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Marine & Environmental Consultancy

Ecological Impact Assessment (EcIA) for a proposed cemetery on the grounds of the Citywest Hotel, Saggart, Dublin 24.

8th December 2022

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Cape Wrath Hotel Unlimited.

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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 Cape Wrath Hotel Unlimited.

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);
- Draft Guidelines on the information to be contained in EIARs (2018);
- 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 27 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).

Description of the Proposed Project

Cape Wrath Hotel Unlimited intends to apply for planning permission for a proposed cemetery on the grounds of the Citywest Hotel, Saggart, Dublin 24.

The development will consist of a cemetery including: 8,047 No traditional burial plots; Columbarium walls; 1 No. single storey reception building (214.7m2 Gross Floor Area (GFA)) comprising a reception, 1 No. office, 1 No. reception store, WC, kitchenette with photovoltaic (PV) solar panels at roof level; and the provision of an ancillary maintenance shed, bin and battery storage structures.

The development includes a new vehicular access road from Garters Lane to the N7/M7 Naas Road, with 2 No. vehicular access points serving the proposed cemetery; 110 No. car parking spaces (25 No. spaces to the east of the reception building and 85 No. within overflow car park areas to the south of the development); 4 No. bicycle parking stands; and all associated hard and soft landscape and boundary treatment works including the reshaping of an existing lake and provision of a footbridge; provision of SUDS measures, associated lighting, associated signage, site services (foul and surface water drainage and water supply); and all other associated site excavation, infrastructural and site development works above and below ground.

Landscape

A Landscape Design Statement has been prepared by Murray and Associates Landscape Architecture to accompany this planning application. The report outlines the following:

The design concept aims to conserve the existing woodland landscape and redevelop the previous golf course fairways into a series of connected parkland spaces.

The visitor to the Cemetery, whether to attend a funeral, visit a memorial or grave, sit and reflect or to enjoy the woodlands, will understand the space firstly as a parkland with magnificent clear views and secondly as a burial/interment memorial space.

To this end, the golf course layout was redesigned, in the least invasive way possible, preserving the existing and retaining all of the woodland copses. On that account, the site is divided into traditional burial, columbarium walls and a reflection space, with the site having a reception building with car parking, a road for the hearses and pathways across the site.

The traditional burial spaces will be located in what were the fairways, with traditional grave markers designated to pay tribute while marking the burial place. As per the ash urns, these will be located in columbarium walls. The columbarium walls punctuate the landscape, creating a sense of place and adding definition within the park. These are mostly placed in the woodland areas to reduce the visual impact while integrating them with the existing landscape.

The main road will be both vehicular and pedestrian and provide access to the grave plots before and after the ceremonies, as well as for ongoing maintenance of the cemetery. Each fairway includes a secondary pedestrian path that will allow easier access to the burial areas. The proposed paths have organic shapes that are adapted to the existing vegetation and will direct the visitors through the site.

The building will be mainly used for as a reception building for services with toilets; as well provide office for management purposes. A memorial forest with a water feature is proposed at the entrance to the reception building. This space is a reflection and mourning area, as well as an appropriately designed place where visitors can get together before and after the ceremonies.

The path leading from the memorial forest and reception building provides views to specimen tree at the centre of the lake, as well as views through the landscaped cemetery. The lake where the building is nestled on the eastern side is based on the reshaped existing pond and it creates a nice setting.

This area has a parkland feel with looped paths and existing trees providing canopy cover and shelter. In general terms, the Cemetery is a collection of high-quality spaces with a range of space that will aspire to the following precepts:

• provide a high-quality parkland;

• create a respectful and beautiful space for people to lay their loved ones to rest;

• provide hearse access throughout the site;

• provide walking paths;

• enhance habitat values and biodiversity;

• create inviting, well-designed open spaces for visitors to simply relax or to remember their loved ones.

Citywest Cemetery will include approximately 4 ha of burial areas divided in: 8047 traditional burials and 100 of Columbarium walls. This means approximately 8047 plots and 1600 urns.

The traditional areas appear as clearings in the woodland, and these will be framed by the existing semi mature woodland, creating a natural sense of enclosure to allow several people to visit graves undisturbed. Furthermore, the memorial park is envisaged to be a serene and dignified space and to achieve this aim, the cemetery is separated from the car parks by trees and planting. The reception building is the central focus of the entrance area. There is provision of 20 no. car parking spaces and 5 no. disabled car parking spaces to the west of the proposed reception/admin building.

An additional 85no. grasscrete car park spaces are provided to the south of the application site, for overflow car parking. There are two entrance points for vehicles. Vehicular for visitors provide access to the car parks; and those for the hearses provide access to burial areas within the former fairways. From the car parks, paths connect different areas of the memorial park, with further hierarchy of paths providing access to the burial areas and columbarium walls.

In summary, the proposed cemetery includes:

• the Reception / Admin Building. See Architecture's Report for details;

• 2 main vehicular entrances to the site;

• Car parking for up to 105 no. cars and 5 no. disabled car parking spaces;

• 8 Bicycle stands to provide for 16 no. visitors.

• 3m internal road for hearse and maintenance access to the cemetery;

• Seating areas provided at regular intervals along the main access, the existing track and around the lake;

• A network of internal paths for pedestrian access to burial areas;

• Traditional burial and columbarium walls (urn interment);

• General visitor amenities: Seating, Bins, Information Signage, Water Feature;

• A reshaped lake measuring approximately 2625 square metres with a footbridge:

• A Maintenance Shed. Refer to Architects Drawings;

• 3 no. Gates (1 for Main Access, 1 Secondary Access, 1 for Traffic Control)'

The proposed Landscape Masterplan for the development is demonstrated and has been prepared in discussion with Altemar Limited (Figure 7).

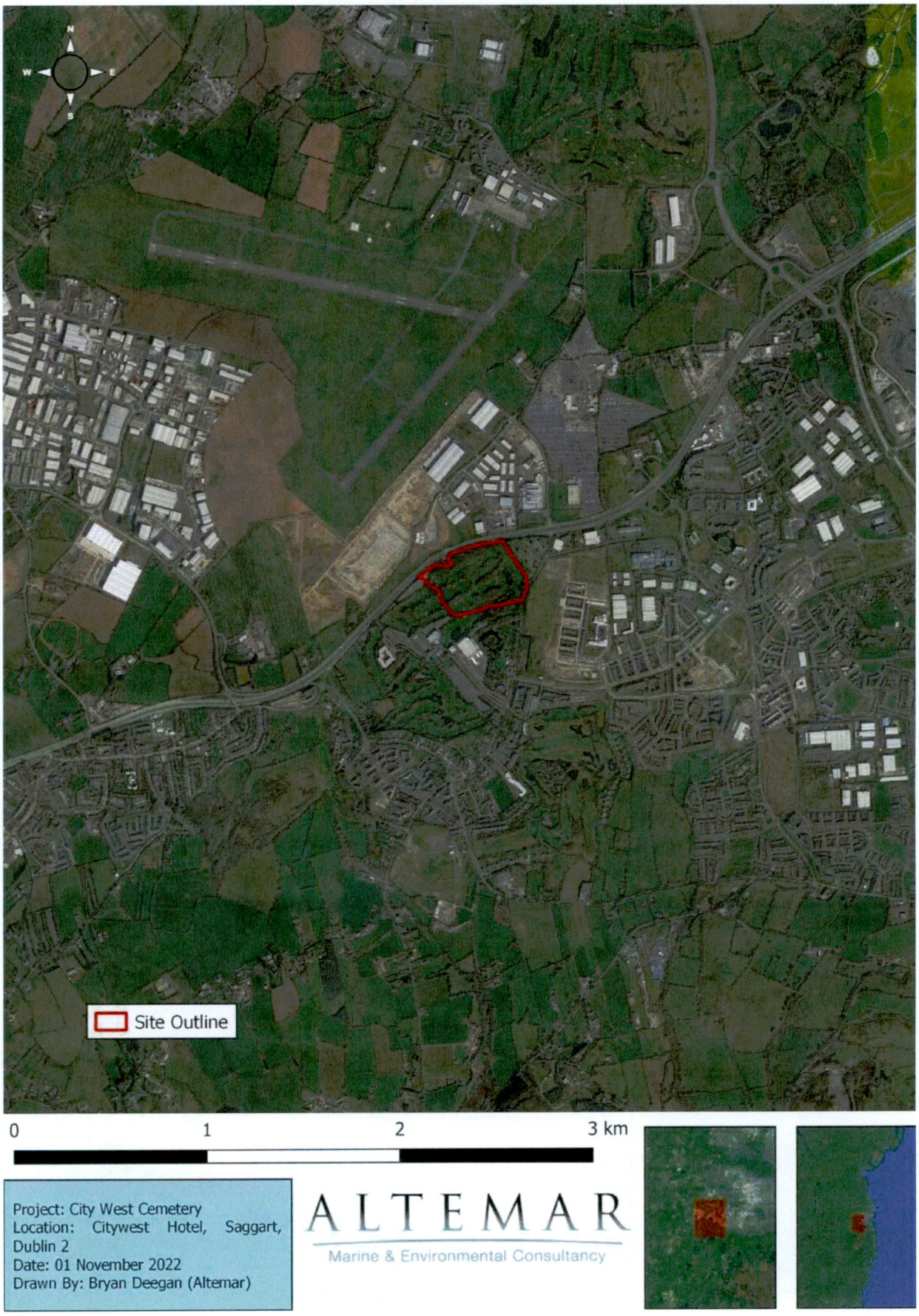


Figure 1. *Proposed site outline and location*

Figure 2. *Proposed site outline*

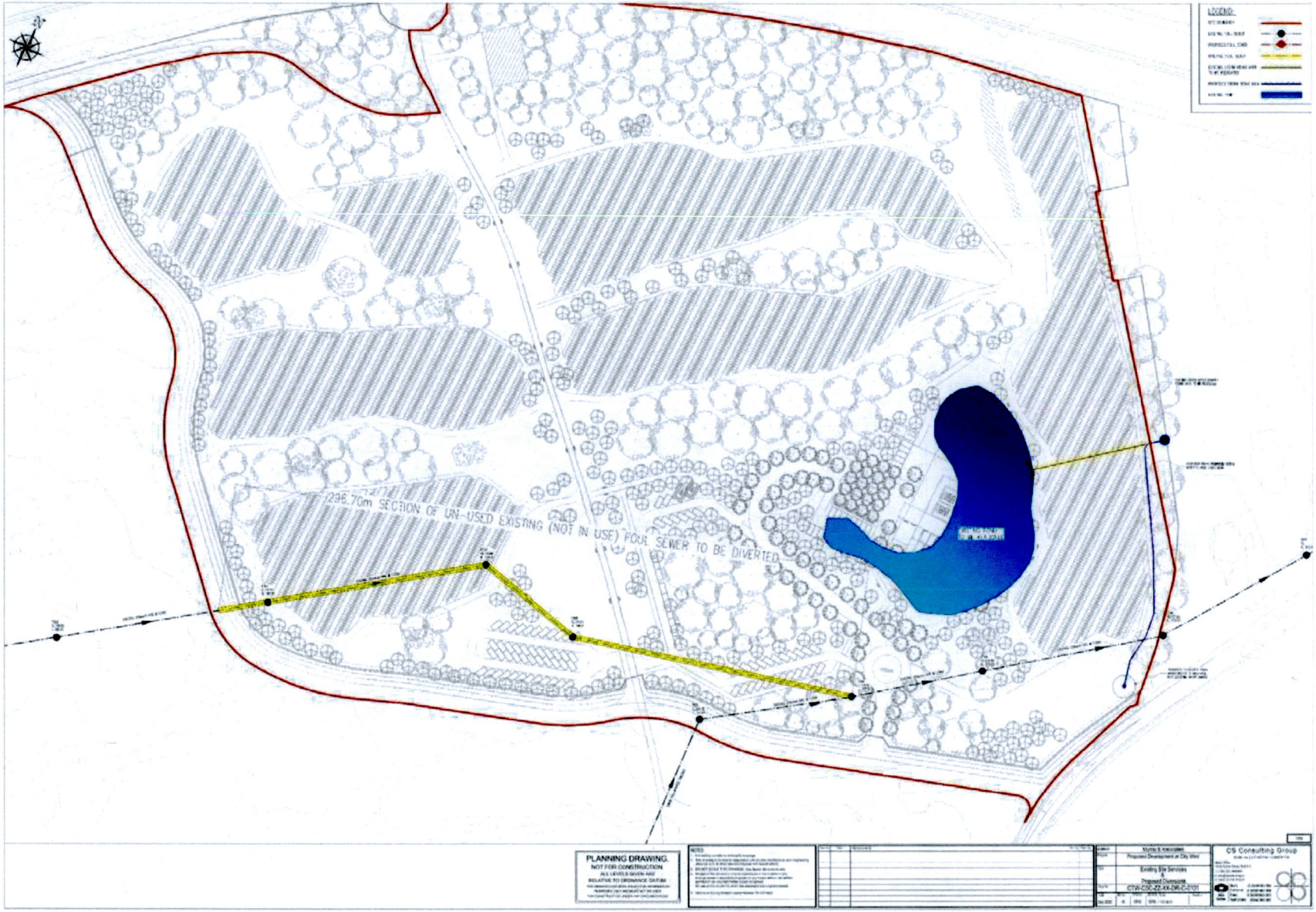
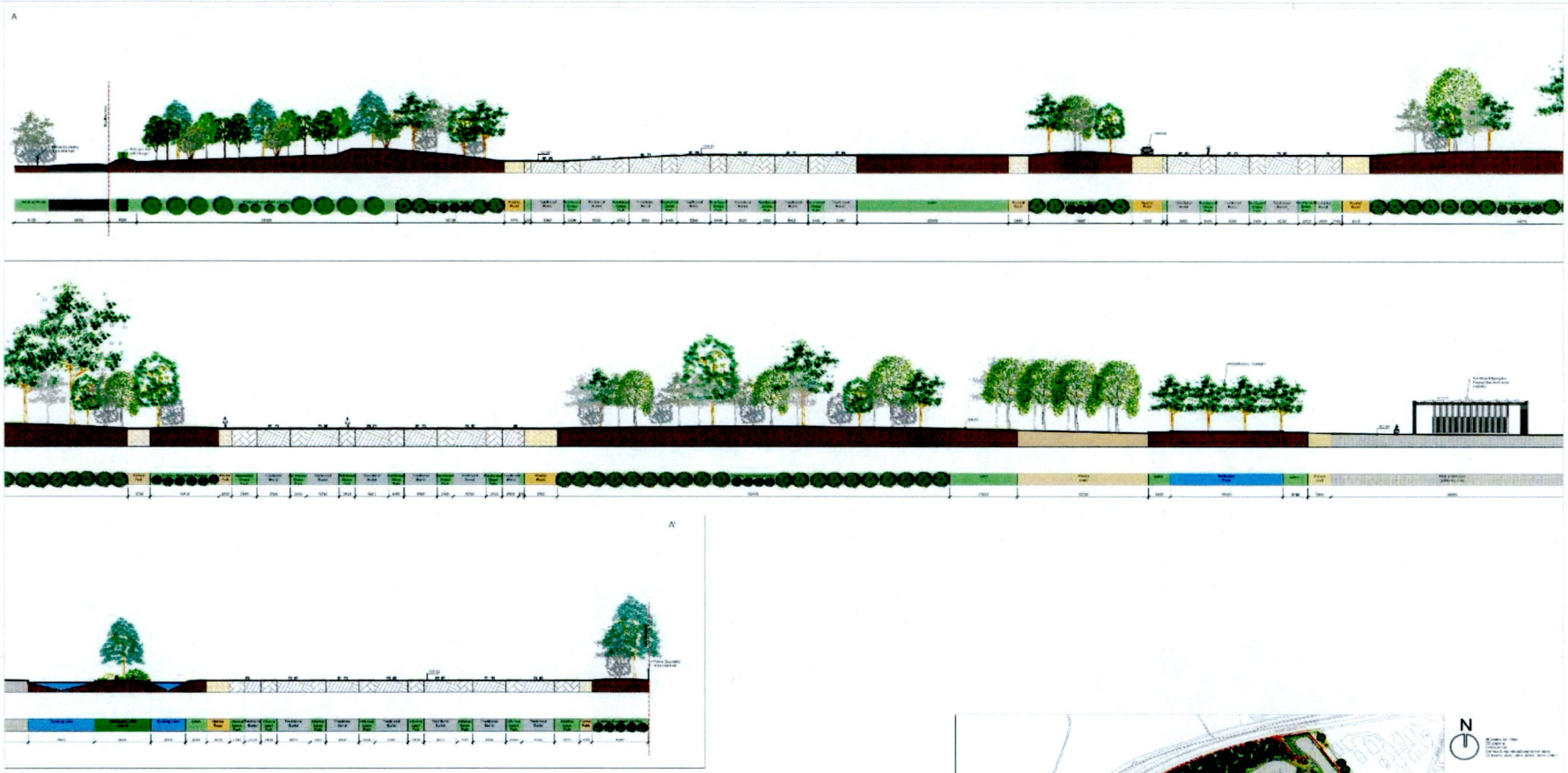


Figure 3. *Existing site services*



SECTION AA - Scale 1:200

Figure 4. *Elevation west to east*

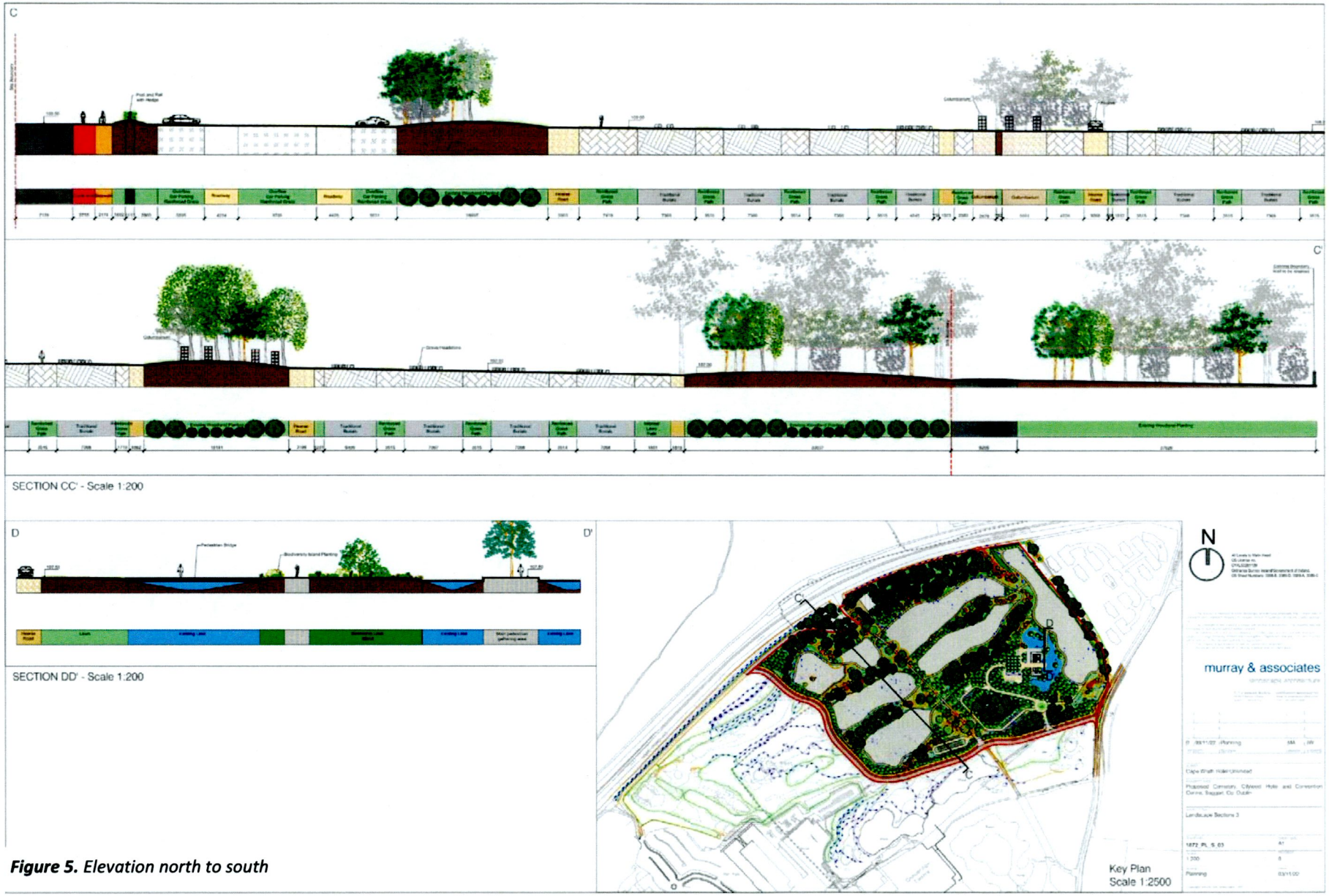


Figure 5. *Elevation north to south*

Figure 7. *Proposed landscape masterplan*

As outlined in the landscape report *'The topography of the site is primarily gentle sloping throughout, with fairways somewhat recessed from the woodland areas that are settled on subtle mounds.*

There are groups of mature trees that are mostly native tree species creating an established planted landscape area interspersed by open fields.

