ALTEMAR
Marine & Environmental Consultancy

Ecological Impact Assessment (EcIA) for a proposed Development at Knockrabo, Goatstown, Dublin 14.

26th October 2021

Prepared by: Bryan Deegan MSc. BSc. (MCIEEM) of Altemar Ltd.
On behalf of: Knockrabo Investments DAC

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Document Control Sheet			
Client	Knockrabo Investments DAC		
Project	Ecological Impact Assessment (EcIA) for a proposed Development at Knockrabo, Goatstown, Dublin 14.		
Report	Ecological Impact Assessment		
Date	26th October 2021		
Project No:		Document Reference: EcIA_KID_0121	
Version	Author	Reviewed	Date
Draft 01	Bryan Deegan	LF	12th April 2021
Draft 02	Bryan Deegan		14th April 2021
Planning	Bryan Deegan		26th October 2021

Contents

1) 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 Knockrabo Investments DAC, as part of the planning process for the development of lands at Knockrabo, Goatstown, Dublin 14.

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 Assessment Reports (EPA, 2017);
- Advice Notes on current practice in the preparation of EIS's (EPA, 2003);
- Institute of Ecology and Environmental Management Guidelines for EIA (IEEM, 2005).

An Appropriate Assessment Screening, in accordance with the requirements of Article 6(3) of the EU Habitats Directive, has also been produced by Altemar Ltd. to identify potential impacts of the development on Natura 2000 sites, Annex species and Annex habitats. In addition, a Construction Management Plan (CMP) has been produced to detail the construction phase controls that will be in place and the potential impact on sensitive environmental receptors within the potential zone of influence. An Environmental Impact Assessment Screening Report and a Hydrological and Hydrogeological Qualitative Risk Assessment have also been prepared.

Background to 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, private industry, local authorities, EC projects and State/semi-State Departments. Bryan Deegan carried out all aspects of this EcIA and is the managing director of Altemar. Bryan is an environmental scientist and marine biologist with 26 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. 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). Hugh Delaney, a freelance Ecologist (Birds primarily) with having completed work on numerous sites with ecological consultancies over 10+ years. Hugh is local to the Dun Laoghaire-Rathdown area in County Dublin and is especially familiar with the bird life and its ecology in the environs going back over 30 years.

2) Project description

2.1 Background

Knockrabo Investments DAC intend to apply to An Bord Pleanála for permission for a Strategic Housing Development with a total application site area of c. 1.78 ha, on a site located at Knockrabo, Mount Anville Road, Goatstown, Dublin 14 (Figures 1-3).

The proposed development relates to Phase 2 of the development on the 'Knockrabo' lands. Phase 1 of 'Knockrabo' was granted under Dún Laoghaire-Rathdown County Council (DLRCC) Reg. Ref. D13A/0689/An Bord Pleanála (ABP) Ref. PL06D.243799 and DLRCC Reg. Ref. D16A/0821 (Phase 1) and DLRCC Reg. Ref. D16A/0960 (Phase 1A) and comprises a total of 125 no. units. The proposed development will consist of the amendment of the permitted 'Phase 2' residential development of 93 no. units, childcare facility and community/leisure uses (DLRCC Reg. Ref. D17A/1124) on a site of 2.75ha. The proposed development will provide for the reconfiguration and redesign of the approved residential development. The Knockrabo Way entrance road (constructed and unconstructed), the renovation of Cedar Mount House including childcare facility and community/leisure uses, the Coach House, Gate Lodge (West), the Gate House and all associated landscaping permitted under D17A/1124 which are outside the boundary of the current application are proposed to remain as previously granted.

The site is bounded to the south-east by Mount Anville Road; to the south by 'Mount Anville Lodge' and by the rear boundaries of 'Thendara' (a Protected Structure – RPS Ref. 812), 'The Garth' (a Protected Structure – RPS Ref. 819), 'Chimes', 'Hollywood House' (a Protected Structure – RPS Ref. 829); to the south-west by existing allotments; to the north by the reservation corridor for the Dublin Eastern By-Pass (DEBP); and to the east by the site of residential development 'Knockrabo'. There are 3 no. Protected Structures located in the overall 'Knockrabo' landholding, but which are outside the application boundary. These include 'Cedar Mount' (a Protected Structure - RPS Ref. 783), 'Knockrabo Gate Lodge (West)' (a Protected Structure - RPS Ref. 796), including Entrance Gates and Piers, and 'Knockrabo Gate Lodge (East)' (a Protected Structure – RPS 740) including Entrance Gates and Piers. For clarity no works are proposed to any Protected Structures as part of this proposed development.

