mitigation measures. If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 AA and an NIS.

The findings and conclusions of the screening process should be documented, with the necessary supporting evidence and objective criteria. This is of particular importance in the cases where the Appropriate Assessment process ends at the screening stage because the conclusion is that no significant effects are likely.

Stage 2 – Natura Impact Assessment

The scope of this assessment follows the appropriate assessment statement methodology as defined within the European Commission guidance document "*Assessment of plans and projects significantly affecting Natura 2000 sites"* (2021), Section 3, Part 2. Guidance from the Department of the Environment, Heritage and Local Government "*Appropriate Assessment of Plans and Projects in Ireland*" (2010) and "*Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive*" (2018) have also been used in the preparation of this report. In accordance with this guidance, the following methodology has been used to produce this Natura Impact Statement:

Step 1**:** Information Required
Identifying the conservation objectives of the Natura 2000 site and the aspects of the project, alone or in combination with other projects or plans, which have the potential to affect those conservation objectives.

This process involves gathering information for the Natura 2000 site, including the conservation objectives of the site, factors contributing to conservation value, aspects sensitive to change and the existing baseline condition of the site. The principal source of information used for Natura 2000 sites, their qualifying interests and conservation objectives is the National Parks and Wildlife Service (NPWS). Information is also required for the project including the size and scale of the project, the relationship (distance, connectivity etc.) of the project to the Natura 2000 site and the characteristics of existing, proposed or other projects which have the potential to affect the Natura 2000 site.

Step 2: Impact Prediction
This process predicts and identifies the likely impacts of the project on the Natura 2000 site. Potential impacts are identified as; direct and indirect; short or long-term duration; construction, operational or decommissioning; and isolated, interactive and cumulative effects.

Step 3: Conservation Objectives

Once the potential impacts of the project have been predicted and identified, it will be necessary to assess whether these impacts will adversely impact upon the integrity of the Natura 2000 site, as defined by the site's conservation objectives and status of the site. Where it cannot be demonstrated that there will be no adverse impacts upon the Natura 2000 site, mitigation measures must be proposed for the project.

Step 4: Mitigation Measures

Upon the identification of potential impacts, the project will have on the Natura 2000 site (alone or in combination with other projects or plans), mitigation measures will be proposed to eliminate, reduce or offset these negative impacts. Mitigation measures should be considered with preference to the hierarchy of preferred options outlined in the guidance document "*Assessment of plans and projects significantly affecting Natura 2000 sites"*.

3.1 METHODOLOGY BACKGROUND

This Appropriate Assessment has been carried with reference to the following guidelines:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidelines for Planning Authorities*. DoEHLG, 2010.
- Circular NPWS 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities
- *Managing Natura 2000 sites – The Provisions of Article 6 of The Habitats Directive 92/43/EEC.* European Commission, 2000.
- Circular L8/08 Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments 2 September 2008
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites. Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.* European Commission, 2021.
- Commission Notice "Managing Natura 2000 sites The provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission, 21.11.2018
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.
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3.2 DESKTOP RESEARCH

Desktop research was carried out to gather information on the ecology of the site and surrounding areas. The locations of the Natura 2000 sites within the zone of influence of the proposed development at the Carpenterstown Road, Dublin 15, Co. Fingal were identified from National Parks and Wildlife Service (NPWS) online map viewer. Other Natura sites within the potential zone of influence were also reviewed and considered for the potential for the project to have a negative effect.

Water quality data from the EPA was reviewed for the assessment of biological and environmental data collected on waterbodies in Ireland as per the Water Framework Directive (WFD) Monitoring Programme of River Ecology Monitoring Results (Accessed April 2025).

Information on the characteristics of the Natura 2000 sites within the potential zone of influence was reviewed from the conservation objectives documents, site synopses and Standard Natura 2000 data forms available on the NPWS website.

3.3 SITE SURVEY

A site characterisation assessment was undertaken on 13th June 2025 to examine the ecological context of the development site, by systematically walking the site and boundaries and determining the habitats present. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt's "*A Guide to Habitats in Ireland*", a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, "*Best Practice Guidance for Habitat Survey and Mapping*", (Smith *et al.,* 2011).

Bird species and signs of fauna activity were also noted. Particular attention was given to the possible presence of habitats and/or species, which are legally protected under Irish and European legislation and to assessing any potential ecological connectivity with Natura 2000 sites or supplementary or steppingstone habitats of relevance to Natura 2000 sites.

4.0 DESCRIPTION OF PROPOSED DEVELOPMENT AND EXISTING SITE

4.1 PROPOSED DEVELOPMENT

The proposed development will consist of the construction of a residential development and all ancillary site works at The Orchard, Carpenterstown Road, Dublin 15, D15 R2RV (GPS Coordinates: 53.371272, -6.379458). The location of the development site is shown in Figure 1 below.

The total area of the site is 1.94ha. The site will be accessed via an existing vehicular access off the Carpenterstown road to the north which will be repositioned and widened to facilitate safer vehicular, cycle and pedestrian movement. The development will principally consist of the demolition of a vacant dwelling and gate lodge (c. 1,140 sq m); and the construction of 86 No. residential units comprising 42 No. 3-storey houses (6 No. 3 bed units and 36 No. 4-bed units) and 44 No. apartments (13 No. 1 bed units and 31 No. 2 bed units) in a part 5- to part 6-storey building.

The development also proposes: the widening of the existing vehicular access to facilitate two-way traffic movements; pedestrian access along Carpenterstown Road; the continuation of the existing cycle lane at the north-west extent of the site along Carpenterstown Road; car parking spaces; bicycle parking spaces; bin storage; balconies and terraces; hard and soft landscaping; boundary treatments; and all associated site works above and below ground.

Drinking water will be supplied to the development by mains, with a new connection required to the existing 315mm uPVC watermain to the north. Irish Water has confirmed the feasibility of the connection with no infrastructure updates required (Ref. no. CDS25001335).

The surface water drainage for the development has been designed to cater for all surface water run-off from proposed buildings and impermeable surfaces. The proposed surface water network has been designed in accordance with the "Recommendations for site Development Works for Housing Areas", "Greater Dublin Strategic Drainage Study" (GDSDS). The design of the surface water network and SuDS measures within the application site also include a 20% climate change factor in accordance with the Fingal County Council Water Services. To comply with the principles of Sustainable Urban Drainage Systems (SuDS) the proposed drainage plan includes the creation of bioretention tree pits, green/blue roof in the buildings located on the northeast corner of the site with 0.1m storage depth providing 81m^3 storage volume, an above ground detention basin with capacity to store 26m^3 with a 550m^2 underground attenuation tank providing 380m^3 storage volume, and a 97m x 1.3m deep filter drain with 40% void stone providing 53m^3 of storage volume. Additionally, permeable pavement will be used for the car parking areas with excess run-off to the road drainage. These SuDS features will reduce the overall area of permeable surfaces and reduce the volume of water captured within the surface water drainage network, while providing additional attenuation and filtration. A new proposed network of 225 – 300mm dia. pipes will direct excess surface water to the existing surface water drainage sewer located along the Carpenterstown Road to the north. A Class 1 Bypass Petrol Interceptor will be fitted upstream of the connection point. A hydrobrake will also be fitted upstream of the connection point to reduce water flow to 4.0 l/s (QBar). Any surface water reaching the existing surface water infrastructure on Carpenterstown Road will be clean and attenuated. Surface water from the roofs of the existing buildings is assumed to be currently directed to soakaways onsite. These will be infilled as part of the construction works.

Foul water from the proposed development will be collected by new proposed network of 225mm dia. pipes and will be directed to the existing wastewater sewer along the Carpenterstown Road to the north. Foul water will ultimately be directed to the Ringsend WWTP (D0034-01) which currently has available capacity according to the Kildare WWTP Capacity Register (accessed 11th August 2025). There are projects planned/underway for this WWTP. Irish Water has confirmed the feasibility of the connection subject to 150m of network extension (Ref. no. CDS25001335). The Ringsend WWTP discharges treated water into the Liffey Estuary. Waste water from the existing buildings is assumed to be currently directed to a waste water treatment unit onsite. This system will be decommissioned and removed as part of the proposed works.

The proposed heating system for the dwellings would be new air heat pumps.

A lighting plan has been prepared by McElligott Consulting Engineers and it proposed the installation of two different types of luminaires. Only LED lights will be used. The columns will be 6m tall and all lanterns have been calculated at 0 tilt. The light colour temperature will not be above 3000K. Luminaires will be directed towards the roads and angled away from the boundary vegetation.

An Arborist report has been prepared by CMK Ltd. and it defined root protection zones for the trees to be retained. According to the arborist report, the proposed development will necessitate the removal of all trees on the southern and western boundaries with a smaller number of trees

to be removed from the eastern boundary. The report has determined that "*the southern boundary is primarily populated by Leyland cypress which is considered unsuitable for almost all suburban situations due to its growth potential. The western boundary has scattered trees both on and adjacent to a boundary ditch. The primary species here are Leyland cypress and ash. Both are considered to be unsuitable for retention with the small rear gardens of suburban homes*". A total of 17 trees were considered to be or very low value and were flagged for removal by the arborist expert. Most of the trees in poor conditions are Ash, with a few Lawson Cypresses, a Cherry, a Hawthorn and a Monterrey Cypress. Two trees have been classified as high value and these will be retained. Other 21 trees were classified as moderate value and 12 trees were classified as low value. Most of the trees recommended for removal are located along the west and north boundaries.

A Landscape Plan has been prepared by Ait Urbanism and Landscape Ltd, and it proposes to retain a cluster of trees close to the north boundary of the site. The landscape plan proposes the planting of new hedgerows, specimen trees, shrubs, meadows, grasslands and bulbs. The planting chosen for this project has been selected with reference to the All-Ireland Pollinator Plan and the 'Pollinator Friendly Planting Code'. The planting schedule includes *Acer campestre* 'Elegant', *Aesculus* x *carnea* 'Briotii', *Liriodendron tulipfera* 'Fastigiata', *Sorbus aria* 'Majestica', *Pinus sylvestris*, *Quercus robur*, *Betula pendula*, *Salix caprea*, *Acer rubrum* 'October Glory', *Aesculus hippocastanum*, *Gleditsia triacanthos*, *Prunus padus*, *Quercus robur*, *Liquidambar styraciflua*, *Pyrus calleryana* 'Chanticleer', *Amelanchier lamarckii*, *Cercediphyllum japonicum*, *Corylus avellana*, *Sorbus aucuparia*, *Malus evereste*, *Malus sylvestris*, *Betula pendula*, *Crataegus monogyna*, *Corylus avellana*, *Malus sylvestris*, *Prunus spinosa*, *Sambucus nigra*, *Viburnum opulus*, *Ilex crenata*, *Carpinus betulus*, *Cirsium rivulare*, *Echinops bannaticus*, *Erigeron karvinskianus, Erysimum* 'Brendon', *Geranium* 'Rozanne', *Helleborus argutifolius*, *Knautia macedonica*, *Nepeta* 'Kit Kat', *Perovskia atriplicifolia* 'Blue Spire', *Pulmonaria officinalis*, *Rudbeckia fulgida* 'Goldstrum', *Salvia nemerosa*, *Stachys byzantina*, *Deschampsia cespitosa*, *Helictotrichon sempevirens*, *Molinia caerulea*, *Camassia leichtlinii*, *Narcissus* c. vars, *Anemone hupehensis*, *Brunnera* 'Jack Frost', *Brunnera* 'Looking Glass', *Digitalis purpurea*, *Geranium macrorrhizum*, *Helleborus orientale*, *Helleborus* 'White Lady', *Heuchera* 'Lime Marmalade', *Lysimachia nummularia* 'Aurea', *Persicaria affinis* 'Darjeeling Red', *Pulmonria* 'Blue Ensign', *Rodgersia* 'Dark Pokers', *Vinca minor*, *Blechnum spicant*, *Dryopteris affinis*, *Polystichum setiferum*, *Anemone nemerosa, Crocus tommasinianus, Galanthus nivalis* and *Hyacinthoides non-scripta.* Plants proposed for planting will be of local provenance where possible.

The estimated duration of the demolition works is 2-3 weeks and the estimated duration of the proposed construction works is 18 months. Demolition waste will be exported offsite by a licenced contractor. Excavated materials will be temporarily stored onsite and will be used for reinstatement works and landscaping where possible. Some ground levelling will be required at the site to allow for the proposed development. It is estimated that 5291.71m^3 of infill material will be imported onto the site. There are no hazardous materials onsite.

No works will take place within a watercourse or drainage ditch. The drainage ditch along the west boundary of the site will be infilled. The nearest distance between the proposed buildings and the drainage ditch that runs adjacent to the east boundary is 6.12m. No blockwork/concrete walls will be built to the rear of these buildings, post and panel fencing will be used instead. A bicycle store will be installed against the eastern boundary of the site. Only minor excavation works will be required for the installation of this store.

The closest Natura 2000 site is the Rye Water Valley/Carton SAC (Site Code: 001398) located approximately 7.3km to the west of the development site. The South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024) and the South Dublin Bay SAC (Site Code: 000210) are located approximately 10km and 11.6km to the east of the development site, respectively. The North Dublin Bay SAC (Site Code: 000206) and the North Bull Island SPA (Site Code: 004006) are located approximately 13.1km to the east of the development site.

The following project elements of the proposed development have been examined for relevance to possible effects on the Natura 2000 sites;

- Earthworks & Excavation
- Sediment & Hydrocarbon Runnoff
- Stormwater & Waste Water
- Disturbance to Protected Species
- Impact on Protected Habitats
- Dust and Noise
- Invasive Species

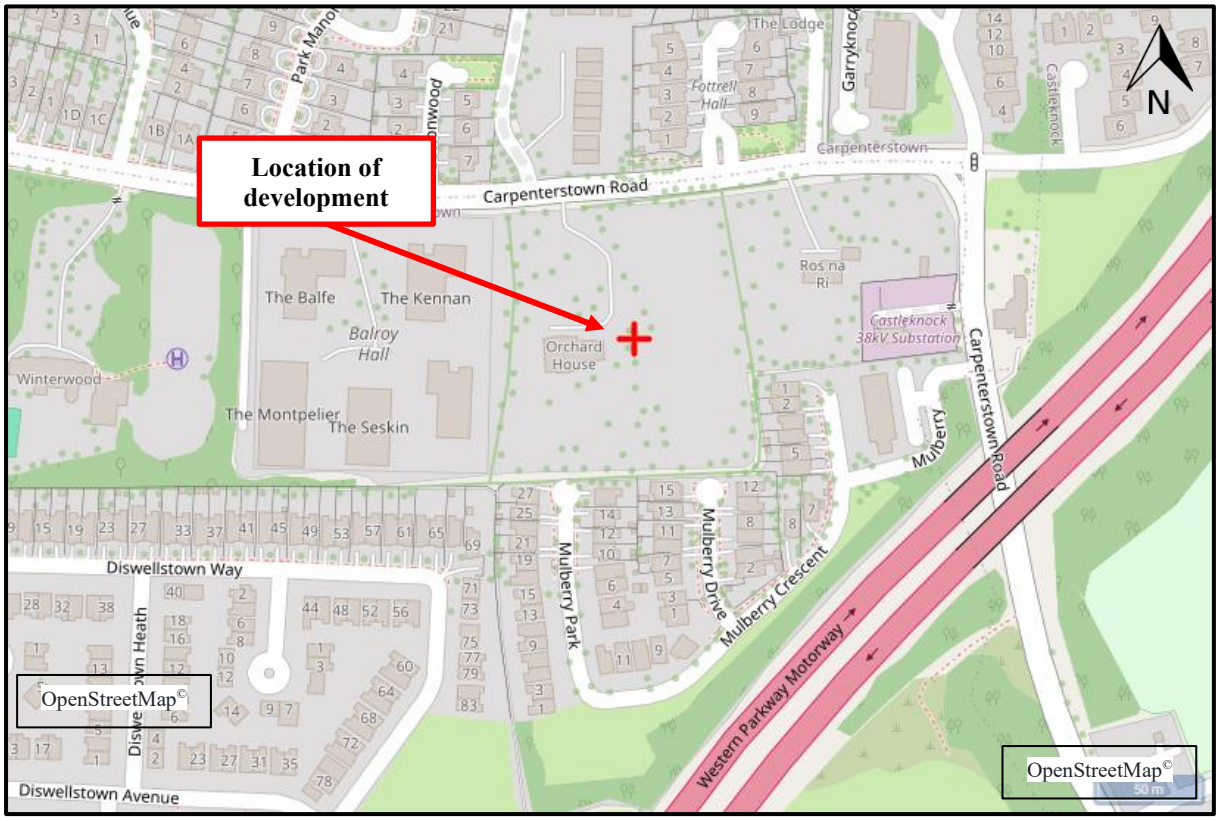


Figure 1. Location of development site at The Orchard, Carpenterstown Road, Dublin 15, Co. Fingal.

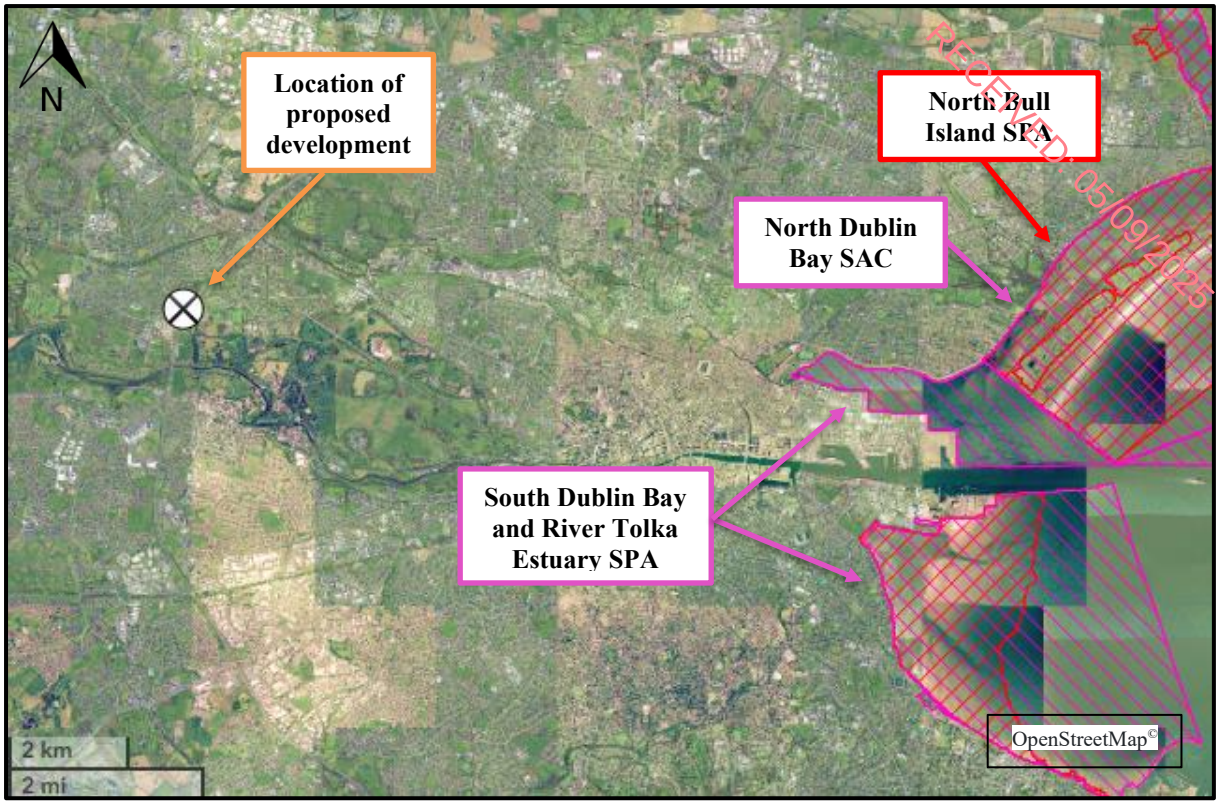


Figure 2. Location of Proposed Development and Natura 2000 Sites.

4.2 EXISTING ENVIRONMENT

4.2.1 Site Survey

Habitats and Flora

A site assessment was undertaken on the 13th June 2025. During the site assessment it was observed that the development site is mostly comprised of grassland and buildings/artificial surfaces, bordered by treelines and ornamental shrubs. The land use in the surrounding areas is mostly urban in nature, with residential areas in the immediate vicinity.

The **Dry calcareous and neutral grassland (GS1)** habitat is present to the south of the buildings. This grassland appears to be extensively managed. There were no signs of recent grazing. The species composition included Rough Meadow Grass (*Poa trivialis*), False Oat-grass (*Arrhenatherum elatius*), Yorkshire Fog (*Holcus lanatus*), Creeping Bent (*Agrostis stolonifera*), Creeping Buttercup (*Ranunculus repens*), Dock (*Rumex* spp.), Cleavers (*Galium aparine*), Dandelion (*Taraxacum* agg.), Ragwort (*Senecio jacobaea*), Speedwell (*Veronica* spp.), White Clover (*Trifolium repens*), Cock's Foot (*Dactylis glomerata*), Cuckoo Flower (*Cardamine pratensis*), Common Thistle (*Cirsium vulgare*), Herb Robert (*Geranium robertianum*), Daisy (*Bellis perennis*), Mouse-ear (*Cerastium* spp.), Meadow Buttercup (*Ranunculus acris*), Creeping Thistle (*Cirsium arvense*), Ryegrass (*Lolium* spp.), Moss species (Bryophyta), Ribbed Melilot (*Melilotus officinalis*), Red Clover (*Trifium pratense*), Bramble (*Rubus fruticosus*), Common Hogweed (*Heracleum sphondylium*), Lesser Chickweed (*Stellaria graminea*), Silverweed (*Potentilla anserina*), Creeping Cinquefoil (*Potentilla reptans*) and Pendulous Sedge (*Carex pendula*).

The **Buildings and artificial surfaces (BL3)** habitat comprises of the existing buildings, yards, walls and driveway. Flora species present within this habitat included Broadleaved Plantain (*Plantago major*), Dandelion (*Taraxacum* agg.), Petty Spurge (*Euphorbia peplus*), White Clover (*Trifolium repens*), Fern-grass (*Catapodium rigidum*), Willowherb (*Epilobium* spp.), Annual Meadow Grass (*Poa annua*), Bird's-eye Pearlwort (*Sagina procumbens*), Fescue (*Festuca* spp.), Ivy (*Hedera* spp.), Ash seedlings (*Fraxinus excelsior*), Mouse-ear (*Cerastium* spp.), Daisy (*Bellis perennis*), Shamrock (*Oxalis* spp.), Creeping Buttercup (*Ranunculus repens*), Willow (*Salix* spp.), Tutsan (*Hypericum androsaemum*), Columbine (*Aquilegia vulgaris*), Rosebay Willowherb (*Chamaenerion angustifolium*), Common Cornsalad (*Valerianella locusta*) and Herb Robert (*Geranium robertianum*).

