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Ecological Impact Assessment (EcIA) for a proposed Residential Development at Holywell, Swords, Co. Dublin.

20th October 2023

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Fingal County Council

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Document Control Sheet			
Project	Ecological Impact Assessment (EcIA) for a proposed residential development at Holywell, Swords, Co. Dublin.		
Report	Ecological Impact Assessment		
Date	20th October 2023		
Project No:		Document Reference:	
Version	Author	Reviewed	Date
Draft 01	Bryan Deegan	Emma Peters	19th September 2023
Planning	Bryan Deegan		20th October 2023

Table of Contents

Introduction

Background

Ecological Impact Assessment (EcIA) has been defined as '*the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components*' (Treweek, 1999). "*The purpose of EcIA is to provide decision-makers with clear and concise information about the likely ecological effects associated with a project and their significance both directly and in a wider context. Protecting and enhancing biodiversity and landscapes and maintaining natural processes depends upon input from ecologists and other specialists at all stages in the decision-making and planning process; from the early design of a project through implementation to its decommissioning*" (IEEM, 2010).

The following EcIA has been prepared by Altemar Ltd. at the request of Fingal County Council for a proposed residential development at Holywell, Swords, Co. Dublin.

Study Objectives

The objectives of this EcIA are to:

1. Outline the project and any alternatives assessed;
2. Undertake a baseline ecological feature, resource and function assessment of the site and zone of influence;
3. Assess and define significance of the direct, indirect and cumulative ecological impacts of the project during its construction, lifetime and decommissioning stages;
4. Refine, where necessary, the project and propose mitigation measures to remove or reduce impacts through sustainable design and ecological planning; and
5. Suggest monitoring measures to follow up the implementation and success of mitigation measures and ecological outcomes.

The following guidelines have been used in preparation of this EcIA:

- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002);
- Guidelines on the information to be contained in EIARs (2022);
- Guidelines for Ecological Impact Assessment (EcIA) (IEEM, 2019);
- Advice Notes on current practice in the preparation of EIS's (EPA, 2003);
- Institute of Ecology and Environmental Management Guidelines for EIA (IEEM, 2005).

Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 28 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture). Emma Peters holds a BSc in Environmental Science and has 6 years ecological experience. She is trained in habitat restoration with a focus to increase biodiversity. She is also an active Bat Conservation Ireland member.

Description of the Proposed Project

Fingal County Council intend to apply for planning permission for a proposed residential development at Holywell, Swords, Co. Dublin.

The proposed development consists of the following:

Residential Development (5,189 sq m Gross Floor Space) arranged over 3 no. buildings, consisting of no. 57 no. residential units (20 no. 1-bedroom apartments, 29 no. 2-bedroom apartments, and 8 no. 3-bedroom apartments), at a site of approximately 0.77 ha located in the Townland of Crowcastle, Holywell, Swords, Co. Dublin. The proposed site outline, location, masterplan, and elevations are demonstrated in Figures 1-4.

Landscape

The landscape strategy for the subject site has been prepared by DFLA. The proposed landscape plan is demonstrated in Figure 5. It should be noted that this included the retention of the existing hedgerows on site.

Arborist

An Arboricultural Assessment of the Hegde Vegetation has been prepared by Arborist Associates Ltd. to accompany this planning application. In relation to arboricultural management, this report details the following:

'*Hedge No.1 would benefit from trimming on the site side to contain width and large size dead/unstable growth should be removed to address safety to the surrounding area which includes standing dead or dying Elm trees. These Elm stems should be removed from site to reduce breeding sites for the beetle that spreads this disease in order to try and contain the spread of this disease through the remaining Elm trees.*

Consideration should be given to cutting/coppicing the regeneration of Elm into the hedge to restrict size and their potential to being infected by 'Dutch Elm disease' (Ophiostoma Ulmi).

Hedge No.2 would benefit from trimming on the site side to contain width and large size dead/unstable growth should be removed to address safety to the surrounding area.

Tree Group No.1 would benefit from being fenced off to the grazing livestock so they can't cause further damage. The central tree could also be considered for removal as part of selective thinning to reduce density and to allow the other two trees more space to develop.'

The Tree Constraints Plan is demonstrated in Figure 6.

Figure 4. *Site outline and location on satellite imagery*

Figure 5. *Outline of proposed site.*

Figure 3. *Proposed site layout plan*

Figure 4. *Proposed site elevations*

Figure 5. *Proposed landscape plan*

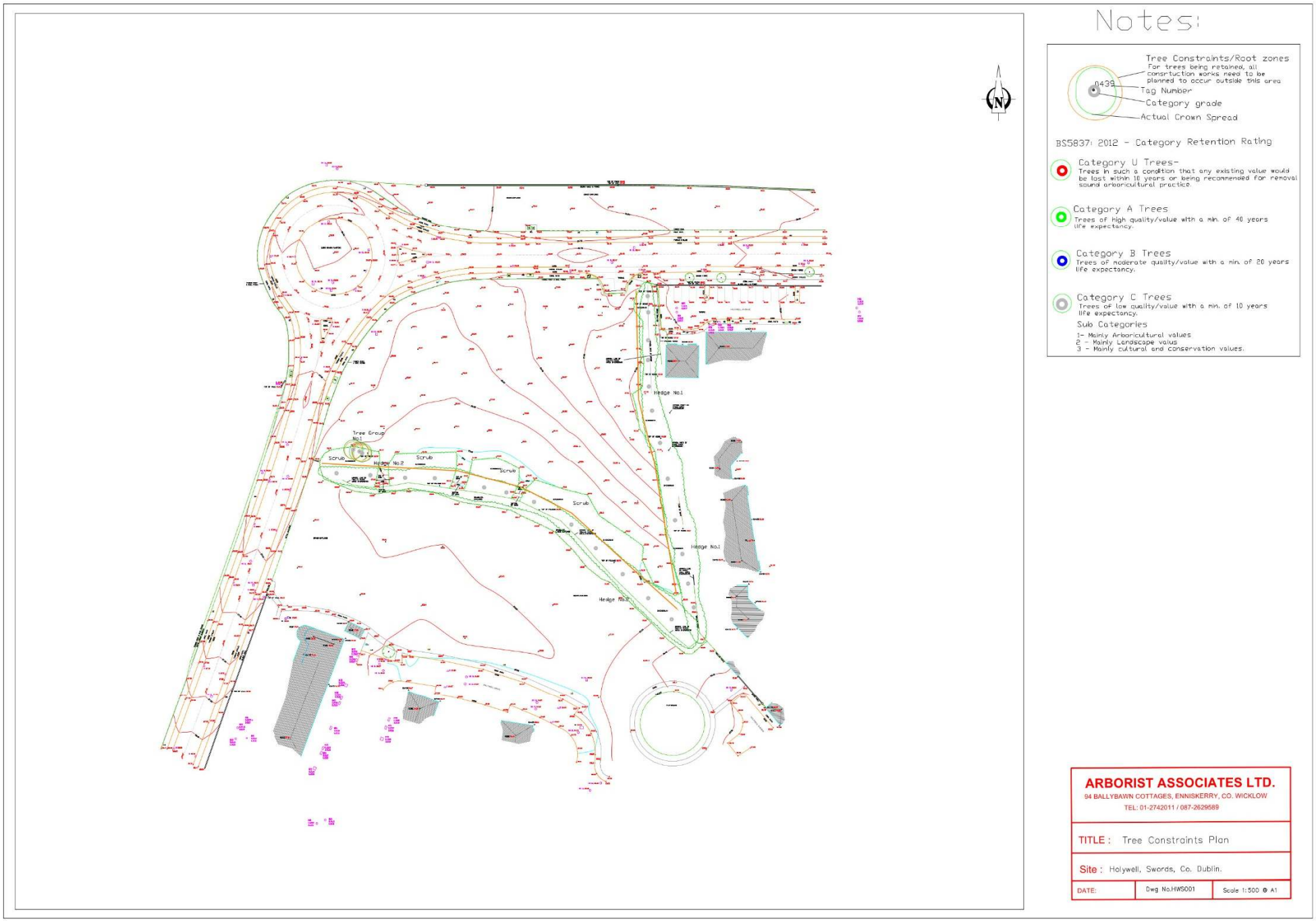


Figure 6. *Tree Constraints Plan*

Drainage

An Engineering Report for Planning has been prepared by ROD Consulting Engineers to accompany this planning application. This report outlines the existing site hydrology, and the following foul and surface water drainage strategy for the proposed development site:

Site Hydrology and Flood Risk Assessment

This report details the following in relation to the existing site hydrology:

'*The site is located within the catchment of the River Gaybrook. The River Gaybrook rises approximately 930m southwest of the development site within the Airside Retail Park. The river generally flows in a north easterly direction, where it ultimately discharges to the Malahide Estuary, approximately 3.4km northeast of the development site*.'

'A detailed Flood Risk Assessment has been prepared to supplement this report. Compensatory flood storage will be provided on the site.'

Surface Water Drainage

In terms of existing surface water drainage infrastructure, this report outlines the following:

'*The site appears to have no existing surface water drainage infrastructure within the boundary. The nearest surface water networks are located immediately west and north of the site on Holywell Distributer Road. It appears that the current drainage regime for the subject site is that surface water drains via infiltration and via overland flow routes to the surrounding surface water network*.'

In relation to the proposed surface water drainage strategy, this report details the following:

'*As part of the development, a number of different SuDS measures are proposed to minimise the impact on water quality and water quantity of the runoff and maximise the amenity and biodiversity opportunities within the site.*

The existing topography will allow for the site to drain by gravity to the nearby existing 1200 mm dia. surface water pipe located at Holywell Distributer Road to the southwest of the site. It is proposed to construct a new surface water drainage system for the development to collect and convey runoff to the outfall location. The site will be served by a new network consisting of surface water pipes, blue / green roofs, permeable paving areas and a detention basin. The lower sub-base levels of the permeable paving, the blue/green roofs and detention basin will provide for the attenuation storage requirements on site as a result of the residential development.'

Further, in relation to the proposed SuDS approach, this report outlines the following:

'*The proposed SuDS measures for the site will include Source Control measures as part of a Management Train whereby the surface water is managed locally in small sub-catchments rather than being conveyed to and managed in large systems further down the catchment. The combination of the SuDS measures listed below will maximise the potential for surface water attenuation, reducing the impact on the existing surface water drainage network downstream. The proposed techniques will offer high level of treatment processes and nutrient removal of the runoff, particularly during the 'first flush'. Finally, the various measures will offer significant amenity and biodiversity opportunities compared to other drainage systems.*

It is proposed to provide the following SuDS measures:

- Blue/Green Roof Systems
- Permeable Paving to all footway and parking bay areas
- Detention Basin
- Flow control devices to limit discharge.'

Foul Wastewater

In relation to the existing wastewater drainage, this report details the following:

'*Drainage records obtained from Fingal County Council have identified an existing 225mm dia. foul water sewer located at Holywell Distributer Road, immediately north of the site. The records indicate that the existing asset flows in an eastly direction.*'

In terms of the proposed wastewater drainage strategy this report outlines the following:

'*It is proposed to construct a new foul sewer network to serve the development. Foul effluent from the site will discharge to the existing 225mm dia. foul sewer on Holywell Distributer Road.*

A Confirmation of Feasibility letter received from Irish Water on the 2nd March 2023 states that a connection to the public foul infrastructure is feasible without any upgrade works being required.'

Foul wastewater will ultimately be treated within the existing public network.

The proposed foul and surface water layouts are demonstrated in Figures 7 & 8.

Flood Risk Assessment

An Initial Site Specific Flood Risk Assessment has been prepared by ROD Consulting Engineers to accompany this planning application. This report concludes with the following:

'*The available sources consulted above indicate that a portion of the proposed development site is liable to flood in the 1 in 1000 year current climate scenario from fluvial sources.*

Flood risk management measures incorporated within the design will protect the development up to the design flood event (1 in 1000 year + 20% climate change factor) with an appropriate freeboard and shall ensure flood risk is not increased upstream or downstream of the site. Details of the proposed compensatory storage measures (~150m3) shall be provided at compliance stage.'