The site is primarily grassland with the boundaries comprised of hedgerows and treelines.

Existing Trees and Woodland

A full tree survey and arboricultural impact assessment was undertaken by Murray and Associates, See Arboricultural Impact Assessment Report for additional details of the condition of the existing vegetation on site.

Where feasible trees will be retained, with pruning to make safe where possible. If removal is the only safe option, then trees can be felled to leave monolith stumps i.e. main trunk retained up to 5m height or fallen trees can be retained on-site for ecological reasons. The majority of the treelines are to be retained and enhanced with further planting where appropriate. Proposed paths and entrances are located for minimal effect on the existing vegetation. Where entrances break through existing hedgerows, a relatively small area of trees is proposed to be removed to facilitate the entrances and building. Any proposed paths within tree root protection areas are to be constructed with a minimal impact "no-dig" solution.

Ecology

The native ecology of the park environs is considered in the design. The majority of the proposed planting is composed of native species, the treelines in the park are retained as far as possible, with minimal impact where necessary, allowing the local and existing biodiversity to be managed and to flourish. It is also proposed to leave a large amount of any trimming etc on the floor of the woodland to enhance the biodiversity of these areas.

These existing areas are strengthened within the design through additional planting and maintenance to existing tree plantations.'

Planting Proposals Summary

'Extensive new planting is proposed to enhance the amenity value of the area, to improve visual quality, to enhance biodiversity and to provide screening of the Cemetery.

The cemetery proposes an additional 395 No. trees. Native species are proposed in the majority of these spaces, with non-native species proposed in limited quantities for ornamental purposes.

The burial areas are themed with a varied plant palette, creating a sense of place. This will add to the character of the burial spaces and visual interest of the Cemetery. Each plant character area will include an assortment of plant size and species to avoid monocultures and add diversity within the site.

The avenue road, that leads the visitors towards the reception building, will be a lined on both sides with Small Leaved Lime tree.

Turkish Hazel with its elegant pyramidal crown is proposed at the memorial forest.

Next to the building, around the lake area, there will be specimens of Bald Cypress with the variety 'Cascade Falls', which will give an interesting look to the whole area with its weeping structure and leaves turning yellow / copper red in autumn. It is proposed to utilise swamp cypress as the focal point in the middle of the lake.

These tree cultivars are best known for their ability to withstand waterlogging, so suitable in this lake location.

The site is edge by established trees. Some areas of existing trees will be bolstered by new complementary native planting, including Oak, Birch and Pinus species.'

The arboricultural impact plan is demonstrated in Figure 8.

Figure 8. *Arboricultural impact plan*

Drainage

Engineering Services Report

An Engineering Services Report has been prepared by CS Consulting Engineers to accompany this planning application. This report outlines the following drainage strategy for the proposed development:

'Foul Drainage

Existing Foul Drainage Infrastructure

South Dublin County Council's drainage records indicate an existing 225mm diameter foul sewer traversing the subject lands from west to east. This sewer connects into an existing sewer flowing south to north. It is proposed to divert a section of the existing 225mm foul sewer, which is currently not live.

Proposed Foul Drainage Arrangements

All foul effluent generated from the proposed development shall be collected in separate foul pipes and flow under gravity, to the existing 225mm diameter foul sewer on the subject lands.

The drainage network for the development shall be in accordance with Part H of the Building Regulations and to the requirements and specifications of Irish Water.

Stormwater Drainage

Existing Stormwater Drainage Infrastructure

Following receipt of SDCC drainage records there is no storm water sewer crossing the subject lands. As noted above the current sites use as a golf course means that an artificial storm water system, of ditches and ponds, crosses the site before existing to the east.

There is a pumped stormwater system from the northern apartment block (Westpark Apartments), which outfalls an attenuated storm water flow into an existing water feature on the golf course. It is proposed to re-route this outfall.

Proposed Stormwater Drainage Arrangements

In accordance with the requirements of the SDCC Drainage Divisions all new developments are to incorporate the principles of Sustainable Urban Drainage Systems, (SuDS). The SuDS principles require a two-fold approach to address storm water management on new developments.

The first aspect is to reduce any post development run-off to pre-development discharge rates. The development is to retain storm water volumes predicted to be experienced during extreme rainfall events. This is defined as the volume of storm water generated during a 1-in-100-year storm event increased by 20% for predicted climate change factors.

To ensure an accurate calculation of the required attenuation for the site Met Eireann was contacted to provide:

a) *The SAAR (Standard Annual Average Rainfall) for the area: 731mm/year*
b) *The sliding duration table for the site indicating the 1:100-year rainwater intensities to be used.*

The proposed site, where hard standing is to be introduced will be attenuated to 2.0l/sec/Ha. The majority of the site will use infiltration systems to allow storm water generated on site to infiltrate the subsoil. The proposed building located close to the existing pond will require storm water attenuation. The volume required for the 1-in-100-year event (increased by 20%) is 163m^3. This volume will be provided in the re-engineered pond. The current pond serves as part of the golf course and will be redeveloped as a water feature for the development.

The second aspect is the policy of the Local Authority is to include Sustainable Urban Drainage Systems, SuDS, for all new applications, as such it is proposed to use a range of SuDS devises for the scheme they are listed below:

SuDS proposal are as follows;

- *Permeable paving to all new parking spaces,*
- *Waterbutts for local irrigation and washing down areas,*

- *Attenuation tank with flow control device, sized to contain a 1-in-100-year storm event and increased by 20% for the predicted climate change to limit the surface water discharge from the site during extreme rainfall events,*
- *Proposed roads areas will be drained via infiltration drains,*
- *As the vast majority of the site will be grass/porous surfaces the scheme will fully allow storm water generated on site to drain into the subsoil.'*

Flood Risk Assessment

A Site-Specific Flood Risk Assessment has been prepared by CS Consultants to accompany this planning application. This report concludes with the following:

'Fluvial Flooding

A review of the Office of Public Works flooding records database (www.floodmaps.ie) for the area does not indicate historical flooding at the site.

Flood mapping developed as part of the recently adopted Development Plan, 2022 – 2028. Gives predicted flood mapping for fluvial events. The mapping does not indicate the subject lands are located within a fluvial flood zone.

Tidal Flooding

The site's location is such that it is not affected by tidal waterbodies and as such tidal flooding is negligible.

Pluvial Flooding

Pluvial flooding is flooding which has originated from overland flow resulting from high intensity rain fall. From a review of the OPW flood maps there are no records of flood events due to high rainfall events in the area. However, mapping prepared for the current Development Plan does indicate part of the subject lands, located around the existing artificial pond may experience pluvial flooding. This is due to the current topography of the site as the current pond is part of a local 'water feature' for the current golf course. Post development this pond will have the capacity to contain any excess water generated locally, thereby containing any pluvial rainfall.

Potential for Proposed Development to Contribute to Off-Site Flooding

The proposed development will require attenuation to be provided. Attenuation will be sized for a 1-in-100-yerar extreme storm event increased by 20% for the predicated effects of climate change. The attenuation will release storm water in a controlled manner after the peak storm duration has passed. By restricting the flow, the likelihood of the proposed development adversely affecting the public drainage system or contributing to downstream flooding is mitigated. Please refer to the engineering services report.

Existing Off-Site Drainage

It is the understanding of CS Consulting that at present there are no issues with the local drainage arrangements. The subject lands will only discharge a restricted low flow into the public system thereby reducing the hydraulic pressure on the public network during extreme rainfall events. Notwithstanding this, the development site shall be super-elevated above to the adjacent lands to prevent the egress of off-site drainage onto the site.

Groundwater Flooding

According to the Geological Survey of Ireland, GSI, interactive maps, the subject site is underlain with Dark Limestone & Shale. The area is listed as overlaying a locally important aquifer which has bedrock which is moderately productive only in local zones. The groundwater in the area is high. The GSI data base does not indicate that the subject lands would be susceptible to groundwater flooding.

The likelihood of onsite flooding from the hydrological ground conditions is deemed to be minor and within acceptable levels.'

Environmental and Hydrogeological Assessment

An Environmental and Hydrogeological Assessment report was completed by Verde Environmental Consultants. The report outlined the following: *'An environmental assessment was undertaken on a greenfield site at the north eastern region of the former Citywest Golf Course in Citywest, Co Dublin to assess the suitability of the site for a cemetery development. The environmental assessment consisted of trial pit excavation, groundwater monitoring well drilling and installation, soil sampling, groundwater sampling and laboratory analysis. Soil samples were collected from the excavated trial pits and groundwater samples from the installed monitoring wells. The surrounding land use is mostly commercial and residential, together with area of the former golf course which is currently an open parkland.*

The GSI sub-soils map identifies the site to be underlain by glacial till derived from limestone. The bedrock aquifer beneath the site is reported as a locally important aquifer which is moderately productive only in Local Zones. Groundwater over most of the site has a Moderate Vulnerability rating indicating bedrock up to 10mBGL with a High Vulnerability rating to the north west of the site indicating bedrock in excess of 3mBGL. Site investigation drilling works show weathered bedrock is within 2.5mBGL in the north west to >10mBGL in the east of the site. In January 2022, eight trial pits were excavated across the site to an average depth of 3.5mBGL with no bedrock encountered. The subsoils encountered were generally gravelly clayey silt with sub-rounded cobbles, this was underlain by brown clayey gravel at a depth of 1.3-3.3mBGL. There was some minor seepages of perched groundwater observed during the excavation of the trial pit depths ranging between 2.8 and 3.5mBGL in several locations. Trial pit TP-103 which remained open over a 24hour period, was seen to partly fill with water up to a maximum depth of 2.2mBGL. TP-102 also remained open over-night and had only minor ingress of perched groundwater at the base of the trial pit 2.5mBGL. The perched groundwater is not continuous on the site.

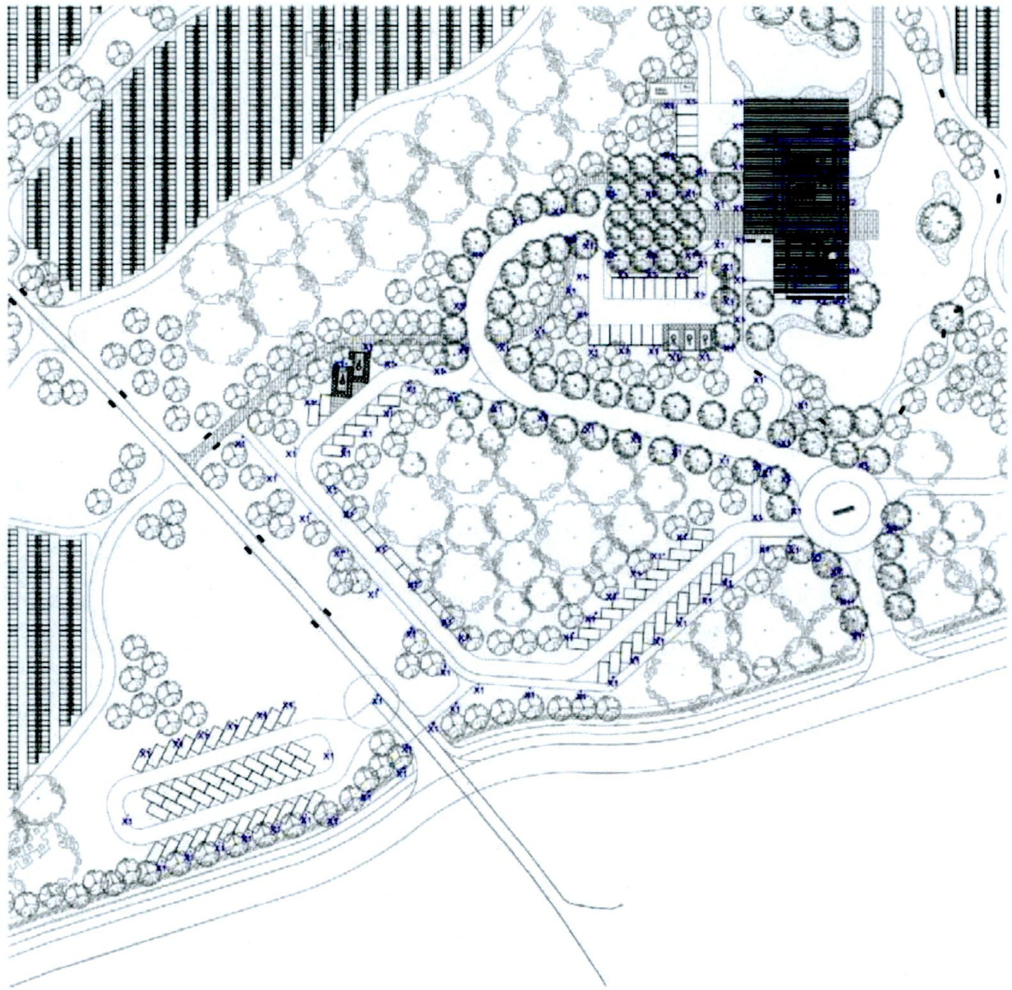
No physical evidence of contamination was observed in the soil during excavation of the trial pits. Samples submitted for Particle Size Distribution analysis were classified as brown, very silty, very sandy gravel. Three boreholes were drilled on-site with MW101 and MW102 installed as monitoring wells in the northern and eastern region of the site respectively. These monitoring wells were installed in limestone and shale bedrock with multiple groundwater strikes encountered in the bedrock during drilling from 3.9 to 8.5mBGL. MW103 encountered gravels to greater than 10m with multiple groundwater strikes observed during drilling from 3.9mBGL. The site investigation clearly showed the required 3.44m depth of overburden cover is present across the majority of the proposed burial area with the exception of the northwestern area of the site where weathered bedrock was present at 2.5mBGL. The 3.44m cover incorporates a maximum interment depth of eight feet (2.44m) and 1m of undisturbed subsoil below the base of the burial pit. The overburden generally consists of clay silt and clayey gravel. The OPW flooding data identified that the site has no recorded flooding events and is not at risk of flooding. Groundwater flow direction beneath the site is seen to be in a northerly flow direction towards the Camac River. The static groundwater levels in the monitoring wells are representing groundwater in the bedrock and deeper gravel that is under pressure from the overlying subsoils and will naturally rise to the level where atmospheric pressure is zero and this water table surface is referred to as the potentiometric water level. Bedrock and deeper gravel and therefore groundwater will not be encountered in excavation for traditional burials. Laboratory analysis of the soil and groundwater samples collected during the January/February 2022 assessment showed no significant parameters exceeding the applied GACs. Overall the chemical groundwater quality beneath the site is good apart from one slight exceedance of orthophosphate. Bacteriological faecal coliforms of E.Coli were below the laboratory detection limit in the bedrock groundwater monitoring wells. The proposed cemetery development complies fully with the separation distances from the rivers, groundwater abstraction wells, drainage ditches and with the various ground conditions required in the Irish Law and UK cemetery guidance. Overall this initial site investigation shows the site is suitable for use as a cemetery consisting of traditional burial plots.

The assessment of potential contaminants of concern arising from traditional burials was assessed further by undertaking a detailed environmental modelling assessment. A detailed quantitative risk assessment (DQRA) involves undertaking a tiered assessment as outlined by the UK Environment Agency guidance in order to predict impact if any on the groundwater and downgradient surface waters, arising from the operational stage of the

cemetery development. The outcome of the DQRA was that no unacceptable risks to groundwater were identified.'

Lighting

Lighting on site will be set to 3000°K and will primarily use low level bollards. These bollards are designed to have limited upward lighting. In addition, recessed low level lights and a modular strip light in the building will also be used (3000°K). In discussion with the lighting engineers "*Cemeteries follow Park opening/closing hours, so 8am to dusk in wintertime. In summertime it would most likely be 8am to 6pm.*" In addition, lighting control will be a combination of photocells and timeclocks. It should be noted that lighting will not be on a 24hr basis and will be controlled. It is likely that no lighting will be used across the site during the summer months. The lighting layout is seen in Figure 9.



X1 • iRuta R 20W Bollard Luminaire, 3000°K

X2 – iCase 12W Recessed Wall Luminaire, 3000°K

X5 | iEnna Recessed Linear System with LEDs to suit the light levels required, 3000°K

General Notes:

Lighting Services Notes:

Emergency Lighting Services Notes:

1 Lighting Services - Site
1:500

Rev	Date	Revision Description	Dr.	Chk.
P	10.11.22	For Information	R.S.	P.F.

Renaissance Engineering

Client: Tetrarch Ltd

Architect: Darmody

Job Title: Citywest Cemetery Howth

Drawing Title: Lighting Services Site

Date	Scale	Drawing No.	Revision
10.11.22	1:500 @A1	22298-REN-XX-SS-DR-E-6300	P

Modelled By	Checked By	Approved By
R.S.	P.F.	P.F.

Ecological Assessment Methodology

Desk Study

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
- ESRI (QGIS)

Altemar assessed the project, the proposed construction methodology and the operation of the proposed development.

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 ZoI of the proposed project would be seen to be restricted to the site outline, with potential for minor localised noise and lighting impacts during construction which do not extend significantly beyond the site outline nor are they likely to have any significant effects on any European sites. However, as the current storm water drainage exits to the east of the site, there is a possibility during the construction phase that there may be discharge into the Camac River. In the absence of mitigation, there is potential for surface water runoff and pollution to enter the watercourse. The Camac River eventually outfalls into the River Liffey which then flows into Dublin Bay. However, as the European sites located here are not within the 15km limit, it is assumed that there will be no impact due to dilution.

There are no designated sites downstream of the proposed development with a direct hydrological pathway to the subject site.

Field Surveys

Site assessment was carried out on the 4th & 28th September 2020 and on the 24th September 2022. Habitats within the proposed site were classified according to Fossitt (2000) (Figure 10) based on the 24th September 2022 field survey. Bat surveys were carried out on the 28th September 2020 and 24th September 2022 (Appendix I). At dusk bat detector surveys were was carried out onsite using an echo meter touch 2 pro bat detector to determine bat activity. Breeding bird surveys were carried out on the 5th June, 19th June and 9th July 2022 (Appendix II) by Hugh Delaney (ornithologist)

Survey Limitations

The surveys covered appropriate seasons for flora, fauna and bat assessments. The mammal survey carried out by Bryan Deegan in September 2022. The Woodland habitat has been densely planted and does not have a dense scrub understory and was easily accessible. No limitations are foreseen in relation to the surveys on site.

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.

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 (2022) (Table 1) 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.

Table 1: Impact description terminology (EPA,2022)

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 noticeable2 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 conservation sites (National and international) within 15km of the proposed development are seen in Figures 10 to 13. It should be noted that the proposed development site is not within a designated conservation area. The closest Natura 2000 sites are Glenasmole Valley SAC, which is 5.6 km from the subject site, and the Wicklow Mountains SAC, which is approximately 7 km from the proposed development. The nearest national conservation site is the Slade of Saggart and Crooksling Glen pNHA, located 2.4 km from the site, and the Lugmore Glen pNHA, located 2.9 km from the site. There are no recorded RAMSAR sites identified within 15km of the proposed development site. Details of Natura 2000 sites are seen in Table 4, while details on national conservation sites are in Table 5.