The **Amenity grassland (GA2)** habitat is present in small pockets to the north of the buildings and consists of areas of grassland that are frequently mowed. The grassland was slightly overgrown by the time this assessment took place. The species composition included Rough Meadow Grass (*Poa trivialis*), Bent Grass (*Agrostis* spp.), Yorkshire Fog (*Holcus lanatus*), Creeping Buttercup (*Ranunculus repens*), Dock (*Rumex* spp.), Dandelion (*Taraxacum* agg.), Cleavers (*Galium* spp.), Ragwort (*Senecio jacobaea*) and White Clover (*Trifolium repens*).

There are **Treelines (WL2)** bordering the site to the north, east, west and south. There are also treelines bordering part of the driveway. Most of the trees within this habitat were over the 5m height threshold. The species composition included Beech (*Fagus sylvatica*), Cypress (*Cupressus* spp.), Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*), Willow (*Salix* spp.) and Birch (*Betula* spp.), with an understorey of Cherry Laurel (*Prunus laurocerasus*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Elder (*Sambucus nigra*), Bay (*Laurus nobilis*), Barbery (*Berberis* spp.), Holly (*Ilex*spp.), *Pittosporum tenuifolium*, Ivy (*Hedera* spp.), Common Nettle (*Urtica dioica*), Dock (*Rumex* spp.), Cleavers (*Galium aparine*), Bush Vetch (*Vicia sepium*), Wood Avens (*Geum urbanum*), and Bindweed (*Calystegia* spp.), Herb Robert (*Geranium robertianum*), Dandelion (*Taraxacum* agg.), Petty Spurge (*Euphorbia peplus*), Sowthistle (*Sonchus oleraceus*) and Creeping Cinquefoil (*Potentilla reptans*).

The **Ornamental/ non-native shrub (WS3)** habitat is present in areas around the existing dwellings. The species composition included Cherry Laurel (*Prunus laurocerasus*), Griselinia (*Griselinia littoralis*), Chilean myrtle (*Luma apiculata*), *Pittosporum tenuifolium*, Rose (*Rosa* spp.), Firethorn (*Pyracantha coccinea*), Holly (*Ilex* spp.), Portuguese Laurel (*Prunus lusitanica*), Mexican Orange Blossom (*Choisya trenata*), Wilson's honeysuckle (*Lonicera nitida*), Garden Privet (*Ligustrum ovalifolium*), Hebe (*Hebe* spp.), Bay (*Laurus nobilis*), Tutsan (*Hypericum androsaemum*), Japanese Aralia (*Fatsia japonica*), Hardy Fuchsia (*Fuchsia magellanica*), Blackthorn (*Prunus spinosa*) and New Zealand Flax (*Phormium tanax*). Other wild flora species present within this habitat included Ash seedlings (*Fraxinus excelsior*), Birch (*Betula* spp.), Dogwood (*Cornus* spp.), Hart's-tongue Fern (*Asplenium scolopendrium*), Bramble (*Rubus fruticosus*), Yew (*Taxus baccata*), Bush Vetch (*Vicia sepium*).

The **Recolonising bare ground (ED3)** habitat is present in pockets along the borders of the grassland and in a small are between the existing dwellings. The species composition included Prickly Sow-thistle (*Sonchus asper*), Hedge Mustard (*Sisymbrium officinalis*), Fumitory (*Fumaria* spp.), Petty Spurge (*Euphorbia peplus*), Creeping Buttercup (*Ranunculus repens*), Elder seedlings (*Sambucus nigra*), Forget-me-not (*Myosotis* spp.), Poppy (*Papaver* spp.), Garlic mustard (*Alliaria petiolata*), Red Dead-nettle (*Lamium purpureum*), Sycamore seedlings (*Acer pseudoplatanus*), Moss species (Bryophyta), Rough Meadow-grass (*Poa*

trivialis), Cherry seedlings (*Prunus* spp.), Speedwell (*Veronica* spp.), Cow Parsley (*Anthriscus sylvestris*), Hawk's-beard (*Crepis* spp.), Willowherb (*Epilobium* spp.), Common Hogweed (*Heracleum sphondylium*), Wood Avens (*Geum urbanum*), Creeping Thistle (*Cirsium arvense*), Fescue (*Festuca* spp.), Pineappleweed (*Matricaria discoidea*), Common Thistle (*Cirsium vulgare*), Horsetail (*Equisetum* spp.), Tufted Vetch (*Vicia cracca*) and Scarlet Pimpernel (*Anagallis arvensis*).

There is a **Hedgerow (WL1)** bordering the grassland to the northeast of the site which is comprised of Chery Laurel (*Prunus laurocerasus*) with Ivy (*Hedera* spp.).

There is a small patch of **Scrub (WS1)** close to the southwest corner of the site which is dominated by Bramble (*Rubus fruticosus*), with Creeping Thistle (*Cirsium arvense*), Cleavers (*Galium aparine*), False Oat-grass (*Arrhenatherum elatius*), Common Nettle (*Urtica dioica*), Bindweed (*Calystegia* spp.) and Colt's Foot (*Tussilago farfara*).

There is a **Drainage ditch (FW4)** along the west boundary of the site. The drainage ditch was approximately 1.5m wide, with banks up to 1m tall. There was minimal stagnant water within the northern half of the drainage ditch, up to 10cm deep, while the southern half was mostly dry. The substrate was muddy with accumulation of dead foliage. No culverts were visible at the east or north edges of the drainage ditch. Vegetation present within the drainage ditch and its banks included Ivy (*Hedera* spp.), Hawthorn (*Crataegus monogyna*), Bramble (*Rubus fruticosus*), Cleavers (*Galium aparine*), Hart's-tongue Fern (*Asplenium scolopendrium*), Willowherb (*Epilobium* spp.) and Horsetail (*Equisetum* spp.).

Habitats of note outside of the red line boundary included **Treelines (WL2)** to the west and east of the development site. Tree species within this habitat included Horse Chestnut (*Aesculus hippocastanum*), Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*) and Cypress (*Cupressus* spp.). There is a **Drainage ditch (FW4)** adjacent to the east boundary of the site which has its starting point close to the southeast corner of the site. There was a culvert at the northern end of the drainage ditch. The drainage ditch was approximately 1.5m wide with banks up to 2m tall. The substrate was muddy. There was minimal stagnant water within the drainage ditch, up to 5cm deep. Some areas of the drainage ditch were covered in dense scrub. Flora species present within the drainage ditch and on its banks included Bramble (*Rubus fruticosus*), Ivy (*Hedera* spp.), Hart's-tongue Fern (*Asplenium scolopendrium*) and Pendulous Sedge (*Carex pendula*).

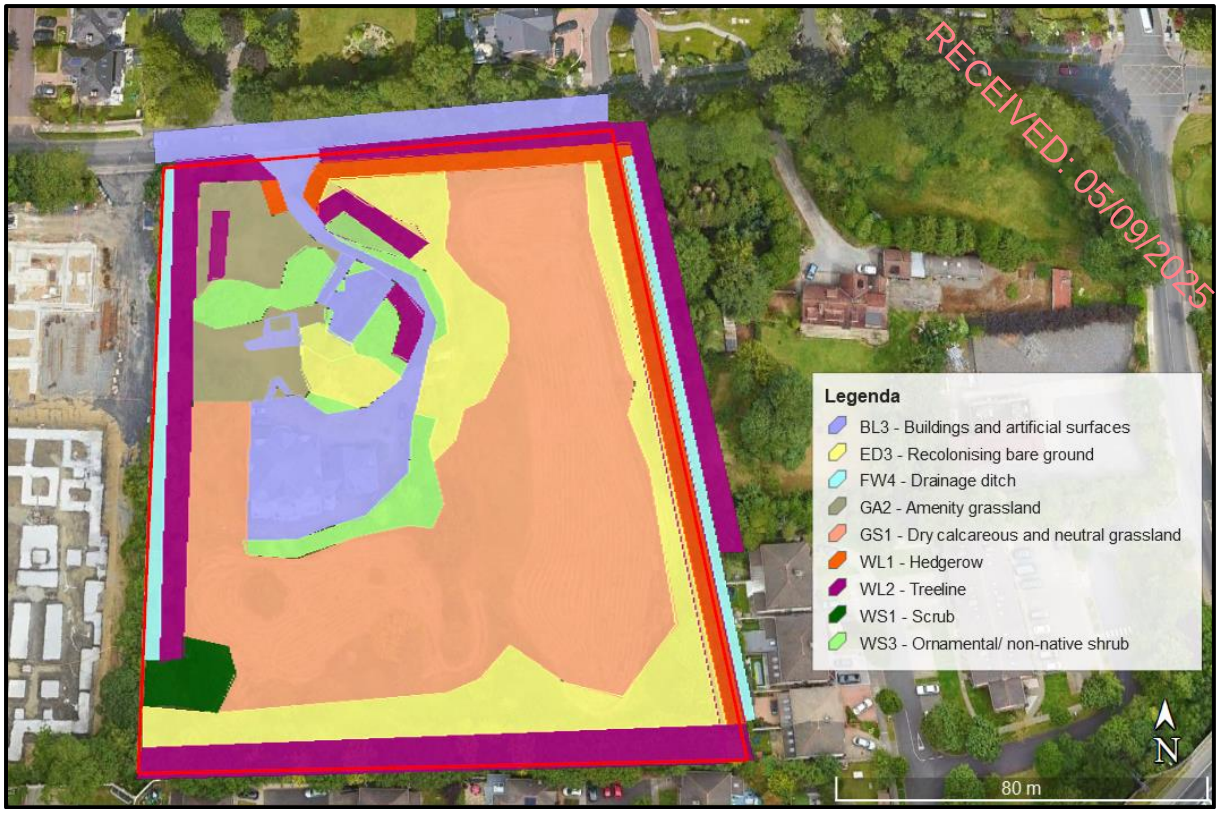


Figure 3. Habitats map (Google Earth ©)

Table 1. Summary of Habitats Identified at the Development Site and surrounding areas.

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	**LEVEL 2**	**LEVEL 3**
G – Grassland and marsh	**GS** – Semi-natural grassland	**GS1** – Dry calcareous and neutral grassland
	GA – Improved grassland	**GA2** – Amenity grassland
B – Cultivated and built land	**BL –** Built land	**BL3 –** Buildings and artificial surfaces
W – Woodland and scrub	**WL** – Linear woodland/ scrub	**WL1** - Hedgerows
		WL2 - Treelines
	WS – Scrub/ transitional woodland	**WS1** - Scrub
		WS3 – Ornamental/ non-native shrub
F – Freshwater	**FW** - Watercourses	**FW4** – Drainage ditch
E – Exposed rock and disturbed ground	**ED** – Disturbed ground	**ED3** – Recolonising bare ground

Fauna

Bird species noted during the site walkover included Rook (*Corvus frugilegus*), Woodpigeon (*Columba palumbus*), Magpie (*Pica pica*), Robin (*Erythacus rubecula*), Dunnock (*Prunella modularis*), Hooded Crow (*Corvus cornix*), Wren (*Troglodytes troglodytes*), Coal Tit (*Periparus ater*), Goldcrest (*Regulus regulus*), Chaffinch (*Fringilla coelebs*) and Herring Gull (*Larus argentatus*). None of the species recorded is red listed under the BoCCI (Birds of Conservation Concern in Ireland) classification. Goldcrest and Herring Gull are amber listed. None of the species recorded is protected under the Annex I of the EU Birds Directive. The drainage ditches that border the site would not offer suitable foraging or breeding habitat for Kingfisher (*Alcedo atthis*).

A few mammal tracks/paths were present along the hedgerow to the north and the treeline to the east. No burrows were present within the red line boundary. Two burrows were present in close proximity to the site in the bank of the drainage ditch to the west and northwest. One of the burrows was approximately 20cm tall and 15cm wide, which would correspond to the shape and size of a Fox den (Muir & Morris, 2013). The other burrow was approximately 10cm wide, relatively round-shaped, which corresponds to the shape and size of Rabbits (Muir & Morris, 2013). Rabbit droppings were present at the entrance of the burrow. No protected mammals or evidence of protected mammals was found. There was no sighting of Badger (*Meles meles*) or any evidence of Badger (setts, droppings, latrines, footprints, etc) during the site assessment. The development site could offer foraging opportunities for Badger. No Otter or evidence of Otter was found onsite. There are areas of tall vegetation onsite that could be suitable for Otter couches. However, the development site would offer limited foraging and breeding opportunities for Otter. The presence of walls bordering the site and the constant human presence onsite are factors that limit the suitability of the development site for protected mammals such as Badger and Otter. Fauna typical of that found throughout the rest of Ireland which would be expected to be found in the area would include Badger (*Meles meles*), Otter (*Lutra lutra*), Pine Marten (*Martes martes*), Rabbit (*Oryctalagus cuniculus*), Fox (*Vulpes vulpes*), Stoat (*Mustela erminea hibernica*), American Mink (*Mustela vison*), Irish Hare (*Lepus timidus hibernicus*), Hedgehog (*Erinus europaeus*), Red Squirrel (*Sciurus vulgaris*), Grey Squirrel (*Sciurus carolinensis*), Wood Mouse (*Apodemus sylvaticus*), Bank Vole (*Myodes glareolus*) and Pygmy Shrew (*Sorex minutus*).

4.2.2 Desk based Review

In addition to the site walkover, flora and fauna records were reviewed on the National Biodiversity Data Centre (NBDC) website for the proposed development site and vicinity.

Flora

Five protected plant species under the Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) were recorded within the 10km square (Tetrad – O03) in which the proposed development site is located: Hairy St John's-wort (*Hypericum hirsutum*), Meadow Barley (*Hordeum secalinum*), Opposite-leaved Pondweed (*Groenlandia densa*), Ribbonwort (*Pallavicinia lyellii*) and Many-seasoned Thread-moss (*Bryum intermedium*). Other endangered non protected flora recorded within the tetrad include the Green Figwort (*Scrophularia umbrosa*). None of these species was found onsite during the ecological survey.

Nine invasive plant species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Amendment (S.I. No. 355 of 2015) of Regulations 2011-2015 were recorded within the 10km square (Tetrad – O03): Water Fern (*Azolla filiculoides*), American Skunk-cabbage (*Lysichiton americanus*), Giant Hogweed (*Heracleum mantegazzianum*),

Giant-rhubarb (*Gunnera tinctoria*), Indian Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*) , Rhododendron (*Rhododendron ponticum*), Spanish Bluebell (*Hyacinthoides hispanica*) and Three-cornered Garlic (*Allium triquetrum*). None of these species was found onsite during the ecological survey.

Fauna

Protected fauna species of note recorded within the NBDC 10km square (Tetrad – O03) include the protected species, Common Frog (*Rana temporaria*), Smooth Newt (*Lissotriton vulgaris*), Freshwater White-clawed Crayfish (*Austropotamobius pallipes*), Marsh Fritillary (*Euphydryas aurinia*), Grey Seal (*Halichoerus grypus*), Desmoulin's Whorl Snail (*Vertigo* (*Vertigo*) *moulinsiana*), Brown Long-eared Bat (*Plecotus auritus*), Daubenton's Bat (*Myotis daubentonii*), Badger (*Meles meles*), Eurasian Pygmy Shrew (*Sorex minutus*), Red Squirrel (*Sciurus vulgaris*), Otter (*Lutra lutra*), Lesser Noctule (*Nyctalus leisleri*), Nathusius's Pipistrelle (*Pipistrellus nathusii*), Natterer's Bat (*Myotis nattereri*), Pine Marten (*Martes martes*), Pipistrelle (*Pipistrellus pipistrellus sensu lato*), Red Deer (*Cervus elaphus*) Soprano Pipistrelle (*Pipistrellus pygmaeus*), West European Hedgehog (*Erinaceus europaeus*) and Whiskered Bat (*Myotis mystacinus*).

High impact invasive species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Amendment (S.I. No. 355 of 2015) of Regulations 2011-2015 include Harlequin Ladybird (*Harmonia axyridis*), Red-eared Terrapin (*Trachemys scripta*), American Mink (*Mustela vison*), Brown Rat (*Rattus norvegicus*), Grey Squirrel (*Sciurus carolinensis*), Roach (*Rutilus rutilus*), Fallow Deer (*Dama dama*) and Siberian Chipmunk (*Tamias sibiricus*).

Bird species of note include Barn Owl (Tyto alba), Swallow (*Hirundo rustica*), Black-headed Gull (*Larus ridibundus*), Brent Goose (*Branta bernicla*), Coot (*Fulica atra*), Common Grasshopper Warbler (*Locustella naevia*), Kestrel (*Falco tinnunculus*), Common Kingfisher (*Alcedo atthis*), Linnet (*Carduelis cannabina*), Common Pheasant (*Phasianus colchicus*), Common Pochard (*Aythya ferina*), Common Redshank (*Tringa totanus*), Common Sandpiper (*Actitis hypoleucos*), Snipe (*Gallinago gallinago*), Starling (*Sturnus vulgaris*), Swift (*Apus apus*), Common Tern (*Sterna hirundo*), Common Wood Pigeon (*Columba palumbus*), Corn Crake (Crex crex), Curlew (*Numenius arquata*), Eurasian Oystercatcher (*Haematopus ostralegus*), Teal (*Anas crecca*), Tree Sparrow (*Passer montanus*), Eurasian Wigeon (*Anas penelope*), Woodcock (*Scolopax rusticola*), European Golden Plover (*Pluvialis apricaria*), European Turtle Dove (*Streptopelia turtur*), Gadwall (*Anas strepera*), Goosander (*Mergus merganser*), Great Black-backed Gull (*Larus marinus*), Great Cormorant (*Phalacrocorax carbo*), Great Crested Grebe (*Podiceps cristatus*), Grey Partridge (*Perdix perdix*), Herring Gull (*Larus argentatus*), House Martin (*Delichon urbicum*), House Sparrow (*Passer domesticus*), Lesser Black-backed Gull (*Larus fuscus*), Little Egret (*Egretta garzetta*), Little Grebe (*Tachybaptus ruficollis*), Mallard (*Anas platyrhynchos*), Merlin (*Falco columbarius*), Mew Gull (*Larus canus*), Mute Swan (*Cygnus olor*), Northern Lapwing (*Vanellus vanellus*), Northern Pintail (*Anas acuta*), Northern Shoveler (*Anas clypeata*), Northern Wheatear (*Oenanthe oenanthe),* Peregrine Falcon (*Falco peregrinus*), Red Grouse (*Lagopus lagopus*), Red Kite (*Milvus milvus*), Ringed Plover (*Charadrius hiaticula*), Rock Pigeon (*Columba livia*), Sand Martin (*Riparia riparia*), Sky Lark (*Alauda arvensis*), Spotted Flycatcher (*Muscicapa striata*), Stock Pigeon (*Columba oenas),* Tufted Duck (*Aythya fuligula*), Whooper Swan (*Cygnus cygnus*), and Yellowhammer (*Emberiza citrinella*).

4.3 WATER QUALITY

4.3.1 Surface water

The proposed development is located within the Liffey_SC_100 Sub-Catchment (ID: 09_1) which is part of the Liffey and Dublin Bay Catchment (ID: 09). The nearest mapped watercourse according to online EPA maps is an unnamed stream (Segment Code: 09_1510 - Order 1), which runs approximately 120m to the east of the development site. From its closest point to the development site this stream flows in a southerly direction for approximately 966m until it joins the River Liffey (EPA Code: 09L01 – Order 6). The Liffey flows in an easterly direction for approximately 14.3km until it discharges into the Dublin Bay. The Dublin Bay at its closest to the development site forms part of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA. Other watercourses of note in the area include the Astagob stream (EPA Code: 09A24 - Order 1) and the Quarryvale stream (EPA Code: 09Q02 – Order 1) which join the River Liffey approximately 1.4km to the southwest of the development site.

There is a drainage ditch onsite along the west boundary of the site. Drainage maps of the area show that there is a 10mm dia. pipe potentially connecting this drainage ditch to a surface water drainage pipe under the Carpenterstown Road. This drainage ditch will be infilled. There is another drainage ditch outside of the red line boundary of the site, adjacent to the east boundary, that drains into the surface water drainage pipe under the Carpenterstown Road. Surface water flows towards the east within the existing pipes under the Carpenterstown Road. It was not possible to ascertain whether this existing infrastructure is connected to a mapped watercourse downstream. Therefore, a potential hydrological connection between the drainage ditches that border the site and the unnamed stream to the east cannot be ruled out.

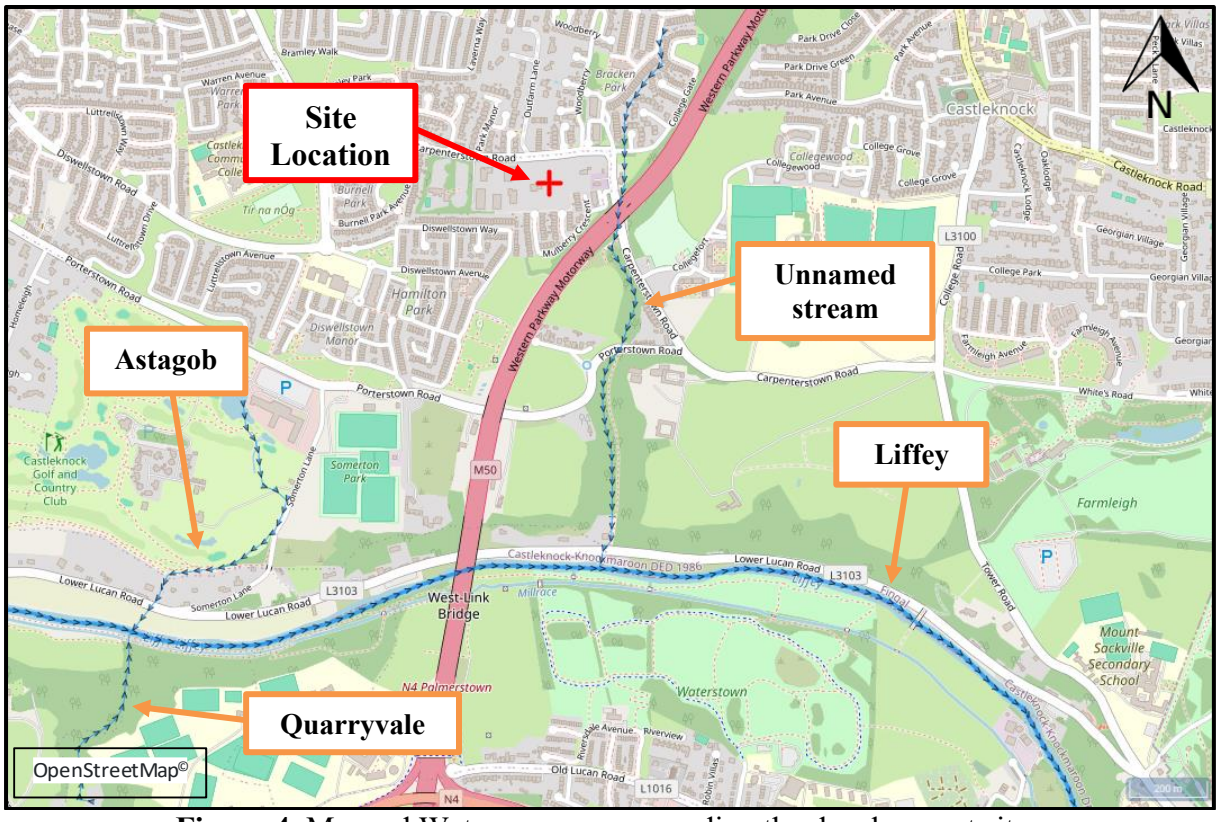


Figure 4. Mapped Watercourses surrounding the development site.