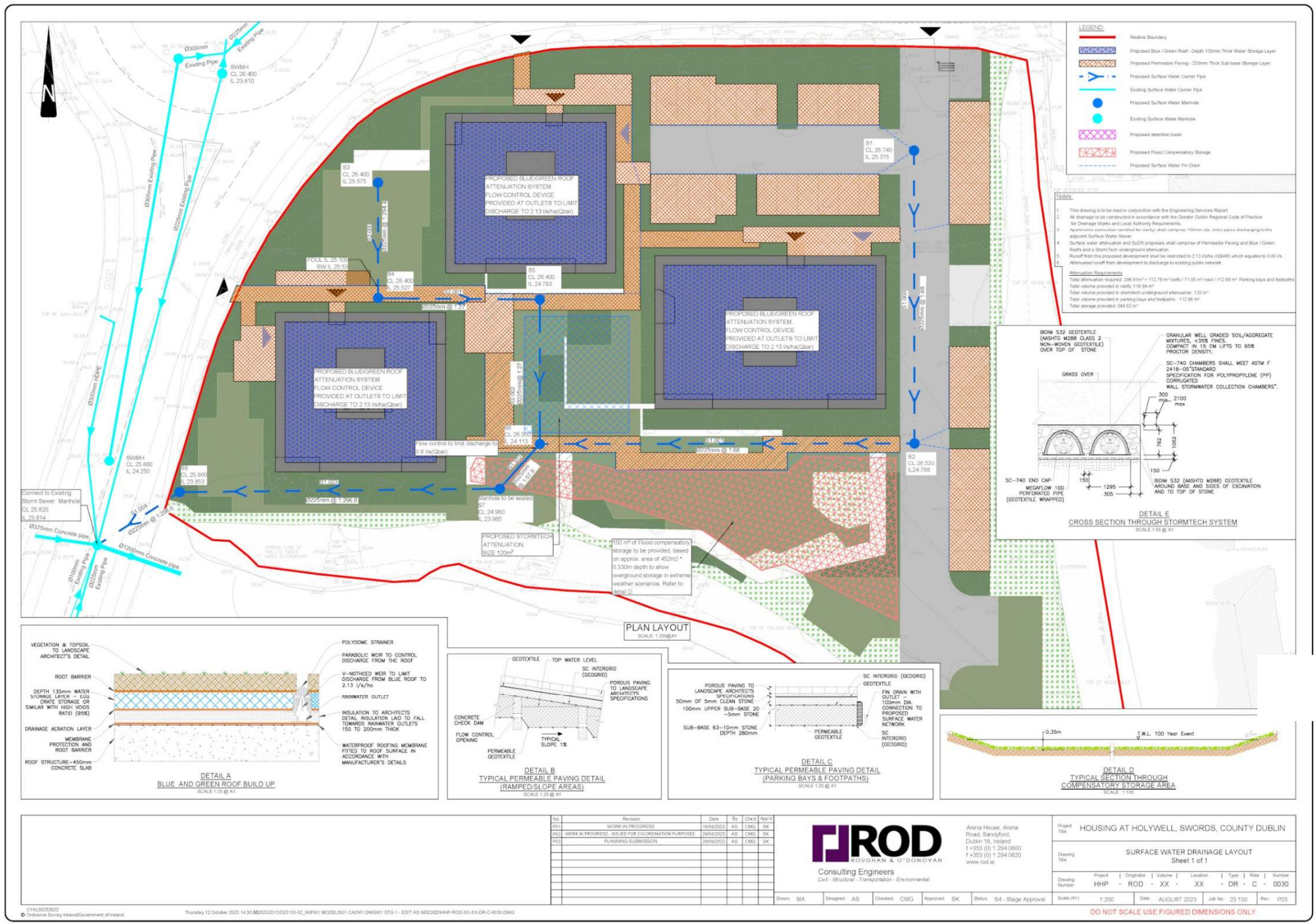


Figure 7. *Proposed surface water layout.*

Figure 8. *Proposed foul water drainage layout*

Ecological Assessment Methodology

A desk study was undertaken to gather and assess ecological data prior to undertaking fieldwork elements. Sources of datasets and information included:

- The National Parks and Wildlife Service
- National Biological Data Centre
- Satellite, aerial and 6" map imagery
- Bing Maps (ArcGIS)

A provisional desk-based assessment of the potential species and habitats of conservation importance was carried out in August 2023 and revised in September 2023. Altemar assessed the project, the proposed construction methodology and the operation of the proposed development.

Surveys

Habitats, Flora and Avian Ecology

An initial field survey was carried out by Altemar Ltd. on the 15th August 2023, following completion of the desk-based assessment. A site visit was carried out by Emma Peters in relation to flora and fauna. A bat survey was carried out by Altemar on the 26th September 2023. The surveys were carried out in mild dry conditions and covered all the lands within the site outline and the land immediately outside the site. The purpose of the field survey was to identify habitat types according to the Fossitt (2000) habitat classification and map their extent. In addition, more detailed information on the species composition and structure of habitats, conservation value and other data were gathered.

Survey Limitations

The field surveys were carried out in August and September 2023. This is within the period for a full species assessment of the floral cover. Weather conditions were mild and dry. However, this is a poor time to observe terrestrial mammal activity. It should be noted that good coverage of the site was possible and there was full and clear access to all areas. This is not considered to be a limitation in relation to the survey timings.

The bat survey was carried out in September 2023. This is within the active bat season and the survey covered the entire site multiple times during the night. Weather conditions were good with mild temperatures of 10°C after sunset. Winds were light and there was no rainfall. Insects were observed in flight during the survey.

Consultation

The National Parks and Wildlife Service (NPWS) were consulted in relation to species and sites of conservation interest. Data of rare and threatened species were acquired from NPWS. The National Biological Data Centre records were consulted for species of conservation significance.

Spatial Scope and Zone of Influence

As outlined in CIEEM (2018) '*The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.*' In line with best practice guidance an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995).

The potential ZOI of the construction phase of the project in the absence of mitigation was deemed to be within the site outline and, out of an abundance of caution, nearby sensitive receptors including the River Gaybrook. However, due to the self-contained nature and limited temporal/ geographical scale of the project, within a suburban/agricultural environment with set boundaries, in addition to compliance requirements in relation to SUDS, Water Pollution Acts and on site discharges, it is considered that the impacts of the proposed works, following mitigation, would not extend beyond site outline, with the exception of mammal and avian activity where the proposed site may form part of a larger territorial range. The project would also involve reprofiling, excavations and construction, which may impact beyond the site through noise, dust, light and surface water impacts. Standard but robust construction phase controls need to be implemented to limit the potential impact of the proposed development into the surrounding environment.

Impact Assessment Significance Criteria

This section of the EcIA examines the potential causes of impact that could result in likely significant effects to the species and habitats that occur within the ZOI of the proposed development. These impacts could arise during either the construction or operational phases of the proposed development. The following terms are derived from EPA EIAR Guidance and are used in the assessment to describe the predicted and potential residual impacts on the ecology by the construction and operation of the proposed development.

Magnitude of effect and typical descriptions

Magnitude of effect (change)		Typical description
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial effect on attribute or a reduced risk of negative effect occurring
Negligible	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Criteria for Establishing Receptor Sensitivity/Importance

Importance	Ecological Valuation
International	Sites, habitats or species protected under international legislation e.g. Habitats and Species Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
National	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
Regional	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
Local/County	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
Local	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or features which enhance or enrich the local area, sites containing viable area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
Site	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Quality of Effects	Effect Description
Negative /Adverse Effect	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Neutral Effect	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Effect	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Significance of Effects

Significance of Effect	Description of Potential Effect
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

Duration and Frequency of Effect	Description
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration

Describing the Probability of Effects	Description
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Results

Proximity to Designated Conservation Sites

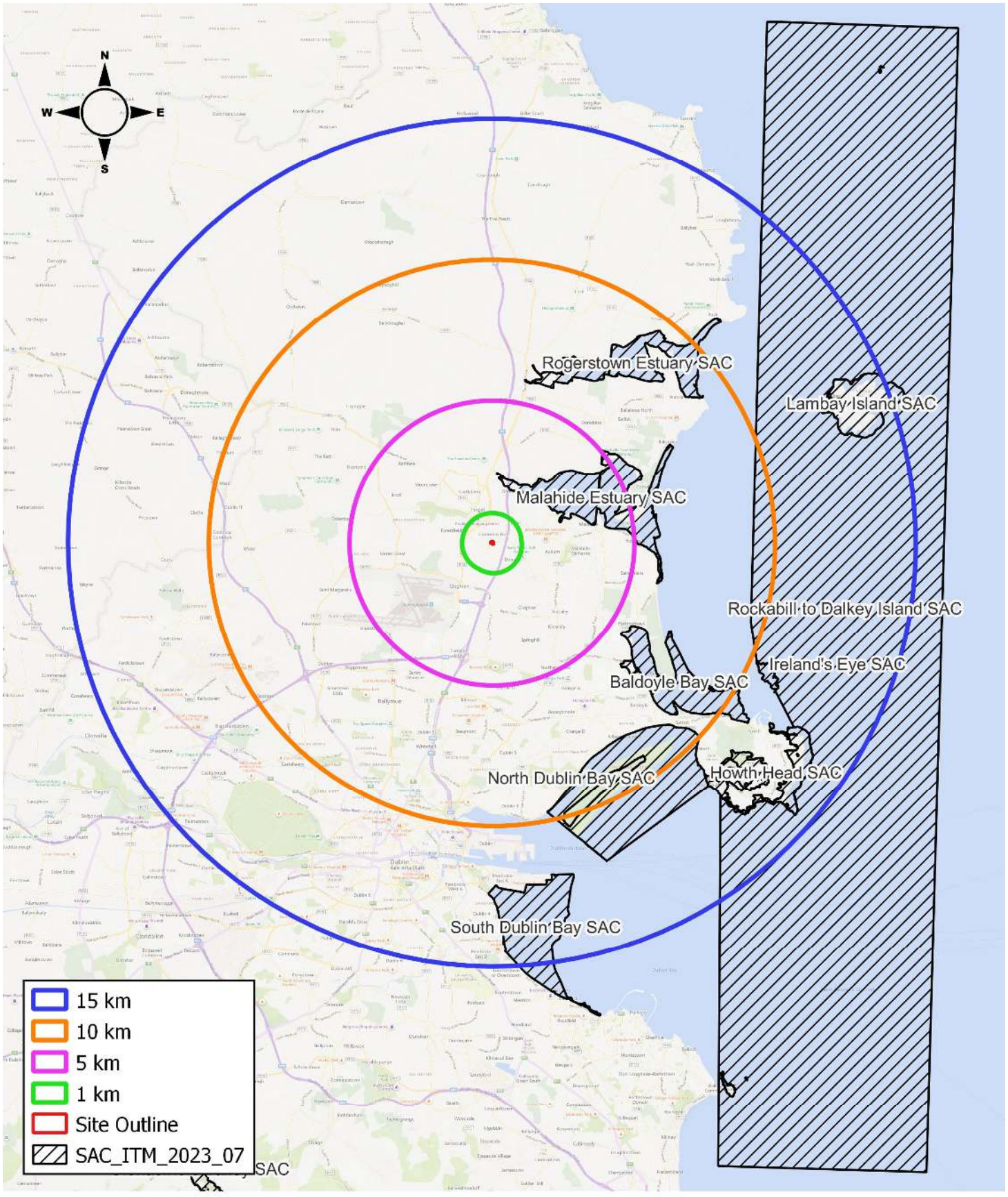
Designated sites are presented in Figure 9 (SAC within 15km), Figure 10 (SPA's within 15km), Figure 11 (NHA and pNHAs within 15km), Figure 12 (Ramsar Sites within 15km), Figure 13 (watercourses in proximity to the Site), Figure 14 (watercourses and SAC's within 1km), Figure 15 (Watercourses and SPA's within 1km), Figure 16 (Watercourses and Ramsar Sites within 1km), and Figure 17 (Watercourses and pNHA's within 1km). It should be noted that the Site of the proposed Project is not within a designated conservation site. The closest Natura 2000 sites are Malahide Estuary SAC & SPA, located 1.9 km from the proposed Project. There are no designated Natural Heritage Areas (NHA) within a 15km radius, however the nearest Proposed NHA (Feltrim Hill) is 1 km from the Site. The distance and details of the conservation sites within 15km of the proposed Project are presented in Table 1. There is no direct pathway to designated sites. There is an indirect pathway from the proposed Project to the Malahide Estuary SAC, SPA, pNHA, and Broadmeadow Estuary Ramsar Site via the existing 1200mm public surface water sewer located within the River Gaybrook catchment, a watercourse that ultimately outfalls to the marine environment at Malahide Estuary.

Table 1. European sites within 15km of the proposed site

NATURA 2000 Site	Distance
Special Areas of Conservation	
Malahide Estuary SAC	1.9 km
Baldoyle Bay SAC	5.5 km
Rogerstown Estuary SAC	5.7 km
North Dublin Bay SAC	8.2 km
Rockabill to Dalkey Island SAC	9.2 km
Ireland's Eye SAC	10.2 km
Howth Head SAC	11 km
South Dublin Bay SAC	11.7 km
Lambay Island SAC	12.5 km
Special Protection Areas	
Malahide Estuary SPA	1.9 km
Baldoyle Bay SPA	5.5 km
North-West Irish Sea SPA	5.5 km
Rogerstown Estuary SPA	6 km
North Bull Island SPA	8.2 km
South Dublin Bay and River Tolka Estuary SPA	9.3 km
Ireland's Eye SPA	9.9 km
Howth Head Coast SPA	12 km
Lambay Island SPA	12.5 km

Table 2. (proposed) NHAs and Ramsar sites within 15km of the proposed development site

Status	Site Name	Distance
pNHA	Feltrim Hill	1 km
pNHA	Malahide Estuary	1.9 km
pNHA	Sluice River Marsh	4.5 km
pNHA	Santry Demesne	5.1 km
pNHA	Baldoyle Bay	5.5 km
pNHA	Rogerstown Estuary	5.7 km
pNHA	Portraine Shore	7.2 km
pNHA	North Dublin Bay	8.1 km
pNHA	Royal Canal	9.8 km
pNHA	Ireland's Eye	10.1 km
pNHA	Howth Head	10.4 km
pNHA	Dolphins, Dublin Docks	11.5 km
pNHA	South Dublin Bay	11.8 km
pNHA	Lambay Island	12.5 km
pNHA	Liffey Valley	13.8 km
pNHA	Bog Of The Ring	13.9 km
pNHA	Loughshinny Coast	14.9 km
pNHA	Booterstown Marsh	14.9 km
pNHA	Knock Lake	14.9 km
Ramsar	Broadmeadow Estuary	1.9 km
Ramsar	Baldoyle Bay	5.5 km
Ramsar	Rogerstown Estuary	7.2 km
Ramsar	North Bull Island	8.1 km
Ramsar	Sandymount Strand/ Tolka Estuary	11.9 km