The development, with a total gross internal area of c. 23,097.2 sqm, will consist of the construction of 227 no. residential units in 4 no. apartment blocks ranging in height from Part 2 – Part 8 storeys including semi-basement podium. The development will provide 76 no. 1 bed units, 145 no. 2 bed units and 6 no. 3 bed units as follows:

- Block E (c. 1015.3 sqm GIA) is a 5-storey including semi-basement podium apartment block comprising of 8 no. units (1 no. one bed unit and 7 no. 2 bed units).

- Block F (c. 8042.2 sqm GIA) is a Part 2 to Part 8 storeys including semi-basement podium apartment block comprising 84 no. units (53 no. 1 bed units and 31 no. 2 bed units).

- Block G (c. 8626.5 sqm GIA) is a Part 6 including semi-basement podium to Part 8 storey including semi-basement podium apartment block comprising of 82 no. units (37 no. 1 bed units, 40 no. 2 bed units and 5 no. 3 bed units).

- Block H (c. 5413.7 sqm GIA) is a Part 6 to Part 7 storey apartment block including semi-basement podium comprising 53 no. units (7 no. 1 bed units, 45 no. 2 bed units and 1 no. 3 bed unit).

Residential Tenant Amenities comprising c. 537.2 sqm are provided at Level 00 of Block G and H to serve all residential units within this application. Balconies/Wintergardens are provided on all elevations at all levels for the 4 no. apartment blocks, with (Private) Terraces provided at top floor levels and a communal Roof

Terrace of c. 198 sqm to be provided on Block F. The development will also provide 178 no. car parking spaces, which comprises 125 no. residential podium parking spaces, 35 no. on-street parking spaces, 16 no. visitor/drop off parking and 2 no. car sharing on-street parking spaces are provided; Provision of 389 no. private residential bicycle parking spaces and 130 no. visitor bicycle parking spaces; Provision of 12 no. motorcycle parking spaces.

All other ancillary site development works to facilitate construction, site services, piped infrastructure, 2 no. sub-stations, plant, public lighting, bin stores, bike stores, boundary treatments, provision of public, communal and private open space areas comprising hard and soft landscaping, site services all other associated site excavation, infrastructural and site development works above and below ground. The development will be served by the permitted access road 'Knockrabo Way' (DLRCC Reg. Ref. D13A/0689; ABP Ref. PL.06D.243799, DLRCC Reg. Ref. D16A/0821 and DLRCC Reg. Ref. D16A/0960). The application does not impact on the future access to the Reservation for the Dublin Eastern Bypass. The development will be served by the permitted access road 'Knockrabo Way' (DLRCC Reg. Ref. D13A/0689; ABP Ref. PL.06D.243799, DLRCC Reg. Ref. D16A/0821 and DLRCC Reg. Ref. D16A/0960).

Hydrological and Hydrogeological Qualitative Risk Assessment

AWN have carried out a Hydrological and Hydrogeological Qualitative Risk Assessment for the proposed Residential Development located at Knockrabo, Mount Anville Road, Goatstown, Dublin 14. The report concludes *"A conceptual site model (CSM) has been prepared following a desk top review of the site and surrounding environs. Based on this CSM, plausible Source-Pathway-Receptor linkages have been assessed assuming an absence of any measures intended to avoid or reduce harmful effects of the proposed project (i.e. mitigation measures) in place at the proposed development site.*

There is no direct source pathway linkage between the proposed development site and open water (i.e. South Dublin Bay SAC/pNHA and South Dublin Bay and River Tolka SPA). There are indirect source pathway linkages from the proposed development through public sewers which discharge to the Elm Park Stream which ultimately outfalls into Dublin Bay (2.7 km downgradient of the site). There is also an indirect connection through the foul sewer which will eventually discharge to the Ringsend WWTP and ultimately discharges to Dublin Bay. The future development has a peak foul discharge that would equate to 0.063% of the licensed discharge at Ringsend WWTP (peak hydraulic capacity).