On the eastern edge of the site there is a watercourse that feeds into the Camac River. Storm water from the proposed site ultimately outfalls into the aforementioned watercourse. This forms an indirect pathway to Natura 2000 sites in the region in and around Dublin Bay, such as the South Dublin Bay SAC, North Dublin Bay SAC, South Dublin Bay and River Tolka SPA and the North Bull Island SPA. However, in the absence of any mitigation measures on site to comply with Water Pollution Acts, as these Natura 2000 sites with a potential pathway are located more than 15 km from the proposed development, no significant impact on the conservation objectives of these sites is foreseen. Any pollutants or silt produced from the proposed development will settle, disperse, or be diluted prior to reaching designated sites. There is an indirect pathway via the foul wastewater networks. However, the foul will be connected to an existing public network which will be treated at Ringsend WWTP under licence. Watercourses and designated conservation sites within 15km of the subject site (with the potential for a hydrological pathway) are demonstrated in Figures 15-17.

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

NATURA 2000 Site	Distance
Special Areas of Conservation	
Glenasmole Valley SAC	5.6 Km
Wicklow Mountains SAC	7 Km
Rye Water Valley/Carton SAC	8.5 Km
Red Bog, Kildare SAC	11.4 Km
North Dublin Bay SAC	15.9 km
South Dublin Bay SAC	19.0 km
Special Protection Areas	
Wicklow Mountains SPA	10.3 Km
Poulaphouca Reservoir SPA	12 Km
South Dublin Bay and River Tolka Estuary SPA	16.0 km
North Bull Island SPA	19.0 km

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

Status	Site Name	Distance
Proposed NHA	Slade of Saggart and Crooksling Glen	2.4 km
Proposed NHA	Lugmore Glen	2.9 km
Proposed NHA	Grand Canal	4.3 km
Proposed NHA	Glenasmole Valley	5.6 km
Proposed NHA	Dodder Valley	5.7 km
Proposed NHA	Liffey Valley	7.2 km
Proposed NHA	Kilteel Wood	7.7 km
Proposed NHA	Rye Water Valley/Carton	8.5 km
Proposed NHA	Royal Canal	8.9 km
Proposed NHA	Red Bog, Kildare	11.3 km
Proposed NHA	Poulaphouca Reservoir	11.9 km
Proposed NHA	Fitzsimon's Wood	13.7 km

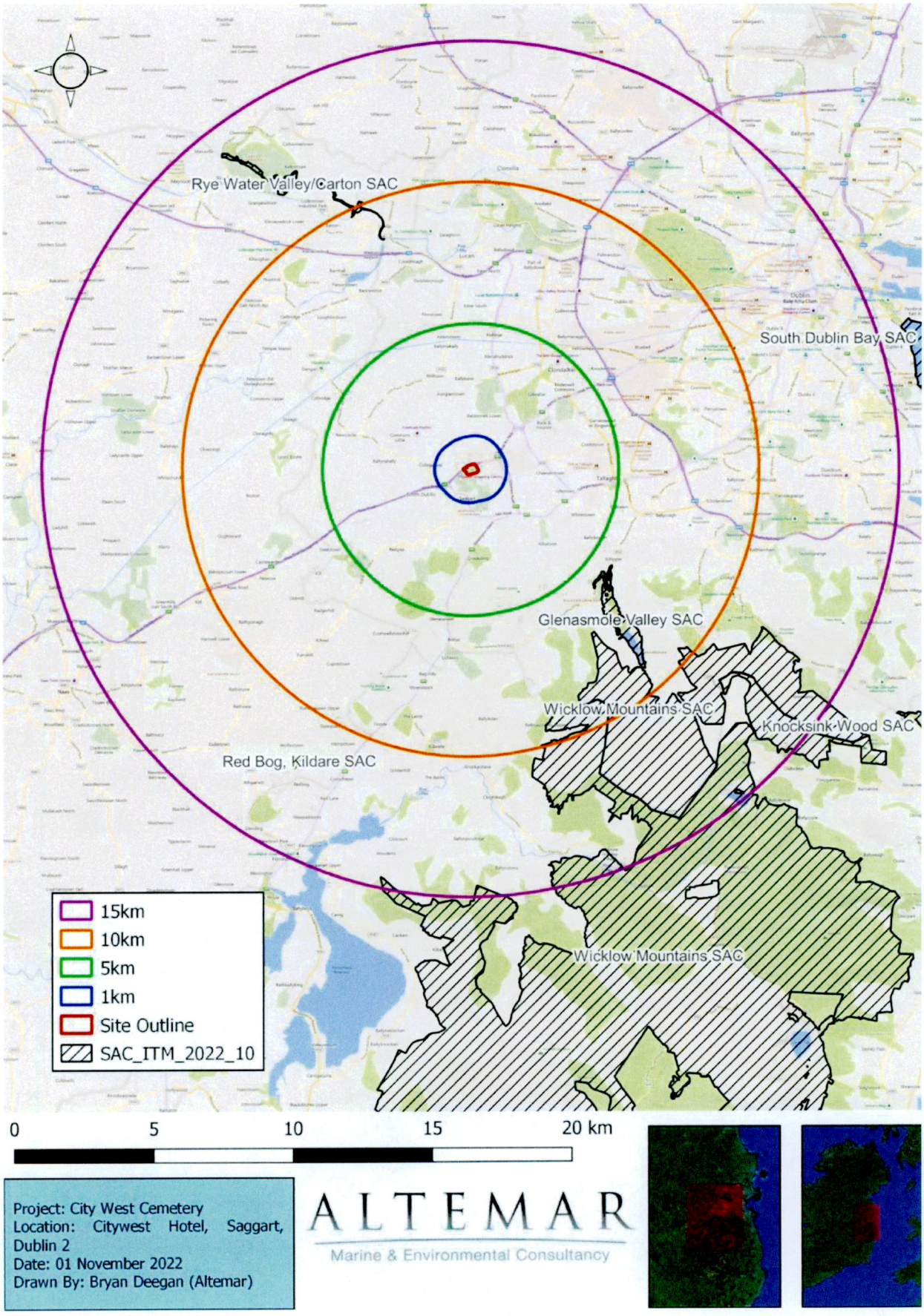


Figure 10. *Special Areas of Conservation (SAC) within 15km of proposed development*

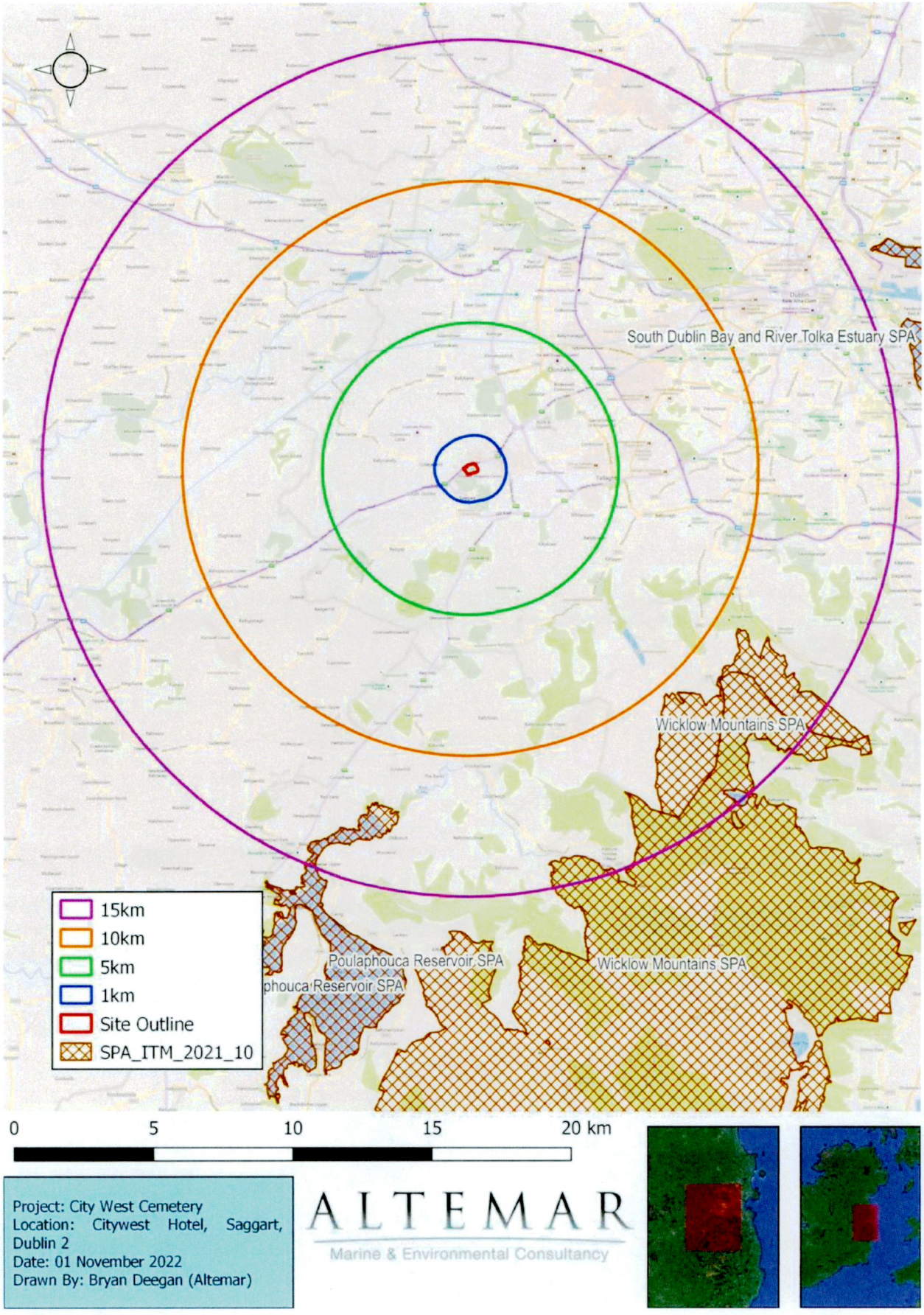


Figure 11. *Special Protection Areas (SPA) within 15km of proposed development*

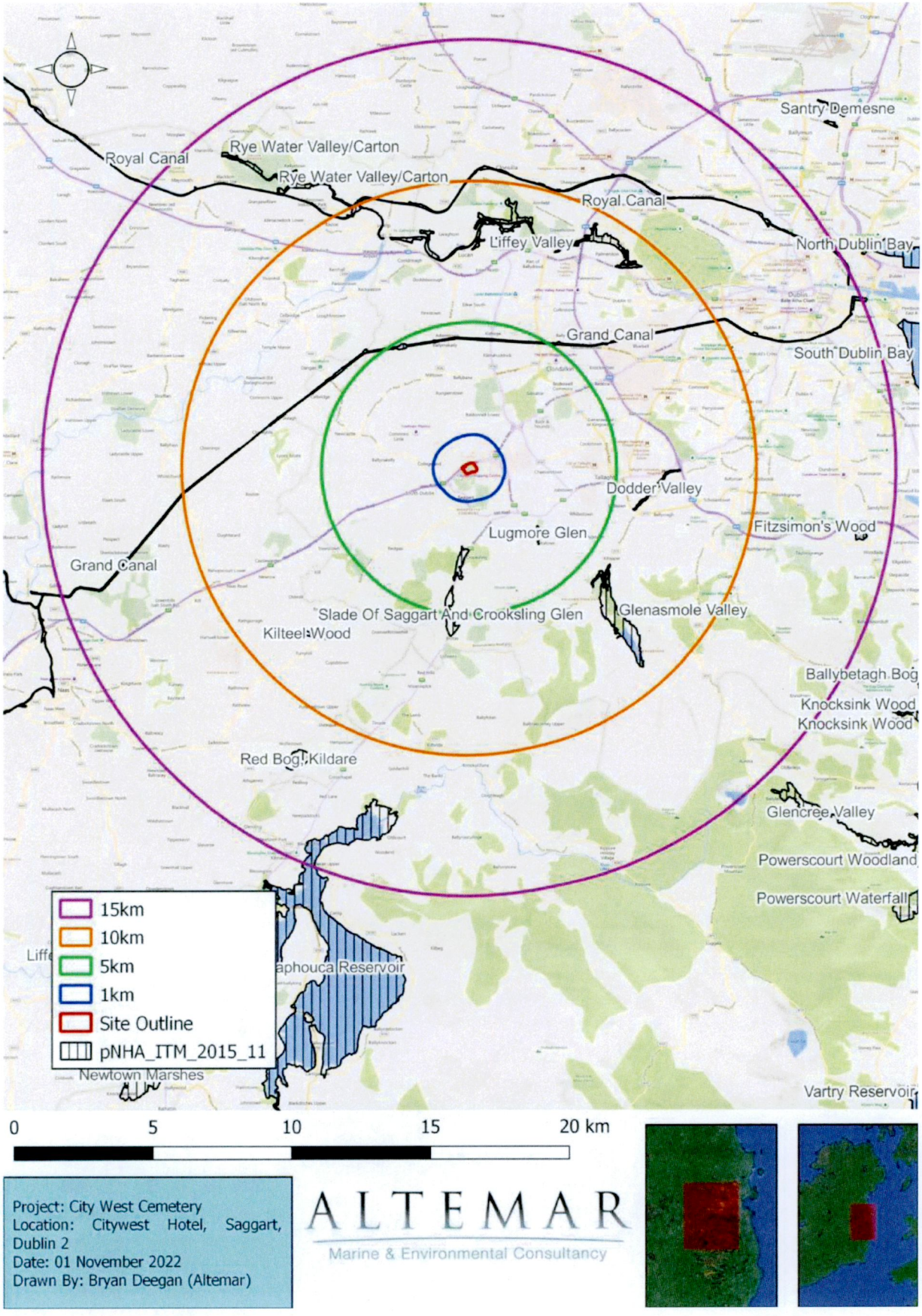


Figure 12. *proposed Natural Heritage Areas (pNHA) within 15km of proposed development*