The Environmental Protection Agency (EPA) undertakes regular surface water monitoring along the River Liffey. The results for the nearest monitoring stations with available information (as per Table 2) for the period 2007 – 2022 are summarised in Figure 4 below for indicative purposes. As can be seen in Figure 4, the River Liffey is achieving water quality values of Q3 (Poor) to Q4 (Good).

EPA comments on the most recent monitoring results for the River Liffey are as follows: "*The Liffey remained mostly unchanged in June 2022, with satisfactory ecological conditions at the majority (14) of the 16 stations surveyed. The only improvement was found at station 0200 (Br E of Ballysmuttan) which recorded the highest ecological condition, Q5, with a dominance of pollution-sensitive taxa recorded. The only decline occurred at 0850 (Connell Ford) which was found to be at good ecological conditions in 2022 after an improvement in 2019. As previously found, stations 2100 (Lucan) and 2360 (Chapelizod) remain moderate and poor, respectively*".

Table 2. Active Monitoring Stations of the River Liffey

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. LOCATION RELATIVE TO PROPOSED SITE
RS09L012100	Lucan Br	303497.53	235516.95	6.74km upstream
RS09L012360	LIFFEY - 0.2 km d/s Chapelizon Br (Lynch's Lane)	310423	234138	4.6km downstream

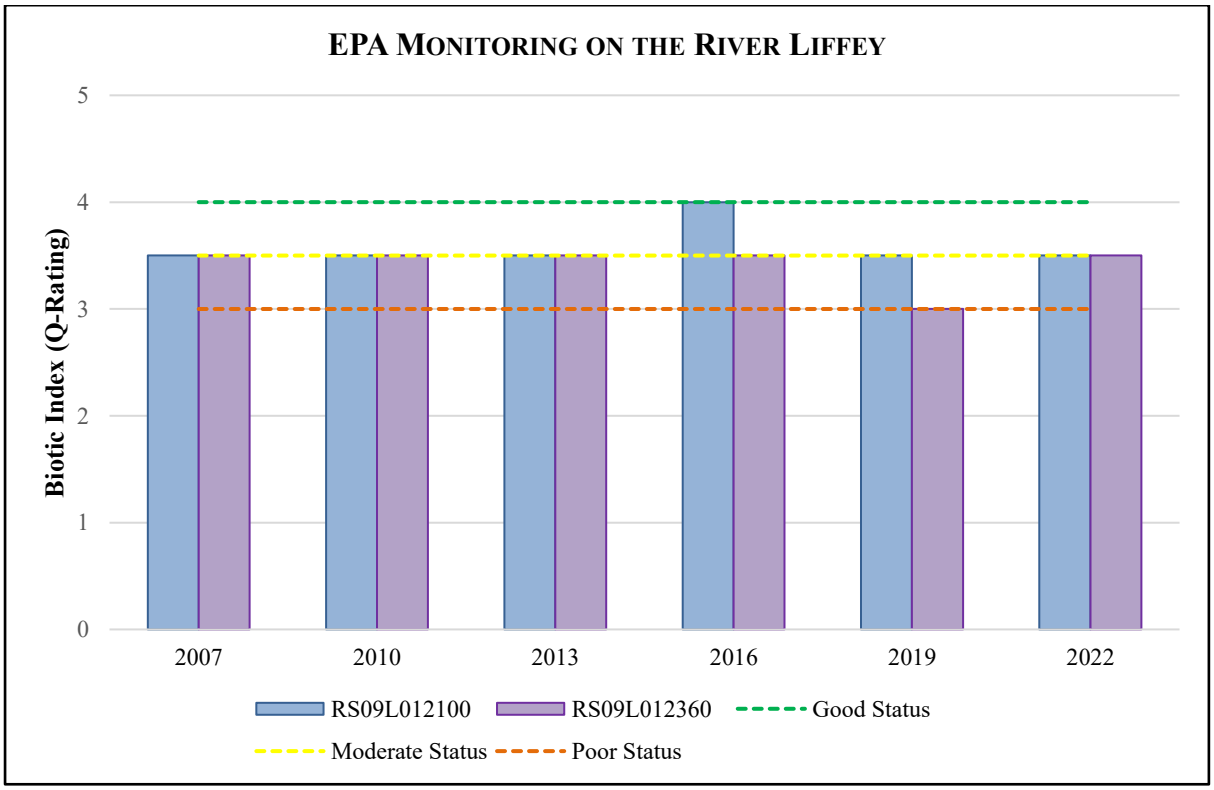


Figure 5. EPA Ecological Monitoring of the River Liffey from 2007-2022

The EPA also undertakes regular monitoring along the transitional and coastal waters in the Dublin area. The results for the most recent monitoring periods with available information are shown in the table below.

Table 3. Transitional and coastal waterbodies

CODE	NAME	TYPE	STATUS (2018-2020)	APPROX. LOCATION RELATIVE TO SITE
IE_EA_090_0400	Liffey Estuary Upper	Transitional	Potentially Eutrophic	4.9km SE
IE_EA_090_0300	Liffey Estuary Lower	Transitional	Intermediate	8.8km SE
IE_EA_090_0200	Tolka Estuary	Transitional	Eutrophic	8.6km E
IE_EA_090_0000	Dublin Bay	Coastal	Unpolluted	11.7km SE

Figure 6. Transitional and coastal waterbodies near the development site

4.3.2 Ground water

The development site is located on the Dublin ground waterbody (European Code: IE_EA_G_008). The Dublin ground waterbody has achieved a Good water quality status during the monitoring period 2016-2021. The ground waterbody is considered to be Not at risk according to the Approved Risk assigned to WFD Ground Waterbody Features (Cycle 2) by Catchment scientists (EPA Maps). The groundwater vulnerability is considered to be high according to the Groundwater Data Ireland ITM Viewer.

4.3.3 Preliminary Flood Risk Assessment

A Flood Risk Review has been carried out by DOBA within the Infrastructure Design Report and it has determined that the development site is not located within an area of fluvial, pluvial or groundwater flooding, indicative of 10% AEP (10-yr) event, 1% AEP (100-yr) event or 0.1% AEP (1000-yr) event. There is no history of flooding at the development site but there is record of a recurring flood event approximately 962m to the south.

5.0 EUROPEAN SITES (NATURA 2000 SITES) WITHIN ZONE OF INFLUENCE

In assessing the zone of influence of this project upon European sites, the following factors must be considered:

- Potential impacts arising from the project,
- The location and nature of European sites,
- Pathways between the development and European sites.

Three Special Protection Areas (SPA) and four Special Areas of Conservation (SAC) occur within the potential zone of influence of the proposed development and are shown in the following table:

Table 4. Special Areas of Conservation and Special Protection Areas potentially within the zone of influence

SITE NAME	DESIGNATION	SITE CODE	DISTANCE
Rye Water Valley/Carton	SAC	001398	7.3km W
South Dublin Bay and River Tolka Estuary	SPA	004024	10km E
South Dublin Bay	SAC	000210	11.6km SE
North Dublin Bay	SAC	000206	13.1km E
North Bull Island	SPA	004006	13.1km E
North-West Irish Sea	SPA	004236	15.5km E
Rockabill to Dalkey Island	SAC	003000	19.2km E

Maps detailing European sites within potential zone of influence (ZoI) of the development site are included as Appendix C.

For this assessment, the site considered to be within the zone of influence of the proposed development is the South Dublin Bay and River Tolka Estuary SAC (Site Code: 000781), the North Dublin Bay SAC (Site Code: 000206), the North Bull Island SPA (Site Code: 004006) and the South Dublin Bay SAC (Site Code: 000210) due to a potential hydrological connection via the local network of drainage ditches.

The Rye Water Valley/Carton SAC (Site Code: 001398) is located approximately 7.3km from the development site. No springs or freshwater habitats occur onsite, and therefore the

development site would not contain the Petrifying Springs [7220] for which the SAC has been designated and would not offer suitable habitat for Whorl Snails. Whorl Snails would find more suitable habitat closer to the SAC. The qualifying interests of the SAC can be sensitive to water quality deterioration. However, the SAC is located upstream of the development site on the River Liffey. Therefore, in the absence of a source-pathway-receptor relationship, and in the absence of associated habitats, the absence of suitable habitat for designated species, and the lack of direct hydrological connection, the Rye Water Valley/Carton SAC has been screened out.

The North-West Irish Sea SPA (Site Code: 004236) is located approximately 15.5km from the development site. The development site would not offer suitable habitat for the coastal birds for which the SPA has been designated. A potential deterioration in water quality could indirectly affect these bird species by directly affecting their diet. There is a potential hydrological connection between the development site and the SPA via the local network of drainage ditches. However, this SPA is located a considerable distance downstream of the development site. Given the lack of suitable habitats, the considerable hydrological distance and the dilution effect of coastal waters, the North-West Irish Sea SPA has been screened out.

The Rockabill to Dalkey Island SAC (Site Code: 003000) is located approximately 19.2km from the development site. The development site is located a considerable distance from the coast and it would not contain Reefs [1170], nor would it offer suitable habitat for Harbour Porpoise [1351]. These qualifying interests can be sensitive to water quality deterioration. There is a potential hydrological connection between the development site and the SAC via the local network of drainage ditches. However, this SAC is located a considerable distance downstream of the development site. Given the lack of associated habitats and species, the considerable hydrological distance and the dilution effect of coastal waters, the Rockabill to Dalkey Island SAC has been screened out.

5.1 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA (SITE CODE: 004024)

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.

Table 5. South Dublin Bay And River Tolka Estuary Spa Special Conservation Interests

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA SPECIAL CONSERVATION INTERESTS		
CODE	COMMON NAME	SCIENTIFIC NAME
A046	Light-bellied Brent Goose	*Branta bernicla hrota*
A130	Oystercatcher	*Haematopus ostralegus*
A137	Ringed Plover	*Charadrius hiaticula*
A141	Grey Plover	*Pluvialis squatarola*
A143	Knot	*Calidris canutus*
A144	Sanderling	*Calidris alba*
A149	Dunlin	*Calidris alpina*
A157	Bar-tailed Godwit	*Limosa lapponica*
A162	Redshank	*Tringa totanus*
A179	Black-headed Gull	*Chroicocephalus ridibundus*
A192	Roseate Tern	*Sterna dougallii*
A193	Common Tern	*Sterna hirundo*
A194	Arctic Tern	*Sterna paradisaea*
A999	Wetland and Waterbirds	-

An excerpt from the site synopsis for South Dublin Bay and River Tolka Estuary SPA (NPWS, 2015) is included below:

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 thixotrophic 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 site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is an important site for wintering waterfowl, being an integral part of the internationally

important Dublin Bay complex – all counts for wintering waterbirds are five year mean peaks for the period 1995/96 to 1999/2000. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there.

An internationally important population of Light-bellied Brent Goose (368) occurs regularly and newly arrived birds in the autumn feed on the Eelgrass bed at Merrion. At the time of designation the site supported nationally important numbers of a further nine species: Oystercatcher (1,145), Ringed Plover (161), Grey Plover (45), Knot (548), Sanderling (321), Dunlin (1,923), Bar-tailed Godwit (766), Redshank (260) and Black-headed Gull (3,040). Other species occurring in smaller numbers include Great Crested Grebe (21), Curlew (127) and Turnstone (52). Little Egret, a species which has recently colonised Ireland, also occurs at this site. South Dublin Bay is a significant site for wintering gulls, with a nationally important population of Black-headed Gull, but also Common Gull (330) and Herring Gull (348). Mediterranean Gull is also recorded from here, occurring through much of the year, but especially in late winter/spring and again in late summer into winter. Both Common Tern and Arctic Tern breed in Dublin Docks, on a man-made mooring structure known as the E.S.B. dolphin – this is included within the site. Small numbers of Common Tern and Arctic Tern were recorded nesting on this dolphin in the 1980s. A survey in 1995 recorded nationally important numbers of Common Tern nesting here (52 pairs). The breeding population of Common Tern at this site has increased, with 216 pairs recorded in 2000. This increase was largely due to the ongoing management of the site for breeding terns. More recent data highlights this site as one of the most important Common Tern sites in the country with over 400 pairs recorded here in 2007. South Dublin Bay is an important staging/passage site for a number of tern species in the autumn (mostly late July to September). The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the site is also used by birds from other sites, perhaps outside the state. This site is selected for designation for its autumn tern populations: Roseate Tern (2,000 in 1999), Common Tern (5,000 in 1999) and Arctic Tern (20,000 in 1996). 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.

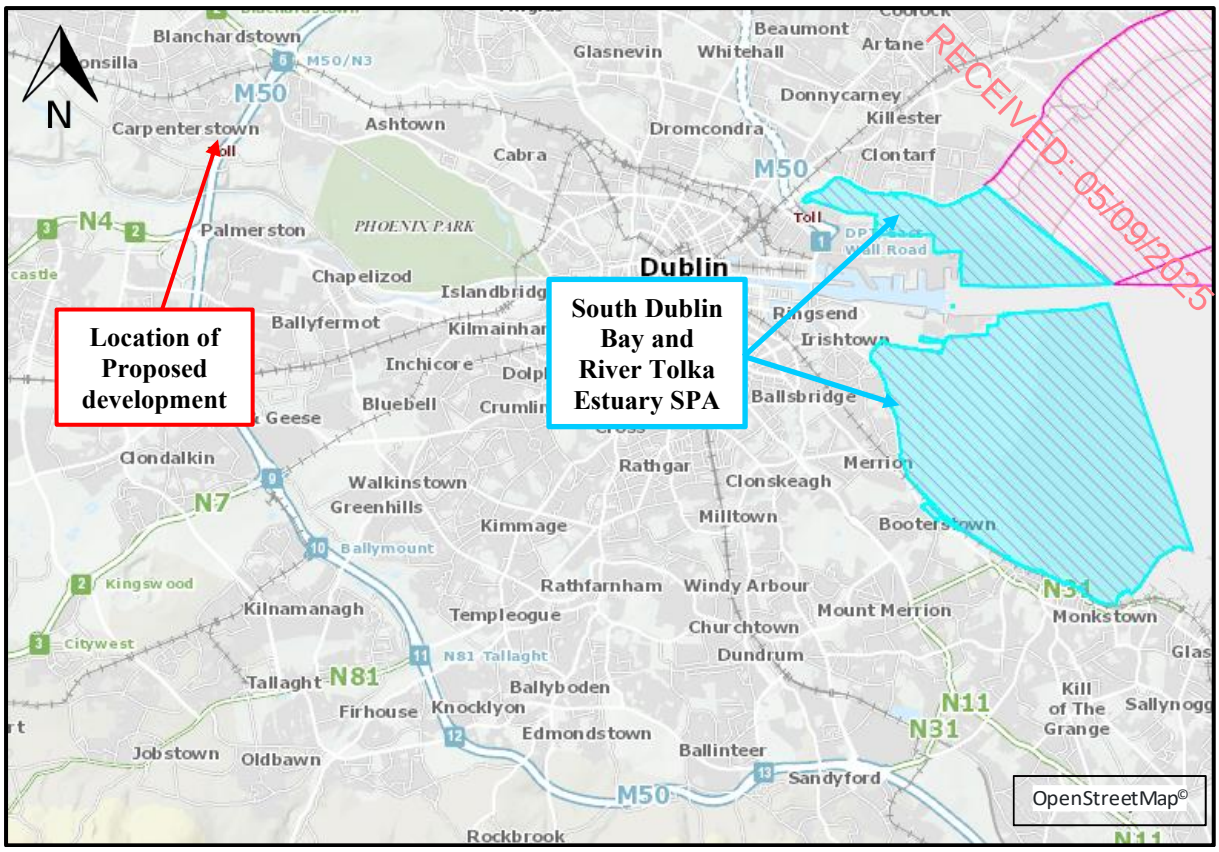


Figure 7. South Dublin Bay and River Tolka Estuary SPA (NPWS Map Viewer)

South Dublin Bay and River Tolka Estuary SPA Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in view of the site's conservation objectives". Site specific conservation objectives (SSCOs) for the qualifying interests of the South Dublin Bay and River Tolka Estuary SPA are provided in the Table 5.3 below, where available from the NPWS document "Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024" (NPWS, 2015).

Table 6. South Dublin Bay and River Tolka Estuary SPA Conservation Objectives

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[A046] Light-bellied Brent Goose *Branta bernicla hrota*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	
[A130] Oystercatcher *Haematopus ostralegus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing and intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation.	
[A137] Ringed Plover *Charadrius hiaticula*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by golden plover, other than that occurring from natural patterns of variation	
[A141] Grey Plover *Pluvialis squatarola*			

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
There are no current Conservation Objectives listed for this species.			
[A143] Knot *Calidris canutus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation.	
[A144] Sanderling *Calidris alba*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by sanderling, other than that occurring from natural patterns of variation.	
[A149] Dunlin *Calidris alpina alpina*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by sanderling, other than that occurring from natural patterns of variation.	
[A157] Bar-tailed Godwit *Limosa lapponica*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[A162] Redshank *Tringa totanus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	
[A179] Black-headed Gull *Chroicocephalus ridibundus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	
[A192] Roseate Tern *Sterna dougallii*			
Passage population: individuals	Number	No significant decline	Up to 11,700, 9,025 and 8,020 terns were recorded in 2006, 2007 and 2010 respectively.
Distribution: roosting areas	Number; location; area (hectares)	No significant decline	Main roosting areas: the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown.
Prey biomass available	Kilogrammes	No significant decline	Terns associated with the roost are thought to feed during the day in the wider Dublin Bay area.
Barriers to connectivity	Number; location; shape; area (hectares)	No significant decline	Terns associated with the roost are thought to feed during the day in the wider Dublin Bay area.

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of terns	Peak roosting activity: mid-August and mid-September.
[A193] Common Tern *Sterna hirundo*			
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline	-
Productivity rate: fledged young per breeding pair	Mean number	No significant decline	-
Passage population: individuals	Number	No significant decline	Up to 11,700, 9,025 and 8,020 terns were recorded in 2006, 2007 and 2010 respectively.
Distribution: breeding colonies	Number; location; area (Hectares)	No significant decline	The common tern breeding colony in Dublin Bay is primarily sited on an artificial structure known as the 'ESB Dolphin'.
Distribution: roosting areas	Number; location; area (Hectares)	No significant decline	Main roosting areas: the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown.
Prey biomass available	Kilogrammes	No significant decline	Key prey items: Small fish, crustaceans, insects and occasionally squid. Key habitats: forage in/over shallow coastal waters, bays, inlets, shoals, tidal-rips, drift lines, beaches, saltmarsh creeks, lakes, ponds or rivers. Foraging range: max. 37km; mean max. 33.81km; mean 8.67km.

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Barriers to connectivity	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population	The common tern breeding colony in Dublin Bay is primarily sited on an artificial structure known as the 'ESB Dolphin'.
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of common tern among the post-breeding aggregation of terns	Significant disturbance events to roosting terns: people with dogs off the leash and kite surfing.
[A194] Arctic Tern *Sterna paradisaea*			
Passage population	Number of individuals	No significant decline	Up to 11,700, 9,025 and 8,020 terns were recorded in 2006, 2007 and 2010 respectively.
Distribution: roosting areas	Number; location; area (hectares)	No significant decline	Main roosting areas: the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown.
Prey biomass available	Kilogrammes	No significant decline	Key prey items: Small fish, crustaceans and other invertebrates. Key habitats: forage in/over open waters and shallow bays, rocky shores, tidal flats, shoals, tide rips and ocean fronts.
Barriers to connectivity	Number; location; shape; area (hectares)	No significant decline	Foraging range: max. 20.6km, mean max. 12.24km, mean 11.75km
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of Arctic tern among the post-breeding aggregation of terns	Significant disturbance events to roosting terns: people with dogs off the leash and kite surfing.
[A999] Wetlands			

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,192 hectares, other than that occurring from natural patterns of variation.	The wetland habitat area was estimated as 2,192ha.

South Dublin Bay and River Tolka Estuary SPA Conservation Status

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Table 7. Conservation Status: South Dublin Bay And River Tolka Estuary SPA

CONSERVATION STATUS: SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA		
CODE	**SPECIAL CONSERVATION INTEREST**	**NATIONAL CONSERVATION STATUS***
A046	Light-bellied Brent Goose	Amber List
A130	Oystercatcher	Red List
A137	Ringed Plover	Amber List
A141	Grey Plover	Red List
A143	Knot	Red List
A144	Sanderling	Green List
A149	Dunlin	Red List
A157	Bar-tailed Godwit	Red List
A162	Redshank	Red List
A179	Black-headed Gull	Amber List
A192	Roseate Tern	Amber List
A193	Common Tern	Amber List
A194	Arctic Tern	Amber List
A999	Wetland and Waterbirds	-

** Birds of Conservation Concern in Ireland 2020-2026 (Gilbert et al, 2021) and Bird Atlas 2007 – 2011*

5.2 SOUTH DUBLIN BAY SAC (SITE CODE: 000210)

This site lies south of the River Liffey in Co. Dublin, and extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats.

Table 8. South Dublin Bay SAC Special Conservation Interests

SOUTH DUBLIN BAY SAC SPECIAL CONSERVATION INTERESTS	
CODE	**DESCRIPTION**
1140	Tidal Mudflats and Sandflats
1210	Annual vegetation of drift lines
1310	Salicornia and other annuals colonising mud and sand
2110	Embryonic shifting dunes

An excerpt from the site synopsis for the South Dublin Bay SAC (NPWS, 2015) is included below:

The bed of Dward Eelgrass (Zostera noltii) found below Merrion Gates is the largest stand on the east coast. Green algae (Enteromorpha spp. and Ulva lactuca) are distributed throughout the area at a low density. Fucoid algae occur on the rocky shore in the Maretimo to Dún Laoghaire area. Species include F*ucus spiralis, F. vesiculosus, F. serratus, Ascophyllum nodosum and Pelvetia canaliculata*.

Several small, sandy beaches with incipient dune formation occur in the northern and western sectors of the site, notably at Poolbeg, Irishtown and Merrion/ Booterstown. Drift line vegetation occurs in association with the embryonic and incipient fore dunes. Typically drift lines occur in a band approximately 5 m wide, though at Booterstown this zone is wider in places. The habitat occurs just above the High Water Mark and below the area of embryonic dune. Species present are Sea Rocket (*Cakile maritima*), Frosted Orache (*Atriplex laciniata*), Spear-leaved Orache (*A. prostrata*), Prickly Saltwort (*Salsola kali*) and Fat Hen (*Chenopodium album*). Also occurring is Sea Sandwort (*Honkenya peploides*), Sea Beet (*Beta vulgaris subsp. maritima*) and Annual Sea-blite (*Suaeda maritima*).