It is concluded that there are no pollutant linkages as a result of the construction or operation (without mitigation) of the proposed development which could result in a water quality impact which could alter the habitat requirements of the Natura 2000 sites within Dublin Bay.

Finally, in line with good practice, preventive measures are included during construction to minimise the potential for any accidental releases off site. These measures are to be included in the design of any such developments. During operation, the potential for an impact to ground or storm water is negligible and there are design measures incorporated within the proposed development to manage stormwater run-off quality. These specific measures will provide further protection to the receiving soil and water environments. However, the protection of downstream European sites is in no way reliant on these measures." It should be noted that these are not mitigation measures, they are standard measures for all projects of this kind which would be included into the project regardless of the existence of the EU Site.

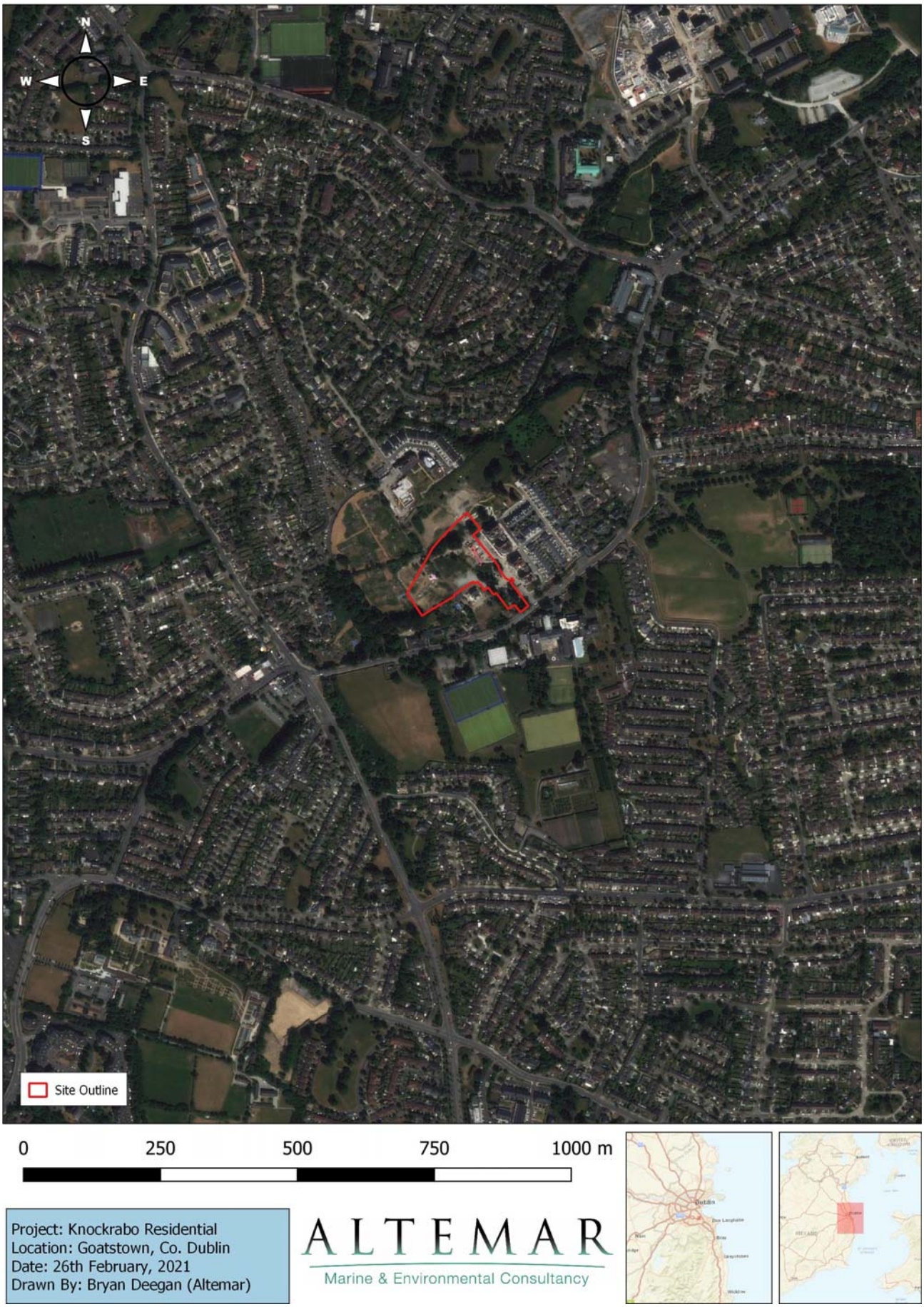

Figure 1. Site Context Map

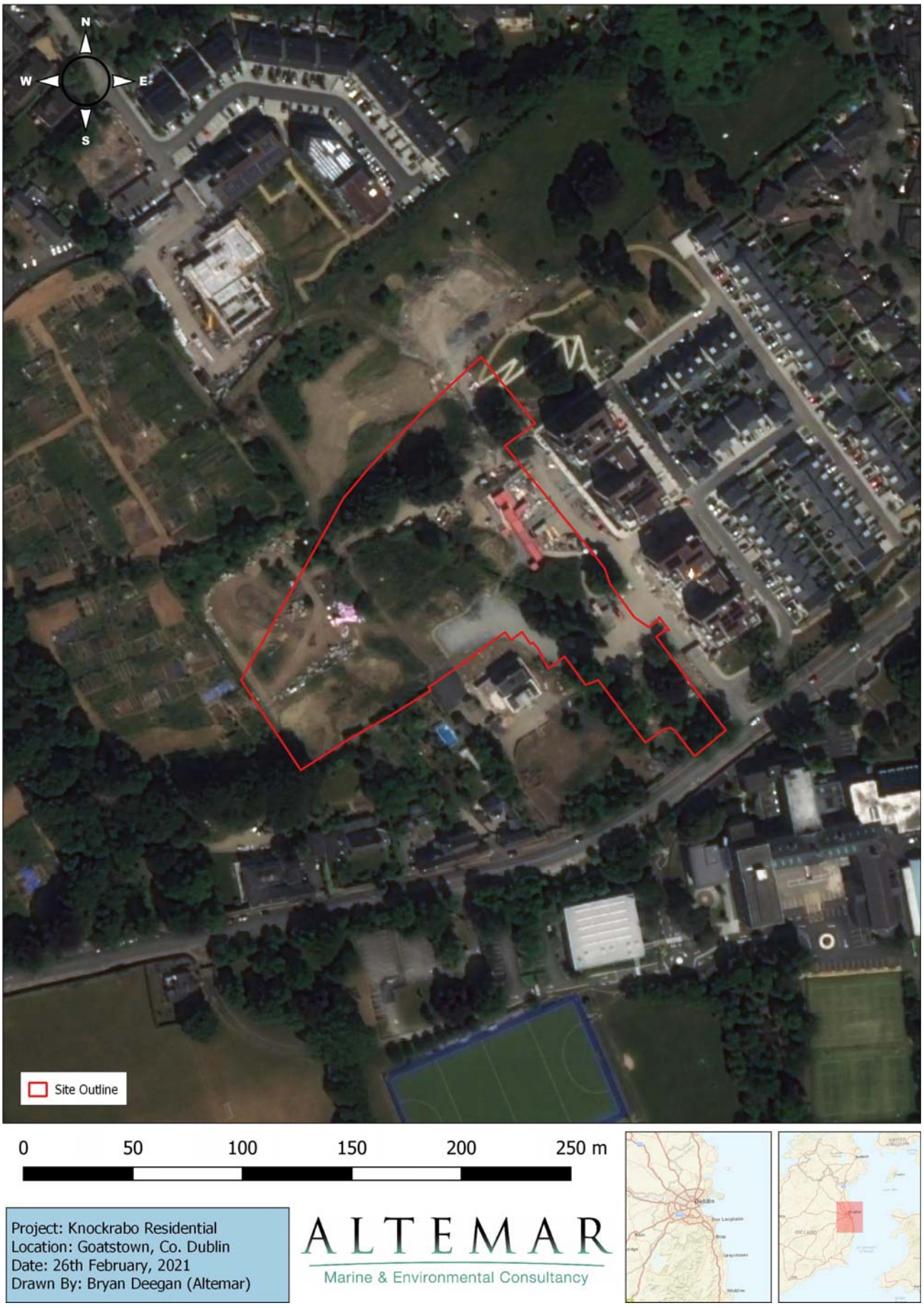

Figure 2. Subject Site (Outlined in Red)

Figure 3. Proposed Site Layout

2.2 Drainage

Waterman Moylan Engineering Consultants have prepared an Engineering Assessment Report for the proposed residential development at Knockrabo, Goatstown, Dublin 14. The report provides details on the proposals for surface water drainage and foul drainage on the subject site, as part of the proposed development. Details of the proposed foul and surface water systems are provided below.

Foul Water