Project: Residential Development
Location: Swords, Co. Dublin
Date: 20th September 2023
Drawn By: Bryan Deegan (Altemar)

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Figure 9. *Special Areas of Conservation (SAC) within 15km of proposed development*

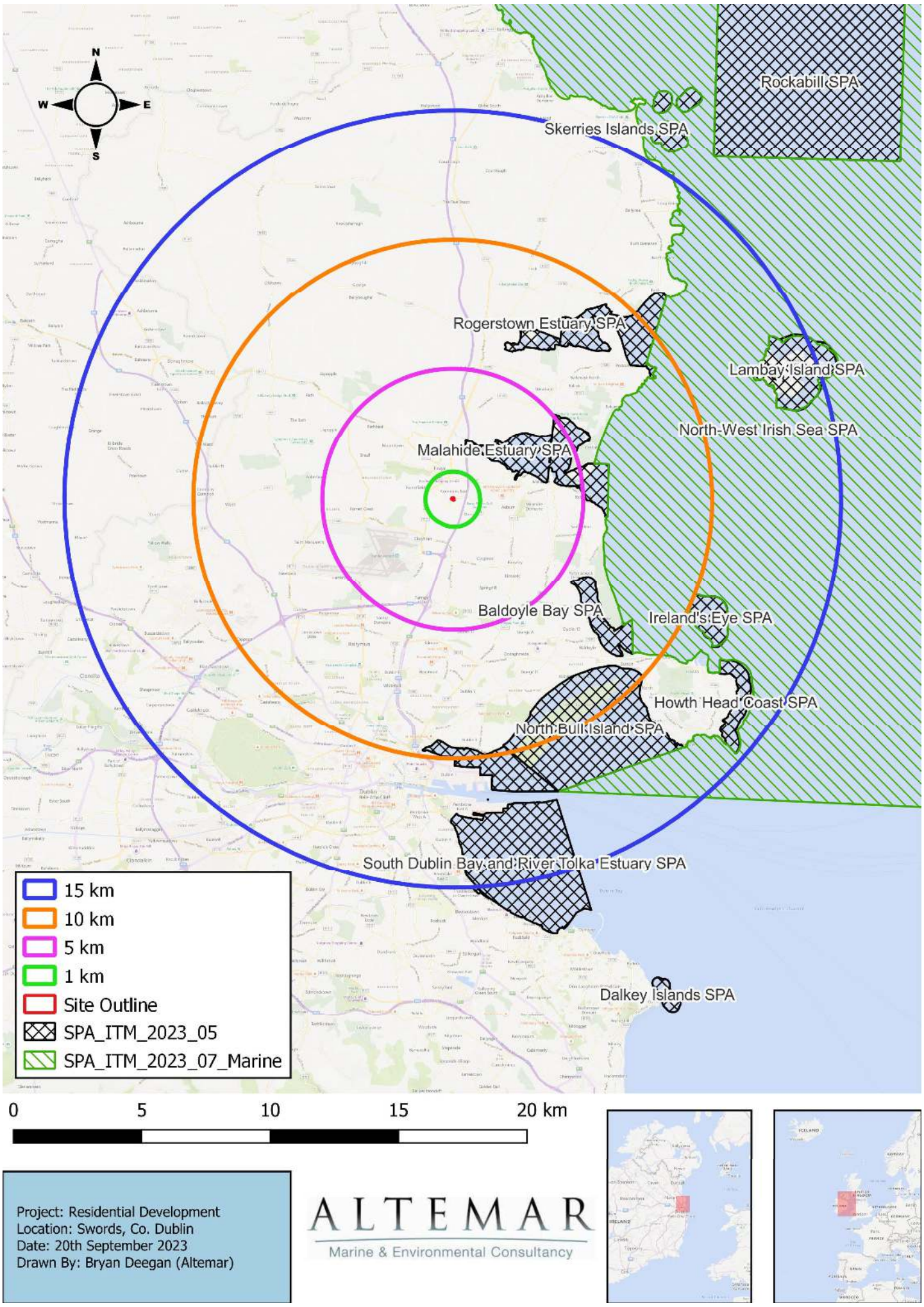

Figure 10. *Special Protection Areas (SPA) within 15km of proposed development*

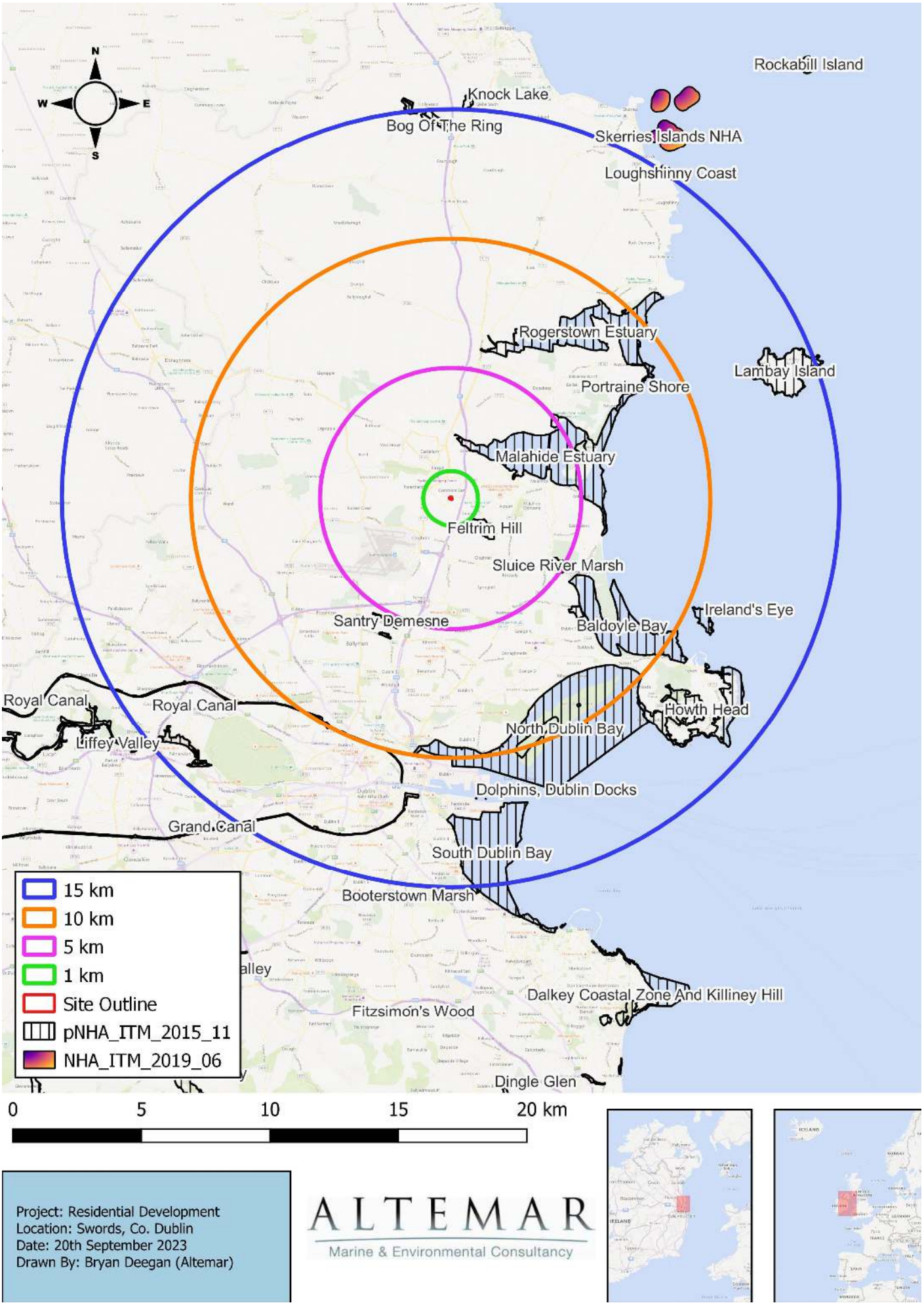

Figure 11. *Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) within 15km of proposed development*