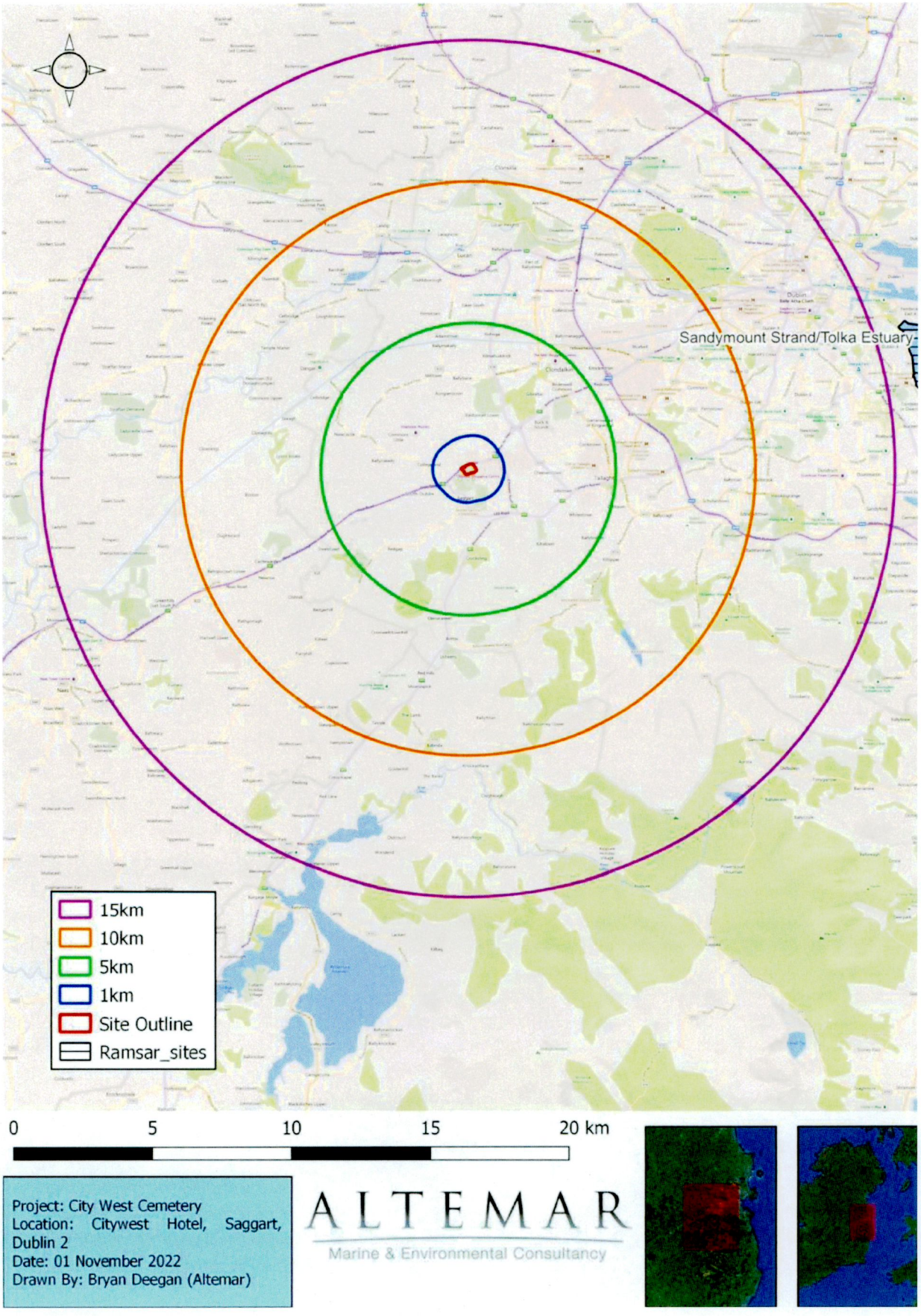


Figure 13. *Ramsar sites within 15km of proposed development*

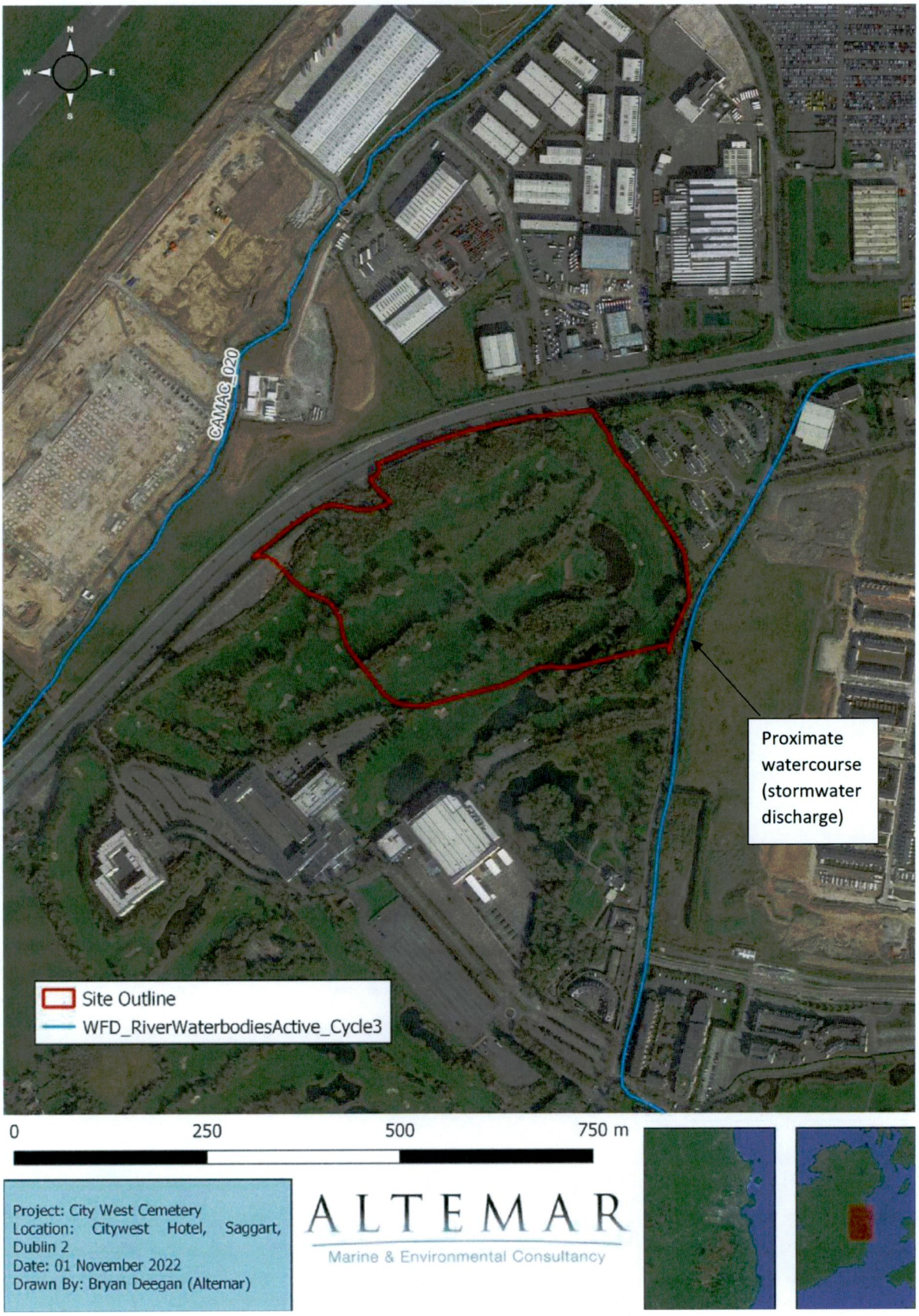


Figure 14. *Watercourses within close proximity to proposed development*

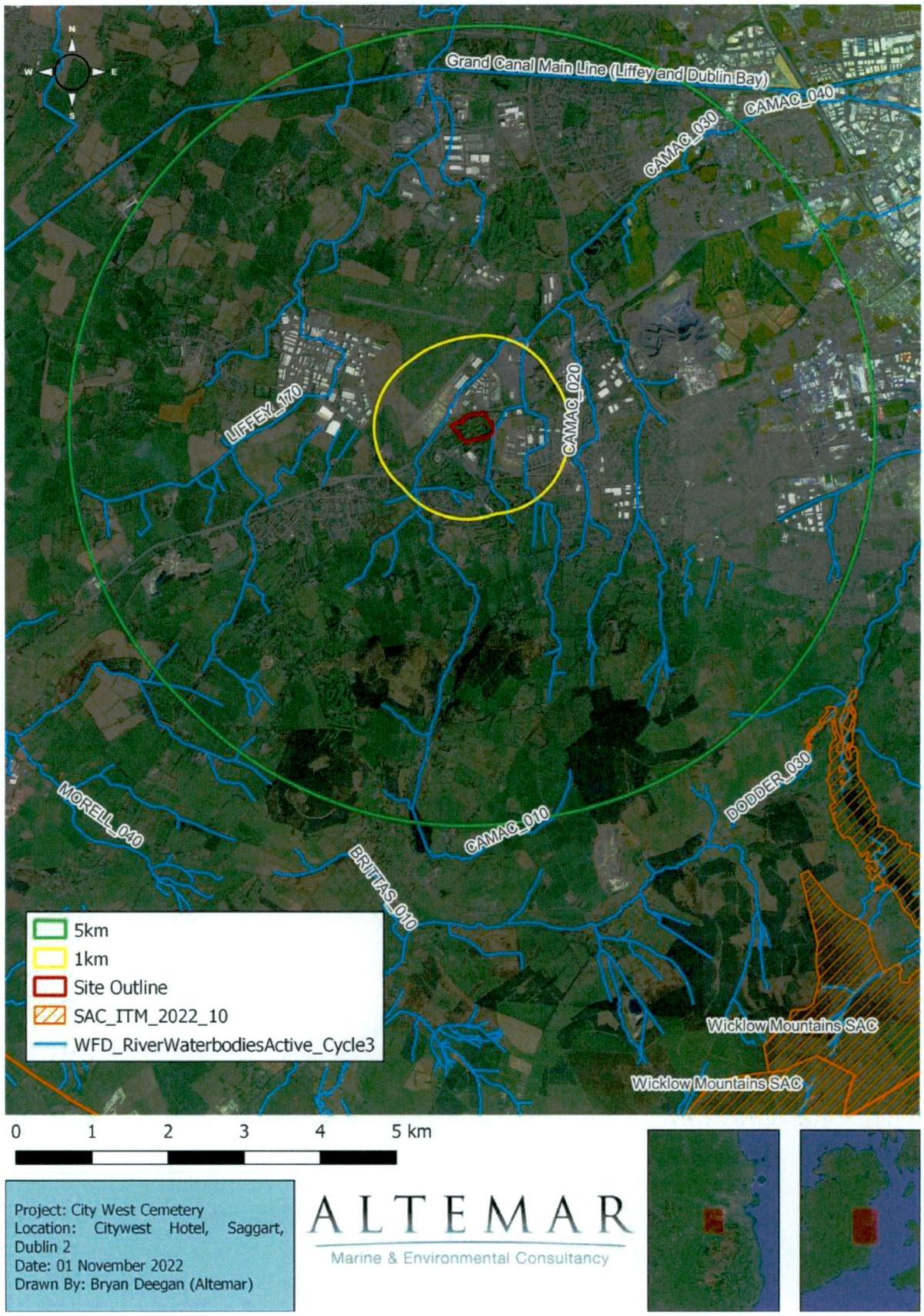


Figure 15. *Watercourses and SACs within 5km of the proposed development*

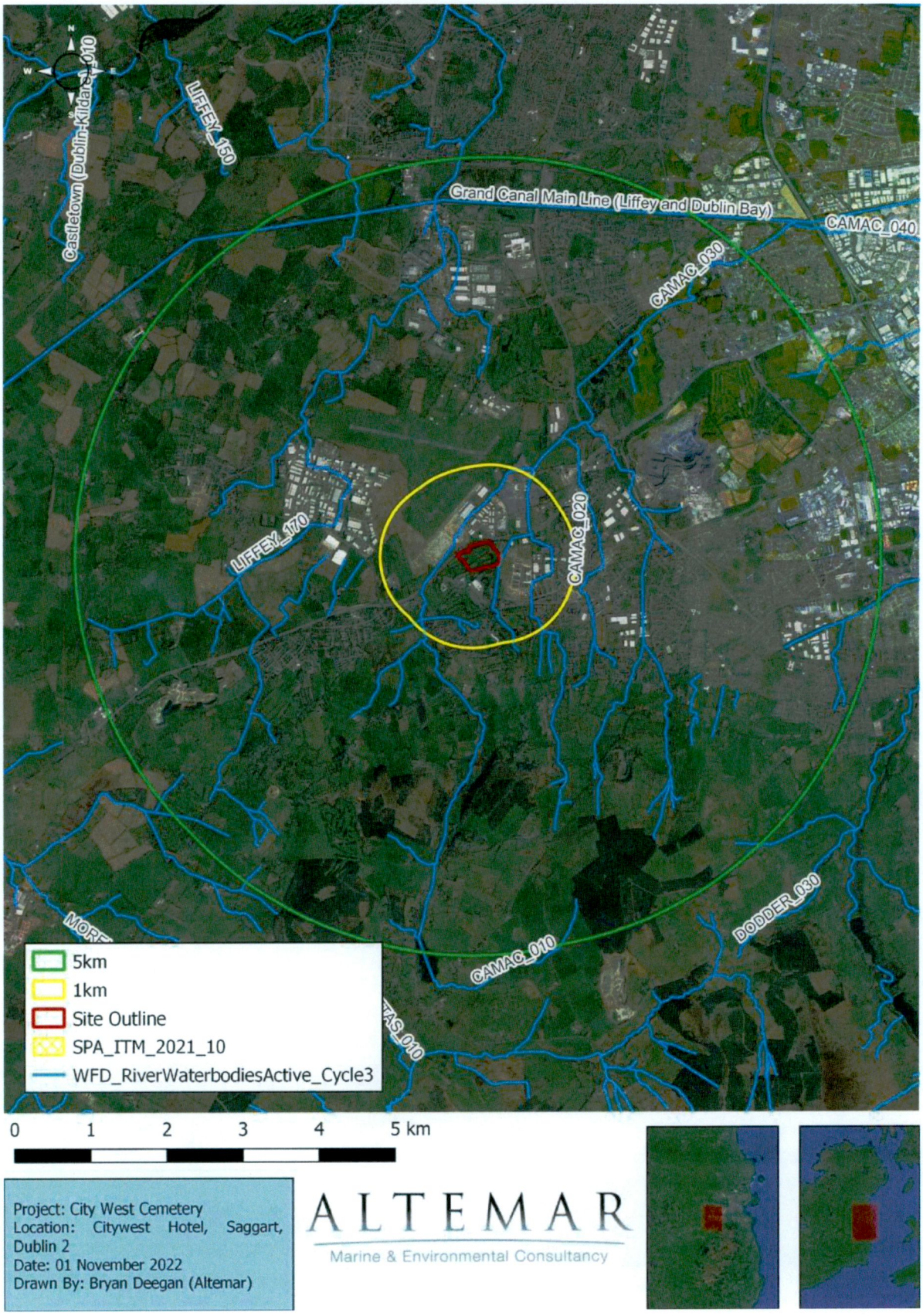


Figure 16. *Watercourses and SPAs within 5km of the proposed development*

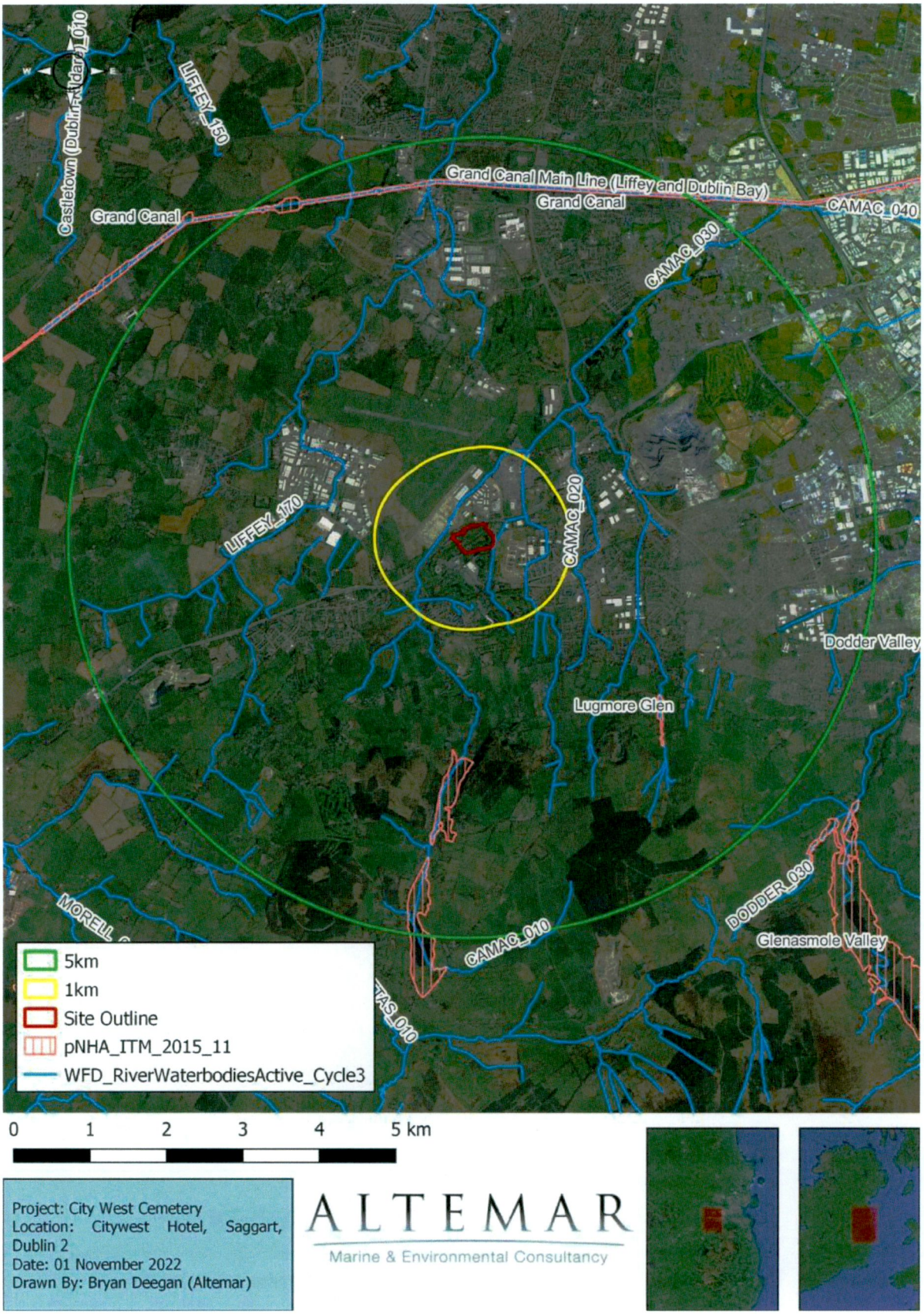


Figure 17. *Watercourses and pNHAs within 5km of proposed development*

Habitats and Species

A site assessment was carried out on the 4th & 28th September 2020 and 24th September 2022. Habitats within the proposed site were classified according to Fossitt (2000) (Figure 18) based on the 24th September 2022 field survey.

A) GA2- Amenity grassland

The site is a managed golf course and contains approximately 50%-60% well maintained amenity grassland. It should be noted that as seen in Plate 1 the grassland extends beneath tree canopies on site. This habitat has poor species diversity and herbicide use was evident. Species in the area include creeping buttercup (*Ranunculus repens*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), daisy (*Bellis perennis*), plantains (*Plantago spp.*), dandelion (*Taraxacum spp.*), thistles (Cirsium sp.) and docks (Rumex spp.). Frogs (*Rana temporaria*) were noted in this habitat, in the south east corner of the site proximate to the stream. A grey heron (*Ardea cinerea*) was observed foraging on frogs in this area.

Plate 1: Amenity grassland primarily well managed golf fairways.

Figure 18. Fossitt Habitat Map.

B) WD1 (Mixed) broadleaved woodland

The vast majority of the remainder of the site consists of (Mixed) broadleaved woodland. Although narrow in parts, as the trees run parallel to the fairways, the width of the tree lines are greater than 4m which is the limit for treelines (WL2) within the Fossitt classification. Also, several areas of this woodland habitat may be considered WD5 (Scattered trees and Parkland). However, the trees are within clusters and it was considered that an overall habitat of (Mixed) broadleaved woodland was appropriate, even though mown grass is beneath a portion of the habitat. It should also be noted that the northern boundary of the site is adjacent to the N7 Dual carriageway and the background noise of the road in this area was significant. The understory of flora proximate to the fairways was limited as the site is maintained as a golf course and herbicide use was evident. Further away from the fairways the understory was allowed to develop. However, tree planting in these areas was dense and light hitting the floor of the woodland was limited. As a result a thick understory was not prevalent and many of the trees grew tall and thin, limiting their potential for bat use. Flora in this area included bramble (*Rubus fruticosus* agg.), dog-rose (*Rosa caninanettle*), hedge bindweed (*Calystegia sepium*), dandelion (*Taraxacum* spp.), rosebay willowherb (*Epilobium angustifolium),* thistles (*Cirsium arvense* & *C. vulgare*), cat's-ear (*Hypochaeris radicatathistles*), ivy (*Hedera helix*), honeysuckle (*Lonicera periclymenum*), cleavers (*Galium aparine*), cherry laurel (*Prunus laurocerasus*), *rosebay willowherb (Epilobium angustifolium), hoary willowherb (Epilobium parviflorum), hawthorn (Crataegus monogyna), elder (Sambucus nigra), ivy (Hedera helix), honeysuckle (Lonicera periclymenum), and traveller's-joy (Clematis vitalba).* Trees include common oak (*Quercus robur*), beech (*Fagus sylvatica*), Austrian pine (*Pinus nigra*), silver birch (*Betula pendula*), blue cedar (*Cedrus atlantica* 'Glauca'), Black Poplar (*Populus X canadensis*), Scots pine (*Pinus sylvestris*), Norway maple (*Acer platanoides*), horse chestnut (*Aesculus hippocastanum*), sycamore (*Acer pseudoplatanus*), sweet chestnut (*Castanea sativa*), larch (*Larix sp.*), Laburnum (*Laburnum anagyroides*), rowan (*Sorbus aucuparia*), field maple (*Acer campestre*), turkey oak (*Quercus cerris*), common lime (*Tilia X europaea*), alder (*Alnus glutinosa*), douglas fir (*Pseudotsuga menziesii*), lawson cypress (*Chamaecyparis lawsoniana*), goat willow (*Salix caprea*) and copper beech (*Fagus sylvatica 'Purpurea'*). It should be noted that no active borrows or setts were noted on site. However, several trees of bat roosting potential were noted on site (Appendix I). The woodland provides a significant nesting resource for birds that utilise the site.

Plate 2. Woodland proximate to fairway . Clearing in woodland away from fairways (inset).

C) FL8 Other artificial lakes and ponds

A single large artificial pond is located on the eastern portion of the site. It is proposed to remove this pond. There is also a smaller pond on the southern portion of the redline and it is proposed to partially infill this pond. The prominent species recorded were common bullrush (*Typha latifolia*), sedges (Carex sp.), rushes (Juncus sp.), broad leaved pondweed (Potamogeton natans) and the submerged Eurasian watermilfoil (Myriophyllum spicatum), bistort (*Persicaria amphibia*), water forget-me-not (*Myosotis scorpioides*), common duckweed (*Lemna minor*), yellow flag (*Iris pseudacorus*), water-cress (*Rorippa nastutium-aquatica*), water mint (*Mentha aquatica*), willows (salix sp.). A pair of coot (*Fulica atra*) (amber status) were noted in the pond. Common frog (*Rana temporaria*) was not noted but would be expected in this habitat.

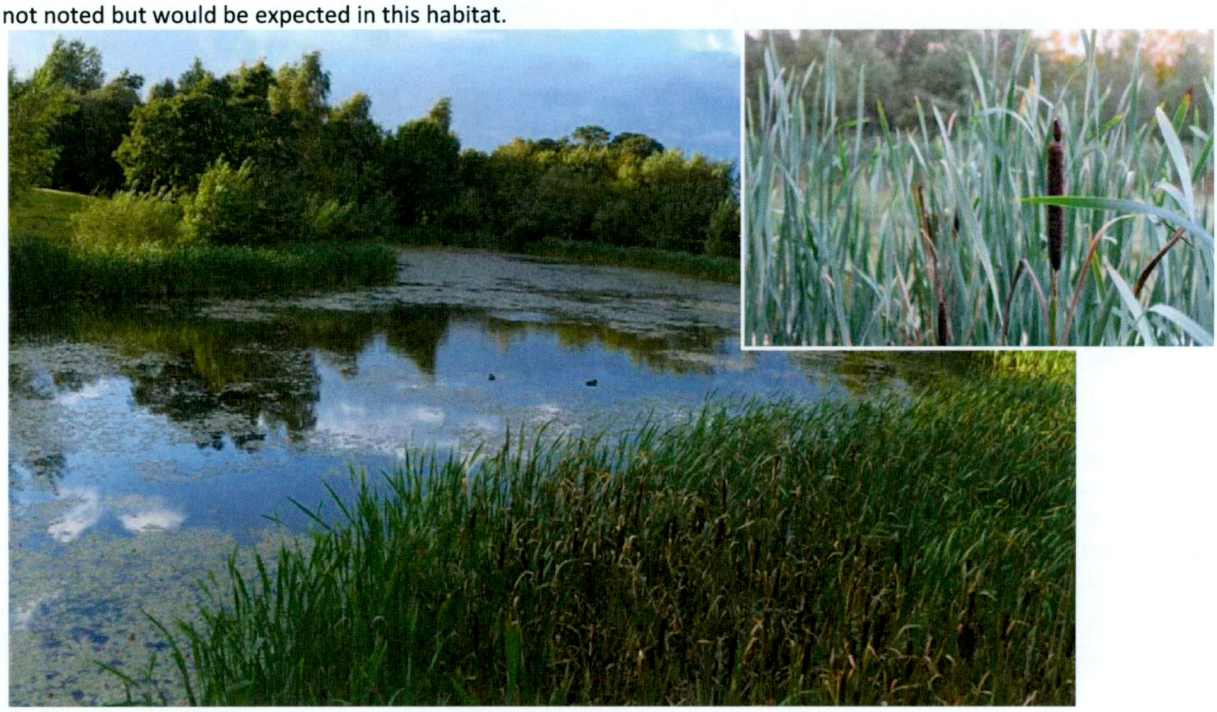


Plate 3. Large Pond

BL Built Land.