In terms of the existing foul drainage, the report states that: *''There is an existing 225mm diameter foul sewer outfall in the northeast of the subject site which was constructed under Phase 1 of the Knockrabo development and was built to drain the Phase 1 lands.''* Regarding the proposals for foul water drainage, the report states that: *''All foul drainage on the subject lands is proposed to drain via gravity to this existing on-site foul outfall. A Pre-Connection Enquiry form was submitted to Irish Water in October 2020, which outlined the above foul water discharge proposal. A response has been received stating that a connection to the foul water sewer is feasible without an upgrade. It is anticipated that the existing network will have sufficient capacity to drain the proposed development. It is noted that there is an existing confirmation of feasibility (IW Reference CDS200006701) for the subject lands which confirms Irish water network capacity available to drain 81 houses/apartments and a childcare facility, as per the previous planning permission for this site. As part of the final SHD package, the proposed development submission shall require the above referenced confirmation of feasibility and an associated Statement of Design Acceptance from Irish Water.'' ''The proposed foul water outfall from the development is a 225mm diameter pipe laid at a gradient of 1:100, giving a capacity of 45.6 l/s. Therefore, the proposed outfall pipe has more adequate capacity to cater for the flows from the development.'' ''Drains to the apartment blocks will be laid to comply with the Building Regulations 2010, and in accordance with the recommendations contained in the Technical Guidance Documents, Section H. Foul water sewers outside the basement will consist of uPVC or concrete socket and spigot pipes (to IS 6) and will be laid strictly in accordance with Irish Waters code of practice for Wastewater Infrastructure and Dun-Laoghaire Rathdown County Council requirements for taking in charge.''*

Surface Water