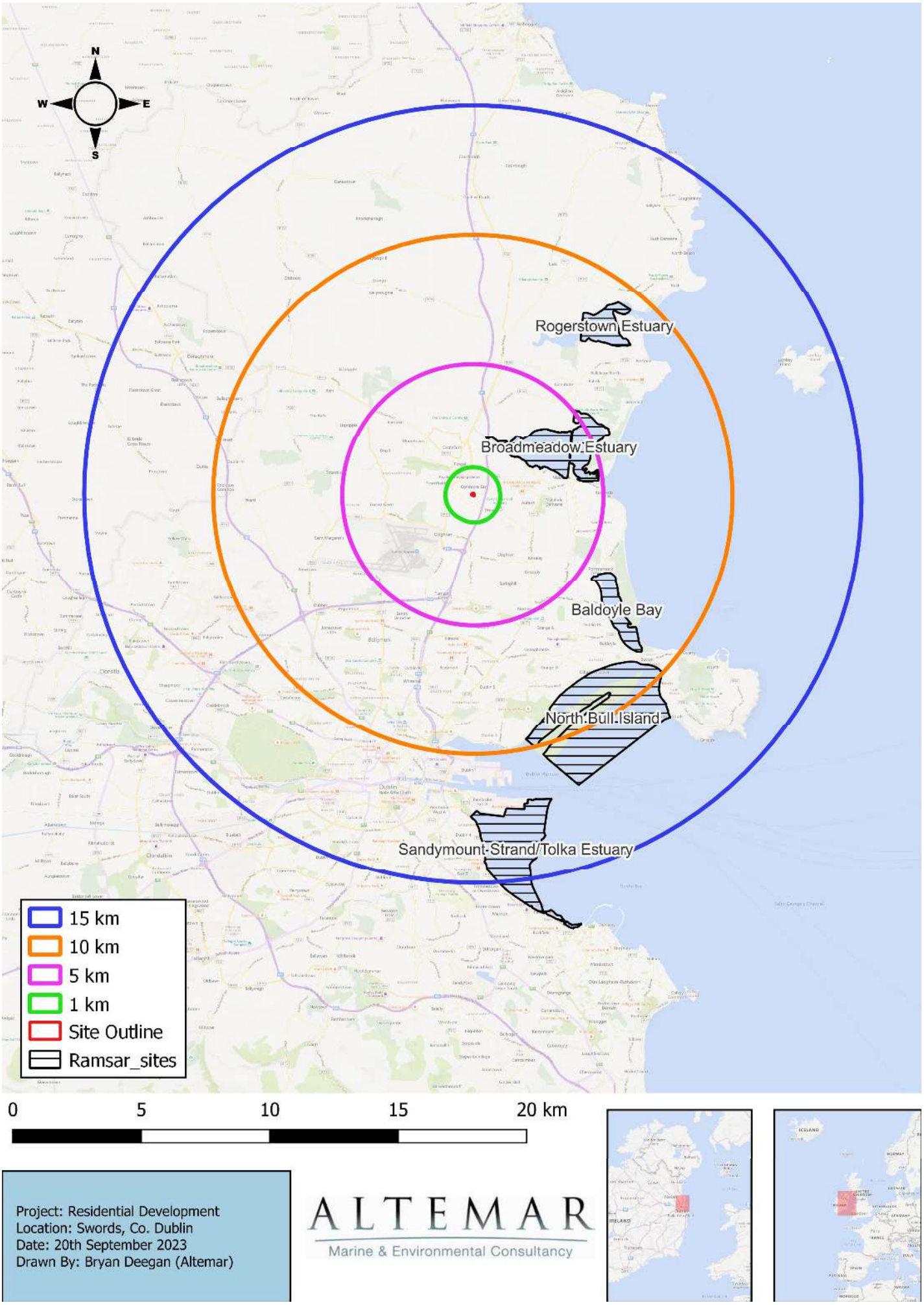

Figure 12. *Ramsar sites within 15km of proposed development*

Figure 13. *Watercourses within close proximity to proposed development*

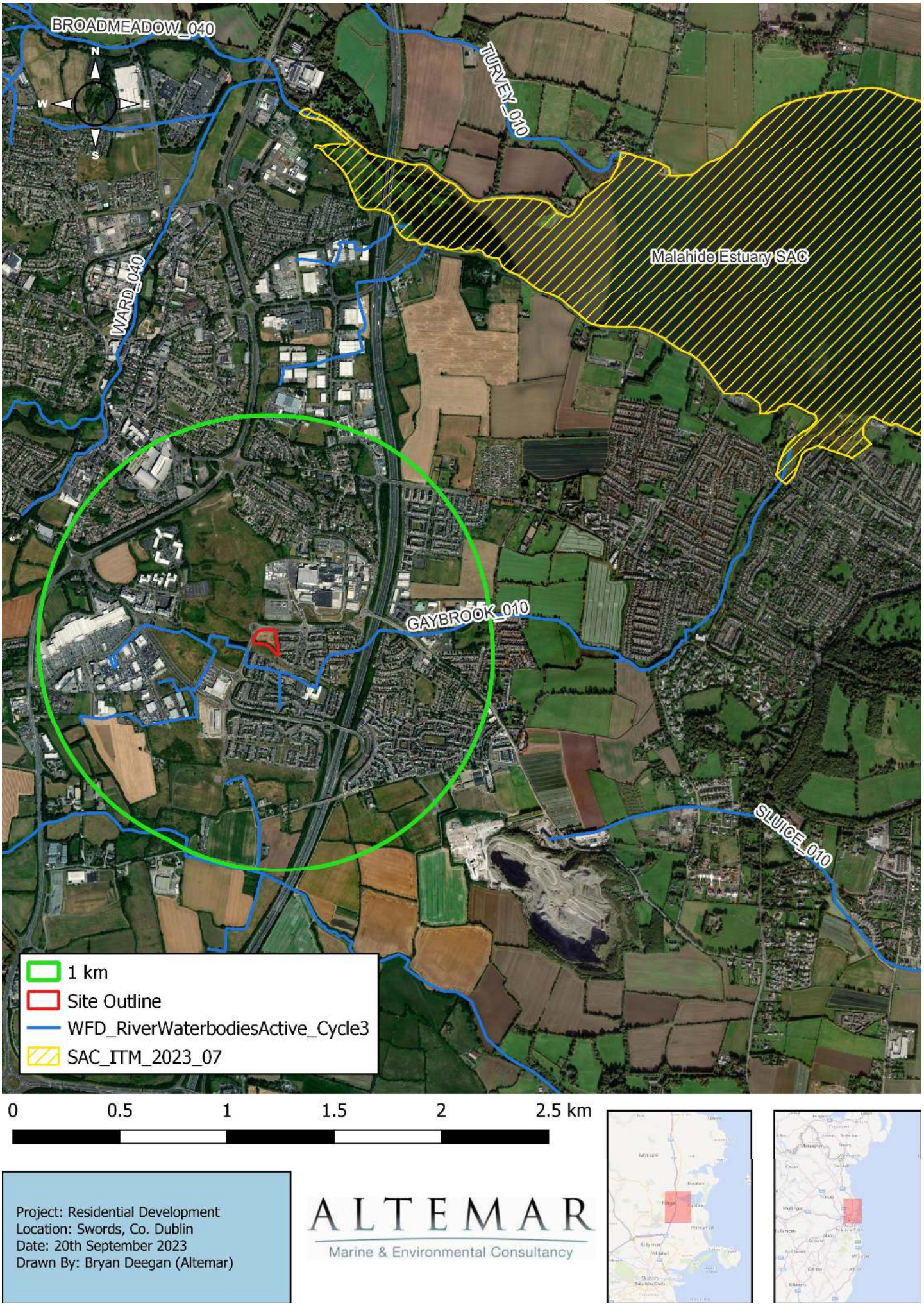

Figure 14. *Watercourses and SACs within 5km of the proposed development*

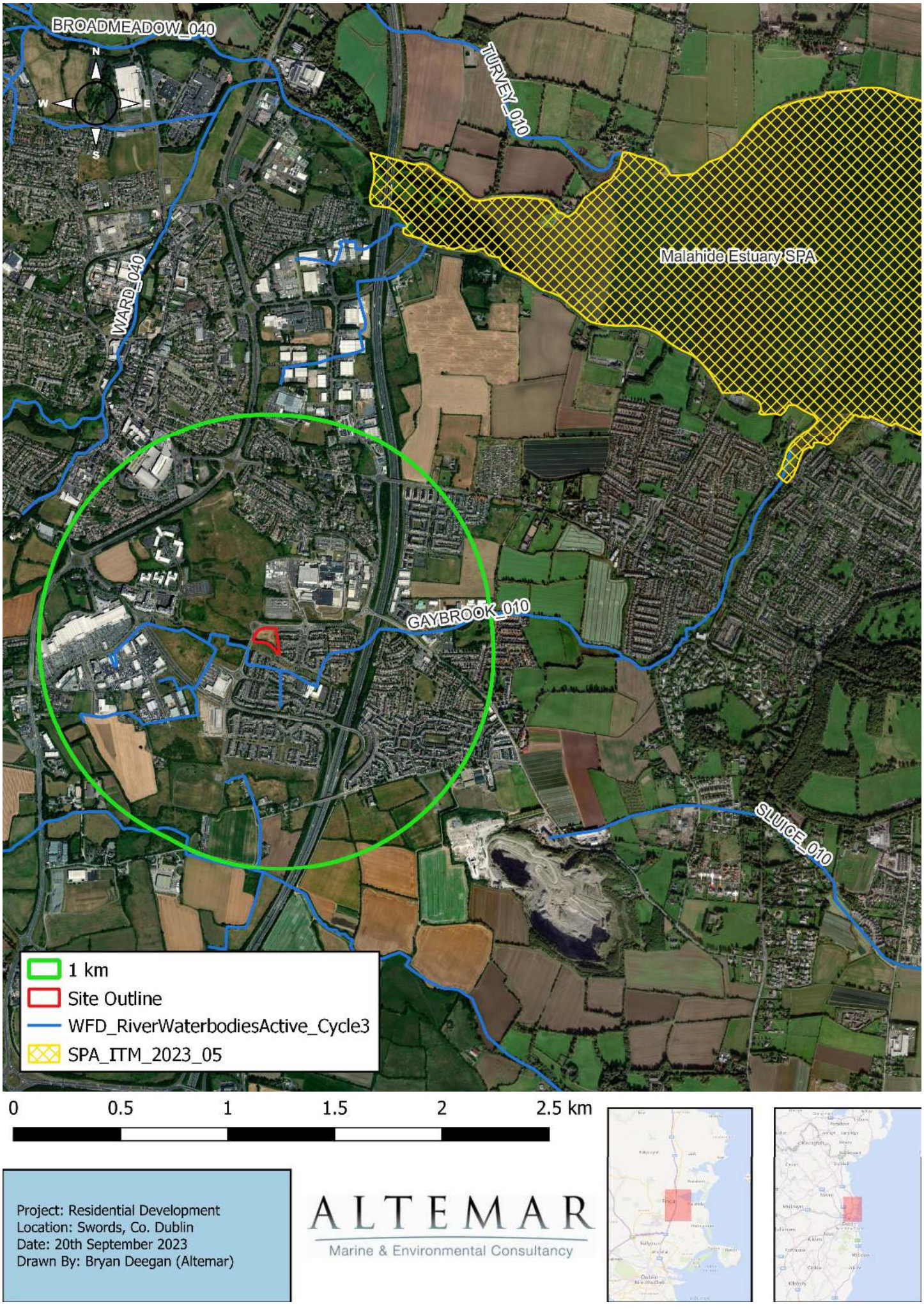

Figure 15. *Watercourses and SPAs within 5km of the proposed development*

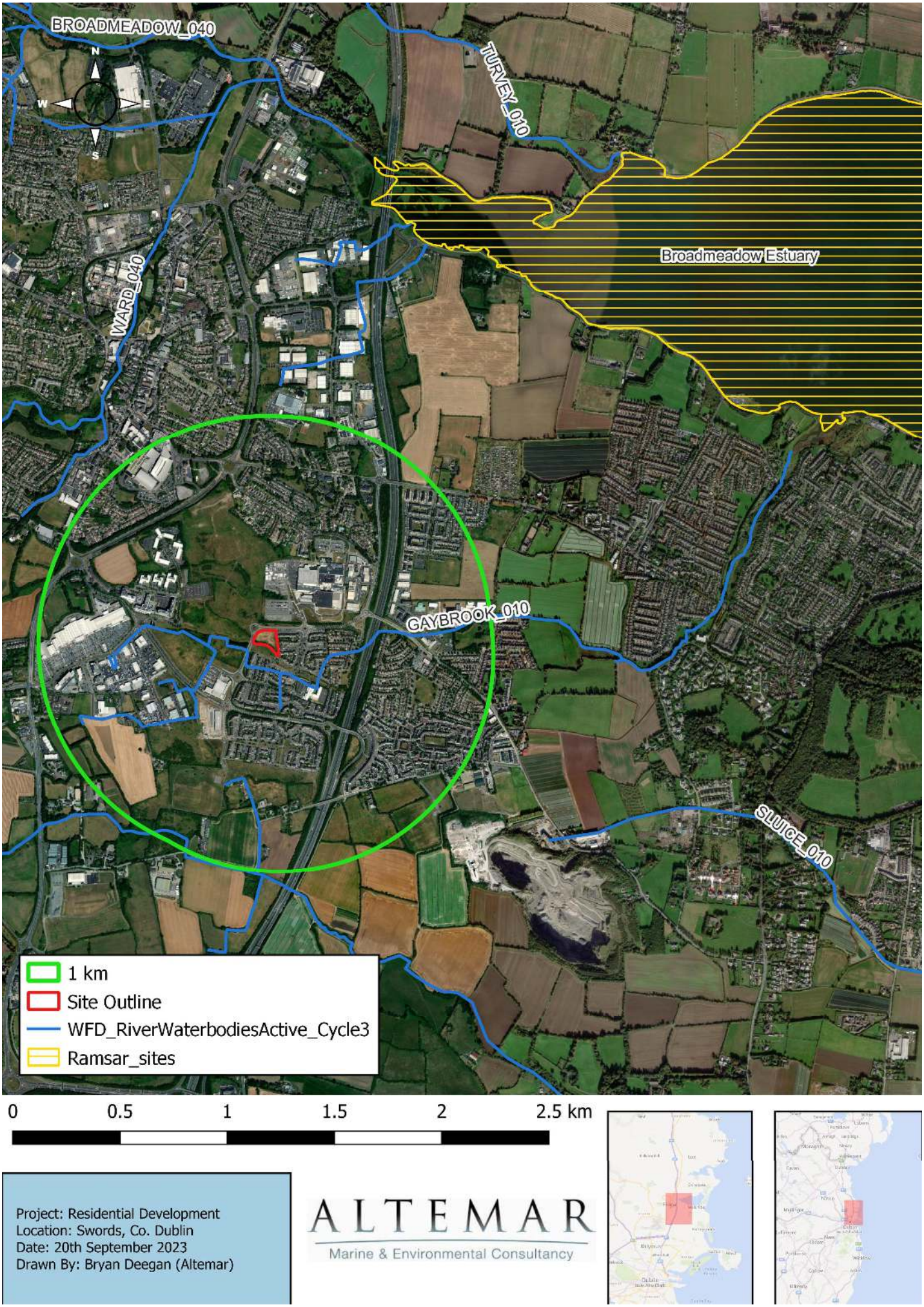

Figure 16. *Watercourses and Ramsar sites within 1 km of the proposed development*

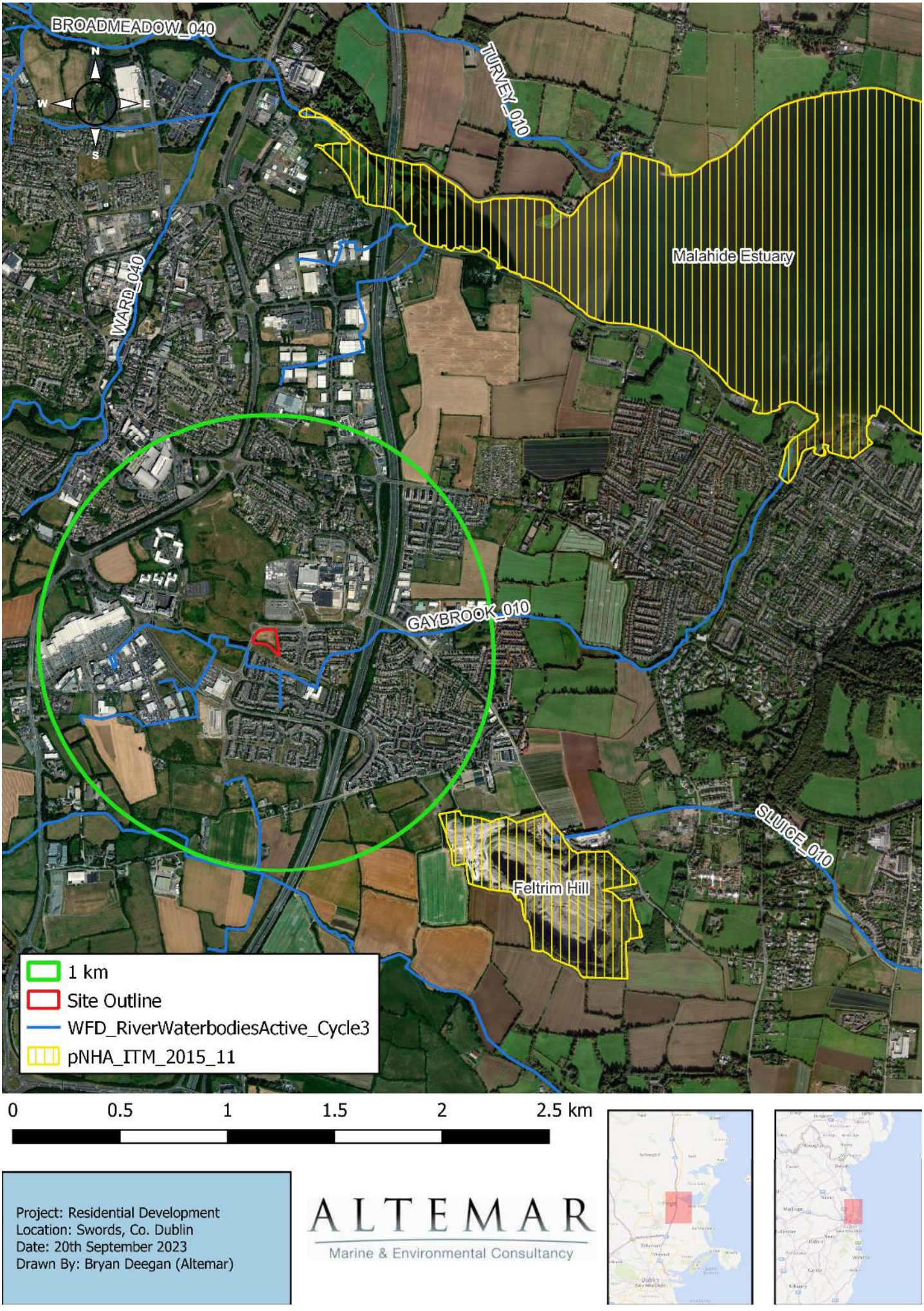

Figure 17. *Watercourses and pNHAs within 1km of proposed development*

Habitats and Species

A site assessment was carried out on 15th August 2023 and 26th September 2023. Habitats within the proposed site were classified according to Fossitt (2000) (Figure 18).