Areas of built land on site primarily consist of active roads and an existing gate lodge. Herbicide use was evident. Species in these areas included nettle (*Urtica dioica*), dandelion (*Taraxacum* spp.), bramble (*Rubus fruticosus* agg.), pineapple weed (*Matricaria discoidea*) creeping buttercup (*Ranunculus repens*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), daisy (*Bellis perennis*), plantains (*Plantago* spp.), thistles (*Cirsium arvense & C. vulgare*), docks (*Rumex* spp.) and scarlet pimpernel (*Anagallis arvensis*). The Gate Lodge was inhabited and no bats were noted emerging from the building during the bat survey. It should be noted that this building is proximate to the N7 dual carriageway, with very high traffic noise levels.

Plate 4. Built Land.

Evaluation of Habitats

The proposed development site is comprised of the grounds of a large maintained golf course, where the grassland habitat and the majority of the understory of the woodland are maintained and are of poor importance to biodiversity. However, the woodland on site, through the provision of mature large native trees, including large mature oaks, forms a locally important biodiversity resource, primarily for nesting birds, insects and foraging corridors for bats (away from the noise of the N7). Several trees of bat roosting potential were also noted. Due to the presence of frogs on the grassland in the vicinity of the stream and pond area, it would be expected that frogs would utilise the pond area in addition to the coot (amber listed) bird.

Evaluation of Species

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 NPWS were examined and the National Biodiversity Data centre. No rare or threatened plant species were recorded in the immediate vicinity of the proposed site at a fine resolution.

Amphibians

The common frog (*Rana temporaria*) was observed on site and there are several water features/ponds/drainage ditches or streams on site that would act as areas where frogs could be found.

Bats

A bat fauna study was carried out (Appendix I). As outlined in Appendix I due to the high noise levels on site as a result of the proximity to the N7 dual carriageway bat activity in the northern portion of the site may be limited. However, it appears that as noise levels decreased towards the mid and southern sections of the site bat activity significantly increased and was primarily focused alone the fairways which acted as foraging routes for bat species. Within the dense forest areas the trees have been planted densely and are tall and of limited use to bats. However, the larger and more mature trees in small isolated groups away from the N7 would be of greater importance to roosting and foraging.

As outlined in Appendix I, no specific bat roost was identified in any of the onsite trees. However, as a number of bats are active onsite and mature trees onsite have potential for bat use mitigation measures to safeguard these animals are needed during vegetation clearance and tree removal. A single tree of bat roosting potential is to be removed (Tree 772). As outlined in Appendix I, a derogation licence is not required to fell the trees of roosting

potential as no actual bat roosts were observed. However, it recommended that a pre-construction survey is carried out and in particular on tree 772.

Terrestrial Mammals

The initial field surveys were carried out in September. This is a poor time to observe terrestrial mammal activity. However, given the nature of the highly maintained environment and the limited undergrowth within the forested areas this is not seen as a constraint as all areas of the site were accessible. No protected mammals or, their resting or breeding places were noted on site. However, given the lack of human activity on site since the survey due to the Covid 19 pandemic, it is recommended that a pre-construction survey is carried out. No mammal species were recorded by the NPWS rare and threatened species database in the immediate vicinity of the proposed site at a fine resolution.

Birds

During the site visit a record were kept of the bird species observed on site. The following bird species were noted during the site visit (Appendix II).

June 5th, 2022

Sunrise- 05.01hrs/Sunset- 21.47hrs. Weather – Wind F2 East, Cloud 8/8, Dry, 12c, Excellent visibility. On-site 07.15hrs – 10.15 hrs.

Species recorded – Coot, Tufted Duck, Mallard, Little Grebe, Mute Swan, Moorhen, Grey Heron, Herring Gull, Coal Tit, Blue Tit, Bullfinch, Goldfinch, Chaffinch, Swallow, Chiffchaff, Willow Warbler, Blackcap, Goldcrest, Robin, Dunnock, Wren, Woodpigeon, Hooded Crow, Jackdaw, Magpie, Treecreeper, Blackbird, Mistle Thrush, Song Thrush, Buzzard.

Species proved breeding – Coot, Mallard, Blue Tit, Goldcrest, Wren.

June 19th, 2022

Sunrise- 04.56hrs/Sunset- 21.56hrs. Weather – Wind F1 East, Cloud 4/8, Dry, 13c, Excellent visibility. On-site 07.15hrs – 10.30 hrs.

Species recorded – Coot, Tufted Duck, Mallard, Little Grebe, Mute Swan, Moorhen, Grey Heron, Herring Gull, Coal Tit, Blue Tit, Great Tit, Long-tailed Tit, Bullfinch, Goldfinch, Chaffinch, Swallow, Chiffchaff, Willow Warbler, Blackcap, Goldcrest, Robin, Dunnock, Wren, Woodpigeon, Hooded Crow, Jackdaw, Magpie, Treecreeper, Blackbird, Mistle Thrush, Song Thrush, Buzzard.

Species proved breeding – Coot, Mallard, Little Grebe, Moorhen, Coal Tit, Blue Tit, Long-tailed Tit, Chaffinch, Robin.

July 9th, 2022

Sunrise- 05.09hrs/Sunset- 21.51hrs. Weather – Wind F1 Southwest, Cloud 7/8, Dry, 18c, Excellent visibility. On-site 07.00hrs – 10.00hrs.

Species recorded – Coot, Tufted Duck, Mallard, Little Grebe, Mute Swan, Moorhen, Grey Heron, Herring Gull, Lesser black-backed Gull, Black-headed Gull, Coal Tit, Blue Tit, Bullfinch, Goldfinch, Chaffinch, Linnet, Swallow, House Martin, Chiffchaff, Willow Warbler, Blackcap, Goldcrest, Robin, Dunnock, Wren, Woodpigeon, Hooded Crow, Jackdaw, Magpie, Treecreeper, Blackbird, Mistle Thrush, Song Thrush, Buzzard.

Species proved breeding – Coot, Little Grebe, Moorhen, Willow Warbler, Goldcrest, Robin, Wren.

Breeding species recorded on-site that are amber-listed on Birdwatch Ireland's Bird of conservation concern in Ireland 2020-2026 were Coot, Mallard, Willow Warbler and Goldcrest.

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 by generating a report based on the site outline, however it recorded no species of conservation interest in the site area. Following this, a 2 km^2 grid, reference number O021, based on the Ordnance Survey Ireland (OSI) Irish Grid classification system was assessed. As the site falls within two separate grids, a 1 km^2 grid with the reference number O0427 was also assessed. Table 6 provides a list of all species recorded in the species reports generated for these two grids that possess a specific designation, such as Invasive Species or Protected Species.

Table 6. Recorded species, associated designations and grid references

Date of Record	Species Name	Designation
11/09/2019	Japanese Knotweed (*Reynoutria japonica*)	Invasive Species >> High Impact Invasive Species
12/07/2020	Common Frog (*Rana temporaria*)	Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
31/05/1972	Smooth Newt (*Lissotriton vulgaris*)	Protected Species: Wildlife Acts
31/07/1991	Barn Swallow (*Hirundo rustica*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
23/03/2016	Common Pheasant (*Phasianus colchicus*)	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
31/07/1991	Common Starling (*Sturnus vulgaris*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
23/03/2016	Common Wood Pigeon (*Columbia palumbus*)	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
18/08/2013	Freshwater White-Clawed Crayfish (*Austropotamobius pallipes*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
20/09/2005	Brown Long-eared Bat (*Plecotus auratus*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
15/08/2011	Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
15/08/2011	Soprano Pipistrelle (*Pipistrellus pygmaeus*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts

An assessment of files received from the NPWS (Code No. 2020_185) which contain records of rare and protected species and grid references for sightings of these species was carried out as part of this EcIA. There are no recorded sightings within the site itself, however there are some records for grids that are in close proximity to the subject site. The following table provides a summary of the species identified, the year of identification, survey name:

Table 3. Species survey, NPWS

Data ID.	Species	Survey Name	Sample Year
6135	Otter (*Lutra lutra*)	Otter Survey of Ireland 1982 – Vincent Wildlife Trust	1982
O030270	Smooth Newt (*Lissotriton vulgaris*)	AFF Mammals, Reptiles & Amphibians Distribution Atlas 1978	1978
8955	Common Frog (*Rana temporaria*)	National Frog Survey 2011 – additional records	2011
29181	Freshwater Crayfish	Crayfish EPA Data	2005

Potential Effects

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 Effects

Construction of the proposed development would have an adverse impact on the existing ecology of the site and the surrounding area. These construction impacts would include impacts that may arise during the site clearance, road construction and the building of the proposed development including the works proximate to and within the ponds.

Designated Conservation sites within 15km

The nearest designated conservation site is the Slade of Saggart and Crooksling Glen pNHA which is 2.4km from the proposed development. There is no direct hydrological pathway from the proposed development site to designated conservation sites. However, there is an indirect pathway via a stream on site which feeds the Camac River, that is located downstream of the proposed site, into which the surface water from the development site discharges after attenuation. Designated conservation sites with an indirect pathway to the proposed development site are located within the estuarine/marine environment within Dublin Bay on the far side of Dublin City, a significant distance from the proposed development site. Having taken into consideration the proposed development works, the scale of the development, the distance between the proposed development site to designated conservation sites (min 2.4 km), lack of direct hydrological pathway or biodiversity corridor link to conservation sites, settlement and the dilution and mixing effect of site discharges with other effluent and water, it is concluded that this development that would not give rise to any significant effect on any designated sites in the absence of mitigation. However, as the development has a watercourse on site and works are proposed in the vicinity of the watercourse, the proposed project will require mitigation to comply with Water Pollution Acts. However, no significant impact is likely in relation to designated conservation sites from the proposed development in the absence of these measures.

Impacts: Neutral/Imperceptible/Temporary/localised/unlikely.

Biodiversity

During the site visits no flora or terrestrial mammal species of conservation importance were recorded on site or in NPWS or NBDC records. The majority of the trees on site will be retained and the tree loss will be primarily as a result of the new access road.

Common mammalian species. Loss of habitat and habitat fragmentation may affect some common mammalian species and there is expected to be mortality during construction.

Amphibians and reptiles. Frogs were observed on site. The proposed development will reprofile the area in the vicinity of the pond and connect to the existing watercourse to the east of the site. Ecological supervision and pre-construction surveys are required for frogs on site. No reptiles were recorded on site.

Birds will be impacted through a loss in nesting and foraging resource. The pond on site will be retained but works result in a temporary loss of habitat for the amber listed coot.

Bat Fauna. One tree of low-Medium bat roosting potential is to be felled (No772). Active bat foraging corridors in general are to be retained. Mitigation is required. Enhancement of the site with bat boxes and tree planting is recommended.

Impacts: Minor adverse/ Negative / Long-term, localised, likely.

Operational Phase

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. 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. As outlined in the Environmental and Hydrogeological assessment "*The outcome of the DQRA was that no unacceptable risks to groundwater were identified.*" Lighting on site will be in compliant with bat lighting guidelines and will be low level lighting.

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 in the absence of these measures.

Biodiversity

As the landscaping elements improve with maturity it would be expected that the biodiversity value of the site to birds and flora would also increase. However, much of the site will contain managed grassland which is of low biodiversity value. This lighting could impact on bat foraging if used over a 24 hour period. However, the Cemetery will utilise standard park times and will not be lit when the cemetery is closed. The site is an existing golf course on hotel grounds beside the N7. Biodiversity on site would be accustomed to human activity and levels of disturbance including background noise. Increased activity in the vicinity of the pond may result in localised disturbance.

Common mammalian species. Negligible impact would be foreseen in relation to common mammal species. .

Amphibians and reptiles. Frogs were observed on site. The proposed development will retain the pond features on site Ecological supervision and pre-construction surveys are required for frogs on site. No reptiles were recorded on site.

Birds will be impacted through a short to medium loss in nesting and foraging resource. Additional planting will be carried out. The pond on site will be retained but works result in a temporary loss of habitat for the amber listed coot. Mitigation is required to fence off the pond to minimise disturbance to nesting bird species.

Bat Fauna. One tree of low-Medium bat roosting potential is to be felled (No772). Active bat foraging corridors in general are to be retained. Mitigation is required. Enhancement of the site with bat boxes and tree planting is recommended.

Impacts: Neutral-Minor adverse/ Negative / Long-term, localised, likely.

Indirect Impacts

The construction of new drainage networks will have to comply with SUDS requirements and as a result would have negligible/slightly positive impact on habitats and species surrounding proposed development site. No indirect negative impacts are likely.

Mitigation Measures & Monitoring

Standard construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the biodiversity within the Zone of Influence (ZoI) including the stream that leads to the Camac River.

Designated Conservation sites within 15km

The mitigation has been designed to ensure that the project will comply with the Water Pollution Acts and standard IFI mitigation in relation to construction and drainage. However, these measures are not required for the protection of Natura 2000 sites. No specific mitigation is required for the protection of designated conservation sites.

Biodiversity

A project ecologist will be appointed prior to works or site clearance commencing on site.

Lighting Design
All lighting on site will be designed to comply with bat lighting guidelines and the timing of lights and settings will be developed to the satisfaction of the project ecologist and SDCC Heritage Officer. No works will commence on site until the lighting plan has been approved by SDCC and the project ecologist.

Preconstruction Surveys
Pre-construction surveys will be carried out in relation to terrestrial mammals, amphibians, bats (including trees of bat roosting potential), birds (including birds utilising the pond). Derogation licences will be sought from the NPWS where species of conservation importance are noted on site. Prior to the commencement of works, including site clearance, on site species of conservation importance will be dealt with in compliance with NPWS derogation licences where relevant

Construction Phase Mitigation

A robust series of construction phase mitigation measures are outlined in table 10 in order to help mitigate the potential impacts of the proposed development. These measures will be followed and overseen by the project ecologist.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
Camac River	• Habitat degradation • Dust deposition • Pollution • Silt ingress from site runoff • Downstream impacts • Negative impacts on aquatic and bird fauna	• A project ecologist will be appointed to oversee works on site. • Staging of project will be carried out to the approval of the project ecologist, to reduce risks to watercourses from contamination. • Draining of the pond on site (if required) will be outside the bird nesting season and associated works will be overseen and carried out to the satisfaction of the project ecologist. • Mitigation including silt barriers will be in place. • Local watercourses must 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 watercourse and drains • Stockpiling of loose materials (if required) will be kept to a minimum of 20m from watercourses and drains. • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses. • Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, ditches or the watercourse, 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. Any water-filled excavations, including the attenuation tank during construction, that require pumping will not directly discharge to the stream. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality. • Staging of project to initially stabilise, isolate, fence off watercourse • Mitigation measures on site include dust control, stockpiling away from watercourses and drains • Stockpiling of loose materials will be kept away from watercourses and 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 and watercourses. • 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 the stream to prevent sediment entering the watercourse. • Petrochemical interception and bunds in refuelling area • On-site inspections to 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 stream or drainage network during the connection of pipework to the public water system • No discharges will be to the watercourse during works • Silt traps established throughout site including a double silt fence between the site and the watercourse. • Sufficient onsite cleaning of vehicles prior to leaving the site and on nearby roads, will be carried out, particularly during groundworks.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• 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. • The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area. • 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 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 are not permitted from the site into the watercourse during the works. Trenched double silt fencing shall be put in place along boundary of the proposed development site and the stream. This fencing must be in place as one of the first stages on site and prior to the full site clearance. The silt fencing will act as a temporary sediment control device to protect the watercourse from sediment and potential site water runoff. The fencing will be inspected twice daily, based on site and weather conditions, for any signs of contamination or excessive silt deposits. • Concrete trucks, cement mixers or drums/bins are only permitted to wash out in designated wash out area greater than 50m from sensitive receptors including drains and drainage ditches. • Abstraction of water from watercourses is not to be permitted. • Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis. • All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected. All persons working on-site will receive work specific induction in relation to surface water management and run off controls. **Air & Dust** Dust may enter the watercourse 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 stream. 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. • The stream is to be protected from dust on site. This may require additional measures in the vicinity of the building during demolition e.g. placing of terram/protective material over the stream.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		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. *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. • Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions. • Maintain a vegetated strip and vehicle exclusion zone between the works and the stream in consultation with the project ecologist. *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.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• 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. • Due to the proximity of the watercourse an ecologist will oversee works in particular the excavation of material from the perimeter of the site. • 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. *Storage/Use of Materials, Plant & Equipment* • Materials, plant and equipment shall be stored in the proposed site compound location; • Plant and equipment will not be parked within 50m of the watercourse at the end of the working day; • Hazardous liquid materials or materials with potential to generate run-off shall not be stored within 50m of the watercourse. • All oils, fuels and other hazardous liquid materials shall be clearly labelled and stored in an upright position in an enclosed bunded area within the proposed development site compound. The capacity of the bunded area shall conform with EPA Guidelines – hold 110% of the contents or 110% of the largest container whichever is greater; • Fuel may be stored in the designated bunded area or in fuel bowsers located in the proposed compound location. Fuel bowsers shall be double skinned and equipped with certificates of conformity or integrity tested, in good condition and have no signs of leaks or spillages; • Smaller quantities of fuel may be carried/stored in clearly labelled metal Jeri cans. Green for diesel and red for petrol and mixes. The Jeri cans shall be in good condition and have secure lockable lids. The Jeri cans shall be stored in a drip tray when not in use. They will not be stored within 50m of the watercourse; • Drip trays will be turned upside down if not in use to prevent the collection of rainwater; • Waters collected in drip trays must be assessed prior to discharge. If classified as contaminated, they shall be disposed by a permitted waste contractor in accordance with current waste management legal and regulatory requirements; • Plant and equipment to be used during works, will be in good working order, fit for purpose, regularly serviced/maintained and have no evidence of leaks or drips; • No plant used shall cause a public nuisance due to fumes, noise, and leakage or by causing an obstruction; • Re-fuelling of machinery, plant or equipment will be carried out in the site compound as per the appointed Construction Contractor re-fuelling controls; • The appointed Construction Contractor EERP will be implemented in the event of a material spillage;

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• All persons working will receive work specific induction in relation to material storage arrangements and actions to be taken in the event of an accidental spillage. Daily environmental toolbox talks / briefing sessions will be conducted for all persons working to outline the relevant environmental control measures and to identify any environment risk areas/works.
Birds (National Protection)	• Removal nesting habitat. • Removal foraging habitat. • Destruction and/or disturbance to nests (injury/death). • Predation .	• Tree protection measures will be in place the protect retained trees. This will be inspected by an arborist prior to construction/clearance commencing on site. • "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. This would include nesting gulls on buildings if present. • Removal of/impacts on potential nesting habitats (including ponds) will be outside of bird breeding season (March to August inclusive). Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent. • Ecological supervision will be on site.
Bats (international Protection)	• Removal roosting/foraging habitat. • Lighting Impacts	• Pre Construction survey for bats of trees to be felled and in particular tree 772, including acquisition of derogation licences if required. • Retain hedgerows and ivy cover on trees where possible. • Lighting at all stages should be done sensitively on site with no direct lighting of hedgerows and treelines. • Lighting of the site will be as per bat lighting guidance and approves by SDCC heritage officer and project ecologist. • Revised landscaping will introduce unlit foraging corridors on to the site. As an enhancement measure 8 x 1FF Schwegler Bat Box will be placed on site as directed by the project ecologist.
Woodland (Local importance)	• Loss of commuting habitat.	• Tree protection measures will be in place the protect retained trees. This will be inspected by an arborist prior to construction/clearance commencing on site.
Ponds	• Loss of frog habitat	• A pre-construction amphibian assessment will be carried out. The pond will be fenced off to allow for biodiversity to be undisturbed. Fencing will allow the movement of mammals to and from the pond habitat.