The proposed surface water strategy is outlined below:

''It is proposed to drain surface water from the development by gravity to the existing public surface water drainage outfall pipe in the north eastern corner of the development site. Storm water will discharge to the outfall at a controlled rate, limited to the greenfield equivalent runoff. Excess surface water runoff during storm events will be attenuated in new below ground stormwater attenuation tanks within the open space at the northern end of the site' (Figures 5 & 6).

''It is proposed to incorporate a Storm Water Management Plan through the use of various SuDS techniques to treat and minimise surface water runoff from the site. The methodology involved in developing a Storm Water Management Plan for the subject site is in accordance with the requirements of Dun-Laoghaire Rathdown County Council and is based on recommendations set out in the Greater Dublin Strategic Drainage Study (GDSDS) and in the SuDS Manual (Ciria C753). Based on three key elements – Water Quantity, Water Quality and Amenity – the targets of the SuDS train concept have been implemented in the design, providing SuDS devices for each of the following:

- Source Control – Green roofs
- Site Control – Permeable paving; bio-retention tree pits; filter drains;
- Regional Control – Flow control; underground attenuation storage; downstream defender.

2.3 Lighting

Discussions took place with Sabre Electrical services Ltd. in relation to compliance with bat lighting guidance. All proposed lanterns are colour temperature 2700K. Lanterns P14-P21 are to be fitted with backlight internal louvers and orientation facing inwards into the site. P11, P12 & P22 are also fitted with backlight internal louvres. The backlight is not available for the selected for P3 & P4 due to physical constraints of this lens variant. The light spill diagram is seen in Figure 7.