Fossitt (2000) Classification of the Site of the Proposed Project

Figure 18. *Fossitt (2000) habitat map.*

WL1- Hedgerow

The hedgerow lined the North and east boundary of the site consisting primarily of brambles (*Rubus fruticosus agg*), elder (*Sambucus nigra*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna)* and elm (*Ulmus spp.*). These trees were bound with ivy (*Hedera hibernica*). The hedgerow included blackthorn (*Prunus spinosa*), willow (*Salix spp*.), hedge bindweed (*Calystegia sepium*), nettles (*Urtica dioica*), buttercup (*Ranunculus spp.*), fools parsley (*Aethusa cynapium*), thistles (*Cirsium spp.*), docs (*Rumex spp.*), ivy (*Hedera helix*), holly (*Ilex aquifolium*), hogweed (*Heracleum sphondylium*), gorse (*Ulex europaeus*), honeysuckle (*Lonicera periclymenum*), dog-rose (*Rosa canina agg.)* and cleavers (*Galium aparine*).

Plate 1: Hedgerow habitat.

GS2- Dry meadows and grassy verges

The majority of the site consisted of this habitat. Flora identified here was rough hawksbit (*Leontodon hispidus*), knapweed (*Centaurea nigra*), dandelion (*Taraxacum officinale agg.*), ragwort (*Jacobaea vulgaris*), red bartsia (*Odontites vernus*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), ribwort plantain (*Plantago lanceolata*), greater plantain (*Plantago major*), selfheal (*Prunella vulgaris*), black medic (*Medicago lupulina*), bramble (*Rubus fruticosus agg*), docs (*Rumex spp.*), tufted vetch (*Vicia cracca*), silverweed (*Potentilla anserina*), yellowrattle (*Rhinanthus minor),* nettle (*Urtica dioica*), great willowherb (*Epilobium hirsutum),* hogweed (*Heracleum sphondylium*), pineappleweed (*Matricaria discoidea*), birdsfoot trefoil (*Lotus corniculatus*), hawthorn (*Crataegus* monogyna) bushes, elm (*Ulmus spp.*) sapling, groundsel (*Senecio vulgaris*), hedge bindweed (*Calystegia sepium*), cow parsley (*Anthriscus sylvestris*), gorse (*Ulex europaeus*) bushes, meadow vetchling (*Lathyrus pratensis*), tree mallow (*Malva arborea*) and common fleabane (*Pulicaria dysenterica*). This habitat is largely unsuitable as foraging grounds for significant numbers of SCI from nearby SPAs, such as Brent geese, who typically prefer well managed grassland (*Handby et al*., unpublished report 2022[1]).

[1] Handby, Bearhop and Colhoun (2022) Understanding patterns of urban habitat use in overwintering light-bellied Brent geese in Dublin, Ireland (Unpublished Project Report in collaboration with Irish Brent Goose Research Project)

Plate 2: View of grass meadow.

Evaluation of Habitats

The proposed development site consists of a dry meadow bordered by hedgerow and wooden fence. Outside the listed vegetation of the site is built land of footpath, road and a housing estate to the east of the site. Based on information from satellite imagery the site doesn't seem to be managed for any particular purpose. No protected habitats were noted on site. GS2- Dry meadow and grassy verges is an uncommon habitat in Ireland and usually found on roadside grassy verges, making this the most important habitat on this sight for wildlife pathways and foraging purposes. No pond and pools were found onsite.

Plant Species

The plant species encountered at the various locations on site are detailed above. No rare or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded within the proposed development site. No invasive plant species were noted on site.

Fauna

No mammal of conservation importance was noted on site. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened terrestrial faunal species were recorded within the proposed site. No evidence of the resting or breeding places of badgers (*Meles meles*) was noted on site during the in season faunal assessment. Pathways through the hedges and shrubs were noted on this sight. Although no living areas of terrestrial animals were sighted, this site is likely used for foraging and a wildlife corridor.

Bats

A bat assessment was carried out and the results of the survey are seen in Appendix I. There were no seasonal or climatic constraints as the survey was undertaken within the active bat season in good weather conditions with temperatures of 10 C after dark. Winds were very light and there was no rainfall. The survey was carried out with an Echo Meter Touch Pro 2 bat detector. Bat foraging was noted across the site by one species of bat, the Lesser Noctule (*Nyctalus leisleri*). Foraging activity was noted along the southern hedgerow.

Birds

Birds noted on site are seen in Table 3. It should be noted that GS2 - Dry Meadow habitat is largely unsuitable as foraging grounds for significant numbers of SCI from nearby SPAs, such as Brent geese, who typically prefer well managed grassland (Handby *et al.,* unpublished report 2022). Handby, Bearhop and Colhoun (2022) Understanding patterns of urban habitat use in overwintering light-bellied Brent geese in Dublin, Ireland (Unpublished Project Report in collaboration with Irish Brent Goose Research Project).

Common Name	Scientific Name	Status
Blue tit	*Cyanistes caeruleus*	Green
Woodpigeon	*Columba palumbus*	Green
Blackbird	*Turdus merula*	Green
Magpie	*Pica pica*	Green

Historic Records of Biodiversity

The National Biodiversity Data Centre's online viewer was consulted in order to determine the extent of biodiversity and/or species of interest in the area. First, an assessment of the site specific area was carried out and it recorded no species of interest in the site area. Following this a 2km^2 grid (O14X) was assessed. Table 4 provides a list of all species recorded in both grid areas that possess a specific designation, such as Invasive Species or Protected Species.

Table 4. Recorded species, associated designations and grid references

Species Name	Date of Record	Designation
Eastern Grey Squirrel (Sciurus carolinensis)	*13/10/2012*	*Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)*
Japanese Knotweed (Fallopia japonica)	*25/02/2018*	*Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)*
Himalayan Honeysuckle (Leycesteria formosa)	*21/09/2022*	*Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species*
West European Hedgehog (Erinaceus europaeus)	*02/10/2021*	*Protected Species: Wildlife Acts*
Rock Pigeon (Columba livia)	*31/12/2011*	*Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species*
Common Pheasant (Phasianus colchicus)	*31/12/2011*	*Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species*
Common Wood Pigeon (Columba palumbus)	*31/12/2011*	*Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species*
Northern Lapwing (Vanellus vanellus)	*31/12/2011*	*Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List*

Species Name	Date of Record	Designation
Barn Swallow (Hirundo rustica)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
Common Linnet (Carduelis cannabina)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
Common Starling (Sturnus vulgaris)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
Common Swift (Apus apus)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
Eurasian Tree Sparrow (Passer montanus)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
House Sparrow (Passer domesticus)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
Sky Lark (Alauda arvensis)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
Stock Pigeon (Columba oenas)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List*
Black-headed Gull (Larus ridibundus)	*31/12/2011*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List*
Yellowhammer (Emberiza citrinella)	*01/08/2019*	*Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List*
Large Red Tailed Bumble Bee (Bombus (Melanobombus) lapidarius)	*13/08/2016*	*Threatened Species: Near threatened*

An assessment of files received from the NPWS (Code No. 2022_120) which contain records of rare and protected species and grid references for sightings of these species was carried out as part of this EcIA. No species of conservation importance were noted within the site boundaries. The following table provides a summary of the species identified, the year of identification, survey name and Grid Reference.

Table 5. Recorded species within NPWS Records proximate to the site.

Sample ID	Species	Survey Name	Sample Year
29046	Otter (*Lutra lutra*)	Otter survey of Ireland 1982 – Vincent Wildlife Trust	1980
33661	Eurasian Badger (*Meles meles*)	Hare Survey of Ireland 2006/2007: Non-hare records	2007
15171	Rough Poppy (*Papaver hybridum*)	*Papaver hybridum*	1985
4285	Common Frog (*Rana temporaria*)	Frog IPCC data	1997

Potential Impacts

This report has been prepared to outline the construction and operational phase measures in addition to detailing the potential impacts on sensitive receptors within the Zone of Influence (ZOI) in the absence of mitigation measures.

Potential Construction Impacts

The overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of a substantial portion of the site's internal habitats. The removal of these habitats will result in a loss of species and habitats of low biodiversity importance. However, the removal of hedgerows will result in the loss of nesting foraging habitat for bird species.

Designated Conservation sites within 15km

The proposed Project is not within a designated conservation site. However, there is an indirect hydrological pathway to Malahide Estuary SAC, SPA, pNHA and Broadmeadow Estuary Ramsar site via surface water drainage.

Potential Impacts in the absence of mitigation: Negligible / International / Neutral Impact / Not significant / Long-term. Mitigation is not required.

Biodiversity

The impact of the development during construction phase will be a loss of existing habitats and species on site. It would be expected that the flora and fauna associated with these habitats would also be displaced.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site. Loss of habitat and habitat fragmentation may affect some common mammalian species and there is expected to be mortality during construction.

Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a pre-construction survey for terrestrial mammals of conservation importance.

Bat Fauna

There are no trees or buildings of bat roosting potential located onsite. No significant impacts are foreseen. Lighting during construction could impact on foraging activity. Bat activity was noted on site (Appendix I).

Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of light spill.

Aquatic Biodiversity

Due to the lack of any watercourse within the site boundary, and the lack of direct hydrological pathway to a watercourse, there is little potential for significant downstream impacts on biodiversity from silt or petrochemicals. However, there is potential for silt and pollution to enter the drainage network on adjacent roads during construction and once the drainage is connected to existing surface water infrastructure there is potential for downstream effects.

Impacts: Low adverse / local / Negative Impact / Slight Effects / short term. Mitigation is needed in the form of control of silt, surface water and petrochemical and dust during construction to prevent impacts on local biodiversity. However, these measures are not necessary for the protection of European/Natura 2000 sites.

Bird Fauna

No bird species of conservation importance have been noted on site. Hedgerows are to be retained on site. However, site clearance could impact on bird nesting.

Impacts: Low adverse / Local / Negative Impact / Not significant / short term. Mitigation is needed in the form of site clearance outside bird nesting season.

Potential Operational Impacts

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS and discharge to the existing public surface water network located to the southeast of the site. The biodiversity value of the site would be expected to improve as the landscaping matures. It would be expected that the ecological impacts in the long term would be positive once landscaping has established.

Designated Conservation sites within 15km

The development must comply with County Council drainage requirements and the Water Pollution Acts. Measures will be in place to prevent downstream impacts. No significant impacts on designated sites are likely during operation.

Impacts: Negligible / International / Neutral Impact / Not significant / Long-term

Biodiversity

Biodiversity value of the site will improve as landscaping matures.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site.

Impacts: Low adverse / site / Negative Impact / Not significant / short term.

Flora

No protected flora was noted on site. Landscaping will increase flora diversity on site.

Impacts: Negligible beneficial / site / Negative Impact / Not significant / long-term

Bat Fauna

The proposed development will change the local environment as new structures are to be erected and some of the existing vegetation will be removed. No bat roosts or potential bat roosts will be lost due to this development and the species expected to occur onsite should persist.

Effects: Low adverse / International / Negative Impact / Not significant / long term.

Aquatic Biodiversity

Standard measures will be in place in relation to surface water discharges. No additional mitigation is required.

Potential Impacts in the absence of mitigation: Low adverse / local / Negative Impact / Not significant / long term

Bird Fauna

The proposed development will change the local environment as new structures are to be erected. The buildings are comprised of solid materials consisting of a solid material on the exterior which includes sections of concrete and glass. These buildings would be clearly visible to bird species and would not pose a significant collision risk. The presence of buildings on site and landscaping may provide additional nesting and foraging potential for garden bird species. Impacts: Low adverse / site / Negative Impact / Not significant / long term.

Mitigation Measures & Monitoring

Standard construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (ZoI), biodiversity, and local biodiversity within / proximate to the subject site are outlined in Table 6.