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

Standard construction and operational mitigation measures are proposed. These would ensure that water entering the surface water drainage network and the River Camac is clean and uncontaminated. However, early implementation of ecological supervision and SDCC Heritage Officer, prior initial mobilisation and enabling works is seen as an important element to the project, particularly in relation to the implementation of surface water runoff mitigation and bat mitigation.

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. It would be expected that bat foraging may be reduced within the site but this would deemed note to be significant.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on terrestrial biodiversity, aquatic biodiversity and bats 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 River Camac will satisfactorily address the potential impacts on downstream biodiversity. No significant adverse impacts on the conservation objectives of European sites are likely in the absence of mitigation measures outlined above.

It is essential that these measures outlined are complied with, to ensure that the proposed development does not have "downstream" environmental impacts and significant impacts on biodiversity on site.

Impacts: Neutral-Minor adverse/ Negative / Long-term, localised, likely.

Cumulative Impacts

There are several development proposals located in the areas surrounding the subject site that have been granted permission. The following is a list of planning application(s) as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal:

Table 10. Approved planning applications proximate to th

Planning Ref.	Address	Proposal
SD21A/0022	Unit 2024, Bianconi Avenue, Citywest, Dublin 24	Partial change of use from warehouse/storage to office use on ground and first floor level consisting of offices, canteen and toilet facilities, internal staircases, and associated facilities; 1 dock leveller located on the south west elevation to existing loading bay; new external windows & doors for office spaces to the existing south east south west and north west elevations with formation of entrance to office space to existing south east elevation; new carparking/hardstanding to provide 27 car parking spaces inclusive of 2 disabled spaces; external ramped/stepped to approach to office entrance to south west elevation; alterations to existing perimeters gabion walls to the south west of existing site and realignment of kerbing and shrub line to south west elevation; car parking external LED lighting provided by way of lamp standards to car park; alterations to existing surface water drainage and associated site works.
SD22A/0269	Unit E, In the Townland of Collegeland, Baldonnel Business Park, Dublin 22	Signage for Unit E including the provision of 1 halo illuminated sign to the north eastern elevation; and all associated works. (Development site at Unit E in the townland of Collegeland, Baldonnel Business Park, Dublin 22; the site is under construction and located between Casement Aerodrome and the N7 national route)
SD21A/0230	Townlands of Moneenalion Commons Upper,	Construction 2 logistics/warehouse units (Unit F and Unit G amounting to 15,168sq.m GIA in total) south west of Mountpark Baldonnell Phase 1 and west of the older original Business Park; Unit F will comprise a GIA

Planning Ref.	Address	Proposal
	Brownsbarn and Collegeland, Baldonnell Business Park, Dublin 22	6,463sq.m (including 568sq.m of ancillary office space), 65 car parking spaces and 20 bicycle spaces; Unit G will comprise a GIA 8,705sq.m (including 608sq.m of ancillary office space) 87 car parking spaces and 28 bicycle spaces; flood mitigation measures as permitted under SD20A/0215 and SD20A/0319 will service the development and are under construction; access to the site will be from the existing Phase 1 development (referenced below) located on Clonlara Road; totem wayfinding signage; all ancillary landscaping, PV panels; internal roads, associated infrastructure and buildings and site development works to support the development at the townlands of Moneenalion Commons Upper, Brownsbarn and Collegeland, Baldonnell Business Park, Dublin 22; the site is primarily greenfield and located between Casement Aerodrome and the N7 national route; the proposal will form part of the second phase of development to that permitted under SD20A/0215, SD19A/0370 and Phase 1 under SD15A/0309 (ABP Ref. PL06S.246392), as amended by permissions SD17A/0362, SD18A/0266 SD19A/0048 and SD20A/0319; an Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the planning application.
SHD3ABP-300555-18	Site bounded by Fortunestown Lane, Garters Lane and Bianconi Avenue, Saggart, Co. Dublin	A residential development comprising: 526 residential units and all associated site and development works as follows: - 274 3-bed 2 storey terraced units, 185 4-bed 2 and 3 storey terraced and end of terrace units, 67 2-bed apartment/duplex units (37 2-storey, 2 bed terraced duplexes, 18 1-storey 2 bed terraced apartments and 12 1 storey 2 bed end of terrace apartments). The development also provides for a district park (4.58 ha) and a neighbourhood park (0.71 ha) in accordance with the Fortunestown Local Area Plan 2012. Permission is also sought for 789 car parking spaces, bin storage areas, ESB substations and all associated site development and infrastructural works. Vehicular access to serve the proposed development will be provided via two new access points off Garter Lane and via a new signalised junction at the southeastern corner of the site to replace the existing roundabout off Fortunestown Lane. Provision is made for a future access to Bianconi Avenue. In addition, an interim local square is proposed within the subject site providing a direct pedestrian link from the proposed development to the Saggart Luas stop. Two direct pedestrian links are proposed between the subject site and the adjoining school sites permitted under Reg Ref No SD16A/0255 providing a direct link between the school and the proposed district park and a direct link from the west of the school site to the proposed residential development. Lands identified for future development are located along the southern boundary of the current application site adjacent to Fortunestown Lane/Saggart Luas Stop. These areas will be subject of a future planning application (Phase 2) and will include the final design and layout of the local square.
SD16A/0441	Westpark, Garters Lane, Saggart, Co. Dublin	Change of use of 80 short term tourist accommodation units (34 1 bed, 46 2 bed units) and the ground floor of the 'reception' block (formerly a hotel reception, dining room and kitchen) to provide for 84 residential apartment units to comprise 34 1 bed, 44 2 bed and 6 3 bed apartments; the provision of balconies/terraces and new openings for windows/doors to all apartment units; the provision of children's play areas, bin stores and 84 bicycle parking spaces. All associated site development, building improvements, landscaping and boundary treatment works above and below ground.
SD21A/0240	Units 2007 and 2008, Orchard Avenue, Citywest	Changes of use within parts only of the existing building from storage and production to: (a) use of an area as a marketing suite/showroom (380sq.m ground floor together with an 80sq.m first floor mezzanine extension); (b)

Planning Ref.	Address	Proposal
	Business Campus, Dublin 24	automotive academy and training area (925sq.m); (c) construction of additional ancillary office/welfare accommodation (467sq.m) at ground and first floor; (d) two storey briese soleil/sun shade structure to the south elevation; (e) additional windows and glazed screens on all elevations; (f) new single storey hand wash valet structure (146sq.m) on south elevation; (g) new wall mounted signage to west and south elevation; (h) 14 new car parking spaces (previously approved) and 25 new electric car charging points; (i) revisions to existing hard and soft landscaping to accommodate the development; (j) new ramped and stepped access with external terrace to form new entrance area with canopy at existing exit on west elevation; (k) existing 8 metre high water sprinkler tank to be replaced with 11 metre high water sprinkler tank. It is intended that the majority of the premises (6926sq.m) will continue in use for storage and distribution with ancillary office use continuing also.
SD21A/0162	Brownsbarn, Citywest Campus, Dublin 24.	Construction of 2 warehouses with ancillary office and staff facilities and associated development; Unit 1 will have a maximum height of 16.35 metres with a gross floor area of 8,156sq.m including a warehouse area (7,397sq.m), ancillary office areas (362sq.m) and staff facilities (397sq.m); Unit 2 will have a maximum height of 15.35 metres with a gross floor area of 5,990sq.m including a warehouse area (5,031sq.m), ancillary office areas (536sq.m) and staff facilities (423sq.m); vehicular access/egress routes to the subject site via the existing roundabout and access road; alteration to the existing access arrangements to the subject lands to facilitate safe traffic flow to/from the proposed facilities; pedestrian access; 109 car parking spaces; bicycle parking; HGV Parking; HGV yards; level access goods doors; dock levellers; access gates; signage; hard and soft landscaping; lighting; boundary treatments; ESB substation; sprinkler tanks; pump houses; and all associated site development works above and below ground on lands bounded to the south by the N7 Naas Road, to the north and west by the National Distribution Centre and to the east by Brownsbarn Drive and the Royal Garter Stables, a Protected Structure (RPS Ref. 261).

There are no significant projects that have been granted planning or currently under construction, proximate to the development, that could potentially cause in combination effects on European sites. The project has been designed to retain the majority of ecologically sensitive components on site. Given this, it is considered that cumulative effects 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 Natura 2000 sites will be seen as a result of the proposed development in combination with other projects. No in combination effects are foreseen.

Following the implementation of mitigation measures, no significant effects are likely from in combination effects.

Residual Impacts and Conclusion

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the application the standard construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a long term neutral-minor adverse not significant residual impact on the ecology of the area and locality overall. This is primarily as a result of the increased disturbance on site in contrast to the retention of the majority of sensitive habitats on site including the woodland and pond, supported by the creation of additional biodiversity features including sensitive landscaping and lighting strategy.

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ALTEMAR

Marine & Environmental Consultancy

Appendix I. Bat fauna impact assessment for a proposed cemetery on the grounds of the Citywest Hotel, Saggart, Dublin 24.

28th November 2022

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Cape Wrath Hotel Unlimited.

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Document Control Sheet			
Client	Cape Wrath Hotel Unlimited		
Project	Bat fauna impact assessment for		
Report	Bat Fauna Assessment		
Date	28th November 2022		
Version	Author	Reviewed	Date
Draft 01	Bryan Deegan		28th November 2022

SUMMARY

Structure:	The grounds of the Citywest Hotel.
Location:	Saggart, Dublin 24.
Bat species present:	Leisler's Bat (*Nyctalus leisleri*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Common pipistrelle (*Pipistrellus pipistrellus sensu stricto)*.
Proposed work:	Development of a cemetery.
Impact on bats:	The long term impact on bats would be considered neutral and potentially positive based on the successful implementation of lighting, landscape and enhancement strategies. No bats emerging onsite trees of the building were observed. Numerous large trees on site on site have the potential for bat roosting. A single tree of bat roosting potential (772) will be removed. Tree loss will be minimal and associated primarily with the access road. Landscaping has been designed to increase the foraging corridors on site and increase the landscaped buffer and corridors in place on site which will help mitigate the noise from the N7 and increase bat activity on site. Lighting has been designed to be low level and warm temperature (3000oK) and will follow standard park lighting times. Foraging would be expected to continue on site and potentially increase in the long term due to the landscaping of foraging corridors.
Survey by:	Bryan Deegan MCIEEM
Survey date:	4th & 28th September 2020 and 24th September 2022

Receiving Environment

Background

Cape Wrath Hotel Unlimited intends to apply for a proposed cemetery on the grounds of the Citywest Hotel, Saggart, Dublin 24.

The development will consist of a cemetery including: 8,047 No traditional burial plots; Columbarium walls; 1 No. single storey reception building (214.7m2 Gross Floor Area (GFA)) comprising a reception, 1 No. office, 1 No. receptionstore, WC, kitchenette with photovoltaic (PV) solar panels at roof level; and the provision of an ancillary maintenance shed, bin and battery storage structures.

The development includes a new vehicular access road from Garters Lane to the N7/M7 Naas Road, with 2 No. vehicular access points serving the proposed cemetery; 110 No. car parking spaces (25 No. spaces to the east of the reception building and 85 No. within overflow car park areas to the south of the development); 4 No. bicycle parking stands; and all associated hard and soft landscape and boundary treatment works including the reshaping of an existing lake and provision of a footbridge; provision of SUDS measures, associated lighting, associated signage, site services (foul and surface water drainage and water supply); and all other associated site excavation, infrastructural and site development works above and below ground.

The proposed site outline, location, arborist impact plan, lighting layout and overall masterplan are demonstrated in Figures 1 – 4.

Landscape

As outlined in the landscape report by Murray and Associates Landscape Architects:

'The design concept aims to conserve the existing woodland landscape and redevelop the previous golf course fairways into a series of connected parkland spaces.

The visitor to the Cemetery, whether to attend a funeral, visit a memorial or grave, sit and reflect or to enjoy the woodlands, will understand the space firstly as a parkland with magnificent clear views and secondly as a burial/interment memorial space.

To this end, the golf course layout was redesigned, in the least invasive way possible, preserving the existing and retaining all of the woodland copses. On that account, the site is divided into traditional burial, columbarium walls and a reflection space, with the site having a reception building with car parking, a road for the hearses and pathways across the site.

The traditional burial spaces will be located in what were the fairways, with traditional grave markers designated to pay tribute while marking the burial place. As per the ash urns, these will be located in columbarium walls. The columbarium walls punctuate the landscape, creating a sense of place and adding definition within the park. These are mostly placed in the woodland areas to reduce the visual impact while integrating them with the existing landscape.

The main road will be both vehicular and pedestrian and provide access to the grave plots before and after the ceremonies, as well as for ongoing maintenance of the cemetery. Each fairway includes a secondary pedestrian path that will allow easier access to the burial areas. The proposed paths have organic shapes that are adapted to the existing vegetation and will direct the visitors through the site.

The building will be mainly used for as a reception building for services with toilets; as well provide office for management purposes. A memorial forest with a water feature is proposed at the entrance to the reception building. This space is a reflection and mourning area, as well as an appropriately designed place where visitors can get together before and after the ceremonies.

The path leading from the memorial forest and reception building provides views to specimen tree at the centre of the lake, as well as views through the landscaped cemetery.

This area has a parkland feel with looped paths and existing trees providing canopy cover and shelter.

In general terms, the Cemetery is a collection of high-quality spaces with a range of space that will aspire to the following precepts:

- *provide a high-quality parkland;*
- *create a respectful and beautiful space for people to lay their loved ones to rest;*
- *provide hearse access throughout the site;*
- *provide walking paths;*
- *enhance habitat values and biodiversity;*
- *create inviting, well-designed open spaces for visitors to simply relax or to remember their loved ones.*

Citywest Cemetery will include approximately 4 ha of burial areas divided in: 8047 traditional burials and 100 of Columbarium walls. This means approximately 8047 plots and 1600 urns.

The traditional areas appear as clearings in the woodland and these will be framed by the existing semi mature woodland, creating a natural sense of enclosure to allow several people to visit graves undisturbed. Furthermore, the memorial park is envisaged to be a serene and dignified space and to achieve this aim, the cemetery is separated from the car parks by trees and planting. The reception building is the central focus of the entrance area,. There is provision of 20 no. car parking spaces and 5 no. disabled car parking spaces to the west of the proposed reception/admin building.

An additional 85no. grasscrete car park spaces are provided to the south of the application site, for overflow car parking. There are two entrance points for vehicles. Vehicular for visitors provide access to the car parks; and those for the hearses provide access to burial areas within the former fairways. From the car parks, paths connect different areas of the memorial park, with further hierarchy of paths providing access to the burial areas and columbarium walls.

In summary, the proposed cemetery includes:

- *the Reception / Admin Building. See Architecture's Report for details;*
- *2 main vehicular entrances to the site;*
- *Car parking for up to 105 no. cars and 5 no. disabled car parking spaces;*
- *8 Bicycle stands to provide for 16 no. visitors.*
- *3m internal road for hearse and maintenance access to the cemetery;*
- *Seating areas provided at regular intervals along the main access, the existing track and around the lake;*
- *A network of internal paths for pedestrian access to burial areas;*
- *Traditional burial and columbarium walls (urn interment);*
- *General visitor amenities: Seating, Bins, Information Signage, Water Feature;*
- *A lake measuring approximately 2625 square metres with a footbridge:*
- *A Maintenance Shed. Refer to Architects Drawings;*
- *3 no. Gates (1 for Main Access, 1 Secondary Access, 1 for Traffic Control)'*

The proposed Landscape Masterplan for the development is demonstrated in Figure 2.

Figure 1. *Proposed site outline*

Figure 2. *Proposed landscape masterplan*

As outlined in the Landscape Architects Report the following is noted in relation to the proposed development:

'The topography of the site is primarily gentle sloping throughout, with fairways somewhat recessed from the woodland areas that are settled on subtle mounds.

There are groups of mature trees that are mostly native tree species creating an established planted landscape area interspersed by open fields.

The site is primarily grassland with the boundaries comprised of hedgerows and treelines.

Existing Trees and Woodland

A full tree survey and arboricultural impact assessment was undertaken by Murray and Associates, See Arboricultural Impact Assessment Report for additional details of the condition of the existing vegetation on site.

Where feasible trees will be retained, with pruning to make safe where possible. If removal is the only safe option, then trees can be felled to leave monolith stumps i.e. main trunk retained up to 5m height or fallen trees can be retained on-site for ecological reasons. The majority of the treelines are to be retained and enhanced with further planting where appropriate. Proposed paths and entrances are located for minimal effect on the existing vegetation. Where entrances break through existing hedgerows, a relatively small area of trees is proposed to be removed to facilitate the entrances and building. Any proposed paths within tree root protection areas are to be constructed with a minimal impact "no-dig" solution.

Ecology

The native ecology of the park environs is considered in the design. The majority of the proposed planting is composed of native species, the treelines in the park are retained as far as possible, with minimal impact where necessary, allowing the local and existing biodiversity to be managed and to flourish. It is also proposed to leave a large amount of any trimming etc on the floor of the woodland to enhance the biodiversity of these areas.

These existing areas are strengthened within the design through additional planting and maintenance to existing tree plantations.

Planting Proposals Summary

Extensive new planting is proposed to enhance the amenity value of the area, to improve visual quality, to enhance biodiversity and to provide screening of the Cemetery.

The cemetery proposes an additional 395 No. trees. Native species are proposed in the majority of these spaces, with non-native species proposed in limited quantities for ornamental purposes.

The burial areas are themed with a varied plant palette, creating a sense of place. This will add to the character of the burial spaces and visual interest of the Cemetery. Each plant character area will include an assortment of plant size and species to avoid monocultures and add diversity within the site.

The avenue road, that leads the visitors towards the reception building, will be a lined on both sides with Small Leaved Lime tree.

Turkish Hazel with its elegant pyramidal crown is proposed at the memorial forest.

Next to the building, around the lake area, there will be specimens of Bald Cypress with the variety 'Cascade Falls', which will give an interesting look to the whole area with its weeping structure and leaves turning yellow / copper red in autumn. It is proposed to utilise swamp cypress as the focal point in the middle of the lake.

These tree cultivars are best known for their ability to withstand waterlogging, so suitable in this lake location.

The site is edge by established trees. Some areas of existing trees will be bolstered by new complementary native planting, including Oak, Birch and Pinus species.' The landscape masterplan including the impact on trees on site is seen in Figure 3.

Arboricultural Report

As outlined in the Arboricultural Report *'There were approx. 450 trees tagged as part of the survey. The tree groups contain many more specimens, and we would estimate that the total number of trees is in excess of 1,000. Most of these trees were plantation trees or woodland plantations for the golf course.*

Oak is the predominant tree species, followed by Birch, Beech and Ash. However, many Ash specimens are infected with Ash dieback (Chalara fraxinea) and are expected to decline quickly in the coming years. The majority of the tree plantations and woodland areas will require selective thinning to allow the woodland areas to develop.

In terms of the impact to the existing trees and woodlands, the proposed scheme has been designed around the existing trees on site. There will be very low levels of tree removal. Further tree planting is proposed to reshape some of the woodland areas into a form that compliments the new layout. Overall the proposed scheme has been designed to envelop the existing woodlands and ensure their future development.

In relation to the older historic and veteran trees, a series of maintenance works are envisaged which will assist in keeping these trees in good health. These measures are detailed in the tree schedules. It is also proposed to leave a large amount of any trimming etc on the floor of the woodland to enhance the biodiversity of these areas.'