Lugworm (*Arenicola marina*), Cockles (*Cerastoderma edule*) and annelids and other bivalves are frequent throughout the site. The small gastropod *Hydrobia ulvae* occurs on the muddy sands off Merrion Gates.

South Dublin Bay is an important site for waterfowl.

This site is a fine example of a coastal system, with extensive sand and mudflats, and incipient dune formations. South Dublin Bay is also an internationally important bird site.

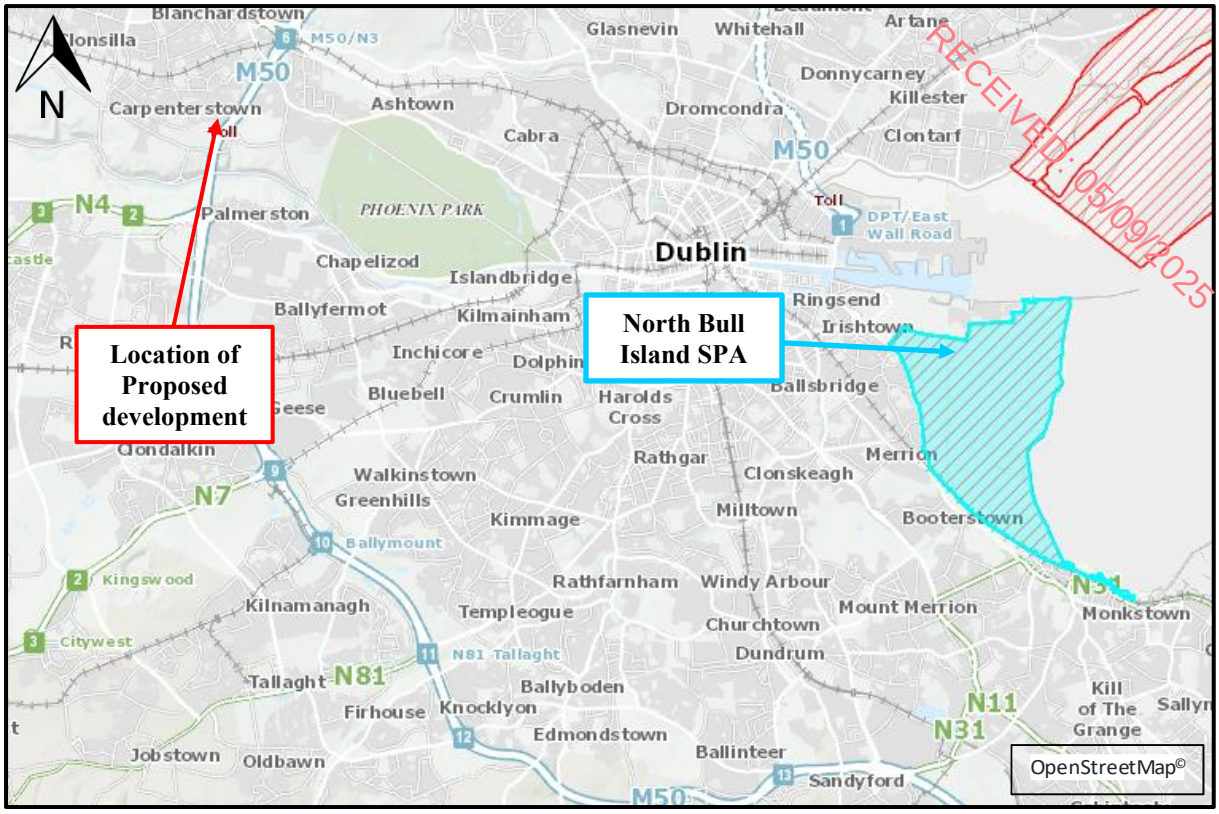


Figure 8. South Dublin Bay SAC

South Dublin Bay SAC Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in view of the site's conservation objectives". Site specific conservation objectives (SSCOs) for the qualifying interests of the South Dublin Bay SAC are provided in the Table 5.2.2 below, where available from the NPWS document "Conservation Objectives: South Dublin Bay SAC 000210" (NPWS, 2013).

Table 9. South Dublin Bay SAC Conservation Objectives

ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[1140] Mudflats and sandflats not covered by seawater at low tide			
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes	Habitat area was estimated using OSi data as 720ha
Community extent	Hectares	Maintain the extent of the *Zostera*-dominated community, subject to natural processes.	
Community Structure: *Zostera* density	Shoots / m^2	Conserve the high quality of the Zostera-dominated community, subject to natural processes	
Community Distribution	Hectares	Conserve the following community type in a natural condition: Fine sands with *Angulus tenuis* community complex.	
[1210] Annual vegetation of drift lines			
None Specified	-	-	-

ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[1310] Salicornia and other annuals colonising mud and sand			
None Specified	-	-	-
[2110] Embryonic shifting dunes			
None Specified	-	-	-

South Dublin Bay SAC Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined below.

Table 10. Conservation statuses for the qualifying interests for the South Dublin Bay SAC

Code	Qualifying Interest	Conservation Status*
1140	Mudflats and sandflats not covered by seawater at low tide	Inadequate

**Sourced from the Status of EU Protected Habitats and Species in Ireland (NPWS, 2019a and 2019b)*

5.3 NORTH DUBLIN BAY SAC (SITE CODE: 000206)

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.

Table 11. North Dublin Bay SAC Qualifying Interests

TABLE 5.8: NORTH DUBLIN BAY SAC QUALIFYING INTERESTS	
CODE	NAME
1140	Tidal Mudflats and Sandflats
1210	Annual Vegetation of Drift Lines
1310	*Salicornia* Mud
1330	Atlantic Salt Meadows
1410	Mediterranean Salt Meadows
2110	Embryonic Shifting Dunes
2120	Marram Dunes (White Dunes)
2130	Fixed Dunes (Grey Dunes)
2190	Humid Dune Slacks
1395	Petalwort (*Petalophyllum ralfsii*)

An excerpt from the site synopsis for North Dublin Bay SAC (NPWS, 2013) is included below:

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. About 1 km from the tip of the island, a large dune slack with a rich flora occurs, usually referred to as the 'Alder Marsh' because of the presence of Alder trees (*Alnus glutinosa*). The water table is very near the surface and is only slightly brackish. 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. Towards the tip of the island, the saltmarsh grades naturally into fixed dune vegetation. The habitat 'annual vegetation of drift lines' is found in places, along the length of Dollymount Strand, with species such as Sea Rocket (*Cakile maritima*), Oraches (*Atriplex* spp.) and Prickly Saltwort (*Salsola kali*). 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. These sediments have a rich macrofauna, with high densities of Lugworms (*Arenicola marina*) in parts of the north lagoon.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. Three rare plant species which are legally protected under the Flora (Protection) Order, 1999 have been recorded on the North Bull Island. These are Lesser Centaury (*Centaurium pulchellum*), Red Hemp-nettle (*Galeopsis angustifolia*) and Meadow Saxifrage (*Saxifraga granulata*). Two further species listed as threatened in the Red Data Book, Wild Clary/Sage (*Salvia verbenaca*) and Spring Vetch (*Vicia lathyroides*), have also been recorded. A rare liverwort, *Petalophyllum ralfsii*, was first recorded from the North Bull Island in 1874 and has recently been confirmed as still present.

The North Bull is the only known extant site for the species in Ireland away from the western seaboard. North Dublin Bay is of international importance for waterfowl. During the 1994/95 to 1996/97 period the following species occurred in internationally important numbers: Brent Goose 2,333; Knot 4,423; Bar-tailed Godwit 1,586. A further 14 species occurred in nationally important concentrations - Shelduck 1505; Wigeon 1,166; Teal 1,512; Pintail 334; Shoveler 239; Oystercatcher 2,190; Ringed Plover 346; Grey Plover 816; Sanderling 357; Dunlin 6,238; Black-tailed Godwit 156; Curlew 1,193; Turnstone 197 and Redshank 1,175. Some of these species frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes (mostly Brent Goose, Oystercatcher, Ringed Plover, Sanderling and Dunlin).

The tip of the North Bull Island is a traditional nesting site for Little Tern. A high total of 88 pairs nested in 1987. However, nesting attempts have not been successful since the early 1990s. Ringed Plover, Shelduck, Mallard, Skylark, Meadow Pipit and Stonechat also nest. A well-known population of Irish Hare is resident on the island The invertebrates of the North Bull Island have been studied and the island has been shown to contain at least seven species of regional or national importance in Ireland (from the Orders Diptera, Hymenoptera and Hemiptera).

The main land uses of this site are amenity activities and nature conservation. The North Bull Island is the main recreational beach in Co. Dublin and is used throughout the year. Much of the land surface of the island is taken up by two golf courses. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrounding intertidal flats. The site is used regularly for educational purposes. North Bull Island has been designated a Special Protection Area under the E.U. Birds Directive and it is also a statutory Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site. This site is an excellent example of a coastal site with all the main habitats represented. The site holds good examples of nine habitats that are listed on Annex I of the E.U. Habitats Directive; one of these is listed with priority status. Several of the wintering bird species have populations of international importance, while some of the invertebrates are of national importance. The site contains a numbers of rare and scarce plants including some which are legally protected. Its proximity to the capital city makes North Dublin Bay an excellent site for educational studies and research.

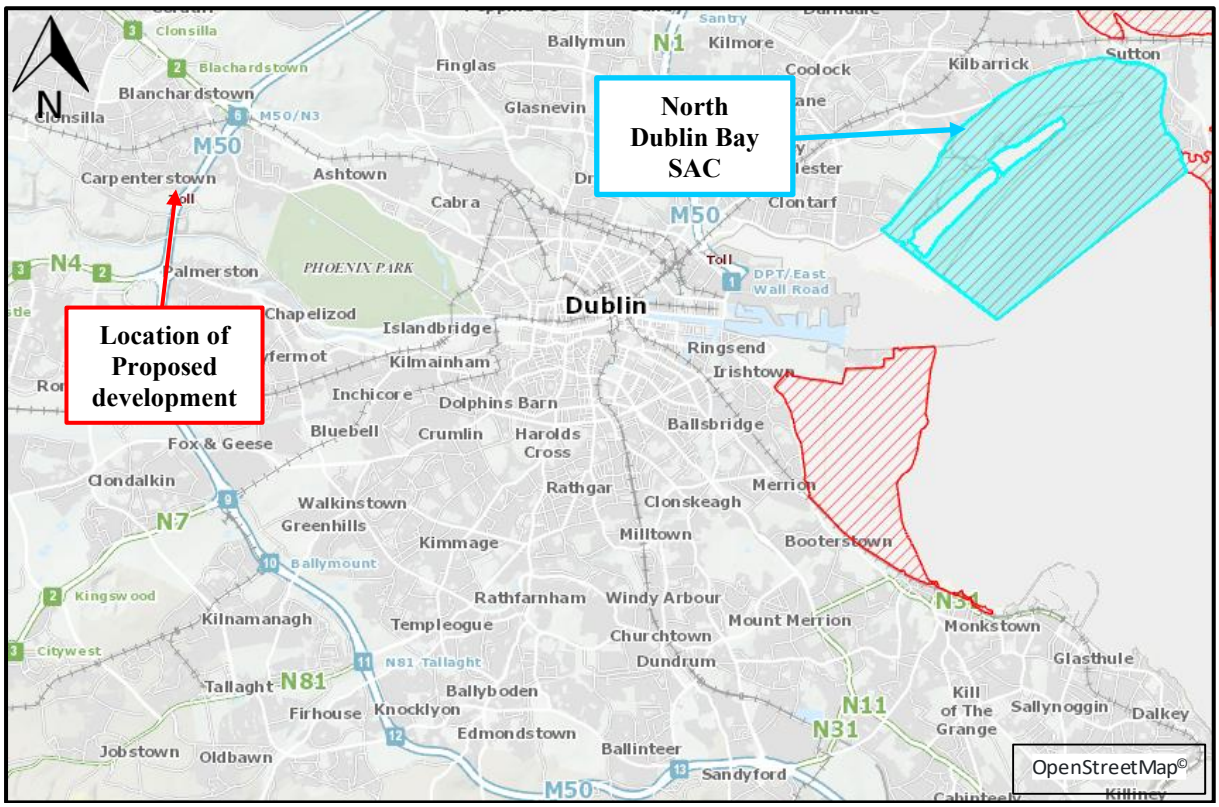


Figure 9. North Dublin Bay SAC (NPWS Map Viewer)

North Dublin Bay SAC Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in view of the site's conservation objectives". Site specific conservation objectives (SSCOs) for the qualifying interests of the North Dublin Bay SAC are provided in the Table 5.3 below, where available from the NPWS document "Conservation Objectives: North Dublin Bay SAC 000206" (NPWS, 2013).

Table 12. North Dublin Bay SAC Conservation Objectives

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[1140] Mudflats and sandflats not covered by seawater at low tide			
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes	Estimated Habitat Area: 578ha.
Community extent	Hectares	Maintain the extent of the *Mytilus edulis*-dominated community, subject to natural processes.	
Community structure: *Mytilus edulis* density	Individuals/m²	Conserve the high quality of the *Mytilus edulis* dominated community, subject to natural processes	
Community distribution	Hectares	Conserve the following community types in a natural condition: Fine sand to sandy mud with *Pygospio elegans* and *Crangon crangon* community complex; Fine sand with *Spio martinensis* community complex.	
[1210] Annual vegetation of drift lines			
Habitat area	Hectares	Area increasing, subject to natural processes, including erosion and succession. Total area mapped: South Bull - 0.11ha.	Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Accumulation of organic matter in tidal litter is essential for trapping sand and initiating dune formation.
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities with typical species: sea rocket (*Cakile maritima*), sea sandwort (*Honckenya peploides*), prickly saltwort (*Salsola kali*) and oraches (*Atriplex* spp.)	
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	
[1310] *Salicornia* and other annuals colonising mud and sand			
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: North Bull Island - 29.10ha	-
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes	
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions	
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	
Vegetation structure: vegetation cover	Percentage cover at a representative number of monitoring stops	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Percentage cover	Maintain the presence of species-poor communities listed in SMP	
Vegetation structure: negative indicator species – *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	
[1330] Atlantic salt meadows (Glauco-Puccinellietalia maritimae)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: North Bull Island - 81.84ha.	-
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes	
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	
Vegetation structure: vegetation cover	Percentage cover at a representative number of monitoring stops	Maintain more than 90% area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Percentage cover at a representative sample of monitoring stops	Maintain range of subcommunities with typical species listed in SMP	
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica),* with an annual spread of less than 1%	
[2110] Embryonic shifting dunes			
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: North Bull - 2.64ha; South Bull - 3.43ha.	Habitat 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. Dunes are naturally dynamic systems that require continuous supply and circulation of sand.
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes	
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Vegetation composition: plant health of foredune grasses	Percentage cover	More than 95% of sand couch (*Elytrigia juncea*) and/or lyme-grass (*Leymus arenarius*) should be healthy (i.e. green plant parts above ground and flowering heads present)	Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat.
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities with typical species: sand couch (*Elytrigia juncea*) and/or lyme-grass (*Leymus arenarius*)	
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover	
[2120] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. North Bull - 2.20ha; South Bull - 0.97ha.	Habitat very difficult to measure in view of its dynamic nature. Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat.
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation composition: plant health of dune grasses	Percentage cover	95% of marram grass (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*) should be healthy (i.e. green plant parts above ground and flowering heads present)	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass (*Ammophila arenaria*) and/or lymegrass (*Leymus arenarius*)	
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	
[2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. For subsites mapped: North Bull - 40.29ha; South Bull - 64.56ha.	-
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward	
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain range of subcommunities with typical species	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Vegetation composition: negative indicator species (including *Hippophae rhamnoides*)	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	
[2190] Humid dune slacks			
Habitat area	Hectares	Area increasing, subject to natural processes including erosion and succession. For sub-sites mapped: North Bull - 2.96ha; South Bull - 9.15ha.	Physical barriers can lead to fossilisation or overstabilisation of dunes, as well as beach starvation, resulting in increased rates of erosion. 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. Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Seabuckthorn
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.	
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	
Physical structure: hydrological and flooding regime	Water table levels; groundwater fluctuations (metres)	Maintain natural hydrological regime	
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	(*Hippophae rhamnoides*) should be absent or effectively controlled
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain range of subcommunities with typical species	
Vegetation composition: cover of *Salix repens*	Percentage cover; centimetres	Maintain less than 40% cover of creeping willow (*Salix repens*)	
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	
[1395] Petalwort *Petalophyllum ralfsii*			
Distribution of populations	Number and geographical spread of populations	No decline.	The known population of *Petalophyllum ralfsii* at Bull Island occurs along the track that cuts through the Alder marsh, south and east of St. Anne's Golf Club. Maximum estimated population at Bull Island is 5,824 thalli. *Petalophyllum ralfsii* grows in damp conditions. It grows in compacted, sandy ground, maintained at this site by rabbit
Population size	Number of individuals	No decline. Population at Bull Island estimated at a maximum of 5,824 thalli. Actual population is more likely to be 5% of this, or c. 300 thalli	
Area of suitable habitat	Hectares	No decline. Area of suitable habitat at Bull Island is estimated at c. 0.04ha.	
Hydrological conditions: soil moisture	Occurrence	Maintain hydrological conditions so that substrate is kept moist and damp throughout the year, but not subject to prolonged inundation by flooding in winter	

NORTH DUBLIN BAY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Vegetation structure: height and cover	Centimetres and percentage	Maintain open, low vegetation with a high percentage of bryophytes (small acrocarps and liverwort turf) and bare ground	(Oryctolagus cuniculus) grazing and trampling (by walkers).

North Dublin Bay SAC Conservation Status

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Table 13. Conservation Status: North Dublin Bay SAC

CONSERVATION STATUS: NORTH DUBLIN BAY SAC		
CODE	**SPECIAL CONSERVATION INTEREST**	**NATIONAL CONSERVATION STATUS***
1140	Tidal Mudflats and Sandflats	Inadequate
1210	Annual Vegetation of Drift Lines	Inadequate
1310	*Salicornia* Mud	Favourable
1330	Atlantic Salt Meadows	Inadequate
1410	Mediterranean Salt Meadows	Inadequate
2110	Embryonic Shifting Dunes	Inadequate
2120	Marram Dunes (White Dunes)	Inadequate
2130	Fixed Dunes (Grey Dunes)	Bad
2190	Humid Dune Slacks	Inadequate
1395	Petalwort (*Petalophyllum ralfsii*)	Favourable

** NPWS (2019). The Status of EU Protected Habitats and Species in Ireland*

5.4 NORTH BULL ISLAND SPA (SITE CODE: 004006)

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 sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5 km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. Part of the interior of the island has been converted to golf courses.

Table 14. North Bull Island SPA – Conservation Interests

CODE	COMMON NAME	SCIENTIFIC NAME
A046	Light-bellied Brent Goose	*Branta bernicla hrota*
A048	Shelduck	*Tadorna tadorna*
A052	Teal	*Anas crecca*
A054	Pintail	*Anas acuta*
A056	Shoveler	*Anas clypeata*
A130	Oystercatcher	*Haematopus ostralegus*
A140	Golden Plover	*Pluvialis apricaria*
A141	Grey Plover	*Pluvialis squatarola*
A143	Knot	*Calidris canutus*
A144	Sanderling	*Calidris alba*
A149	Dunlin	*Calidris alpina*
A156	Black-tailed Godwit	*Linosa limosa*
A157	Bar-tailed Godwit	*Limosa lapponica*
A160	Curlew	*Nimenius tetanus*
A162	Redshank	*Tringa totanus*
A169	Turnstone	*Arenaria inerpres*
A179	Black-headed Gull	*Chroicocephalus ridibundus*
A999	Wetland and Waterbirds	-

An excerpt from the site synopsis for North Bull Island SPA (NPWS, 2014) is included below:

Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. The island shelters two intertidal lagoons which are divided by a solid causeway. These lagoons provide the main feeding grounds for the wintering waterfowl. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. Green algal mats (*Ulva spp*.) are a feature of the flats during summer. These sediments have a rich macro-invertebrate fauna, with high densities of Lugworm (*Arenicola marina*) and Ragworm (*Hediste diversicolor*).

The North Bull Island SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl as provided above.

Other species that occur regularly in winter include Grey Heron, Little Egret, Cormorant, Wigeon, Goldeneye, Red-breasted Merganser, Ringed Plover and Greenshank. Gulls are a feature of the site during winter and, along with the nationally important population of Black-headed Gull (2,196), other species that occur include Common Gull (332) and Herring Gull (331).

While some of the birds also frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes, the majority remain within the site for much of the winter.

Breeding passerines include Skylark, Meadow Pipit, Stonechat and Reed Bunting. The island is a regular wintering site for Short-eared Owl, with up to 5 present in some winters.

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.

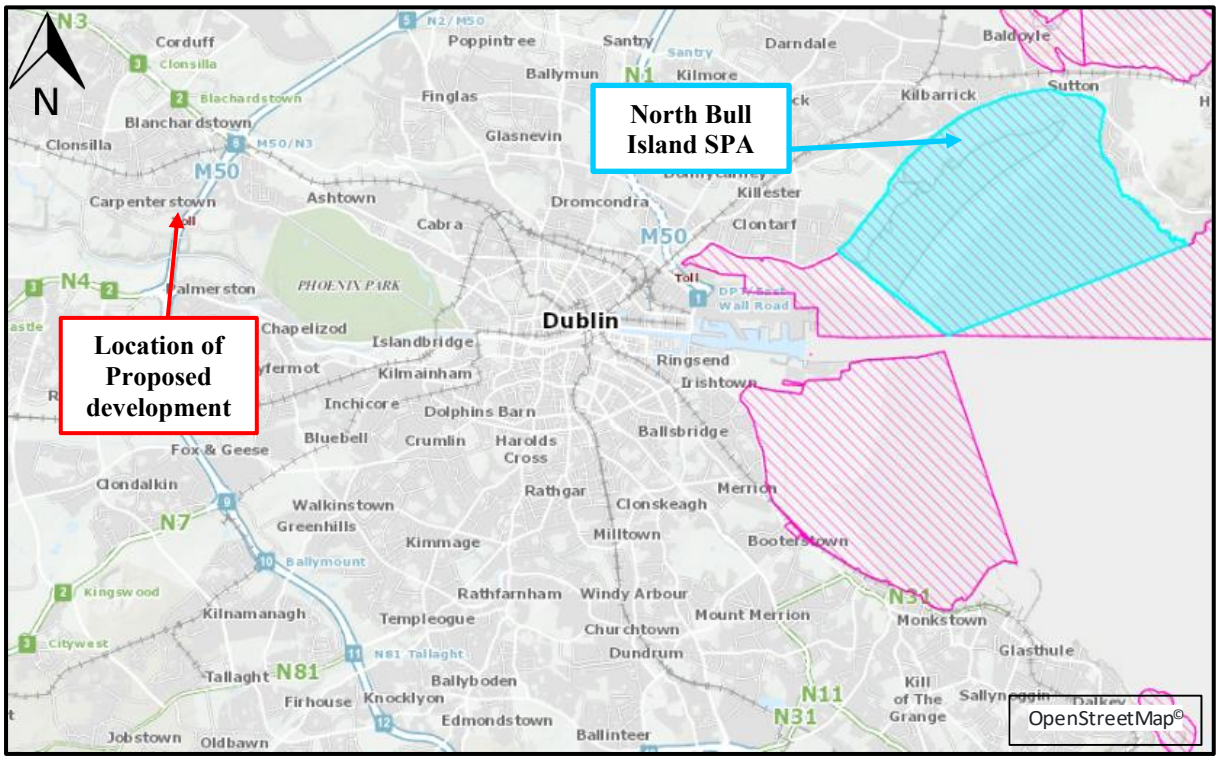


Figure 10. North Bull Island SPA

North Bull Island SPA Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in view of the site's conservation objectives". Site specific conservation objectives (SSCOs) for the qualifying interests of the North Bull Island SPA are provided in the Table 5.6.2 below, where available from the NPWS document "Conservation Objectives: North Bull Island SPA 004006" (NPWS, 2015).