Table 6. Mitigation Measures.		
Sensitive Receptors	Potential Impacts on SPA & SAC	Mitigation Measures to Prevent Impacts on Baldoyle Bay SAC and Baldoyle Bay SPA
Biodiversity	• Habitat degradation • Dust deposition • Pollution • Silt ingress from site runoff • Downstream impacts • Negative impacts on aquatic and bird fauna. • Disturbance.	**As outlined in the Outline Construction and Environmental Management Plan (prepared by ROD Consulting Engineers), the following mitigation will be carried out in relation to prevent significant impcts:** ***'Protection of Watercourses*** *There is an existing drainage ditch located along the southern boundary of the site. However, following a number of site visits and discussions with FCC, the ditch appears to be dry. Flow from the Gaybrook steam is culverted to bypass the subject site. Runoff or surface water that is generated within the site will be discharged to the existing storm water network rather than to the ditch or other open watercourses.* *Even though the ditch appears to be dry, as a further precaution, all works in proximity to the existing drainage ditch shall follow the generic best practice guidance outlined in the following documents:* • *Guidelines for Crossing Watercourses during the Construction of National Road Schemes (NRA, 2008c).* • *Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters (IFI, 2016).* • *CIRIA C648 Control of water pollution from linear construction projects: technical guidance (CIRIA, 2006).* • *The following protection measures will also be followed to ensure water quality discharged from site is maintained:* • *All machinery will be refuelled from mobile tankers on the local/access/haul/site roads. No refuelling will take place within 50m the ditch.* • *Mobile storage facilities, such as fuel bowsers, will be bunded to 110% capacity to prevent spills. Tanks for bowsers and generators will be double skinned.* • *When not in use, all valves and fuel trigger guns from fuel storage containers will be locked.* • *Only dedicated trained and competent personnel will carry out refuelling operations. A spill kit and drip tray will be on site at all times and available for all refuelling operations. Equipment will not be left unattended during refuelling. All pipework from containers to pump nozzles will have anti siphon valves fitted.* • *Strict procedures for plant inspection, maintenance and repairs will be detailed in the contractor's method statements and machinery will be checked for leaks before arrival on site.* • *All site plant will be inspected at the beginning of each day prior to use. Defective plant will not be used until the defect is satisfactorily fixed.* • *All major repair and maintenance operations will take place off site.* • *Care will be taken at all times to avoid contamination of the environment with contaminants other than hydrocarbons, such as uncured concrete and other.* • *Surface water from the site be treated in attenuation ponds prior to discharging to the storm water network.*

Table 6. Mitigation Measures.		
Sensitive Receptors	Potential Impacts on SPA & SAC	Mitigation Measures to Prevent Impacts on Baldoyle Bay SAC and Baldoyle Bay SPA
		Additionally, the following mitigation measures will be implemented: **Construction Phase Mitigation** • Best available technology (BAT) mitigation measures designed by project ecologist • Staging of project will be carried out to reduce risks to surface water drainage network from contamination. • Local drains will be protected from dust, silt and surface water throughout the works. • Local silt traps established throughout site. • Mitigation measures on site include dust control, stockpiling away from drains • Stockpiling of loose materials will be kept to a minimum of 20m from drains. • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system. • Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, excavations and other locations where it may cause pollution. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality. • Mitigation measures on site include dust control, stockpiling away from drains • Stockpiling of loose materials will be kept away from drains. A risk based approach will be taken. • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system. • Fuel, oil and chemical storage will be sited within a bunded area. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. • During the construction works silt traps will be put in place in the vicinity of all runoff channels to drains to prevent sediment entering the drainage network. • On-site inspections will be carried out by project ecologist. • Maintenance of any drainage structures (e.g. de-silting operations) must not result in the release of contaminated water to the surface water network. • No entry of solids to the associated drainage network during the connection of pipework to the public water system • Silt traps established throughout site including a double silt fence between the site and the drainage network. • Sufficient onsite cleaning of vehicles prior to leaving the site and on nearby roads, will be carried out, particularly during groundworks. • The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained. • A project ecologist will be appointed and be consulted in relation to all onsite drainage during construction works. Consultation with the project ecologist will not involve the formulation of new mitigation measures for the purposes of

Table 6. Mitigation Measures.

Sensitive Receptors	Potential Impacts on SPA & SAC	Mitigation Measures to Prevent Impacts on Baldoyle Bay SAC and Baldoyle Bay SPA
		protecting any European Site, and relate only to the implementation of those mitigation measures already stated in the submission or the formulation of mitigation for other purposes. • Dewatering of excavations may be necessary. Appropriate monitoring of groundwater levels during site works will be undertaken. Standard construction phase filtering of surface water for suspended solids will be carried out. Unfiltered surface water discharges or runoff will not be permitted from the site into the drainage network during the works. **Air & Dust** Dust may enter the drainage network via air or surface water with potential downstream impacts. Mitigation measures will be carried out reduce dust emissions to a level that avoids the possibility of adverse effects on the surface water drainage network. The main activities that may give rise to dust emissions during construction include the following: • Excavation of material; • Materials handling and storage; • Movement of vehicles (particularly HGV's) and mobile plant. • Contaminated surface runoff *Mitigation measures to be in place:* • Consultation will be carried with an ecologist throughout the construction phase; • Trucks leaving the site with excavated material will be covered so as to avoid dust emissions along the haulage routes. • Speed limits on site (15kmh) to reduce dust generation and mobilisation. • Drains to be protected from dust on site. *Site Management* • Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged. • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book. *Monitoring* • Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces within 100 m of site boundary, integrity of the silt control measures, with cleaning and / or repair to be provided if necessary.

Table 6. Mitigation Measures.		
Sensitive Receptors	Potential Impacts on SPA & SAC	Mitigation Measures to Prevent Impacts on Baldoyle Bay SAC and Baldoyle Bay SPA
		Preparing and Maintaining the Site • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping. • Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic. *Operations* • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. *Waste* • Avoid bonfires and burning of waste materials. *Measures Specific to Earthworks* • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once. • During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

Table 6. Mitigation Measures.		
Sensitive Receptors	Potential Impacts on SPA & SAC	Mitigation Measures to Prevent Impacts on Baldoyle Bay SAC and Baldoyle Bay SPA
		• The Contractor will be required to consult with an ecologist prior to the beginning of works to identify any additional measures that may be appropriate and/or required. **Operational Phase Mitigation** • A project ecologist will be appointed to oversee completion of all landscape and drainage works.
Birds (National Protection)	• Removal nesting habitat. • Removal foraging habitat. • Destruction and/or disturbance to nests (injury/death). • Predation .	• Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent. Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent. • Planting will provide suitable cover for nesting birds and encourage insect diversity that would sustain birds.
Amphibians	• Death/injury	• A pre-construction survey of the site will be carried out.
Mammals	• Death/injury • Disturbance	• A pre-construction survey will be carried out for terrestrial mammals of conservation importance. If terrestrial mammals of conservation importance are noted on site NPWS will be consulted in relation to removal and the appropriate permissions obtained.
Bats (International Protection)	• Lighting Impacts	• During construction lighting at all stages will be done sensitively with no direct lighting of hedgerows and treelines. • All lighting during construction and operation will be carried out in consultation with project ecologist and comply with bat lightning guidelines.

Adverse Effects likely to occur from the project (post mitigation)

Standard construction and operational mitigation measures are proposed. These would ensure that surface water runoff is clean and uncontaminated.

With the successful implementation of standard mitigation measures to limit surface water impacts on the watercourses, biodiversity mitigation/supervision, no significant impacts are foreseen from the construction or operation of the proposed project on terrestrial or aquatic ecology. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on terrestrial and aquatic biodiversity and nationally designated conservation sites through the application of the standard construction and operational phase controls as outlined above. In particular, mitigation measures to ensure compliance with Water Pollution Acts and prevent silt and pollution entering the existing surface water concrete pipe and downstream watercourses will satisfactorily address the potential impacts on downstream biodiversity. It is essential that these measures outlined are complied with, to ensure that the proposed development does not have "downstream" environmental impacts. These measures are to protect the groundwater/surface water, which are potentially the primary vectors of impacts from the site, and ensure that it is not impacted during construction and /or operational phases of the proposed development.

Cumulative Impacts

The following is a list of planning applications as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal[2]:

Table 7. Approved planning applications proximate to the subject site

Planning Ref.	Address	Proposal
F22A/0353	Holywell Educate Together National School, Holywell, Swords, Co. Dublin.	The developments will consist of (1) alterations to existing carpark to provide additional carparking spaces (2) Demolition of existing bin store with replacement bin store to be constructed (3) single storey extension to the rear of the existing school building to accommodate 1no. classroom and associated specialist ancillary rooms (4) minor amendments to existing classroom to facilitate access to extension (5) to connect to existing mains services (6) and all associated landscaping and ancillary works.
F21A/0100	Crowcastle, Swords, Co Dublin	A new link road from the roundabout to the south of Lakeshore Drive, Crowcastle, Swords, Co Dublin that will be constructed to a length of approximately 29om. The road will incorporate lighting, drainage, footpaths and cycle tracks.
F20A/0535	Site at Holywell Distributor Road, Mountgorry, Swords, Co. Dublin	The development will consist of a Petrol Filling Station to include: (i) A forecourt area with 3 no. fuel pump islands, illuminated forecourt canopy over, underground fuel storage tanks, associated pipework and over-ground fill points and vents, electric car charging points and associated infrastructure. (ii) An amenity building of 291 sqm gross floor area comprising a convenience shop (100 sq.m net retail area), restaurant/cafe area with 1 no food offering with hot and cold meals and refreshments for sale for consumption on and off the premises, associated customer seating, customer WCs, Back of House area with food preparation areas, ancillary office, staff welfare facilities, storage and plant areas. (iii) New vehicular entrance and exit, associated traffic signage, internal and external traffic calming measures. (iv) On-site facilities including, air/water services, car and bicycle parking.

[2] https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de

Planning Ref.	Address	Proposal
		(v) Illuminated and non-illuminated operator signage including main ID Totem sign, canopy and facade signage. (vi) All associated site drainage, lighting, landscaping, boundary treatments and site development works.
F19A/0386	Lands to the north of the R125 road and accessed off Holywell Link Road and Lakeshore Drive, Swords, Co. Dublin.	The proposed development will consist of an eight storey hospital/healthcare facility (i.e. a seven storey over lower ground/undercroft level building) comprising main entrance/reception area, atrium winter garden, 1 no. café, 1 no. restaurant, 2 no. retail units, outpatients and diagnostics departments, GP departments and urgent care department all at ground floor level; out of hospital services/primary care at first and second floor levels; endoscopy unit and theatres at third floor level; theatre and building plant at fourth floor level; endoscopy unit and day hospital (20 beds) with staff hub at fifth floor level; day hospital (20 no. beds) with sky garden at sixth floor level; all with associated ancillary/common facilities and office/administration areas; FM department, water tank rooms, 115 no. car parking spaces, 72 no. bicycle spaces and 8 no. motorbike parking spaces all at lower ground floor level. Permission is also sought for an energy centre building; a service yard including plant, ESB substation and bin stores; 94 no. car parking spaces, 12 no. bicycle spaces and 2 no. motorbike spaces at surface level; foul pump station and associated works; 2 no. vehicular access roads to serve the development including works onto existing roundabout; landscaping; footpaths; public lighting; boundary treatments; and all associated site and engineering works necessary to facilitate the development.
F18A/0198	Drynam Road, Barrysparks, Commons East, Crowcastle, Swords, Co. Dublin.	Development at an existing pharmaceutical manufacturing facility (approximately 13.4 hectares). The development consists of the construction of a biopharmaceutical manufacturing campus with a total additional floor area of 12,046 square metres and specifically provides for:- (a) the conversion of an existing warehouse building to a biopharmaceutical manufacturing processes building which will require internal alterations, extension and modifications to the existing elevations; (b) the conversion of an existing manufacturing building to a central utilities and laboratory building requiring internal alterations, extension and modifications to the elevations including the addition of 3 no. flue stacks (to a maximum height of 18.68 metres); (c) construction of a two-storey quality control laboratory and single-storey with mezzanine warehouse building; (d) extension of the existing central spine corridor to provide connectivity to the new laboratory and warehouse buildings, including provision of new staff entrance; (e) demolition of existing utilities plant and buildings comprising 2 no. boiler rooms, compressor room, electrical room, generator compound, water tank and pump house, and 2 no. store buildings; (f) provision of new logistics yard and new ancillary external utilities yard comprising 2 no. electrical switch room buildings, water pump and treatment building, bunded water tank, bunded gas and diesel storage tanks, 3 no. emergency generators and waste water management facility; (g) installation of mechanical plant to the roof of the existing administration, laboratory and canteen building (h) all ancillary site works including diversion and partially reopening of the existing culverted stream within the site; underground services; surface water attenuation tank; modifications to the internal road network, modifications to existing car parking including removal of 212 spaces; 2 no. new bicycle shelters; lighting; CCTV; soft and hard landscaping. An Environmental Impact assessment Report (EIAR, formerly known as and EIS) and Natura Impact Statement (NIS) have been prepared and will be submitted to the Planning Authority with the application. The EIAR and NIS will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy during office hours at the offices of the Planning Authority. The proposed development is for the purposes of an activity requiring an application to the Environmental Protection Agency for a licence under the Industrial Emissions Directive.

Planning Ref.	Address	Proposal
F18A/0467	Site of the existing temporary car park permitted under application register reference F14A/0041, Airside Business Park, Crowcastle, Swords, Fingal, Co. Dublin.	The construction of a six-storey office building plus rooftop plant, signage, bins stores, ESB substation, generator, and cycle shelters at Site A1. The proposed development will also consist of 593 no. surface car parking spaces, of which 160 no. spaces will be provided at Site A1 and 433 no. spaces will be provided at Site A2. The proposed 433 no. surface car parking spaces at Site A2 will include the continuation of use of the 235 no. surface car parking spaces permitted at Site A1 under application register reference F14A/0041, to be relocated to Site A2 for a further temporary period of 5 years. The proposed development will also consist of the construction of a new vehicular access off Lakeshore Drive to Site A2 (Site A1 will use the existing access of Lakeview Drive (the secondary access via the adjacent Ryanair HQ development will be removed), and a new pedestrian crossing over Lakeshore Drive connecting Site A1 with Site A2, including footpath, and all site development, drainage and landscaping works. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development on Site of the existing temporary car park permitted under application register reference F14A/0041, bounded by Lakeview Drive and Lakeshore Drive (Site A1), as well as adjacent lands to the east of Lakeshore Drive (Site A2),

The projects outlined were reviewed. It is considered that cumulative effects on biodiversity, with other existing and proposed developments in proximity to the application area, would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on biodiversity will be seen as a result of the proposed development alone or in combination with other projects.