The report concludes *'The proposed development will retain the majority of the existing mature trees and woodlands on the site. The majority of the woodland areas on site would benefit from selective thinning and this would form part of the construction phase of the development.*

New tree planting will increase the level of tree cover on the site. Overall the impact to the tree cover will be significantly positive.'

Trees of Bat roosting potential

Trees on site were assessed for bat roosting potential and the trees of bat roosting potential are identified in Table 1. Table also indicates if these trees are being retained or removed as a result of the proposed development.

Table 1. Trees of bat roosting potential

Tree No.	***Potential***	***Retained/Removed***
783	*High*	*Retained*
772	***Low to moderate***	***Removed***
764	*Low to moderate*	*Retained*
735	*Low to moderate*	*Retained*
738	*Low to moderate*	*Retained*
755	*Low to moderate*	*Retained*
663	*Low to moderate*	*Retained*
667	*Low to moderate*	*Retained*
659	*Low to moderate*	*Retained*

Lighting

A lighting report has been prepared by Renaissance Engineering to accompany this planning application. This layout is demonstrated in Figure 7. There will be three different types of lights installed across the site. iRuta R is a minimal design bollard, it is ideal for discrete illumination of walkways and residential areas. Offers glare-free illumination and visual comfort, creating a welcoming atmosphere. iRuta Rs power consumption is 20W, lumen output is 2025lm and has a colour temperature of 3000k, which is within the bat lighting guidelines. The iCava is a compact recessed wall light, producing a clearly defined wash of light. Adapted to illuminate ground surfaces with downward orientation of light. iCavas power consumption is 12W, lumen output of 900lm and a colour temperature of 3000k, which is within the bat lighting guidelines. iEnna is a recessed, ceiling surface or suspended modular system in continuous line, with a visible light. With clear shapes, cutting edge LED technology and true sophistication. Smart construction and simple installation allow high impact effect. iEnnas power consumption is 54W, lumen output of 5940lm and a colour temperature of 3000k, within the bat lighting guidelines. All light types have been designed to last in extremely harsh conditions.

As discussed with the lighting engineers cemeteries follow park opening and closing hours. This means that during the winter the cemetery will be open from 8am until dusk and during the summer it would be 8am until 6pm.

Figure 3. *Arboricultural impact plan*

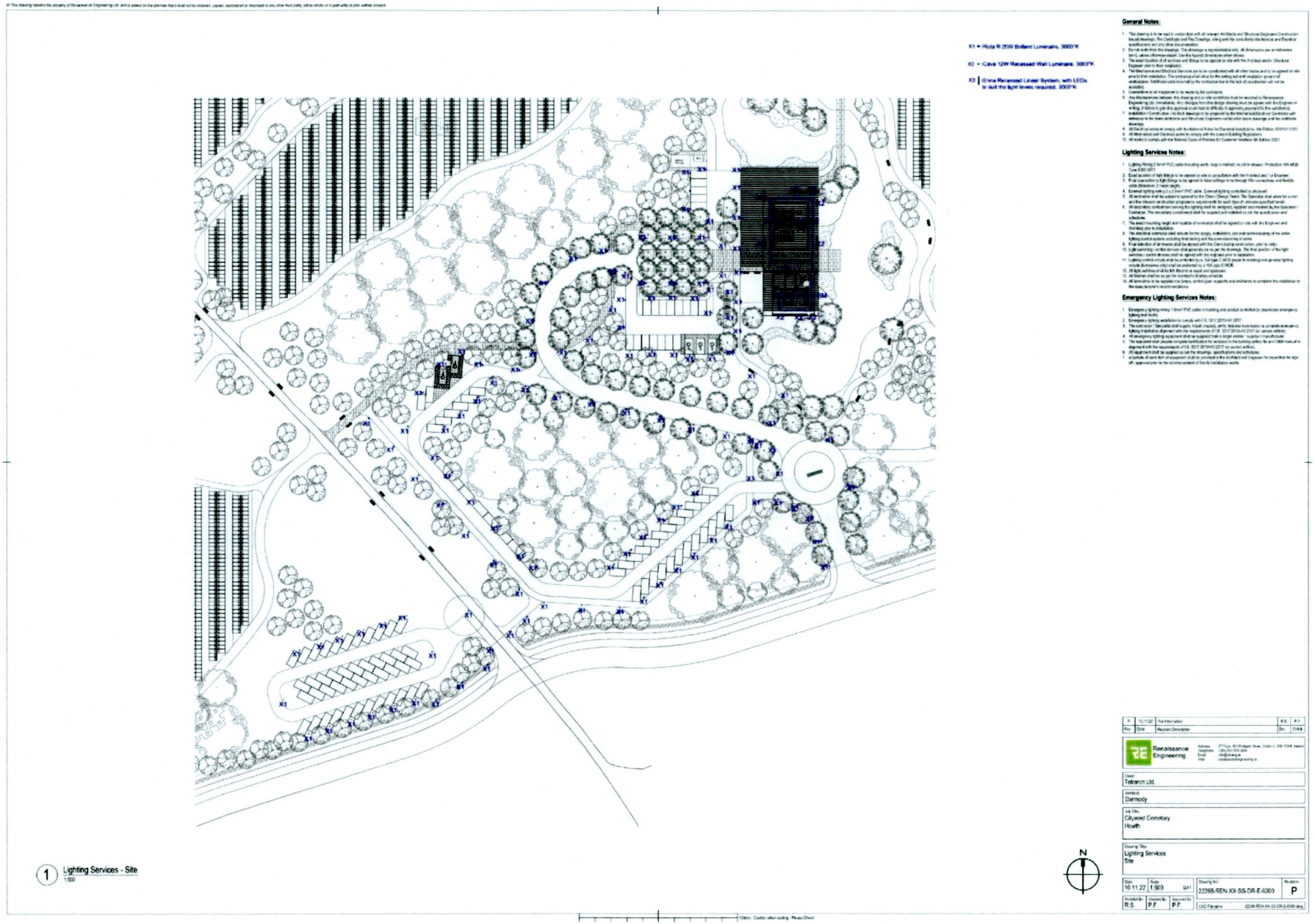

Figure 4. *Proposed site services layout*

Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 27 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 (2007)) 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 Kelleher and Marnell (2007), Bat Mitigation Guidelines for Ireland.

Legislative Context

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 transposed into Irish Law i.e. European Communities (Natural Habitats) Regulations, 1997 (SI No. 64/1997).

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 section 23 of SI No. 64/1997 all bats are listed under the first schedule of Section 23 which makes it an offence to:

- deliberately capture a bat
- deliberately disturb a bat,
- damage or destroy a breeding site or resting place of a bat.

Survey methodology

At dusk, a bat detector survey was carried out onsite using a *Batbox Duet* heterodyne/frequency division detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations. Surveys were carried out having regard to the following guidelines:

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016);
- Bat Mitigation Guidelines for Ireland (NPWS, 2006); and,
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006).

Bat survey

This report presents the results of site visit by Bryan Deegan (MCIEEM) on the 4th & 28th September 2020 and 24th September 2022.

Survey constraints

Bat surveys were undertaken during the active bat season at the latter end of the season in September. Weather conditions were good with mild temperatures of greater than 10°C after sunset. Winds were light and there was no rainfall. In 2022 weather conditions were 12°C and dry. Bat activity was noted on all nights. No constraints are foreseen with the bat surveys on site.

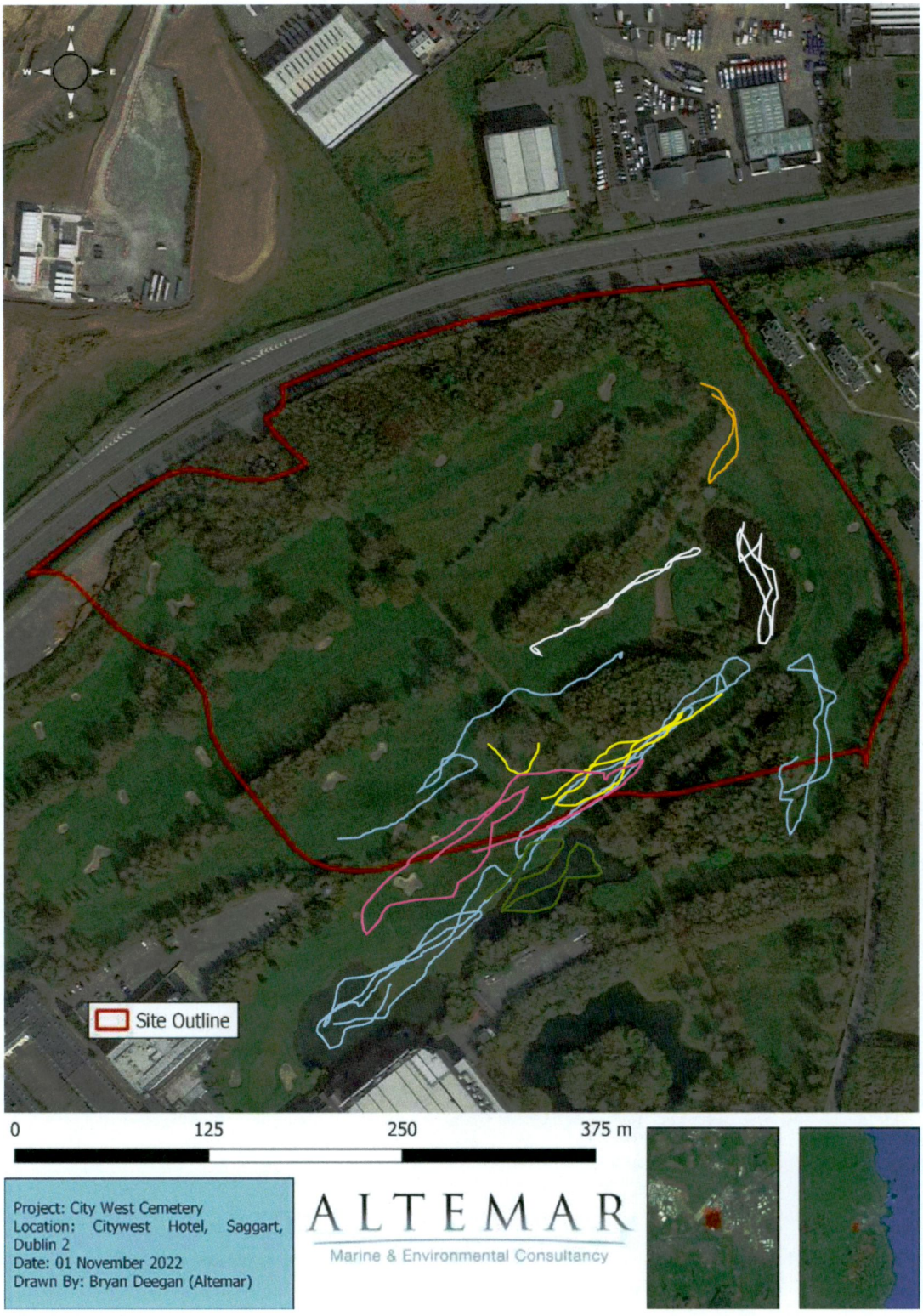

Figure 5: *Site outline. Bat Foraging Soprano pipistrelle (orange) Leisler's Bat (blue), Common pipistrelle (yellow). Soprano pipistrelle (white 2022) Common pipistrelle (green, 2022) & Leisler's bat (pink, 2022)*

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 O02I & O02N) encompassing the study area reveals that four of the nine known Irish species have been observed locally (Table 1). 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 6-7. The following species were noted in the wider area: Brown Long-eared Bat (*Plecotus auritus*), Natterer's Bat (*Myotis nattereri*), Whiskered Bat (*Myotis mystacinus*), Lesser Noctule (*Nyctalus leisleri*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Pipistrelle (*Pipistrellus pipstrellus sensu lato*) (species aggregate) (Figures 6-7).

Table 1: *Status of bat species within a 2km^2 grid encompassing the subject site (Reference no. O02I & O02N)*

Species name	Record count	Date of last record	Note
Brown Long-eared Bat (*Plecotus auritus*)	1	20/09/2005	Zone O02I
Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	2	15/08/2011	Zone O02I
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	1	15/08/2011	Zone O02I
Lesser Noctule (*Nyctalus leisleri*)	1	21/08/2007	Zone O02N
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	1	21/08/2007	Zone O02N

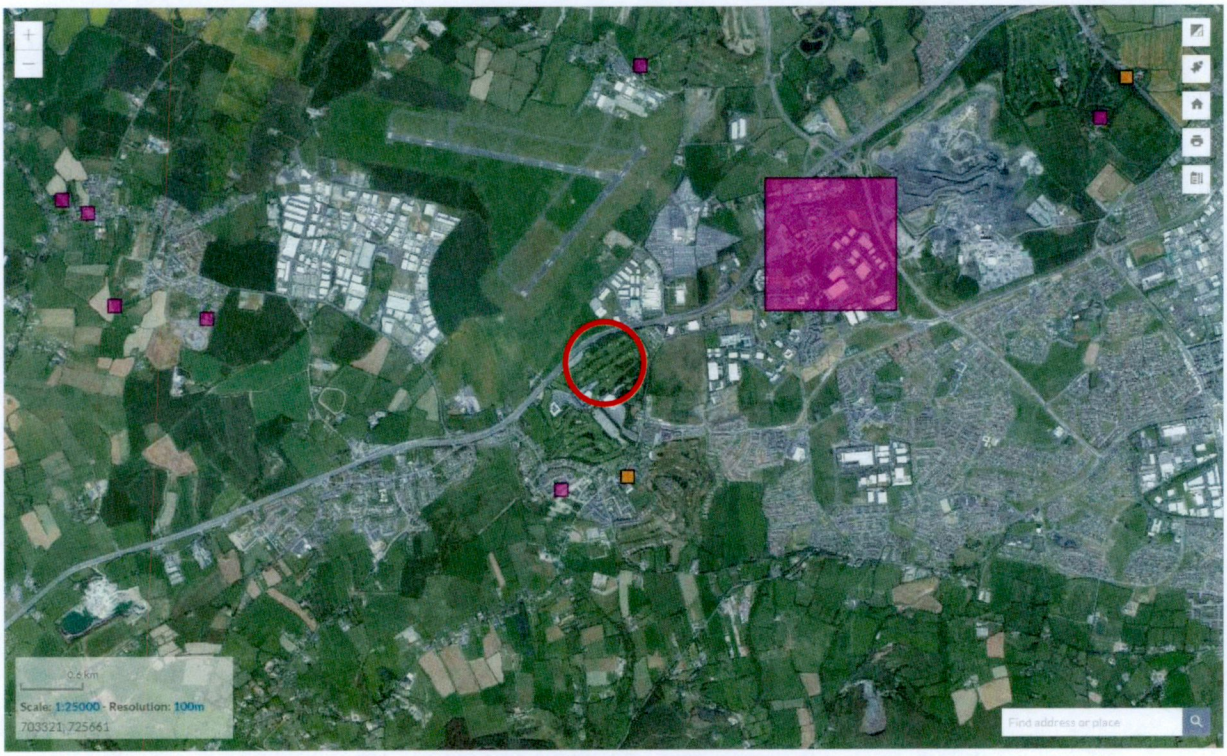

Figure 6. Brown Long-eared Bat (*Plecotus auritus*) (yellow), Pipistrelle (*Pipistrellus pipistrellus sensu lato*) (purple) and both Brown Long-eared Bat and Pipinstrelle (orange) (Source:NBDC) (Site – red circle)

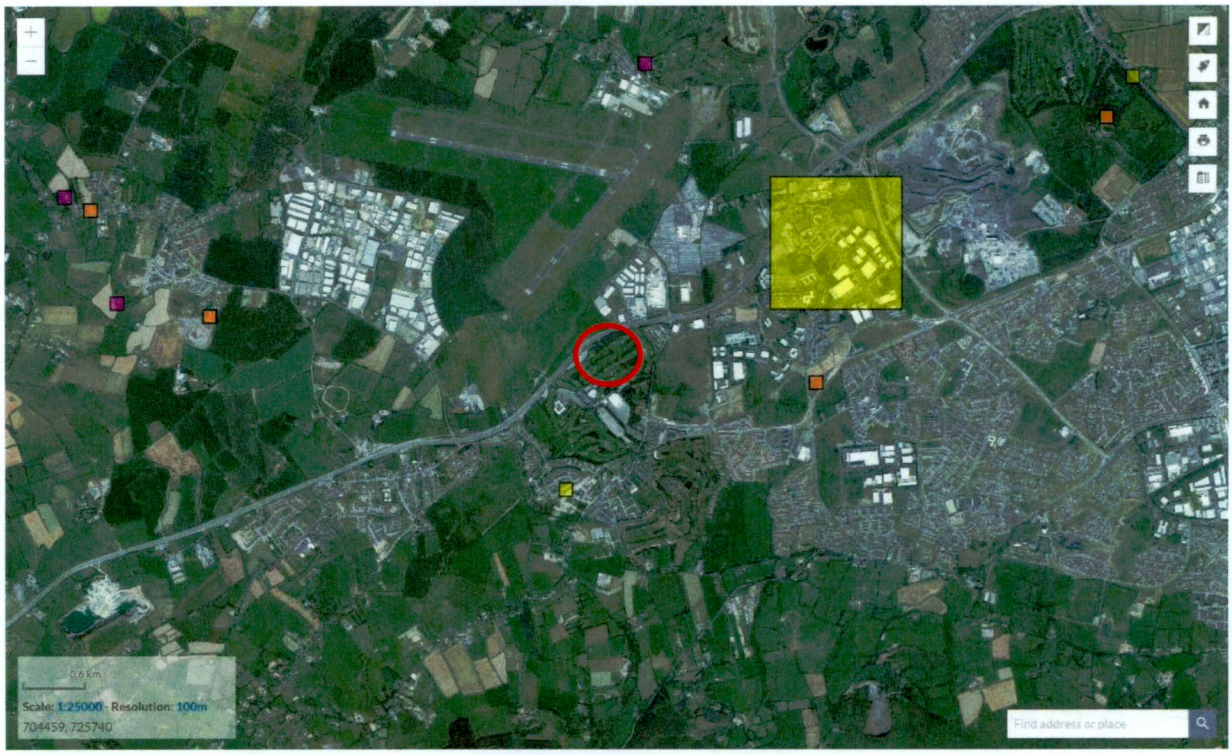

Figure 7. Lesser Noctule (*Nyctalus leisleri*) (purple), Soprano Pipistrelle (*Pipistrellus pygmaeus*) (yellow) and both Lesser Noctule and Soprano Pipistrelle (orange) (Source NBDC) (Site – red circle)

Detector survey

As seen in Figure 1 bat activity on site was relatively high in specific places where insects are likely to be plentiful and have the ability to swarm. However, very little foraging was noted within the vicinity of the N7. Traffic noise volumes are high at the northern section of the site and this may impact on the echolocation ability/success of bats within the immediate area of the dual carriageway. Three species were noted on site :

- Common pipistrelle (Pipistrellus pipistrellus)
- Soprano pipistrelle (Pipistrellus pygmaeus)
- Leisler's bat (Nyctalus leisleri)

No bats were detected emerging from any of the onsite trees.

Potential impacts of proposed redevelopment on bats

No bats emerging onsite trees of the building were observed. Numerous large trees on site on site have the potential for bat roosting. A single tree of bat roosting potential (772) will be removed. Tree loss will be minimal and associated primarily with the access road. Landscaping has been designed to increase the foraging corridors on site and increase the landscaped buffer and corridors in place on site which will help mitigate the noise from the N7 and increase bat activity on site. Lighting has been designed to be low level and warm temperature (3000°K) and will follow standard park lighting times. Foraging would be expected to continue on site and potentially increase in the long term due to the landscaping of foraging corridors.