Table 15. North Bull Island SPA Conservation Objectives

NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[A046] Light-bellied Brent Goose *Branta bernicla hrota*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by light-bellied brent goose, other than that occurring from natural patterns of variation	
[A048] Shelduck *Tadorna tadorna*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	
[A052] Teal *Anas crecca*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by teal, other than that occurring from natural patterns of variation	
[A054] Pintail *Anas acuta*			
Population trend	Percentage change	Long term population trend stable or increasing	-

NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by pintail, other than that occurring from natural patterns of variation	
[A056] Shoveler *Anas clypeata*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by shoveler, other than that occurring from natural patterns of variation	
[A130] Oystercatcher *Haematopus ostralegus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation	
[A140] Golden Plover *Pluvialis apricaria*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by golden plover, other than that occurring from natural patterns of variation	
[A141] Grey Plover *Pluvialis squatarola*			
Population trend	Percentage change	Long term population trend stable or increasing	-

NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by grey plover, other than that occurring from natural patterns of variation	
A143] Knot *Calidris canutus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation.	
[A144] Sanderling *Calidris alba*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by sanderling, other than that occurring from natural patterns of variation.	
[A149] Dunlin *Calidris alpina alpina*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by dunlin, other than that occurring from natural patterns of variation.	
[A156] Black-tailed Godwit *Limosa limosa*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by black-tailed godwit, other than that occurring from natural patterns of variation	

NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[A157] Bar-tailed Godwit *Limosa lapponica*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by bar-tailed godwit, other than that occurring from natural patterns of variation	
[A160] Curlew *Numenius arquata*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by curlew, other than that occurring from natural patterns of variation	
[A162] Redshank *Tringa totanus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	
[A169] Turnstone *Arenaria interpres*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by turnstone, other than that occurring from natural patterns of variation	

NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	MEASURE	TARGET	SELECTED NOTES
[A179] Black-headed Gull *Chroicocephalus ridibundus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by black-headed gull other than that occurring from natural patterns of variation	
[A999] Wetlands			
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 1,713 hectares, other than that occurring from natural patterns of variation.	-

North Bull Island SPA Conservation Status

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Table 16. North Bull Island SPA – Conservation Status

CODE	SPECIAL CONSERVATION INTEREST	NATIONAL CONSERVATION STATUS*
A046	Light-bellied Brent Goose	Amber List
A048	Shelduck	Amber List
A052	Teal	Amber List
A054	Pintail	Amber List
A056	Shoveler	Red List
A130	Oystercatcher	Red List
A140	Golden Plover	Red List
A141	Grey Plover	Red List
A143	Knot	Red List
A144	Sanderling	Green List
A149	Dunlin	Red List
A156	Black-tailed Godwit	Red List
A157	Bar-tailed Godwit	Red List
A160	Curlew	Red List
A162	Redshank	Red List
A169	Turnstone	Amber List
A179	Black-headed Gull	Amber List
A999	Wetland and Waterbirds	-

** Birds of Conservation Concern in Ireland 2020-2026 (Gilbert et al, 2021) and Bird Atlas 2007 – 2011*

6.0 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

6.1 DISTURBANCE TO PROTECTED HABITATS AND SPECIES

The proposed development does not directly impinge on any part of a European site, and as such would not be expected to impact upon a European site through destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density.

Most of the habitats that will be removed to allow for the proposed development are modified. The trees that will be removed may be of higher ecological value for fauna. However, most of these are non-native Cypresses that have been considered to be unsuitable for the context of the development by the Arborist expert. Most of the Ash trees to be removed have been considered to be in poor heath conditions by the Arborist. A cluster of trees close to the north boundary will be retained. The landscape plan proposes the planting of hedgerows and specimen trees that include native species.

No areas of marine or costal habitats occur within the red line boundary; therefore, the site would not contain any habitats which would have potential links to the qualifying interests of South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA.

The proposed development site would not contain the species for which the South Dublin Bay and River Tolka Estuary SPA has been designated as most of the bird species are estuarine/marine and the site is comprised of artificial surfaces, recolonising vegetation, ornamental shrub, grasslands, treelines and a small drainage ditch. Black-headed Gulls often forage on arable crops. The development site did not contain arable crops by the time this assessment took place. The proposed development site does not provide suitable breeding ground for this species since it usually nests on the ground in wetland areas, such as bogs, marshes, and man-made lakes. The Ringed plover feeds mostly on invertebrates such as crustaceans, mussels and polychaete worms, foraging in habitats like estuarine mudflats and tidal edges, and nests on beaches or grazed pastures beside rivers and along lakes. The remaining bird species that are on the list of qualifying interests feed mostly on invertebrates of mudflats and sandflats (e.g Oystercatcher, Knot) or fish (e.g. Terns). The development site would not offer foraging opportunities or nesting habitat for these bird species. Therefore, it is not considered that the proposed development would have the potential to cause a direct effect these bird species. A potential deterioration in water quality could potentially affect these bird species by directly affecting their diet. The potential effects on water quality from the proposed development are discussed in Section 6.3 below.

The development site would not contain the habitats for which the North Dublin Bay SAC has been designated as these habitats are estuarine/marine and the development site is located a considerable distance from the tidal stretches of the River Liffey. All the mapped habitats are located over 4.9km (6.4km hydrologically downstream) to the southeast of the development site. Petalwort (*Petalophyllum ralfsii*) [1395] is a lowland calcicole and a pioneering species of bare moist stable compact sand or of short turf, mainly on mildly to strongly base-rich dune slacks and machair that are subject to inundation in the winter, therefore the development site does not offer suitable habitat for this species. The nearest mapped example if this plant within the SAC is approximately 16.3km to the northeast (21.3km hydrologically downstream) of the development site on the coast. Humid dune slacks [2190] are mentioned in the Conservation Objectives Document of the SAC as being sensitive to increases in nutrient levels in the water. Other habitats for which the SAC can be sensitive to sedimentation. The potential effects on

water quality from the proposed development due to sedimentation are discussed in Section 6.3 below.

The development site would not contain the estuarine/ dune habitats for which the South Dublin Bay SAC has been designated. The nearest mapped example of Mudflats and sandflats [1140] within the SAC are located approximately 11.6km (16km hydrologically downstream) to the east of the development site. The qualifying interests for which the SAC has been designated are sensitive to sedimentation. The potential effects on water quality from the proposed development due to sedimentation are discussed in Section 6.3 below.

It is not envisaged that protected species would be adversely impacted upon by the development due to noise generated by the facility or by noise generated from the associated site traffic, given the nature of the development, the location within an urban area with other residential premises in the immediate vicinity. While there would be increased noise emissions during the construction phase of the development, these would not be considered to pose a significant risk owing to the transient nature of works, and the distances between the development site and designated sites. Any fauna in the area would be accustomed to noise from human activity during the operational phase of the development. The existing buildings are currently inhabited and the land use will remain the same.

The potential disturbance on protected habitats and species due to dust during the construction phase would not be considered significant, given the temporary nature of the construction works, distance between the demolition works and the nearby drainage ditches, and the distance between the development site and the nearest Natura 2000 sites. It is considered that the operational phase of the development would not have the potential to have a likely significant effect upon designated sites due to air emissions given the nature of the development (residential) and proposed heating system (air heat pumps).

It is therefore considered that the proposed development would not result in any significant risk to the protected habitats and species of South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA due to habitat fragmentation or loss, disturbance or reduction in species density.

6.2 INVASIVE SPECIES

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Amendment (S.I. No. 355 of 2015) of Regulations 2011-2015, save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence. Materials containing invasive species such as Japanese Knotweed are considered “controlled waste”, and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Amendment (S.I. No. 355 of 2015) of Regulations 2011-2015, it is a legal requirement to obtain a license to move “vector materials” listed in the Third Schedule, Part 3.

Table 17. National Biodiversity Data Centre records of high impact invasive species within 10km Square (O03) of the proposed development

INVASIVE FLORA SPECIES
Water Fern (*Azolla filiculoides*)
American Skunk-cabbage (*Lysichiton americanus*)
Giant Hogweed (*Heracleum mantegazzianum*)
Giant-rhubarb (*Gunnera tinctoria*)
Indian Balsam (*Impatiens glandulifera*)
Japanese Knotweed (*Fallopia japonica*)
Rhododendron (*Rhododendron ponticum*)
Spanish Bluebell (*Hyacinthoides hispanica*)
Three-cornered Garlic (*Allium triquetrum*)

The spread of invasive plant and animal species can negatively impact on the conservation objectives of certain Annex I/II habitats and species designated within the SACs/SPAs.

There are no Third Schedule invasive species within or adjacent the site boundary. Therefore, there would be no significant risk to protected habitats and species as a result of spread of invasive species from the site.

The risk of invasive species being introduced onto the site during the construction phase is considered to be low, with no import of materials with the potential to contain invasive flora species. Imported materials will be thoroughly checked and screened by licenced contractors before being imported into the site as a standard practice.

The planting schedule of the landscape plan does not include third-scheduled or unscheduled high impact invasive plant species. Therefore, no significant effects on protected sites due to the spread of invasive species would be expected as a result of landscaping works.

6.3 POTENTIAL IMPACTS ON WATER QUALITY

The proposed development is located within the Liffey_SC_100 Sub-Catchment (ID: 09_1) which is part of the Liffey and Dublin Bay Catchment (ID: 09). The nearest mapped watercourse according to online EPA maps is an unnamed stream (Segment Code: 09_1510 - Order 1), which runs approximately 120m to the east of the development site. This stream flows in a southerly direction for approximately 966m until it joins the River Liffey (EPA Code: 09L01 – Order 6). The Liffey discharges into the Dublin Bay.

There is a drainage ditch onsite along the west boundary of the site. Drainage maps of the area show that there is a 10mm dia. pipe potentially connecting this drainage ditch to a surface water drainage pipe under the Carpenterstown Road. This drainage ditch will be infilled. There is another drainage ditch outside of the red line boundary of the site, adjacent to the east boundary (to be retained), which drains into the surface water drainage pipe under the Carpenterstown Road. Surface water flows towards the east within the existing pipes under the Carpenterstown Road. It was not possible to ascertain whether this existing infrastructure is connected to a mapped watercourse downstream. Therefore, a potential hydrological connection between the drainage ditches that border the site and the unnamed stream to the east cannot be ruled out.

There is a potential hydrological connection between the development site and the South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024), South Dublin Bay SAC, North Dublin Bay SAC (Site Code: 000206) and North Bull Island SPA. The hydrological distance between the development site and these protected sites is approximately 14km.

The development site is not located within a flood zone. Therefore, it is not expected that the proposed development would have the potential to increase the risk of flooding downstream on the Liffey and Dublin Bay Catchment. Additionally, it is highly unlikely that floodwaters would come in contact with any significant potentially hazardous or polluting substances onsite which could affect water quality. Therefore, the development site would not be anticipated to pose a significant risk upon a Natura 2000 site as a result of floodwaters.

During the operational phase, waste water from the proposed development will be directed to the existing waste water mains sewer to the north of the site and will be ultimately directed to the Ringsend WWTP (D0034-01) which currently has available capacity according to the Kildare WWTP Capacity Register (accessed 11th August 2025). The Ringsend WWTP discharges treated water into the Liffey Estuary in close proximity to the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA. According to the most recent Annual Environmental Report (2023), the WWTP was non-compliant with the ELV's set in the wastewater discharge licence. However, the report has determined that "*The primary discharge from the WWTP does not have an observable negative impact on the Water Framework Directive status in the Liffey Estuary*". Additionally, there are projects planned/underway for the Ringsend WWTP.

The surface water drainage network will include SuDS features that will reduce the volume of water captured by the proposed network of pipes. The surface water collected by the proposed drainage network will be directed to the existing surface water drainage sewer to the north of the site under the Carpenterstown Road. It was not possible to ascertain what is the discharge point of this of this drainage network. It is unknown if the existing drainage infrastructure contains filtering features downstream proposed connection point. However, it is possible that it is hydrologically connected to the unnamed stream to the east. The proposed drainage network will include a petrol interceptor, an above ground detention basin with underground attenuation tank, and a hydrobrake to ensure that any surface water reaching the existing drainage network to the north will be clean and attenuated to field runoff rates. No surface water from the proposed development will be discharged to the drainage ditch to the west.

There will be no wastewater discharge to ground waterbodies onsite and therefore the proposed development would not have the potential to significantly affect groundwater quality onsite during the operational phase.

Therefore, it is not considered that the proposed development would have the potential to affect surface or ground water quality within the Liffey and Dublin Bay Catchment and the Dublin ground waterbody during the operational phase.

During the construction phase of projects, a deterioration in water quality can arise through the release of suspended solids during demolition/soil disturbance/construction works, the release of uncured concrete and the release of hydrocarbons (fuels and oils). In the event suspended solids become entrained in surface water run-off during the construction phase, there is considered to be no significant risk of impact on water quality as suspended solids would percolate to the ground. The risk of water quality deterioration as a result of uncured concrete

would be further reduced, given that precast concrete / blockwork would be used where possible and surplus concrete would be returned to the batching plant.

The buildings to be demolished are located over 10m from the drainage ditches that border the site to the east and west. There are infiltration areas and physical barriers in between such as grasslands and treelines, which would further reduce the potential for surface water runoff from the demolition area to reach the drainage ditches.

The drainage ditch located along the west boundary of the site will be infilled to facilitate the proposed development. This drainage ditch has its starting point close to the southwest corner of the site and flows towards the north. There is an underground pipe located on the northern edge of the drainage ditch that was not visible during the site assessment. This pipe connects to an existing surface water drainage pipe under the Carpenterstown Road. The drainage ditch had minimal stagnant water by the time this assessment took place. However, in the absence of mitigation measures, the infill works have a slight potential to cause sedimentation/water quality deterioration downstream.

The nearest distance between the proposed buildings and the drainage ditch to the east is approximately 6.12m. A bicycle store will be installed against the eastern boundary of the site but this will require minor excavation works. The area between the proposed buildings and the drainage ditch is well vegetated which would reduce the potential for surface water runoff from the construction area to reach this drainage ditch during the construction phase. This drainage ditch has its starting point close to the southeast corner of the site and had minimal stagnant water by the time this assessment took place. However, given the proximity of the construction/ soil disturbing works it is considered that, in the absence of mitigation measures there is a slight potential for sedimentation/water quality deterioration to occur downstream during the construction phase.

6.4 SCREENING CONCLUSION

In order for an effect to occur, there must be a pathway between the source and the receptor (the SAC/SPA). Where a pathway does not exist, an impact cannot occur.

The proposed development site is located approximately 10km from the South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024), 11.6km from the South Dublin Bay SAC (Site Code: 000210) and 13.1km from the North Dublin Bay SAC (Site Code: 000206) and from the North Bull Island SPA (Site Code: 004006). As detailed above, it is considered that the proposed development would not result in any significant risk to the protected habitats and species of the the South Dublin Bay and River Tolka Estuary SAC, the North Dublin Bay SAC, the North Bull Island SPA and the South Dublin Bay SAC due to habitat fragmentation or loss, disturbance, reduction in species density or species diversity.

No invasive species were present at the site and therefore the proposed development does not have the potential to impact the protected sites downstream due to spreading of invasive plants.

No adverse effects on the water quality of the adjacent drainage ditch to the west, the Liffey and Dublin Bay Catchment or the SACs/SPAs would be expected during the operational phase.

However, the assessment has determined that during construction works, the proposed development has slight potential to impact upon the qualifying interests / special conservation interests of the Slaney River Valley SAC due to water quality deterioration. Therefore, a Natura Impact Statement is required.

7.0 ASSESSMENT OF LIKELY EFFECTS: STAGE 2 APPROPRIATE ASSESSMENT

Describe the significant effects, if any, on the relevant European site which have occurred, which are occurring or which can reasonably be expected to occur as a result of the project or plan (alone or in combination).

The proposed development has slight potential to impact upon the qualifying interests of the South Dublin Bay and River Tolka Estuary SAC, the North Dublin Bay SAC, the North Bull Island SPA and the South Dublin Bay SAC due to water quality deterioration during the construction phase.

During infill/construction works, there is also potential for water quality deterioration through the release of suspended solids downstream. Suspended solids could affect aquatic qualifying interests / special conservation interests through deposition. Nutrients can be bound in suspended solids, therefore, a significant increase in suspended solids can result in excessive eutrophication, leading to the deoxygenation of waters and subsequent asphyxia of aquatic species. An increase in sediments has the potential to impact upon fish species by damaging gravel beds required for spawning, smothering fish eggs and in extreme cases, by interfering with the gills of fish. An increase in suspended solids also has the potential to reduce water clarity, which can impact the light penetration of water and may also affect certain behaviours of aquatic fauna such as foraging success.

Runoff entering a watercourse has the potential to cause an impact on water quality and lead to eutrophication. A potential source of chemical contamination would be from the release of hydrocarbons (oils, fuels) from construction plant, equipment. Hydrocarbons can affect water quality, potentially resulting in toxic conditions for aquatic flora and fauna. Oil films on the water surface can disrupt oxygen diffusion from the atmosphere, resulting in de-oxygen of waters.

Another potential source of contamination would be the release of uncured concrete. In the event of uncured concrete entering a waterbody, the pH would be altered locally, potentially leading to the death of aquatic flora and fauna and an alteration to the waterbody substrate.

The tables below briefly outline the occurrence of the qualifying interests of the SACs/SPAs in relation to the proposed development site, taking cognisance of the NPWS "*Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA Site Code: 004024*", "*Conservation Objectives: South Dublin Bay Site SAC Code: 000210*", "*Conservation Objectives: North Dublin Bay SAC Site Code: 000206*" and "*Conservation Objectives: North Bull Island SPA Site Code: 004006*", in addition to Volumes 1, 2 and 3 of the 2019 NPWS Reports, *"The Status of EU Protected Habitats and Species in Ireland*". The following tables also outline which of the qualifying interests and special conservation interests may be impacted upon by a potential deterioration in water quality from the proposed development.

Table 18. Location of the qualifying interests of the South Dublin Bay and River Tolka Estuary SPA in relation to the development site

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A046] Light-bellied Brent Goose (*Branta bernicla hrota*)	Winter migrant from high-Arctic Canada. Most occur in Ireland between October and April. This population winters almost entirely in Ireland, with small numbers in parts of Britain and France. During the winter, it feeds mostly on eel-grass, which grows on muddy estuaries, and also on grasslands, usually when coastal supplies have been depleted at estuarine sites. Nests in small, loose colonies by coastal tundra, with pools and small inlets. Mostly found on coastal estuaries during the autumn and early winter, and also on grasslands from mid-winter, until departure for the breeding grounds begins in late April. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A130] Oystercatcher (*Haematopus ostralegus*)	Resident & winter visitor (from Iceland and the Faeroes). The main food resource includes the larger invertebrates, particularly mussels and cockles that proliferate along sandy coasts. Nests principally on shingle beaches, dunes, salt marshes and rocky shores around the coast, but also on some large inland lakes. The nearest record of the species is approximately 9.5km southeast of the development site. A potential deterioration in water quality could have an indirect effect on this species.		
[A137] Ringed Plover (*Charadrius hiaticula*)	Resident & winter visitor from areas further north where this population also breeds (Iceland, the Baltic & southern Scandinavia). Peak numbers between August and early October. It feeds on a variety of invertebrates, particularly polychaete worms and crustaceans. Mostly coastal breeding distribution, preferring to nest on exposed wide sandy or shingle beaches. Some breed inland, particularly in the west, where their preferred nesting habitat is on short-grazed pasture beside rivers and		

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
	along lake. Winter around the entire coastline. Mostly recorded along sandy stretches or along the upper shores of estuaries and non-estuarine coastline. A potential deterioration in water quality could have an indirect effect on this species.		
[A141] Grey Plover *(Pluvialis squatarola)*	Winter visitor from Siberia - first birds arrive in Ireland and Britain towards the end of July but most here between September & April. Distribution in Ireland is widespread, but exclusively coastal. They occur mostly along eastern and southern coasts, most often on large muddy estuaries. A potential deterioration in water quality could have an indirect effect on this species.		
[A143] Knot (*Calidris canutus*)	Winter visitor from northern Greenland and from the Queen Elizabeth Islands of high Arctic Canada west to Prince Patrick Island. Feeds predominantly on bivalve mussels and crustaceans. Breed at low density, and often close to the coast, nesting on well concealed and sparsely vegetated gravel and rocky slopes. The wintering distribution is entirely coastal, and their preferred habitat mostly includes estuarine sites with extensive areas of muddy sand. They occur mostly in large flocks and on fewer estuaries than other wader species. A potential deterioration in water quality could have an indirect effect on this species.		
[A144] Sanderling (*Calidris alba*)	Winter visitor. Feeds predominantly on small invertebrates. They have a highly characteristic feeding technique of rushing along the tidal edge (as though on wheels) foraging for prey items such as small polychaete worms and shrimp-like crustaceans. Breeds across Arctic tundra, preferring small patches of vegetation. Mostly found along sandy coastlines, especially non-estuarine. A potential deterioration in water quality could have an indirect effect on this species.		
[A149] Dunlin (*Calidris alpina*)	Summer visitor from NW Africa/SW Europe, winter visitor from Scandinavia to Siberia, passage migrant from Greenland (heading south		

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
	to winter in Africa). Most occur during the mid-winter period. Feed predominantly on small invertebrates of estuarine mudflats, particularly polychaete worms and small gastropods. Nests on the ground in sparse, low vegetation - in Ireland favours machair habitats. Common along all coastal areas - especially on tidal mudflats and estuaries. A potential deterioration in water quality could have an indirect effect on this species.		
[A157] Bar-tailed Godwit (*Limosa lapponica*)	Winter visitor to coastal estuaries from October to April from Russia and Scandinavia. Feed along the tidal edge, or in shallow water. Breeds in northern Norway, Finland and further to the north and east. Wintering distribution entirely coastal. A potential deterioration in water quality could have an indirect effect on this species.		
[A162] Redshank (*Tringa totanus*)	Resident, winter visitor from Iceland and passage migrant (birds on passage from Scandinavia/the Baltic breeding areas to west African wintering areas). Feeds mostly during the day along the upper shore of estuaries and along muddy river channels. Nests on the ground in grassy tussock, in wet, marshy areas and occasionally heather. Breeds mainly in midlands (especially Shannon Callows) and northern half of the country, but not commonly anywhere in Ireland. Winters all around the coasts of Ireland, Britain and many European countries. Favours mudflats, large estuaries and inlets. Smaller numbers at inland lakes and large rivers. A potential deterioration in water quality could have an indirect effect on this species.		
[A179] Black-headed Gull (*Chroicocephalus ridibundus*)	Resident along all Irish coasts, with significant numbers arriving from the Continent in winter. Breeds in small numbers on islands in larger lakes in western Ireland. Feeds on insects especially in arable fields. Will also exploit domestic and fisheries waste. Breeds both on the coast and inland where they will often nest in colonies. Usually, nests on the ground in wetland areas, such as bogs and marshes and will also use		

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
	manmade lakes. The largest colonies in Ireland are in Northern Ireland on Lough Neagh. The development is located within the current range and favourable reference range of this qualifying interest (NPWS, 2019b). A potential deterioration in water quality could have an indirect effect on this species.		
[A192] Roseate Tern (*Sterna dougallii*)	Rare summer visitor from April to October, the majority breeding at two sites in the Irish Sea, with another colony in Wexford. Feeds mostly on marine fish. Nest colonially on the ground. Restricted to two main colonies in Ireland, one on the island of Rockabill, off Skerries, Co. Dublin and one at Lady's Island, near Rosslare, in Co. Wexford. Birds have bred at other sites recently, for example on Dalkey Island, Co. Dublin and on the Blasket Islands Co. Kerry. Rockabill holds the most important colony in Europe with up to 1,200 pairs of birds. Winters in west Africa. A potential deterioration in water quality could have an indirect effect on this species.		
[A193] Common Tern (*Sterna hirundo*)	Summer visitor from March to October to all Irish coasts. Feeds mostly on marine fish. Nest colonially on the ground from August to October. Breeds on the coast, with larger colonies in Co. Dublin, Co. Wexford and Co. Galway. Also breeds inland on islets in freshwater lakes, notably in Co. Galway and in Co. Mayo. Winters in west and south Africa. A potential deterioration in water quality could have an indirect effect on this species.		
[A194] Arctic Tern (*Sterna paradisaea*)	Summer visitor from March to September to all Irish coasts. Winters off south Africa and as far south as Antarctica. Feeds on marine fish, crustaceans and insects. Mainly a coastal breeding bird, but in Ireland the species also breeds inland on the fresh water lakes of Lough Corrib (Co. Galway) and Lough Conn (Co. Mayo). More colonies are found on the west coast with Co. Wexford, Co. Kerry, Co. Mayo and Co. Donegal having the largest number of birds. Considered to have the longest		

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA POTENTIAL IMPACTS			
QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
	migration of all birds, utilizing the summer of both hemispheres. A potential deterioration in water quality could have an indirect effect on this species.		