No significant cumulative impacts are likely in relation to the proposed development.

Residual Impacts and Conclusion

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential effects on the terrestrial, mammalian, avian and aquatic sensitive receptors through the application of the standard construction and operational phase controls outlined in this report. No significant effects on biodiversity are likely. Residual effects on biodiversity are considered to be: Slight adverse / site / Negative Impact / Not significant / short term.

References

1. **Bat Conservation Ireland 2004** on-going, *National Bat Record Database.* Virginia, Co. Cavan
2. **Boyd, I. and Stebbings, R.E. 1989** Population changes in brown long-eared bats (*Plecotus auritus*) in Bat Boxes at Thetford Forest. *Journal of Applied Ecology* **26**: 101 - 112
3. **Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982**
4. **Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979**
5. **Cutts, N., Hemmingway, K. and Spencer, J. (2013).** *Waterbird Disturbance Mitigation Toolbox Informing Estuarine Planning & Construction Projects.* Institute of Estuarine & Coastal Studies (IECS) University of Hull.
6. **EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992**
7. **Jefferies, D.J. 1972** Organochlorine insecticide residues in British bats and their significance. *Journal of Zoology*, London **166**: 245 - 263
8. **Kelleher, C. 2004**, Thirty years, six counties, one species – an update on the lesser horseshoe bat *Rhinolophus hipposideros* (Bechstein) in Ireland – *Irish Naturalists' Journal* **27**, No. 10, 387 – 392
9. **Kelleher, C. 2015** *Proposed Residential Development, Church Road, Killiney, Dublin: Bat Fauna Study*. Report prepared for Altemar Marine and Environmental Consultants
10. **Marnell, F., Kingston, N. and Looney, D. 2009** *Ireland Red List No. 3: Terrestrial Mammals.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin
11. **Racey, P.A. and Swift, S.M. 1986** The residual effects of remedial timber treatments on bats. *Biological Conservation* **35**: 205 – 214
12. **Smal, C.M.** 1995 *The Badger & Habitat Survey of Ireland.* The Stationery Office, Dublin
13. **Wildlife Act 1976 and Wildlife [Amendment] Act 2000**. Government of Ireland.
14. NPWS (2012) Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
15. NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
16. NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
17. NPWS (2016) Conservation Objectives: Howth Head SAC 000202. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
18. NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
19. NPWS (2017) Conservation Objectives: Ireland's Eye SAC 002193. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
20. NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
21. NPWS (2013) Conservation Objectives: Rogerstown Estuary SAC 000208. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
22. NPWS (2013) Conservation Objectives: Lambay Island SAC 000204. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
23. NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
24. NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
25. NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
26. NPWS (2022) Conservation objectives for Ireland's Eye SPA [004117]. First Order Sitespecific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.
27. NPWS (2022) Conservation objectives for Howth Head Coast SPA [004113]. First Order Sitespecific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.
28. NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
29. NPWS (2013) Conservation Objectives: Rogerstown Estuary SPA 004015. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
30. NPWS (2022) Conservation objectives for Lambay Island SPA [004069]. First Order Sitespecific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.
31. NPWS (2023) Site Synopsis: North-West Irish Sea cSPA: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004236.pdf

ALTEMAR
Marine & Environmental Consultancy

Appendix I. Bat Fauna Impact Assessment for a proposed residential development at Holywell, Swords, Co. Dublin.

27th September 2023

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Fingal County Council

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Document Control Sheet			
Client	Fingal County Council		
Project	Bat fauna impact assessment for a proposed residential development at Holywell, Swords, Co. Dublin		
Report	Bat Fauna Impact Assessment		
Date	27th September 2023		
Version	Author	Reviewed	Date
Planning	Bryan Deegan	Emma Peters	27th September 2023

SUMMARY

Structure:	There are no structures onsite. The site consists of dry meadows and grassy verges that is bordered by hedgerows.
Location:	Holywell, Swords, Co. Dublin.
Bat species present:	None Roosting. Two Lesser Noctules (*Nyctalus leisleri*) noted foraging onsite.
Proposed work:	Residential Development.
Impact on bats:	Two Lesser Noctules were noted foraging along the hedgerow located to the south of the site. This hedgerow will be retained. No confirmed bat roosts will be lost. No trees of bat roosting potential are noted on site. Existing light spill is onsite from adjacent streetlighting and residential properties. The proposed development will change the local environment as new structures are to be erected. The development is likely to displace bats from foraging at the site during construction. However, given that a very low level of bat activity of a single common bat species was noted using the site the displacement of bats from this site will not have any significant effect on local bat populations. No bat roosts or potential bat roosts will be lost due to this development and the species expected to occur onsite should persist. The proposed development is not in proximity to sensitive bat areas. The surrounding environment is brightly lit from existing lights. The potential for collision risk and impact on flight paths in relation to bats is considered low due to the low level of bat activity on site and the buildings would be deemed to be clearly visible to bats.
Survey by:	Emma Peters
Survey date:	26th September 2023

Receiving Environment

Background

Fingal County Council intend to apply for planning permission for a proposed residential development at Holywell, Swords, Co. Dublin.

The proposed development consists of the following:

Residential Development (5,189 sq m Gross Floor Space) arranged over 3 no. buildings, consisting of no. 57 no. residential units (20 no. 1-bedroom apartments, 29 no. 2-bedroom apartments, and 8 no. 3-bedroom apartments), at a site of approximately 0.77 ha located in the Townland of Crowcastle, Holywell, Swords, Co. Dublin.

The proposed site outline, location, masterplan, and elevations are demonstrated in Figures 1-3.

Landscape

The landscape strategy for the subject site has been prepared by DFLA. The proposed landscape plan is demonstrated in Figure 4.

Arborist

An Arboricultural Assessment of the Hegde Vegetation has been prepared by Arborist Associates Ltd. to accompany this planning application. In relation to arboricultural management, this report details the following:

'*Hedge No.1 would benefit from trimming on the site side to contain width and large size dead/unstable growth should be removed to address safety to the surrounding area which includes standing dead or dying Elm trees. These Elm stems should be removed from site to reduce breeding sites for the beetle that spreads this disease in order to try and contain the spread of this disease through the remaining Elm trees.*

Consideration should be given to cutting/coppicing the regeneration of Elm into the hedge to restrict size and their potential to being infected by 'Dutch Elm disease' (Ophiostoma Ulmi).

Hedge No.2 would benefit from trimming on the site side to contain width and large size dead/unstable growth should be removed to address safety to the surrounding area.

Tree Group No.1 would benefit from being fenced off to the grazing livestock so they can't cause further damage. The central tree could also be considered for removal as part of selective thinning to reduce density and to allow the other two trees more space to develop.'

The Tree Constraints Plan is demonstrated in Figure 5.

Figure 1. *Outline of proposed site.*

Figure 2. *Proposed site layout plan*

Figure 3. *Proposed site elevations*

Figure 4. *Proposed landscape plan*

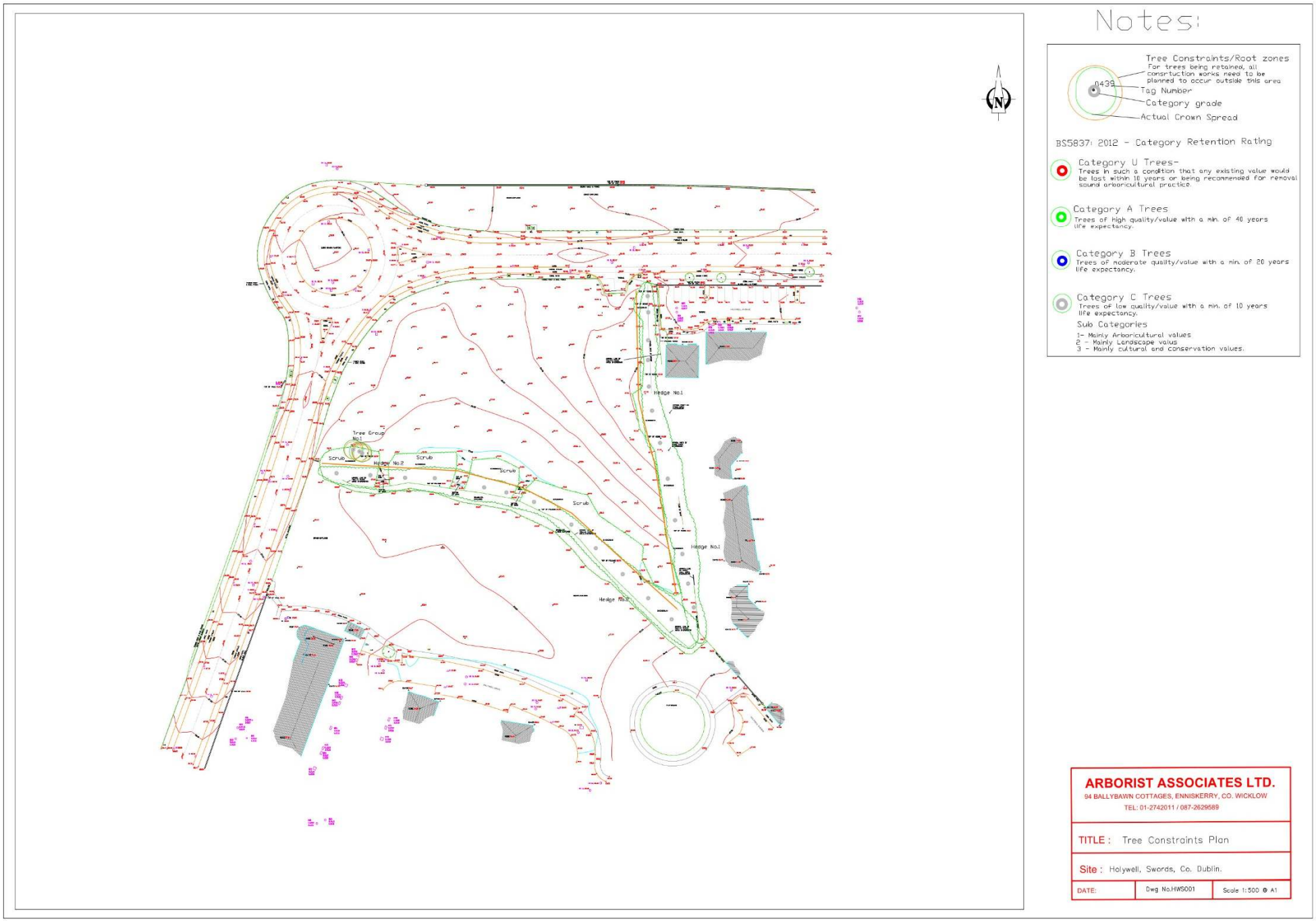

Figure 5. *Tree Constraints Plan*

Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 26 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on Bats. Bryan trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Kelleher and Marnell (2022)) and Bryan is currently providing bat ecology (impact assessment and enhancement) services to Dun Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan. The desk and field surveys were carried out having regard to the guidance: Bat Surveys for Professional Ecologists – Good Practice Guidelines 3rd Edition (Collins, J. (Ed.) 2016) and Marnell, Kelleher and Mullen (2022), Bat Mitigation Guidelines for Ireland V2 (which update and replace the Bat Mitigation Guidelines for Ireland published in 2006). Emma Peters holds a BSc in Environmental Science and has 6 years ecological experience. She is trained in habitat restoration with a focus to increase biodiversity. She is also an active bat conservation Ireland member.

Legislative Context

Wildlife Act 1976 (as amended by, inter alia, the Wildlife (Amendment) Act 2000).

Bats in Ireland are protected by the Wildlife (Amendment) Act 2000. Based on this legislation it is an offence to wilfully interfere with or destroy the breeding or resting place of any species of bat. Under this legislation it is an offence to "*Intentionally kill, injure or take a bat, possess or control any live or dead specimen or anything derived from a bat, wilfully interfere with any structure or place used for breeding or resting by a bat, wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose. "*

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora has been transposed into Irish Law, including, via, *inter alia*, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). See Art.73 of the 2011 Regulations which revokes the 1997 Regulations.

Annex II of the Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) lists animal and plant species of Community interest, the conservation of which requires the designation of Special Areas of Conservation (SACs); Annex IV lists animal and plant species of Community interest in need of strict protection. All bat species in Ireland are listed on Annex IV of the Directive, while the Lesser Horseshoe Bat (*Rhinolophus hipposideros*) is protected under Annex II which related to the designation of Special Areas of Conservation for a species.

Under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), all bat species are listed under the First Schedule and, pursuant to, *inter alia*, Part 6 and Regulation 51, it is an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat particularly during the period of breeding, hibernating or migrating;
- Damage or destroy a breeding site or resting place of a bat;
- Keep, sell, transport, exchange, offer for sale or offer for exchange any bat taken in the wild.

Bat survey

This report presents the results of a site visit by Emma Peters on the 26th September 2023 (bat emergent and detector survey). No buildings are present on site. At dusk, a bat detector survey was carried out onsite using an Echo Meter Touch 2 Pro division detector to determine bat activity.