Mitigation measures

A pre-construction survey of trees to be felled should be carried out and a derogation licence acquired if a bat roost is present. Lighting has been designed to be sensitive to bat species and complies with the Bat Conservation Ireland "Bats & Lighting Guidance. Lighting of the site will be as per bat lighting guidance and approved by SDCC heritage officer and project ecologist. This will include the timing or lights and the automation that will be in place during the months of April-October. Mitigation measures will include:

- Pre Construction survey for bats of trees to be felled and in particular tree 772, including acquisition of derogation licences if required.
- Retain hedgerows and ivy cover on trees where possible.
- Lighting at all stages should be done sensitively on site with no direct lighting of hedgerows and treelines.
- Lighting of the site will be as per bat lighting guidance and approves by SDCC heritage officer and project ecologist.
- Revised landscaping will introduce unlit foraging corridors on to the site.

A lighting mitigation plan should be developed to the approval of the project ecologist and the SDCC Heritage officer for the months of April-October. As an enhancement measure 8 x 1FF Schwegler Bat Box will be placed on site as directed by the project ecologist.

Predicted and residual impact of the proposal

The long term impact on bats would be considered neutral and potentially positive based on the successful implementation of lighting, landscape and enhancement strategies.

Neutral/potentially positive-longterm-not significant.

Legal status and conservation issues – bats

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Acts (2000 and 2010). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat *Rhinolophus hipposideros* is further listed under Annex II. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.

The current status and legal protection of the known bat species occurring in Ireland is given in the following table.

Common and scientific name	**Wildlife Act 1976 & Wildlife (Amendment) Acts 2000/2010**	**Irish Red List status**	**Habitats Directive**	**Bern & Bonn Conventions**
Common pipistrelle *Pipistrellus pipistrellus*	Yes	Least Concern	Annex IV	Appendix II
Soprano pipistrelle *P. pygmaeus*	Yes	Least Concern	Annex IV	Appendix II
Nathusius pipistrelle *P. nathusii*	Yes	Not referenced	Annex IV	Appendix II
Leisler's bat *Nyctalus leisleri*	Yes	Near Threatened	Annex IV	Appendix II
Brown long-eared bat *Plecotus auritus*	Yes	Least Concern	Annex IV	Appendix II
Lesser horseshoe bat *Rhinolophus hipposideros*	Yes	Least Concern	Annex II Annex IV	Appendix II

Common and scientific name	Wildlife Act 1976 & Wildlife (Amendment) Acts 2000/2010	Irish Red List status	Habitats Directive	Bern & Bonn Conventions
Daubenton's bat *Myotis daubentonii*	Yes	Least Concern	Annex IV	Appendix II
Natterer's bat *M. nattereri*	Yes	Least Concern	Annex IV	Appendix II
Whiskered bat *M. mystacinus*	Yes	Least Concern	Annex IV	Appendix II
Brandt's bat *M. brandtii*	Yes	Data Deficient	Annex IV	Appendix II

Also, under existing legislation, the destruction, alteration or evacuation of a known bat roost is a notifiable action and a derogation licence has to be obtained from the *National Parks and Wildlife Service* before works can commence.

It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS. The details with regards to appropriate assessments, the strict parameters within which derogation licences may be issued and the procedures by which and the order in relation to the planning and development regulations such licences should be obtained, are set out in Circular Letter NPWS 2/07 "*Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 - strict protection of certain species/applications for derogation licences*" issued on behalf of the Minister of the Environment, Heritage and Local Government on the 16th of May 2007.

Furthermore, on 21st September 2011, the Irish Government published the European Communities (Birds and Natural Habitats) Regulations 2011 which include the protection of the Irish bat fauna and further outline derogation licensing requirements re: European Protected Species.

References

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

European Communities (Birds and Natural Habitats) Regulations 2011 Government of Ireland, Dublin

Kelleher, C. and Marnell, F. 2007 *Bat Mitigation Guidelines for Ireland – Irish Wildlife Manuals No. 25*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin

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

Wildlife Act 1976 and Wildlife Amendment Acts 2000 and 2010. Government of Ireland

Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016) https://cdn.bats.org.uk/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?mtime=20181115113931&focal=none

Bat Mitigation Guidelines for Ireland (NPWS, 2006) https://www.npws.ie/sites/default/files/publications/pdf/IWM25.pdf

Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006).

https://www.tii.ie/technical-services/environment/planning/Best_Practice_Guidelines_for_the_Conservation_of_Bats_in_the_Planning_of_National_Road_Schemes.pdf

Appendix II. Breeding Bird Surveys 2022 for a proposed cemetery on the grounds of the Citywest Hotel, Saggart, Dublin 24.

Introduction

In June and July 2022 breeding bird surveys were conducted at lands at Citywest, Saggart, in County Dublin. Three breeding bird surveys were completed in all by Hugh Delaney, a freelance Ecologist (Birds primarily) who has extensive surveying experience on numerous sites with ecological consultancies over 12+ years. Hugh, a lifelong birder, is local to the Dun Laoghaire-Rathdown area in Dublin and is especially familiar with the bird life and its ecology in the environs going back over 30 years.

Breeding Bird Survey Methodology

Breeding bird surveys are conducted from soon after sunrise or as early as so possible, taking several hours or longer depending on site size. They are conducted then in order to detect as many singing species as possible and birds that are generally more active early in the day. All species on site, singing, foraging, and passing through site are recorded, and any evidence of breeding recorded. Optimal weather conditions are chosen, if possible, in order to gather the most data.

Site Location

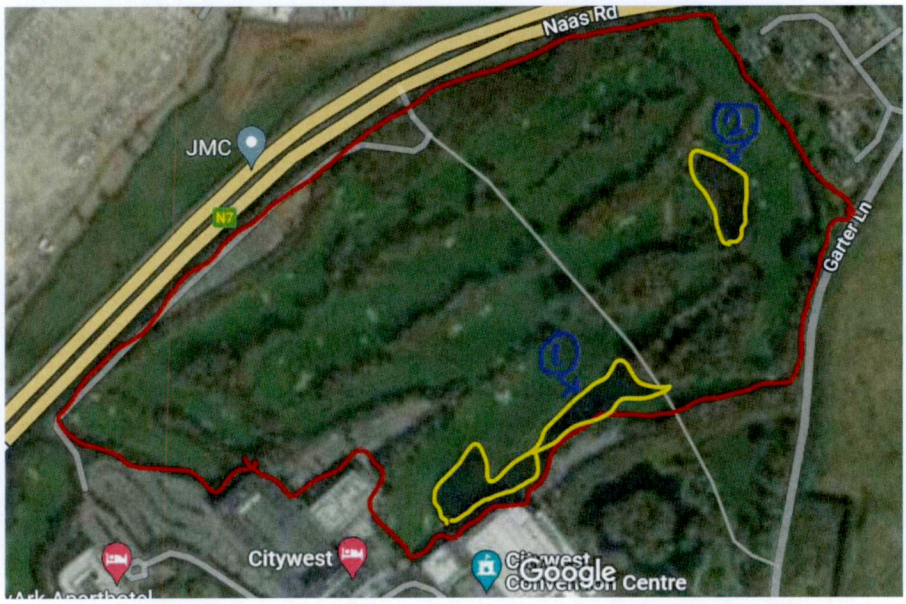

Fig. 1 Citywest site

Site is situated at Saggart, Co Dublin, site concerns the area north of the Citywest convention center complex, bordered to the west and north by the Naas Road and to the east by Garters Lane.

Site Description

Site (bordered in red) comprises of a former golf course with linear strips of fairways stretching the length of the site, these are bordered by tree corridors of mature trees (Mixed with deciduous species and some Pines) with interspersed understory cover throughout. Greens maintained with shorter areas of grass and longer grass areas

bordering same. Significant features on-site are two ponds (bordered in yellow), a larger pond nearest the convention referred to as Pond (1) in the notes and to the north pond (2), these are bordered with smaller tree species such as birch and have well established pond edge plant habitat (Yellow flag etc.).

Specific site survey methodology

Site traversed from east side to west side and then repeated in reverse during the breeding bird survey.

Survey Results

June 5th, 2022

Sunrise- 05.01hrs/Sunset- 21.47hrs. Weather – Wind F2 East, Cloud 8/8, Dry, 12c, Excellent visibility. On-site 07.15hrs – 10.15 hrs.

Species recorded – Coot, Tufted Duck, Mallard, Little Grebe, Mute Swan, Moorhen, Grey Heron, Herring Gull, Coal Tit, Blue Tit, Bullfinch, Goldfinch, Chaffinch, Swallow, Chiffchaff, Willow Warbler, Blackcap, Goldcrest, Robin, Dunnock, Wren, Woodpigeon, Hooded Crow, Jackdaw, Magpie, Treecreeper, Blackbird, Mistle Thrush, Song Thrush, Buzzard.

Coot (x11) At pond 1, Ten noted, one bird incubating at the north end of pond on a nest platform, also in same area five well-grown juveniles noted feeding and four adult birds noted around the rest of the pond area. One adult bird noted present on Pond 2.

Tufted Duck (x8) Eight adults noted present on Pond 1.

Mallard (x9) Six adult birds and three well-grown juveniles noted present in Pond 1.

Little Grebe (x5) Four adult birds present in Pond 1 and one adult bird present in Pond 2.

Mute Swan (x1) One adult present in Pond 1 at the north end.

Moorhen (x2) Two adult birds noted present in Pond 1.

Grey Heron (x1) One noted present foraging at Pond 2 at 08.10hrs.

Herring Gull (x10) Birds (<10 minimum) noted passing over the site, no birds observed foraging on-site.

Coal Tit (x5) One bird noted in song at the west side of the site at 08.35hrs.

Blue Tit (x18) Minimum of three pairs noted provisioning food to recently fledged young, two pairs at the west side of the site and one pair at the north end of the site.

Bullfinch (x1) One noted foraging in the center of the site at 07.36hrs.

Goldfinch (x4) Three birds noted foraging at the north end of the site and one in song at the south end of the site.

Chaffinch (x3) One noted in song at the west side of the site and two noted foraging at the north end of the site.

Swallow (x1) One observed foraging over Pond 1 at 07.45hrs.

Chiffchaff (x1) One in song at the east side of Pond 1 at 08.44hrs.

Willow Warbler (x2) One in song at Pond 1 and one in song at Pond 2 throughout the morning.

Blackcap (x3) Three noted in song on-site, one each at Pond 1 and Pond 2 and one at the west side of the site.

Goldcrest (x8) Pair noted provisioning food to recently fledged young at the west side of the site at 08.03hrs and one noted in song at the north end of the site at 08.21hrs

Robin (x4) Adults noted provisioning food to recently fledged young in the center of the site at 07.55hrs and one noted in song at the north end of the site.

Dunnock (2) Two noted in song, one at the west side of the site at 08.05hrs and one at the north end of the site at 08.31hrs.

Wren (x7) Four birds noted in song on-site and three recently fledged juveniles noted in center of site at 08.44hrs.

Woodpigeon (x8) One in song at the west side of the site at 08.45hrs and 7 noted foraging on-site.

Hooded Crow (x5) Five adults noted foraging on-site.

Jackdaw (x15) Minimum count of birds foraging on-site mainly at south end.

Magpie (x10) Minimum count of birds noted foraging on-site.

Treecreeper (x1) One in song midway along the west side of the site at 08.12hrs.

Blackbird (x7) Five noted foraging around the site and one in song at the west side of the site and at center of site.

Mistle Thrush (x1) One foraging at the north end of the site at 08.20hrs.

Song Thrush (x3) One in song at west side of site at 08.50hrs and two others noted foraging on-site.

Buzzard (x1) One calling from trees at northeast corner of site at 08.38hrs.

Species proved breeding – Coot, Mallard, Blue Tit, Goldcrest, Wren.

June 19th, 2022

Sunrise- 04.56hrs/Sunset- 21.56hrs. Weather – Wind F1 East, Cloud 4/8, Dry, 13c, Excellent visibility. On-site 07.15hrs – 10.30 hrs.

Species recorded – Coot, Tufted Duck, Mallard, Little Grebe, Mute Swan, Moorhen, Grey Heron, Herring Gull, Coal Tit, Blue Tit, Great Tit, Long-tailed Tit, Bullfinch, Goldfinch, Chaffinch, Swallow, Chiffchaff, Willow Warbler, Blackcap, Goldcrest, Robin, Dunnock, Wren, Woodpigeon, Hooded Crow, Jackdaw, Magpie, Treecreeper, Blackbird, Mistle Thrush, Song Thrush, Buzzard.

Coot (x13) At pond 1, eleven noted, one bird incubating at the north end of Pond and one on another nest platform at the south end of site, remaining birds adults and two fledged juveniles. Pair noted present at Pond 2.

Tufted Duck (x10) Ten adults noted present on Pond 1.

Mallard (x14) Ten adult birds and four well-grown juveniles noted present in Pond 1.

Little Grebe (x4) Pair noted tending nest platform at north end of Pond 1 and a pair also noted present at Pond 2, displaying signs of nesting behaviour (carrying nesting material).

Mute Swan (x1) One adult present in Pond 1 at the north end.

Moorhen (x8) Pair with four very recently fledged young present at Pond 1 and two other adult birds present.

Grey Heron (x1) One noted present foraging at Pond 1 at 07.15hrs.

Herring Gull (x15) Birds (<15 minimum) noted passing over the site, no birds observed foraging on-site.

Coal Tit (x6) Pair noted provisioning food to a minimum of four young at the west side of the site at 08.30hrs.

Blue Tit (x15) Minimum of two pairs noted provisioning food to recently fledged young, one pair at the west side of the site and one pair at the east side of the site.

Great Tit (x3) Three noted foraging on-site.

Long-tailed Tit (x10) Pair provisioning food to recently fledged young noted at the northwest corner of the site at 09.10hrs.

Goldfinch (x10) Three in song, two at the north end and one at the south end, others foraging on-site.

Chaffinch (x8) Pair observed provisioning food to three young at the west side of the site at 08.10hrs with others observed foraging on-site.

Swallow (x8) Four observed foraging over Pond 1 at 07.30hrs, others observed foraging around the site.

Chiffchaff (x1) One in song at the east side of Pond 1 throughout morning and another also in song at Pond 2.

Willow Warbler (x2) One in song at Pond 1 and two in song at Pond 2 throughout the morning.

Blackcap (x5) Five noted in song on-site, two at Pond 1 and one at Pond 2 and two at the west side of the site.

Goldcrest (x3) Three noted in song on-site, one at the north end and two at the west side of the site.

Robin (11) Two pairs noted provisioning food to recently fledged young on-site, both at the west side, with a few others foraging on-site.

Dunnock (3) Three noted in song, one at the west side of the site and two at the east side of the site.

Wren (x6) Minimum number of birds noted singing across the site.

Woodpigeon (x12) Three in song at the west side of the site at 08.45hrs and others noted foraging on-site.

Hooded Crow (x6) Minimum number of adults noted foraging on-site.

Jackdaw (x12) Minimum count of birds foraging on-site mainly at south end.

Magpie (x8) Minimum count of birds noted foraging on-site.

Treecreeper (x1) One in song midway along the west side of the site at 08.45hrs.

Blackbird (x9) Three in song on-site and others noted noted foraging around the site.

Song Thrush (x3) One in song at west side of site at 08.50hrs and two others noted foraging on-site.

Buzzard (x2) Pair calling from trees at east of site intermittently during the morning (possible breeding indication).

Species proved breeding – Coot, Mallard, Little Grebe, Moorhen, Coal Tit, Blue Tit, Long-tailed Tit, Chaffinch, Robin.

July 9th, 2022

Sunrise- 05.09hrs/Sunset- 21.51hrs. Weather – Wind F1 Southwest, Cloud 7/8, Dry, 18c, Excellent visibility. On-site 07.00hrs – 10.00hrs.

Species recorded – Coot, Tufted Duck, Mallard, Little Grebe, Mute Swan, Moorhen, Grey Heron, Herring Gull, Lesser black-backed Gull, Black-headed Gull, Coal Tit, Blue Tit, Bullfinch, Goldfinch, Chaffinch, Linnet, Swallow, House Martin, Chiffchaff, Willow Warbler, Blackcap, Goldcrest, Robin, Dunnock, Wren, Woodpigeon, Hooded Crow, Jackdaw, Magpie, Treecreeper, Blackbird, Mistle Thrush, Song Thrush, Buzzard.

Coot (x26) At pond 1, three pairs present with young, two pairs with recently fledged young (4 young each to respective pairs being provisioned by parents) and a pair with 2 older young, and at Pond 2 one pair present with six fledged young.

Tufted Duck (x6) Six adults noted present on Pond 1.

Mallard (x21) Twenty-one birds present at Pond 1, nine at south end and twelve at north end.

Little Grebe (x7) Pair with two fledged juveniles at Pond 1 and a pair with one fledged juvenile at Pond 2.

Mute Swan (x1) One adult still present at the north end of Pond 1.

Moorhen (x7) Pair with two well developed young at Pond 1 with five adults also present.

Grey Heron (x1) One noted foraging at the north end of Pond 1 at 08.20hrs.

Herring Gull (x8) Birds (<8 minimum) noted passing over the site, no birds observed foraging on-site.

Lesser black-backed Gull (x1) One passed east over Pond 1 at 09.23hrs.

Black-headed Gull (x5) Minimum number of birds noted passing over the site, none observed foraging on-site.

Coal Tit (x5) Two observed foraging at the north end of the site at 07.50hrs.

Blue Tit (x6) Minimum of six observed foraging around the site, mainly at west side of site.

Goldfinch (x8) Eight birds noted foraging at the north end of the site at 07.35hrs.

Chaffinch (x4) Four birds noted foraging on-site.

Linnet (x2) Two passed east over the site at 0835hrs.

Swallow (x5) Three observed foraging over Pond 1 at 08.10hrs and two at north end at 09.40hrs.

House Martin (x6) Minimum number noted foraging over the site during the morning.

Chiffchaff (x2) One in song at Pond 2 throughout morning and one observed foraging at Pond 1 at 08.15hrs.

Willow Warbler (x4) Pair noted provisioning food to two recently fledged young at Pond 1 at 07.55hrs.

Blackcap (x2) One in song at Pond 2 throughout morning and one noted foraging at the west side of the site at 09.00hrs.

Goldcrest (x7) Pair provisioning food to five young at the northeast corner of the site at 09.30hrs.

Robin (x5) Two in song, one at the north end and one at the center of the site, three juveniles calling at the west side of site at 07.35hrs.

Dunnock (4) On in song at east side of site at 07.25hrs and three others noted foraging on-site.

Wren (x10) Juveniles (minimum 6) heard calling at three locations on site, and adults noted foraging.

Woodpigeon (x17) Two in song at the west side of the site at and minimum 15 noted foraging on-site.

Hooded Crow (x8) Five adults noted foraging on-site.

Jackdaw (x12) Minimum count of birds foraging on-site mainly at south end.

Magpie (x14) Minimum count of birds noted foraging on-site.

Treecreeper (x1) One foraging at north end of site at 09.30hrs.

Blackbird (x6) Five noted foraging around the site and one in song at the east side of the site.

Mistle Thrush (x1) One foraging at the north end of the site at 08.20hrs.

Song Thrush (x4) One in song at west side of site at 08.45hrs and three others noted foraging on-site.

Buzzard (x2) Two noted soaring over center of site at 09.50hrs.

Species proved breeding – Coot, Little Grebe, Moorhen, Willow Warbler, Goldcrest, Robin, Wren.

Summary of Breeding Bird Survey observations at Citywest, Saggart June-July 2022

Thirty-six Bird species were recorded at the Citywest site over three breeding bird surveys in June and July 2022. Of these species recorded twelve species were proven breeding on-site these being – Coot, Mallard, Little Grebe, Moorhen, Robin, Goldcrest, Blue Tit, Coal Tit, Long-tailed Tit, Chaffinch, Willow Warbler and Wren. The species range was quite typical of Dublin parkland habitat in an urban context, the two ponds on-site being a noteworthy focal point on the site with waterbird species such as Coot, Little Grebe, Moorhen, Mallard and also Willow Warbler breeding. Breeding species recorded on-site that are amber-listed on Birdwatch Ireland's Bird of conservation concern in Ireland 2020-2026 were Coot, Mallard, Willow Warbler and Goldcrest.