Table 19. Location of the qualifying interests of the North Dublin Bay and South Dublin Bay SAC in relation to the development site

NORTH DUBLIN BAY SAC AND SOUTH DUBLIN BAY SAC (SITE CODE: 000210) POTENTIAL IMPACTS			
QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
[1140] Mudflats and sandflats	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the South Dublin SAC the nearest mapped example of this habitat is approximately 11.6km (16km hydrologically downstream) from the development site. This habitat can be sensitive to sedimentation. However, given the considerable hydrological distance is it not considered that the proposed development would have the potential to cause sedimentation within the SAC.	None	No
[1210] Annual vegetation of drift lines	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 4.9km (6.4km hydrologically downstream) to the southeast of the development site to the east of Dublin city. This habitat can be sensitive to sedimentation. However, given the considerable hydrological distance is it not considered that the proposed development would have the potential to cause sedimentation within the SAC.	None	No

NORTH DUBLIN BAY SAC AND SOUTH DUBLIN BAY SAC (SITE CODE: 000210) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[1310] *Salicornia* muds	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 4.9km (6.4km hydrologically downstream) to the southeast of the development site to the east of Dublin city. This habitat can be sensitive to sedimentation. However, given the considerable hydrological distance is it not considered that the proposed development would have the potential to cause sedimentation within the SAC.	None	No
[1330] Atlantic salt meadows	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 4.9km (6.4km hydrologically downstream) to the southeast of the development site to the east of Dublin city. A potential deterioration in water quality would not be anticipated to significantly affect this habitat.	None	No
[1410] Mediterranean salt meadows	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 5km (6km hydrologically downstream) to the southeast of the development site to the east of Dublin city. A potential deterioration in water quality would not be anticipated to significantly affect this habitat.	None	No
[2110] Embryonic shifting dunes	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 5km (6km hydrologically downstream) to the southeast of the development site to the east of Dublin city. This habitat can be sensitive to sedimentation. However, given the considerable	None	No

NORTH DUBLIN BAY SAC AND SOUTH DUBLIN BAY SAC (SITE CODE: 000210) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
	hydrological distance is it not considered that the proposed development would have the potential to cause sedimentation within the SAC.		
[2120] Shifting dunes	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 19km (over 25km hydrologically downstream) of the development site to the east of Dublin city. This habitat can be sensitive to sedimentation. However, given the considerable hydrological distance is it not considered that the proposed development would have the potential to cause sedimentation within the SAC.	None	No
[2130] Fixed coastal dunes	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 19km (over 25km hydrologically downstream) of the development site to the east of Dublin city. This habitat can be sensitive to sedimentation. However, given the considerable hydrological distance is it not considered that the proposed development would have the potential to cause sedimentation within the SAC.	None	No
[2190] Humid dune slacks	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 19km (over 25km hydrologically downstream) of the development site to the east of Dublin city. A potential deterioration in water quality could adversely affect this habitat. However, given the considerable hydrological distance is it not considered that the proposed development would have the potential to cause water quality deterioration within the SAC.	None	No

NORTH DUBLIN BAY SAC AND SOUTH DUBLIN BAY SAC (SITE CODE: 000210) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[1395] Petalwort (*Petalophyllum ralfsii*)	The development site is outside of the current distribution, current range and favourable reference range of this habitat. According to the Conservation Objectives Document of the SAC the nearest mapped example of this habitat is over 19km (over 25km hydrologically downstream) of the development site to the east of Dublin city. A potential deterioration in water quality would not be anticipated to significantly affect this habitat.	None	No

Table 20. Location of the qualifying interests of the North Bull Island SPA in relation to the development site

NORTH BULL ISLAND SPA (SITE CODE: 004006) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A046] Light-bellied Brent Goose (*Branta bernicla hrota*)	Winter migrant (Oct-Apr)to coastal estuaries during the autumn and early winter, and also on grasslands from mid-winter, until departure for the breeding grounds begins in late April. During the winter, it feeds mostly on eel-grass, which grows on muddy estuaries, and also on grasslands, usually when coastal supplies have been depleted at estuarine sites. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes

NORTH BULL ISLAND SPA (SITE CODE: 004006) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A048] Shelduck (*Tadorna tadorna*)	Resident and winter migrant (Oct-Mar), wintering in sheltered estuaries or tidal mudflats. Breeds in open areas along seashores, larger lakes and rivers. Nest in holes in banks, trees, occasionally strawstacks or buildings. There has been a recent expansion in the range of the northwest European population, and birds in Ireland and Britain have been displaced from coastal breeding sites and are increasingly using inland sites. Chief prey source is *Hydrobia ulvae* (mudsnail), which is present in almost all estuaries, and often in large numbers. Spatial distribution is strongly influenced by the behaviour of this prey. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A052] Teal (*Anas crecca*)	Resident and winter migrant, wintering on both coastal and inland habitats; including coastal lagoons and estuaries and inland marshes, lakes, ponds and turloughs. They usually nest near small freshwater lakes or pools and small upland streams away from the coast, and also in thick cover. Diet consists predominantly of small seeds, but Enteromorpha sp. and molluscs are also frequently taken. Occasionally feed on chironomid larvae where available, though usually during the summer months. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A054] Pintail (*Anas acuta*)	Local winter visitor to wetlands throughout Ireland (Oct-Mar) on brackish coastal lagoons, in estuaries and on large inland lakes. . Their diet consists largely of plant seeds and underwater plants, while insects and crustaceans are also eaten. They also feed on farmland, particularly stubble. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A056] Shoveler (*Anas clypeata*)	Resident & winter migrant (Oct-Mar) on including coastal estuaries, lagoons and inland lakes and callows. Nests on the ground among waterside vegetation, often many nests in close proximity. Breeding in Ireland is centred around Lough Neagh and the mid- Shannon basin. Feed predominantly on zooplankton which are found mostly on ephemeral wetlands, particularly turloughs and callows. They also feed on small molluscs, insects and larvae, seeds and plant material and are frequently seen dabbling around the edges of waterpools. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes

NORTH BULL ISLAND SPA (SITE CODE: 004006) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A130] Oystercatcher (*Haematopus ostralegus*)	Resident & winter visitor (Sept-Mar) on all coastal habitats, and particularly favour open sandy coasts. Nests principally on shingle beaches, dunes, salt marshes and rocky shores around the coast, but also on some large inland lakes. The main food resource includes the larger invertebrates, particularly mussels and cockles that proliferate along sandy coasts. They also occasionally feed on grasslands where they prey on tipulid larvae and earthworms. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A140] Golden Plover (*Pluvialis apricaria*)	Wintering species frequents freshwater wetlands, moist grasslands, pastures, agricultural land and highland steppe also foraging on tidal shores, coastal rocky outcrops, intertidal flats and saltmarshes, shallow bays and estuaries. Its diet consists predominantly of insects, crustaceans and some plant material. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A141] Grey Plover (*Pluvialis squatarola*)	Winter visitor (Sept-Apr), exclusively coastal and usually on large muddy estuaries. Feeds on a wide variety of burrowing intertidal invertebrates, particularly polychaete worms, molluscs and crustaceans. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A143] Knot (*Calidris canutus*)	Winter visitor (Oct-Feb), exclusively coastal and usually on large muddy estuaries. Feed predominantly on bivalve mussels and crustaceans. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A144] Sanderling (*Calidris alba*)	Winter visitor (Sept-Apr) along sandy coastlines, especially non-estuarine. Feed predominantly on small invertebrates. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A149] Dunlin (*Calidris alpina*)	Passage migrant and wintering species on tidal mudflats and estuaries. Feed predominantly on small invertebrates of estuarine mudflats. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes

NORTH BULL ISLAND SPA (SITE CODE: 004006) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A156] Black-tailed Godwit (*Linosa limosa*)	Wintering species, inland (particularly grassland and river deltas) and coastal (particularly estuaries). Feed on a range of invertebrates, including bivalves, polychaete worms and shore crabs. Will also feed on grain and stubble. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A157] Bar-tailed Godwit (*Limosa lapponica*)	Winter visitor (Oct-Apr), on coastal estuaries. Feed along the tidal edge on lugworms, ragworms and bivalves. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A160] Curlew (*Nimenius tetanus*)	Winter visitor to wetlands throughout Ireland, as well as breeding in small numbers in floodplains and boglands. Winters in a wide range of wetland habitats (coastal and inland) and other good feeding areas including damp fields. Nests on the ground in rough pastures, meadows and heather. They feed mostly on invertebrates, particularly ragworms, crabs and molluscs. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A162] Redshank (*Tringa tetanus*)	Resident and winter visitor to coastal mudflats, large estuaries and inlets. Smaller numbers at inland lakes and large rivers. Nests on the ground in grassy tussock, in wet, marshy areas and occasionally heather mainly in midlands (especially Shannon Callows). Diet is principally invertebrates with prey consisting mostly of *Hydrobia* sp., *Corophium* sp. and nereid worms. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A169] Turnstone (*Arenaria inerpres*)	Winter visitor (July - Apr) in coastal areas. Feeds on marine invertebrates. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes
[A179] Black-headed Gull (*Chroicocephalus ridibundus*)	Resident along all Irish coasts and boosted by winter migrations. Breeds both on the coast and inland wetland and lake areas. Feeds on insects especially in arable fields. Will also exploit domestic and fisheries waste. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes

NORTH BULL ISLAND SPA (SITE CODE: 004006) POTENTIAL IMPACTS			
QUALIFYING INTEREST	**OCCURRENCE / ASSESSMENT**	**POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT**	**LISTED FOR FURTHER EXAMINATION IN APPENDIX B**
[A999] Wetland and Waterbirds	The proposed development is located outside the current known distribution, current range and favourable reference range of these qualifying interests (NPWS, 2019b). A potential deterioration in water quality could indirectly affect these birds by affecting their habitats and prey populations. A potential deterioration in water quality could have an indirect effect on this species.	Yes	Yes

South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA Conservation Objectives

The relevant site-specific conservation objectives for the qualifying interests which have been identified as being potentially impacted upon by the development are outlined below.

Light-bellied Brent Goose
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Oystercatcher
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Ringed Plover
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Grey Plover
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Knot
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Sanderling
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Dunlin
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Bar-tailed Godwit
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Redshank
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Black-headed Gull
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Roseate Tern
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Common Tern
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Arctic Tern
No water quality objectives have been set for this species within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect this species by directly affecting its diet

Wetland and Waterbirds
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Shelduck
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Teal
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Pintail
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Shoveler
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Black-tailed Godwit
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Curlew
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Turnstone
No water quality objectives have been set for Wetland and Waterbirds within the Conservation Objectives document. However, a potential deterioration in water quality could indirectly affect Wetland and Waterbirds by directly affecting their diet

Tidal Mudflats and Sandflats
No water quality objectives have been set for this species within the Conservation Objectives document. However, this habitat is sensitive to sedimentation.

Salicornia Mud
No water quality objectives have been set for this species within the Conservation Objectives document.

8.0 MITIGATION MEASURES

This assessment has determined that the proposed development has a slight potential to impact upon the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA due to a potential water quality deterioration during the construction phase.

As discussed in Section 7.0, it is considered that the proposed development has a slight potential to impact upon the following qualifying interests of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA:

- [A046] Light-bellied Brent Goose
- [A130] Oystercatcher
- [A137] Ringed Plover
- [A141] Grey Plover
- [A143] Knot
- [A144] Sanderling
- [A149] Dunlin
- [A157] Bar-tailed Godwit
- [A162] Redshank
- [A179] Black-headed Gull
- [A192] Roseate Tern
- [A193] Common Tern
- [A194] Arctic Tern
- [A048] Shelduck
- [A052] Teal
- [A054] Pintail
- [A056] Shoveler
- [A156] Black-tailed Godwit
- [A160] Curlew
- [A169] Turnstone
- [1140] Tidal Mudflats and Sandflats
- [1310] *Salicornia* Mud

The following mitigation measures will be implemented to ensure that there will be no significant impacts to the listed habitats or species, as listed above, due to a potential deterioration in water quality during the construction phase. Additional water quality mitigation measures have also been included below to reinforce prevention.

8.1 GENERAL REQUIREMENTS

- Training of relevant personnel on monitoring and mitigation measure requirements;
- Construction works should be planned to minimise machinery access and movement along the bank and in close proximity of the stream;
- Should a protected fauna species such as Otter (*Lutra lutra*) or Badger (*Meles meles*) be found during the construction phase of the project, an investigation will be undertaken and where required, officer of the NPWS will be notified prior to the resumption of construction works.

8.2 WATER QUALITY

Measures that will be employed to ensure that there will be no adverse effect to the listed habitats or species, as listed above, of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA, due to a potential deterioration in water quality:

Water Quality Mitigation Measures during the Construction phase

- The construction works contractor will adhere to standard construction best practice, taking cognisance of the Construction Industry Research and Information Association (CIRIA) guidelines "*Control of Water Pollution from Construction Sites; guidance for consultants and contractors*" 2001 and "*Control of Water Pollution from Construction Sites – Guide to Good Practice*", 2002;
- During construction works, cognisance will be taken of the 2016 guidelines published Inland Fisheries Ireland, "*Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters*";
- Sand bags or a silt fence will be placed between the area of proposed works and the bank of the eastern drainage ditch to prevent silt-laden surface water runoff from entering the drainage ditch (See Appendix D for Silt Fencing specifications);
- Construction works should be planned to minimise machinery access and movement along the borders of the eastern drainage ditch;
- The 100mm dia. pipe located at the northern edge of the western drainage ditch will be sealed prior to infill works commencing;
- Excavations and earth-moving activities will be planned outside periods of heavy rainfall, to limit the potential for suspended solids to become entrained within surface water run-off;
- Silt fencing will be placed adjacent to any storage areas of stockpiled soil, until such time as the excavated soil has been used in landscaping/re-instatement works or removed offsite by a licenced waste contractor;
- Daily visual inspections will be undertaken to ensure no silt-laden surface water runoff leaves the site, with the potential to either join with any adjacent surface water drainage systems;
- Where possible, surface water run-off will be diverted from areas of bare / exposed ground;
- Where possible, spoil will be covered or alternatively, graded to avoid ponding or water saturation;
- All construction plant machinery and equipment will be maintained in good working order and regularly inspected;
- A designated area for the storage of hydrocarbons will be established by the construction works contractor and inspected on a regular basis;
- Spill kits, adequately stocked with spill clean-up materials such as booms and absorbent pads, will be readily available onsite;
- The construction works contractor will ensure the relevant site personnel are trained in spillage control;
- Any fuels, oils or chemicals will be stored in accordance with the EPA guidance on the storage of materials, in designated bunded areas with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers;
- In the unlikely event of a hydrocarbon spillage, contaminated spill clean-up material will be properly disposed of to an authorised waste contractor;
- Fuels / oils will be handled and stored with care to avoid spillage or leakage.

Mitigation Measures after the construction works have ceased

- The contractor will ensure all machinery and equipment has been taken from the construction area and that no materials associated with the proposed development remain.

Reference documents:

- *Control of Water Pollution from Construction Sites; guidance for consultants and contractors*" 2001;
- Construction Industry Research and Information Association (CIRIA) guidelines "*Control of Water Pollution from Construction Sites; guidance for consultants and contractors*" 2001
- *Guidelines for the treatment of Otters prior to the construction of national road schemes*, (National Roads Authority, 2008)

It is therefore considered that due to the proposed mitigation measures, there would be no adverse effect to water quality and the protected habitats and species of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA during the construction phase of the proposed development.

9.0 IN COMBINATION EFFECTS

The following plans and projects were reviewed and considered for in-combination effects with the proposed development:

- Fingal County Development Plan 2023-2029.
- Proposed and permitted developments in the area available on the Fingal County Council planning system.

The proposed development is Carpenterstown. According to the Fingal County Development Plan, Carpenterstown is classified as a Local Centre. The site will be accessed via a new proposed vehicular access off the Carpenterstown road to the north. The M50 is located approximately 4.5km to the northeast of the development site. The N3 is located approximately 4km to the north of the development site providing link to Cavan to the northwest. The N4 is located approximately 4km to the south providing link to Athlone to the west. The land use in the surrounding area is mostly urban in nature with residential estates in the immediate vicinity. The following plans and projects were reviewed and considered for in-combination effects with the proposed development.

Table 21. Recent planning applications close to the development site.

APPLICATION NO.	DEVELOPMENT TYPE	OUTCOME	APPROXIMATE DISTANCE
309126	192 no. apartments, creche and all associated site works.	Granted - Conditional	Adjacent W
FW23A/0160	Planning permission for conversion of existing attic space comprising of	Granted - Conditional	Adjacent E

APPLICATION NO.	DEVELOPMENT TYPE	OUTCOME	APPROXIMATE DISTANCE
	modification of existing roof structure, raising existing gable c/w window, new access stairs, 2no. roof windows to the front and flat roof dormer to the rear.		
FW15A/0152	Permission for the demolition of an existing two-storey detached house	Granted - Conditional	10m N
FW21A/0070	The proposed development comprises the demolition of an existing detached house and associated garage/outbuildings together with the closure of an existing vehicular access onto Outfarm lane and the relocation of the existing Outfarm Lane onto Carpenterstown Road and the realignment of Outfarm Lane, which shall serve the proposed development and continue to provide a right of way across the site. A total of 14 no. two-storey houses are provided which comprise a combination of detached, semi-detached and terraced housing forms (comprising 12 no. 4-bedroom houses and 2 no. 3 bedroom houses. Other associated works include site clearance and ground works (including tree removal), hard and soft landscaping works (including boundary treatment works) and the provision of a landscaped public open space (including 6 no. visitor bicycle storage spaces). Provision of an ESB sub-station, external lighting and associated road infrastructure, together with surface water drainage infrastructure (including underground surface water storage attenuation tank) and the provision of foul drainage infrastructure (including a foul pumping station) to serve the proposed development.	Granted - Conditional	10m N
FW14A/0093	Permission for development on a 0.4 hectare site. The proposed development will consist of: The demolition of an existing dwelling, construction of 7 No. detached dwellings (consisting of various house types, each accommodating 4 bedrooms over 2 storeys, plus attic rooms with dormer window), 14 No. in-curtilage car parking spaces, new vehicular & pedestrian access onto Carpenterstown Road, all landscaping including boundary treatments and all associated site development works.	Granted - Conditional	10m NW
FW20B/0106	Permission for development to consist of: (a) The demolition of the existing lean-to roof to the front, facing Diswellstown Avenue;	Granted - Conditional	10m SW

APPLICATION NO.	DEVELOPMENT TYPE	OUTCOME	APPROXIMATE DISTANCE
	(b) The construction of a two storey extension to the front of the existing building; (c) The extension of the existing two storey building to a gable end finish to the front; (d) The extension of the existing hipped roof to a pitched roof to the new gable wall end; (e) The re-modelling of internal layouts including partial demolition of internal walls and the construction of new internal walls and floors, and any other associated site works.		
F06A/1109/E2	Development comprising 147 no. dwelling units and a crèche facility in a range of one, two, three and four storey buildings. The proposed development will comprise 51 no. apartment dwelling units (42 no. 2 bed units and 9 no. 3 bed units, all with associated balconies) located in 2 no. four storey blocks (fourth floor on each block is set back); 6 no. 6 bedroom detached dwelling units (House Type C & C1), 79 no. 5 bedroom & 5 no. 4 bedroom semi detached dwelling units (House Types A, A1, A2, B, B1), 5 no. 5 bedroom and 1 no. 4 bedroom terraced and end of terrace dwelling units (House Types B2 & A3); A one and two storey crèche facility of c. 397m. sq.; 2 no. bin stores of c. 17m.sq. each; a single storey management office & gardeners store of c. 54m.sq.; 1 no. ESB sub-station unit of c. 14m.sq.; vehicular access to serve the proposed development is via a new access off the Carpenterstown Road; site development and landscape works including the demolition of two habitable dwellings (Garryknock and Sundays Well), the provision of surface level car parking and cycle parking spaces, all on a site of c. 4.8 Ha (11.76 acres).	Granted - Conditional	54m NE
FW23A/0394	The development will consist of the construction of 3 No. detached 2 storey dwellings with converted attics including 1 dormer window to the west elevation of house 1, 2 No dormer windows to the north elevation house 2 and 2 dormer windows to the north elevation of house 3 and detached garage to front of house 3, new access service road off Outfarm Lane and revised vehicular access to Cloonfad and all associated site works and services including upgrading and incorporating a new footpath	Granted - Conditional	112m N

APPLICATION NO.	DEVELOPMENT TYPE	OUTCOME	APPROXIMATE DISTANCE
	on Outfarm Lane across the entire site frontage		
FW21B/0171	Demolish existing single storey rear extension. Construct a two storey and part single storey rear extension with 4 rooflights in total, new window added to right side, north facing side elevation at 1st floor level to existing house.	Granted - Conditional	251m SW
F06A/1597/E1	Development comprising 156 no. dwelling units and a crèche facility in a range of two, three and four storey buildings on a site of c.6.58 hectares. The proposed development will comprise 96 no. apartment units (10 no. 1 bed units, 55 no. 2 bed units and 31 no. 3 bed units) located in 4 no. four storey blocks (Unit Type B & C) over basement with car parking and bin storage; 47 no. 4 bed dwellings (Unit Type A, D1, 2, 3, 4, 5 and E) all with basement living space; the conversion of existing outbuildings into 6 no. 2 bed dwellings (Unit Type F, G and L) and the provision of 7 no. 3 bed residential units within the walled garden (Unit Type K). The two Type G dwellings will be directly associated with Diswellstown House. The conversion of the outbuildings will require demolition of the existing barn structure, glasshouses, sheds adjoining the north side of the walled garden and other minor demolition. The proposed development also includes reducing and redefining the existing curtilage of Diswellstown House (Protected Structure No. 731 - Diswellstown House, including house, outbuildings, gate piers and gates); modifying the boundary treatment for the House including a ha-ha to the front; relocating the entrance gates and piers to the western end of the avenue; providing a crèche facility of 274m²; constructing garden store of 31m², ESB substation of 16m² and associated switch room of 19m² (unit Type N); upgraded vehicular access including minor realignment of Luttrellstown Road, boundary treatment works including the erection of a granite wall along the eastern boundary; site development works (including surface car parking) and landscape works (including water features). There are no works proposed to Diswellstown House itself which will remain as a residence.	Granted - Conditional	399m SW

Potential in-combination effects are discussed under the following headings.