Survey methodology

As outlined in Marnell et al. 2022 '*The presence of a large maternity roost can normally be determined on a single visit at any time of year, provided that the entire structure is accessible and that any signs of bats have not been removed by others. However, most roosts are less obvious. A visit during the summer or autumn has the advantage that bats may be seen or heard. Buildings (which for this definition exclude cellars and other underground structures) are rarely used for hibernation alone, so droppings deposited by active bats provide the best clues. Roosts of species which habitually enter roof voids are probably the easiest to detect as the droppings will normally be readily visible. Roosts of crevice-dwelling species may require careful searching and, in some situations, the opening up of otherwise inaccessible areas. If this is not possible, best judgement might have to be used and a precautionary approach adopted. Roosts used by a small number of bats, as opposed to large maternity sites, can be particularly difficult to detect and may require extensive searching backed up by bat detector surveys (including static detectors) or emergence counts.'* In relation to the factors influencing survey results the guidelines outlines the following *'During the winter, bats will move around to find sites that present the optimum environmental conditions for their age, sex and bodyweight and some species will only be found in underground sites when the weather is particularly cold. During the summer, bats may be reluctant to leave their roost during heavy rain or when the temperature is unseasonably low, so exit counts should record the conditions under which they were made. Similarly, there may be times when females with young do not emerge at all or emerge only briefly and return while other bats are still emerging thus confusing the count. Within roosts, bats will move around according to the temperature and may or may not be visible on any particular visit. Bats also react to disturbance, so a survey the day after a disturbance event, may give a misleading picture of roost usage.'*

The survey involved the methodologies outlined in Collins (2016) which included the roost inspection methodologies i.e. external methodology outlined in section 5.2.4.1 and the internal survey outlines in section 5.2.4.2 of the guidelines. In addition, the methodologies for Presence absence surveys (Section 7) was carried out for dust emergent surveys.'

As outlined in Collins (2016) 'The bat active period is generally considered to be between April and October inclusive (although the season is likely to be shorter in northern latitudes). However, because bats wake up during mild conditions, bat activity can also be recorded during winter months.'

Survey Results

Trees as potential bat roosts.

A ground level roost assessment was carried and used to examine the trees on site for features that could form bat roosts. Potential roosting features include heavy ivy growth, broken limbs, areas of decay, vertical or horizontal cracks, cracks in bark etc. No trees on site had features that would be considered to be of importance to roosting bats. No evidence of bats or bat roost were identified onsite.

Emergent/detector surveys.

The detector surveys were undertaken within the active bat season and the transects covered the entire site multiple times during the night. Weather conditions were good with mild temperatures of 10^{o}C after sunset. Winds were light and there was no rainfall. Insects were observed in flight during the survey.

As outlined in Collins (2016) in relation to weather conditions '*The aim should be to carry out surveys in conditions that are close to optimal (sunset temperature 10^{o}C or above, no rain or strong wind.), particularly when only one survey is planned…. Where surveys are carried out when the temperature at sunset is below 10^{o}C should be justified by the ecologist and the effect on bat behaviour considered.*' There were no constraints in relation to the surveys carried out. All areas of the site were accessible and weather conditions were optimal for bat assessments.

At dusk, bat detector surveys were carried out onsite using a*n Echo meter touch 2 Pro* detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations.

Two Lesser Noctule (*Nyctalus leisleri*) bats were noted foraging along the southern hedgerow. All bats were observed entering the site from the south (outside the site). No bats were observed emerging from any tree onsite. Foraging was noted primarily in the southern hedgerow of the site (Figure 6).

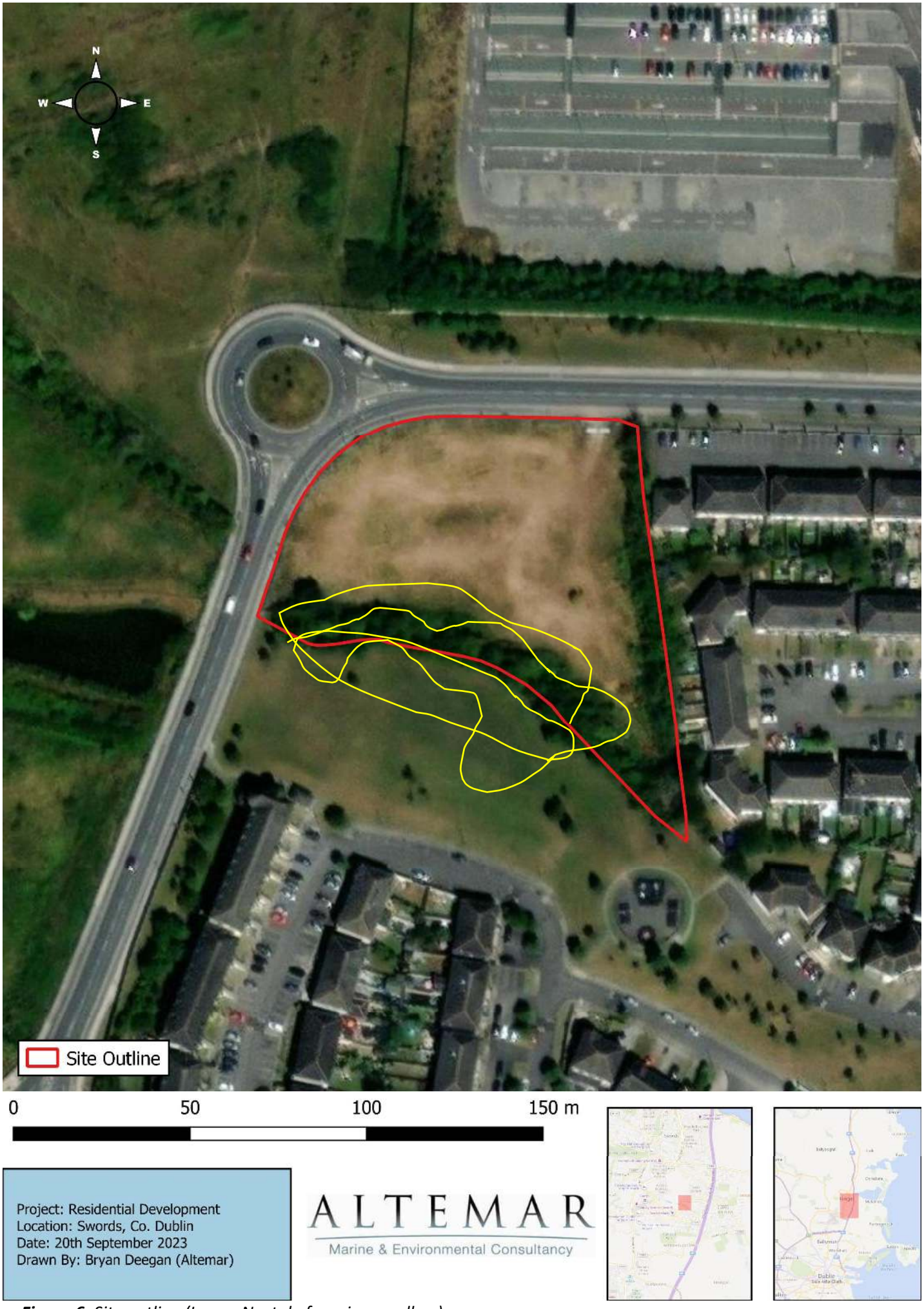

Figure 6: *Site outline (Lesser Noctule foraging = yellow)*

Bat Assessment Findings

Review of local bat records

The review of existing bat records (sourced from Bat Conservation Ireland's National Bat Records Database) within a 2km^2 grid (Reference grid O14X) encompassing the study area reveals that none of the nine known Irish species have been observed locally. The National Biodiversity Data Centre's online viewer was consulted in order to determine whether there have been recorded bat sightings in the wider area. This is visually represented in Figures 7-9. The following species were noted in the wider area: Brown Long-eared Bat (*Plecotus auritus*), Daubenton's Bat (*Myotis daubentonii*), Whiskered Bat (*Myotis mystacinus*), Lesser Noctule (*Nyctalus leisleri*), and Soprano Pipistrelle (Pipistrellus pygmaeus) (Figures 7-9).

Figure 7. Daubenton's Bat (*Myotis daubentonii*) (purple) and Brown Long-eared Bat (*Plecotus auritus*) (yellow) (Source: NBDC) (Site – red circle)

Figure 8. Whiskered Bat (*Myotis mystacinus*) (purple), Lesser Noctule (*Nyctalus leisleri*) (yellow), and both Whiskered Bat and Lesser Noctule (orange) (Source: NBDC) (Site – red circle)

Figure 9. Soprano Pipistrelle (*Pipistrellus pygmaeus*) (purple) (Source NBDC) (Site – red circle)

Evaluation of Results

The bat survey complies with bat survey guidance documentation including Marnell et al (2022) and Collins (2016). No bats were observed emerging from trees on site. No evidence of bats roosting in trees onsite was noted. Foraging of common bat species was noted on site.

Potential Impact of the development on Bats

Two Lesser Noctules were noted foraging within the subject site along the southern hedgerow. Both bats were noted entering the site from the south. No bats were noted emerging from trees on site or adjacent buildings. Lighting during construction could impact on foraging activity. It should be noted that no trees of bat roosting potential will be felled as part of the proposed development. The existing hedgerows located to the south and east of the site will be retained. The proposed development will change the local environment as new structures are to be erected and some of the existing vegetation will be removed. Species expected to occur onsite should persist.

Mitigation Measures

As outlined in Marnell et al. (2022) "*Mitigation should be proportionate. The level of mitigation required depends on the size and type of impact, and the importance of the population affected*." In addition as outlined in Marnell et. al (2022) '*Mitigation for bats normally comprises the following elements:*

- *Avoidance of deliberate, killing, injury or disturbance – taking all reasonable steps to ensure works do not harm individuals by altering working methods or timing to avoid bats. The seasonal occupation of most roosts provides good opportunities for this*
- *Roost creation, restoration or enhancement – to provide appropriate replacements for roosts to be lost or damaged*
- *Long-term habitat management and maintenance – to ensure the population will persist*
- *Post-development population monitoring – to assess the success of the scheme and to inform management or remedial operations.*'

However, no bats were noted roosting on site. No trees of high bat roosting potential are noted on site. The following mitigation will be carried out:

- During construction lighting at all stages will be done sensitively with no direct lighting of hedgerows and treelines.
- All lighting during construction and operation will be carried out in consultation with project ecologist and comply with bat lighting guidelines.

Predicted Residual Impact of Planned Development on Bats

No bat roosts will be lost. No trees of bat roosting potential are noted on site. The proposed development will change the local environment as new structures are to be erected and some of the existing vegetation will be removed. Foraging was noted on site. The proposed development is not in proximity to sensitive bat areas. The potential for collision risk and impact on flight paths in relation to bats is considered is considered low due to the low level of bat activity on site and the buildings would be deemed to be clearly visible to bats. Foraging is expected to continue on site.

Impacts: ***Negative, slight, long-term, likely, localised, Not significant.***

References

Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

Marnell, F., Kelleher, C. & Mullen, E. (2022). *Bat mitigation guidelines for Ireland V2. Irish Wildlife Manuals, No. 134*. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

Chartered Institute of Ecology and Environmental Management (2021). *Bat Mitigation Guidelines: A guide to impact assessment, mitigation and compensation for developments affecting bats. Beta version.* Chartered Institute of Ecology and Environmental Management, Winchester.

Chartered Institute of Ecology and Environmental Management (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal, and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

Institution of Lighting Professionals (2018). *Bats and Artificial Lighting in the UK – Bats and the Built Environment Series: Guidance Note 08/18.* Institution of Lighting Professionals and the Bat Conservation Trust.

Department of Housing, Planning and Local Government (December, 2018). *Urban Development and Building Heights Guidelines for Planning Authorities***.**

Bat Conservation Trust (May 2022). *Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys.* The Bat Conservation Trust, London.

Bat Conservation Ireland 2004 on-going, *National Bat Record Database.* Virginia, Co. Cavan

Boyd, I. and Stebbings, R.E. 1989 Population changes in brown long-eared bats (*Plecotus auritus*) in Bat Boxes at Thetford Forest*. Journal of Applied Ecology* **26**: 101 - 112

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979

EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992

Jefferies, D.J. 1972 Organochlorine insecticide residues in British bats and their significance. *Journal of Zoology*, London **166**: 245 - 263

Kelleher, C. 2004, Thirty years, six counties, one species – an update on the lesser horseshoe bat *Rhinolophus hipposideros* (Bechstein) in Ireland – *Irish Naturalists' Journal* **27**, No. 10, 387 – 392

Kelleher, C. 2015 *Proposed Residential Development, Church Road, Killiney, Dublin: Bat Fauna Study*. Report prepared for Altemar Marine and Environmental Consultants

Marnell, F., Kingston, N. and Looney, D. 2009 *Ireland Red List No. 3: Terrestrial Mammals.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin

Marnell, F., Kelleher, C., & Mullen, E. (2022), BAT MITIGATION GUIDELINES FOR IRELAND – V2 https://www.npws.ie/sites/default/files/publications/pdf/IWM134.pdf

Racey, P.A. and Swift, S.M. 1986 The residual effects of remedial timber treatments on bats*. Biological Conservation* **35**: 205 – 214

Smal, C.M. 1995 *The Badger & Habitat Survey of Ireland.* The Stationery Office, Dublin

Wildlife Act 1976 and Wildlife [Amendment] Act 2000. Government of Ireland.