9.1 Habitat Loss / Fragmentation

The proposed development is not located within the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA have been designated. In addition to this, there will be no construction works within any designated site. Modified habitats such as recolonising vegetation, scrub, semi-natural grassland, artificial surfaces and ornamental treelines will be removed to facilitate the proposed development. These habitats are mostly comprised of common species and are abundant in the general area and throughout the country. The drainage ditch that will be infilled had minimal water by the time this assessment took place and it did not support aquatic flora of note. This drainage ditch would offer supporting habitat for the wetland/marine birds associated with the nearby SPAs. The proposed detention basin will compensate for the loss of this freshwater habitat and will provide new opportunities for flora and fauna associated with wet areas. The treelines that border the site to the south and west and a few other trees will be removed. Most of the trees to be removed are non-native Cypresses and Ash trees of very low quality. The landscape plan proposes the planting of native and non-native non-invasive species. The loss of these habitats would not have a significant impact on the qualifying interests of the SACs/SPAs.

The surrounding land-use of the proposed development site is mostly urban in nature and mostly comprised of artificial surfaces and amenity areas of lower biodiversity value. Developments were identified on the Fingal County Council's planning site within the vicinity of the applicants proposed site, and these are mostly construction, demolition or amendments to existing residential structures, and the majority of these have been granted permission subject to conditions. Should future planning applications be submitted for the area, it is likely that they would also be located on land identified for residential use. Therefore, it is unlikely that future proposed developments would result in the loss or fragmentation of designated habitats of the South Dublin Bay SAC and North Dublin Bay SAC. Therefore, no in-combination effects on habitat loss / fragmentation are anticipated.

9.2 Disturbance to Species

Disturbance to species may arise through noise emissions and human activity. The main in-combination noise and human activity effects would be from residential/commercial activities and traffic. The nearest Natura 2000 sites are located over 7km from the development site. The development site is located within an urban context in close proximity to a busy motorway. Fauna within the SACs/SPAs and the general area around the proposed development site would be accustomed to human noise associated with agricultural/industrial activity and to traffic.

Any tree removal works would not be undertaken during the bird nesting season (1st of March - 31st of August). Should tree removal works be required during the bird nesting season, the sections would be inspected for the presence of breeding birds by a qualified ecologist prior to any clearance works taking place. Where nests are identified, the ecologist would determine if a licence from the National Parks and Wildlife Services (NPWS) is required, or if it is possible to establish a suitable buffer zone around the active nest, with removal works rescheduled until chicks have fledged.

Owing to the surrounding residential land use and busy road network, it is considered that the proposed development will not significantly increase cumulative noise impacts, or other disturbance effects due to human activity, which would pose an adverse risk to designated sites or species and habitats within the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA.

9.3 Air Quality

The proposed heating system for this development is air heat pumps. Air emissions would be typical of a residential being primarily from heating and therefore low impact in-and-of-itself. Any potential in-combination residential impacts would be controlled by national energy policies, grant schemes and motor fuel emission targets. Therefore it is considered that there would be no cumulative air quality impacts which would pose an adverse effect to designated sites.

9.4 Deterioration in Water Quality

Continued implementation of the Water Framework Directive would result in achieving, or maintaining, improvements to water quality in the Slaney & Wexford Harbour Catchment. Developments such as this could act in combination with existing environmental pressures on the Liffey & Dublin Bay Catchment, including agriculture, anthropogenic, domestic and urban wastewater, urban run-off, industry and forestry. However, as noted in Section 6.3, it is not considered that the development would pose a significant risk upon any Natura 2000 site due to a deleterious effect on water quality, during either the construction or the operational phases. Waste water from the proposed development will be directed to an existing wastw water drainage sewer to the north of the site and will be ultimately directed to the Ringsend WWTP. Surface water from roofs and impermeable areas will be clean and attenuated to field runoff rates prior to discharging to the existing durface water drainage pipe under the Carpenterstown Road to the north. Therefore, it is considered that there would be no significant cumulative impacts upon water quality which could pose a risk to the Slaney & Wexford Harbour Catchment, or the Slaney River Valley SAC during the operational phase.

Regarding the construction phase, given the proximity of the proposed works to the eastern drainage ditch, given the in-stream works required to infill the western drainage ditch, and given the potential hydrological connection between these drainage ditches and the unnamed stream to the east, mitigation measures have been incorporated within this document to protect water quality during the construction phase. These measures will include physical barriers such as silt fences/sandbags, and blocking any existing pipes prior to infilling the western drainage ditch. This will limit any adverse effect on the water quality of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA.

10.0 CONCLUSION

It is not anticipated that the proposed development, subject to mitigation measures, by itself or in combination with other developments, would adversely affect the Natura 2000 network during the site preparation or operational phases of the project.

The proposed development site is located approximately 10km from the South Dublin Bay and River Tolka Estuary (Site Code: 004024), 11.6km from the South Dublin Bay (Site Code: 000210), 13.1km from the North Dublin Bay (Site Code: 000206) and 13.1km from the North Bull Island (Site Code: 004006). It is considered that there would be no potential risk of significant impacts upon the qualifying interests / special conservation interests of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA due to the proposed mitigation measures to be implemented.

It is the conclusion of this Natura Impact Statement that, subject to mitigation measures, there would be no potential for an adverse effect on the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC and North Bull Island SPA or any other European sites as a result of the proposed development (by itself or in combination with other developments).

11.0 REFERENCES

Aas, G., Riedmiller, A. (1994) *Trees of Britain & Europe*. Harper Collins Publishers

Averis, B. (2013) P*lants and Habitats: An introduction to common plants and their habitats in Britain and Ireland*. United Kingdom: Swallowtail Print Ltd

Bang, P., Dahlstrøm, P. and Walters, M. (2006) *Animal Tracks and Signs.* Oxford University Press

Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. & Regan, E.C. (2009) *Ireland Red List No. 2 – Non-Marine Mollusc*s. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Cabot, D. (2004*) Irish Birds*. Harper Collins Publishers, London

Cummins, S., Fisher, J., McKeever, R. G., McNaghten, L. and Crow, O. (2010) *Assessment of the distribution and abundance of Kingfisher Alcedo atthis and other riparian birds on six SAC river systems in Ireland*. BirdWatch Ireland.

Curtis, T. and Thompson, R. (2009) *The Orchids of Ireland.* National Museums Northern Ireland

Council Directive (EC) 2009/147/EC of 30 November 2009 on the conservation of wild birds.

Council Directive (EC) 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

DoEHLG (2010) *Freshwater Pearl Mussel Mountain Sub-Basin Management Plan*. Department of the Environment, Heritage and Local Government.

DoEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*.

Environment DG, European Commission (2002) *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*.

Environmental Protection Agency Licence public access information, Available at: http://www.epa.ie/licensing/iedipcse/

EPA (March 2021) "*Code of Practice – Domestic Waste Water Treatment Systems (Population Equivalents ≤10)*".

European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009).

European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (S.I. 296 of 2009)

European Communities (Quality of Salmonid Waters) Regulations 1988 (S.I. No. 293 of 1988)

Fitzpatrick, U., Weeks, L., Wright, M. (2016) *Identification Guide to Irelands Grasses*. National Biodiversity Data Centre

Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. Kilkenny: The Heritage Council.

Giddy, E. (1991) *Badger and Habitats Survey of Ireland*. National Biodiversity Data Centre. Available: Maps - Biodiversity Maps (biodiversityireland.ie) (Accessed January 30, 2013.

Gilbert, G., Stanbury, A & Lewis, L. (2021) *Birds of Conservation Concern in Ireland 2021-2026*, Irish Birds, 9, pp. 523-544.

Harrap, S. (2013) Wild Flowers, A Field Guide to the Flowers of Britain & Ireland. Bloomsbury Publishing.

Irish Water (2020) *Connections and Developer Services, Design and Construction Requirements for Self-Lay Developments*. Document IW-CDS-5030-03

Irish Water (2020) *Wastewater Infrastructure Standard Details, Connections and Developer Services. Design and Construction Requirements for Self-Lay Developments*. Document IW-CDS-5030-01

Johnson, O. and More, D. (2006) *Collins Tree Guide: The Most Complete Field Guide to the Trees of Britain and Europe*. London: HarperCollins Publishers.

King J. J. and Linnane S. M. (2004) *The status and distribution of lamprey and shad in the Slaney and Munster Blackwater SACs*. Irish Wildlife Manuals, No. 14. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

National Biodiversity Data Centre, available at https://maps.biodiversityireland.ie/Map

National Parks and Wildlife Service, available at: http://www.npws.ie/protected-sites

NPWS (2019) Conservation Objectives: Carriggower Bog SAC 000716. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013) Site Synopsis: Carriggower Bog SAC 000716. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2019a) The Status of Protected EU Habitats and Species in Ireland. Volume 1: Summary Overview Unpublished Report, National Parks and Wildlife Services, Department of Culture, Heritage and the Gaeltacht.

NPWS (2019b) The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitats Assessments. Unpublished report. National Parks and Wildlife Services, Department of Culture, Heritage and the Gaeltacht.

NPWS (2019c) The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished report. National Parks and Wildlife Services, Department of Culture, Heritage and the Gaeltacht.

O'Neill, F.H. & Barron, S.J. (2013) Results of monitoring survey of old sessile oak woods and alluvial forests. Irish Wildlife Manuals, No. 71. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Parnell, J. and Curtis, T. (2012) *Webb's An Irish Flora*. Cork: Cork University Press.

Philips, R. (1980) *Grasses, Ferns, Mosses & Lichens of Great Britain and Ireland*. London: Pan Books.

Rose, F. (2006) *The Wildflower Key: How to identify wildflowers, trees and shrubs in Britain and Ireland*. China: Frederick Warne & Co.

Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E. (2011) *Best Practice Guidance for habitat survey and mapping*. The Heritage Council, Kilkenny. Available at: www.heritagecouncil.ie/wildlife/publications/

Streeter, D. (2018) *Collins Wild Flower Guide*. Harper Collins Publishers, London

Sterry, P. (2004) *Complete Irish Wildlife*. Harper Collins Publishers, London

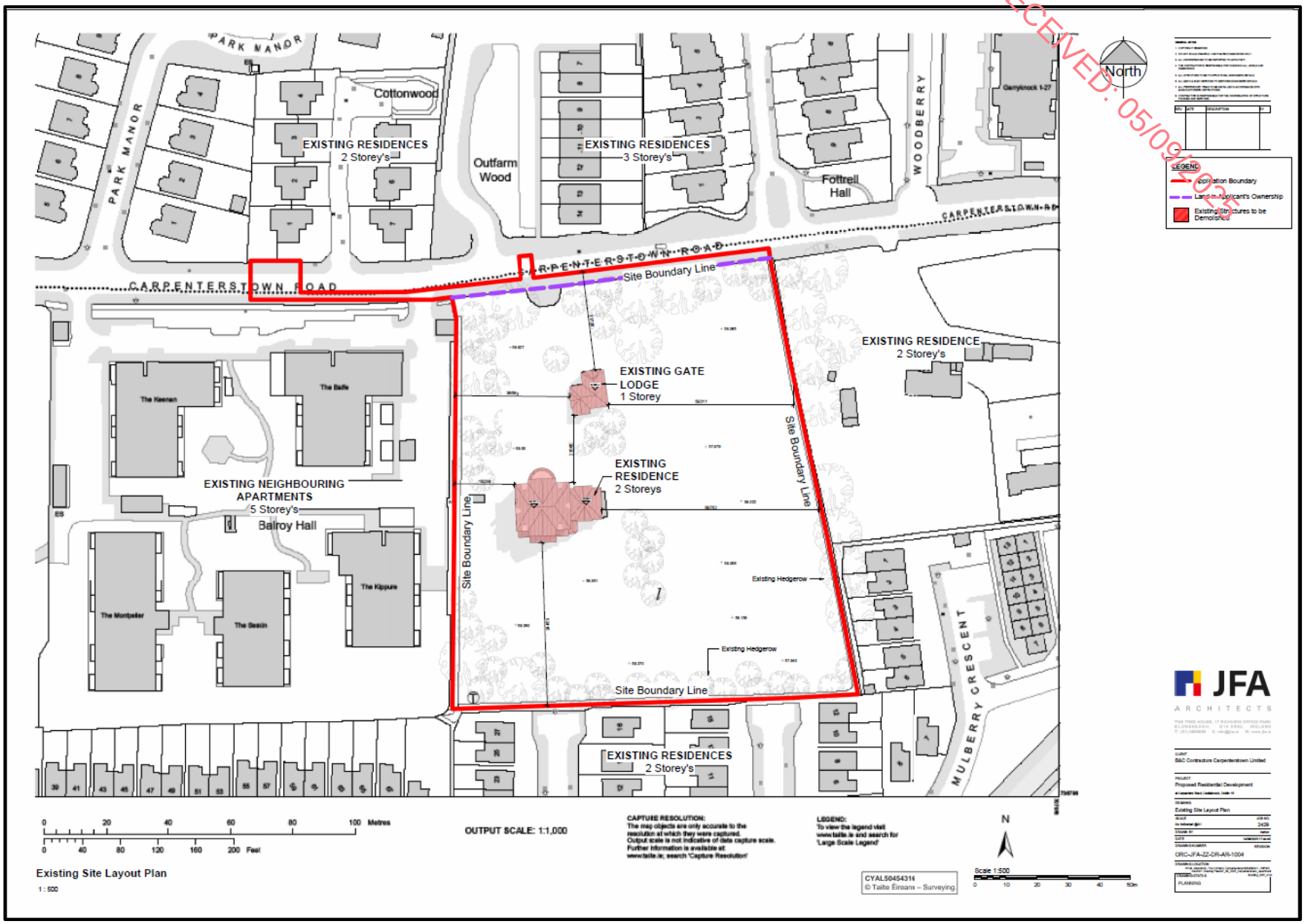
Sutherland, W.J. (Ed.). (2006) *Ecological Census Techniques*. United Kingdom: Cambridge University Press.

Wheater, C.P., Bell, J.R. and Cook, P.A. (2011) *Practical Field Ecology: A Project Guide*. John Wiley & Sons.

Wilson, J. and Carmody, M. (2013) *The Birds of Ireland*. Gill Books

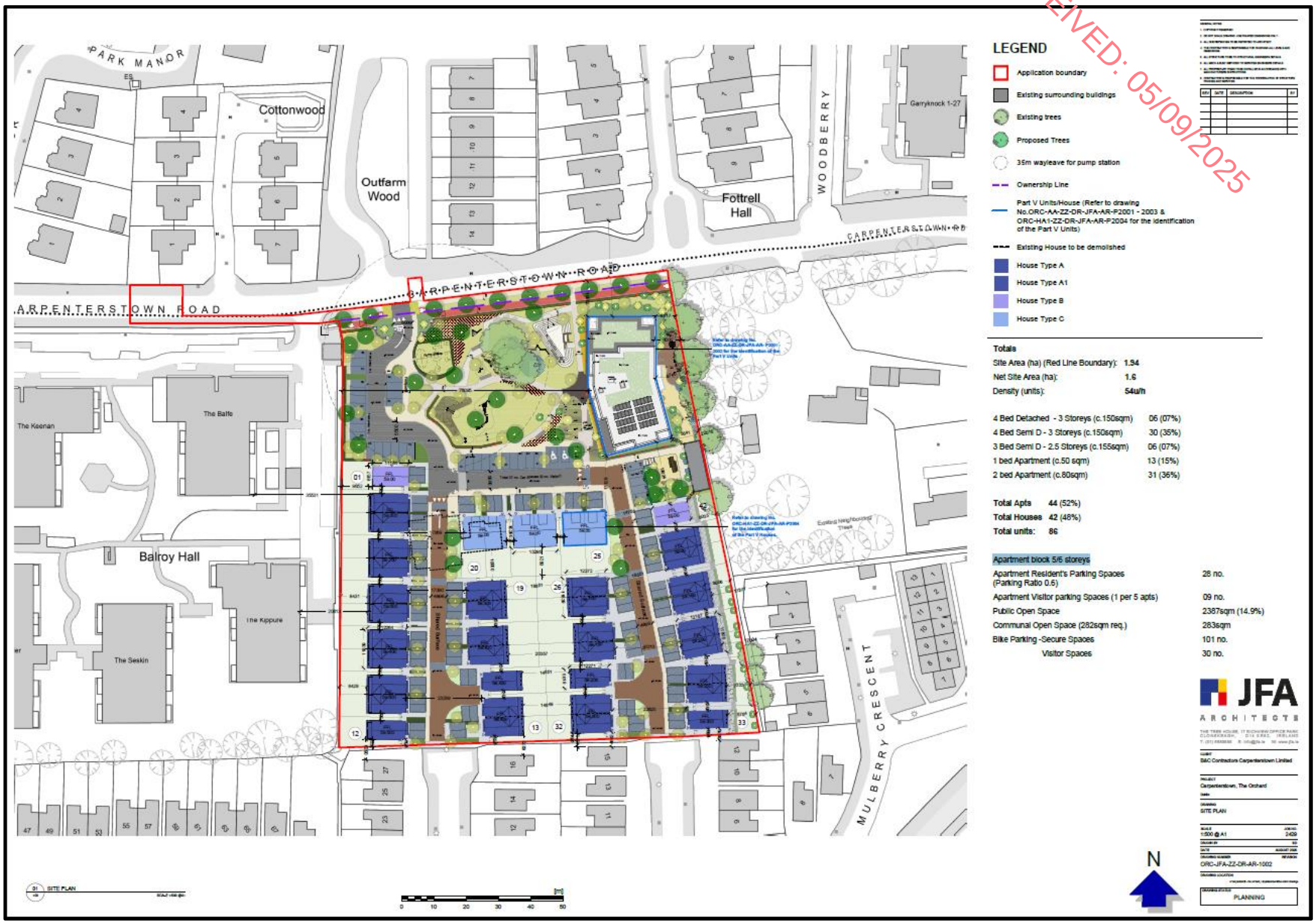
APPENDIX A

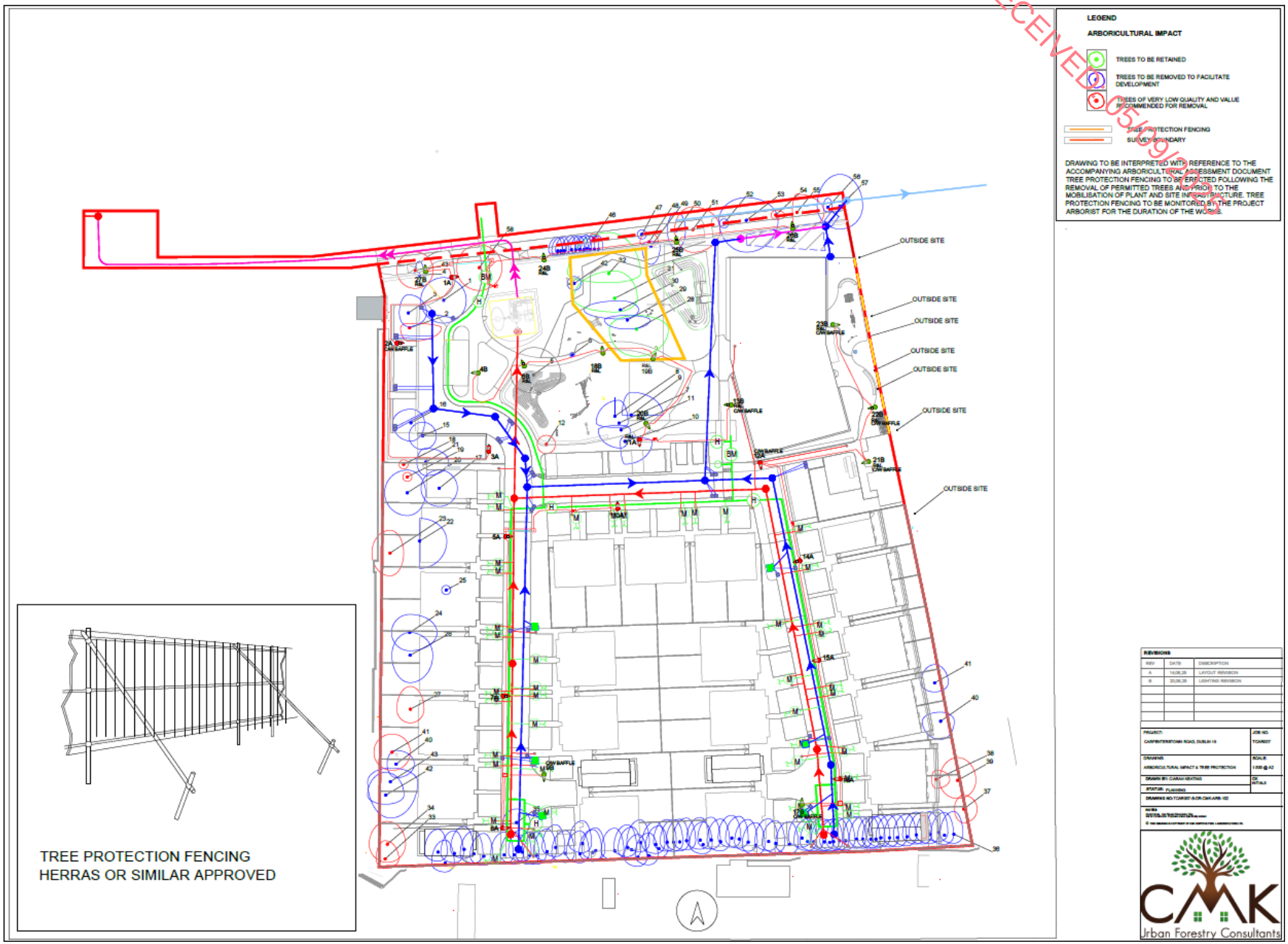
PROPOSED SITE PLANS



Existing Site Layout Plan

1 : 500





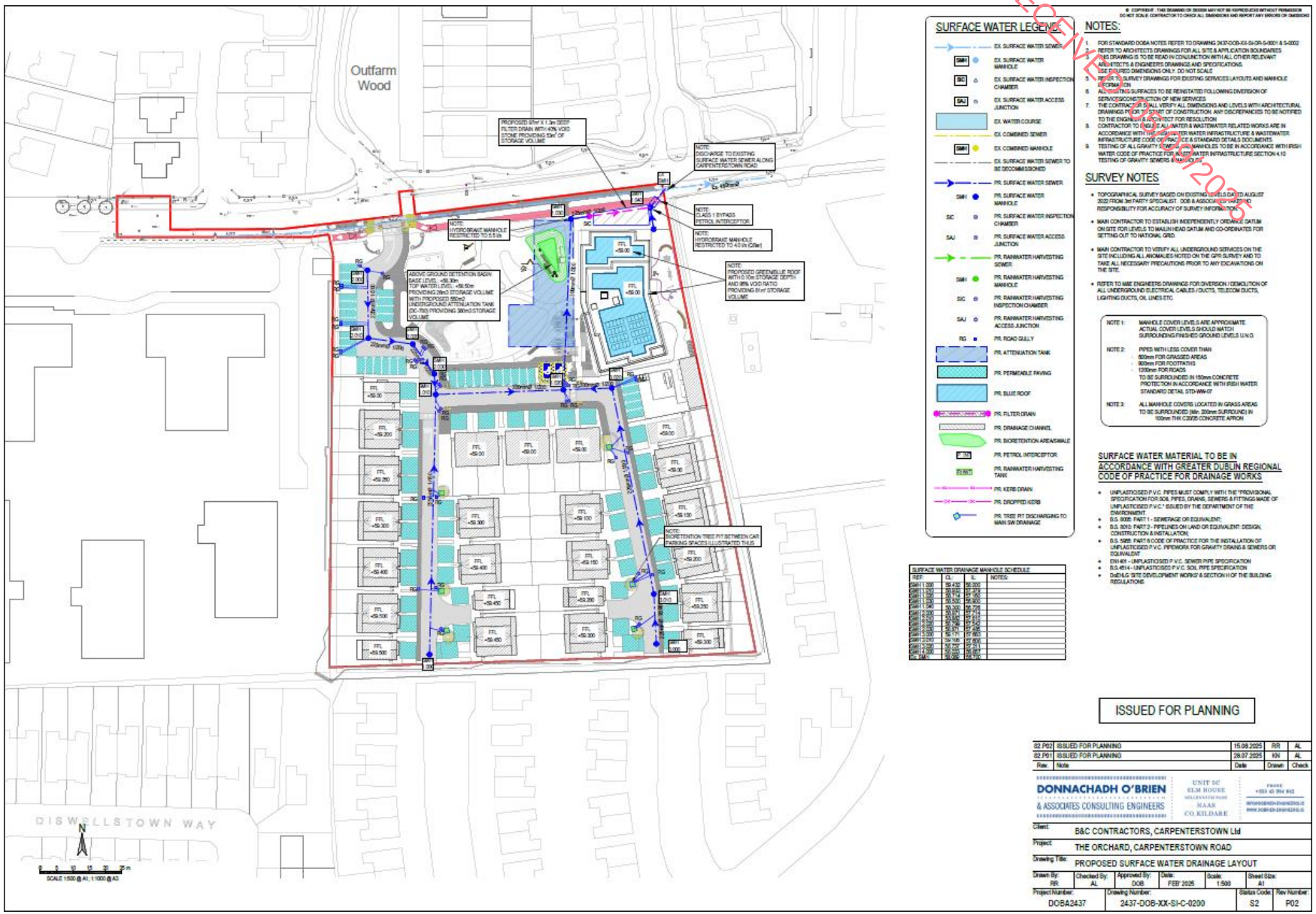
PLANTING SCHEDULE

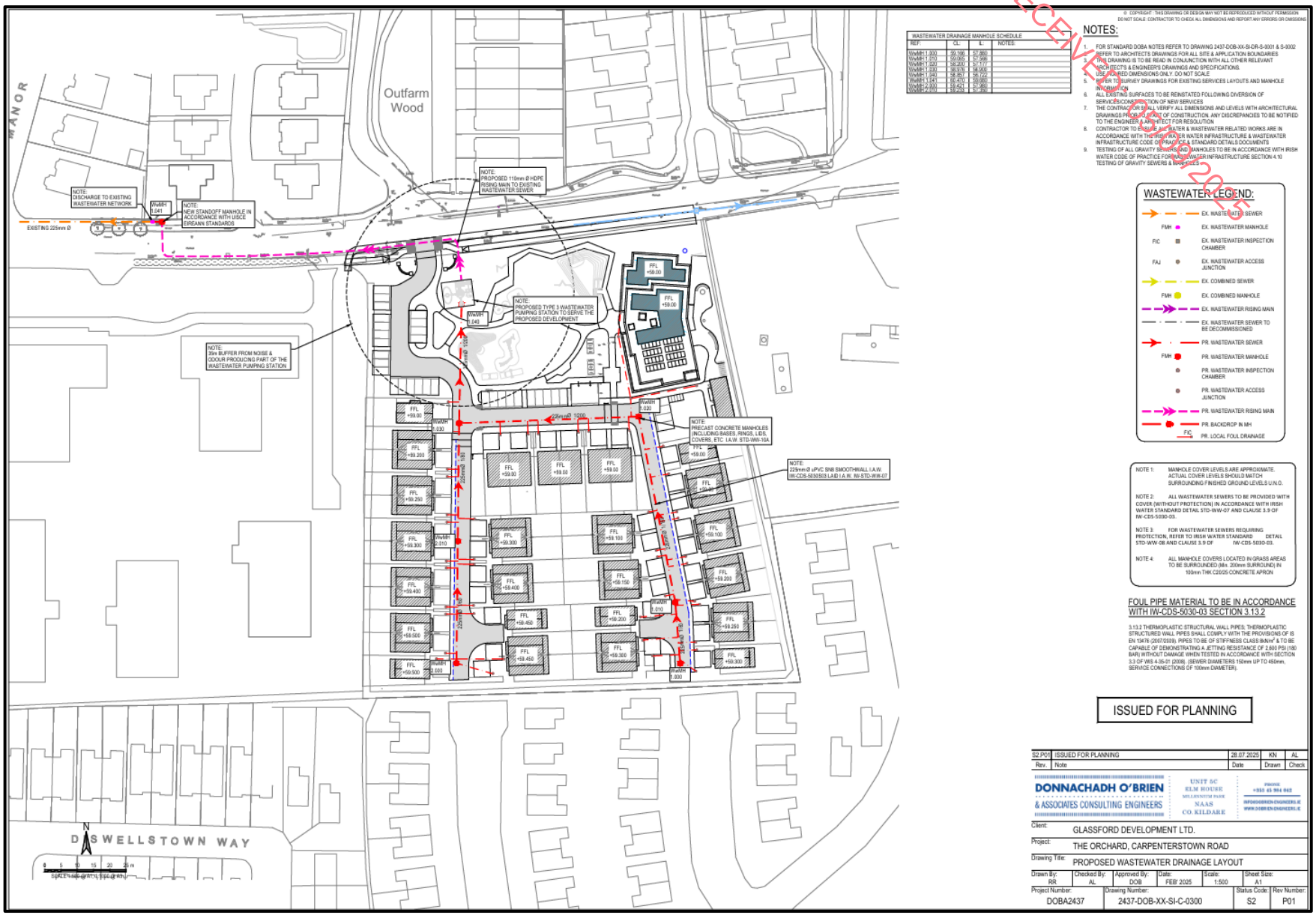
ISSUE STATUS: PLANNING

CLIENT: S&C Contractors Carpenterstown Limited

PROJECT: Carpenterstown Rd

DRAWING: Planting Plan





WASTEWATER DRAINAGE MANHOLE SCHEDULE

REF:	CL:	IL:	NOTES:
WwMH 1.000	59.196	57.960	
WwMH 1.010	59.063	57.596	
WwMH 1.020	58.200	57.177	
WwMH 1.030	58.216	56.906	
WwMH 1.040	58.067	56.722	
WwMH 1.041	58.470	56.680	
WwMH 2.000	59.450	57.960	
WwMH 2.010	59.900	57.596	

NOTES:

1. FOR STANDARD DOBA NOTES REFER TO DRAWING 2437-DOB-XX-SI-DR-S-0001 & S-0002
2. REFER TO ARCHITECTS DRAWINGS FOR ALL SITE & APPLICATION BOUNDARIES
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT'S & ENGINEER'S DRAWINGS AND SPECIFICATIONS.
4. USE FIGURED DIMENSIONS ONLY. DO NOT SCALE
5. REFER TO SURVEY DRAWINGS FOR EXISTING SERVICES LAYOUTS AND MANHOLE INFORMATION
6. ALL EXISTING SURFACES TO BE REINSTATED FOLLOWING DIVERSION OF SERVICES/CONSTRUCTION OF NEW SERVICES
7. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LEVELS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES TO BE NOTIFIED TO THE ENGINEER & ARCHITECT FOR RESOLUTION
8. CONTRACTOR TO ENSURE ALL WATER & WASTEWATER RELATED WORKS ARE IN ACCORDANCE WITH THE IRISH WATER INFRASTRUCTURE & WASTEWATER INFRASTRUCTURE CODE OF PRACTICE & STANDARD DETAILS DOCUMENTS
9. TESTING OF ALL GRAVITY SEWERS AND MANHOLES TO BE IN ACCORDANCE WITH IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE SECTION 4.10 TESTING OF GRAVITY SEWERS & MANHOLES

WASTEWATER LEGEND:

- EX. WASTEWATER SEWER
- FWH — EX. WASTEWATER MANHOLE
- FIC — EX. WASTEWATER INSPECTION CHAMBER
- FAJ — EX. WASTEWATER ACCESS JUNCTION
- EX. COMBINED SEWER
- FWH — EX. COMBINED MANHOLE
- EX. WASTEWATER RISING MAIN
- EX. WASTEWATER SEWER TO BE DECOMMISSIONED
- PR. WASTEWATER SEWER
- FWH — PR. WASTEWATER MANHOLE
- PR. WASTEWATER INSPECTION CHAMBER
- PR. WASTEWATER ACCESS JUNCTION
- PR. WASTEWATER RISING MAIN
- PR. BACKDROP IN MH
- FIC — PR. LOCAL FOUL DRAINAGE

NOTE 1: MANHOLE COVER LEVELS ARE APPROXIMATE. ACTUAL COVER LEVELS SHOULD MATCH SURROUNDING FINISHED GROUND LEVELS U.N.O.

NOTE 2: ALL WASTEWATER SEWERS TO BE PROVIDED WITH COVER (WITHOUT PROTECTION) IN ACCORDANCE WITH IRISH WATER STANDARD DETAIL STD-WW-07 AND CLAUSE 3.9 OF IW-CDS-5030-03.

NOTE 3: FOR WASTEWATER SEWERS REQUIRING PROTECTION, REFER TO IRISH WATER STANDARD DETAIL STD-WW-08 AND CLAUSE 3.9 OF IW-CDS-5030-03.

NOTE 4: ALL MANHOLE COVERS LOCATED IN GRASS AREAS TO BE SURROUNDED (Min. 200mm SURROUND) IN 100mm THK C20/25 CONCRETE APRON

FOUL PIPE MATERIAL TO BE IN ACCORDANCE WITH IW-CDS-5030-03 SECTION 3.13.2

3.13.2 THERMOPLASTIC STRUCTURAL WALL PIPES: THERMOPLASTIC STRUCTURED WALL PIPES SHALL COMPLY WITH THE PROVISIONS OF IS EN 13476 (2007/2008). PIPES TO BE OF STIFFNESS CLASS 8kN/m² & TO BE CAPABLE OF DEMONSTRATING A JETTING RESISTANCE OF 2,850 PSI (180 BAR) WITHOUT DAMAGE WHEN TESTED IN ACCORDANCE WITH SECTION 3.3 OF WIS 4-35-01 (2008). (SEWER DIAMETERS 150mm UP TO 450mm, SERVICE CONNECTIONS OF 100mm DIAMETER).

ISSUED FOR PLANNING

Rev.	Note	Date	Drawn	Check
S2 P01	ISSUED FOR PLANNING	28.07.2025	KN	AL

DONNACHADH O'BRIEN & ASSOCIATES CONSULTING ENGINEERS
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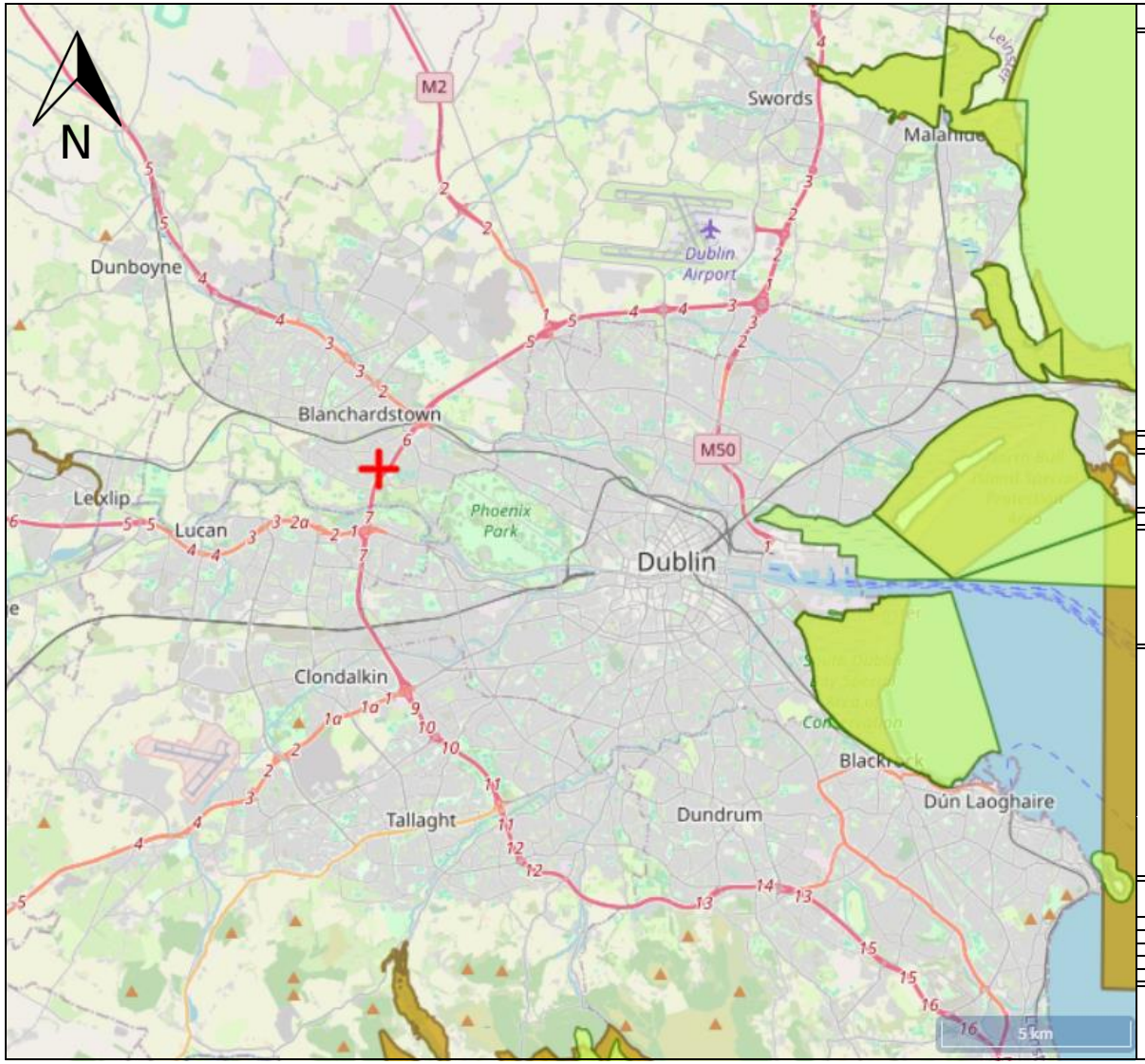
Client: GLASSFORD DEVELOPMENT LTD.
Project: THE ORCHARD, CARPENTERSTOWN ROAD
Drawing Title: PROPOSED WASTEWATER DRAINAGE LAYOUT

Drawn By:	Checked By:	Approved By:	Date:	Scale:	Sheet Size:
RR	AL	DOB	FEB' 2025	1:500	A1

Project Number:	Drawing Number:	Status Code:	Rev Number:
DOBA2437	2437-DOB-XX-SI-C-0300	S2	P01

APPENDIX B

PROTECTED SITE MAPS



Notes

– Location of Development

- SAC

- SPA

Project Title:

Protected Sites Map

Client Name:

CARPENTERSTOWN ROAD,
DUBLIN,
CO. FINGAL

PANTHER ECOLOGY LTD

UNITS 3 & 4
S.E.T.U CARLOW CAMPUS
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Drawing Status:	Scale:	NTS	A4
Report	Datum:	EPA Maps	
Drawing Number:	Drawn:	PE	
NIS 10339	Checked:	MF	
Revision:	Approved:	-	
	Date:	11/06/2025	

APPENDIX C

PHOTO LOG

Plate 1: Site entrance (BL3)

Plate 2: Existing building to be demolished (BL3)

Plate 3: Existing building to be demolished (BL3)

Plate 4: Recolonising bare ground (ED3)

Notes:

CARPENTERSTOWN ROAD,
DUBLIN 15,
CO. FINGAL

APPENDIX C
PHOTO LOG

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file location:		scale: N/A	A4
drawing status:	REPORT	datum:	N/A
		drawn:	PE
drawing no.	rev	checked:	MF
NIS_10339	A	approved:	-
		date:	13/06/2025

Plate 5: Treeline (Wl2)

Plate 6: Dry calcareous and neutral grassland (GS1)

Plate 7: Drainage ditch to the west (FW4). To be infilled.

Plate 8: Drainage ditch to the east (FW4). To be retained.

Notes:

CARPENTERSTOWN ROAD,
DUBLIN 15,
CO. FINGAL

APPENDIX C
PHOTO LOG

PANTHER ECOLOGY LTD

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file location:		scale: N/A	A4
drawing status:	REPORT	datum:	N/A
		drawn:	PE
drawing no.	rev	checked:	MF
		approved:	-
		Date:	13/06/2025
AA_10339	A		

APPENDIX D

SILT FENCING SPECIFICATIONS

SILT FENCING SPECIFICATIONS

Silt fencing consists of porous filter fabric which detains sediment and the support posts. The fabric must be trenched-in and backfilled, and the soil compacted around it. The posts are sunk into the ground and can be either steel or wood. How much is required will be determined by the location, size and topography of the site with some sites requiring more than others. Silt fencing works by blocking runoff water and creating a pond behind it. This dissipates the energy in running water and allows for sediments to sink while the water can either pass through, percolate to ground or evaporate.

Silt fencing installation should have posts anywhere from 1m to 2m apart as the silt fencing has to withstand the force of water building up behind it. The fabric must be secured to the posts using plastic cable ties, wire twists or construction grade staples. It is important that there is no gap between the silt fencing and the ground. Trenching-in the fabric will ensure a solid anchor in the ground and ensures runoff water does not get past. Silt fencing fabric must be able to withstand all weather conditions and made of special material that's high quality, permeable, technical filter fabric and can prevent runoff from a storm event. The material used in silt fencing will determine how durable and efficient it is as stopping sediment from reaching a protected area. Material can be geotextile fabric, produced from high-tenacity polypropylene silt-film

The building contractor will determine the most appropriate type of silt fencing to use and ensure its correct installation and maintenance throughout the construction phase. Silt fencing must remain in place until there is no risk of sediments from entering a protected habitat or watercourse. Silt fences must be inspected daily and after a heavy rainfall event with repairs carried out if required. When sediment accumulation reaches one third the height of the exposed fence either remove the sediments or install a second silt fence as directed by the construction site manager/engineer.

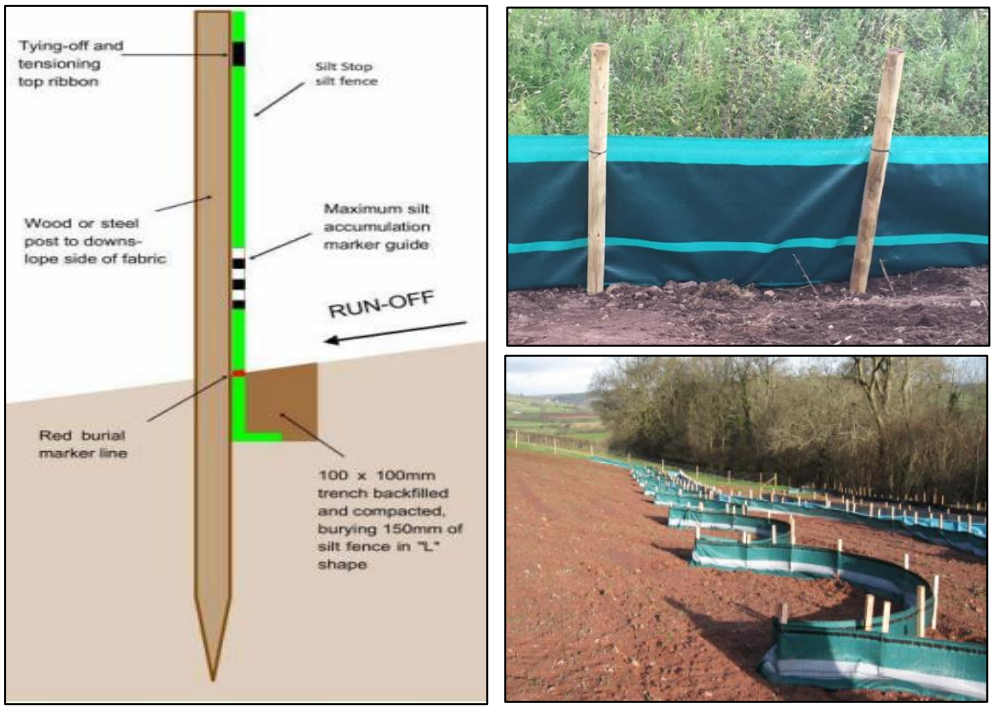

Figure Appendix D1: Example of Silt Fencing and Installation.