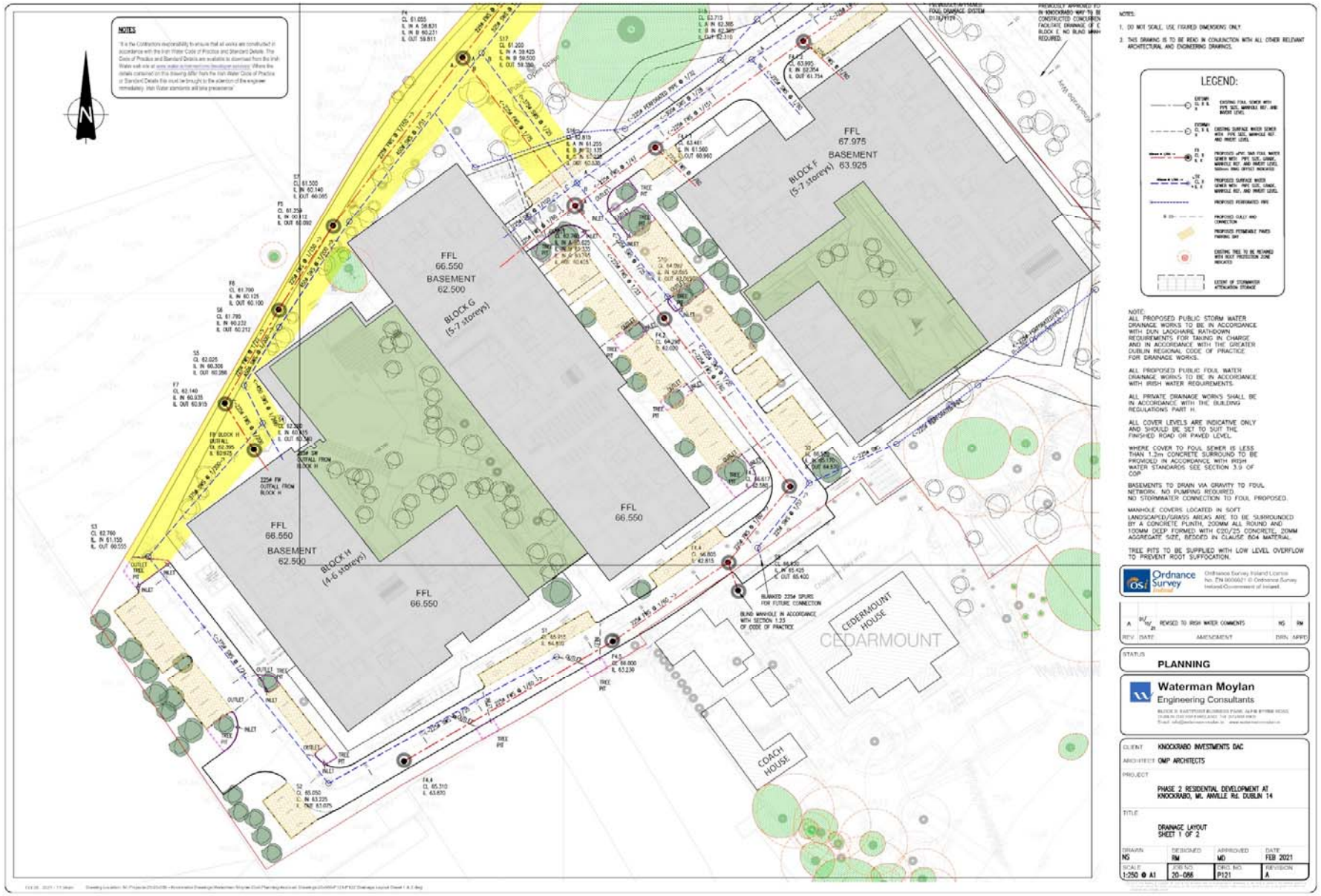

Figure 6. Proposed Drainage Layout – Layout 1

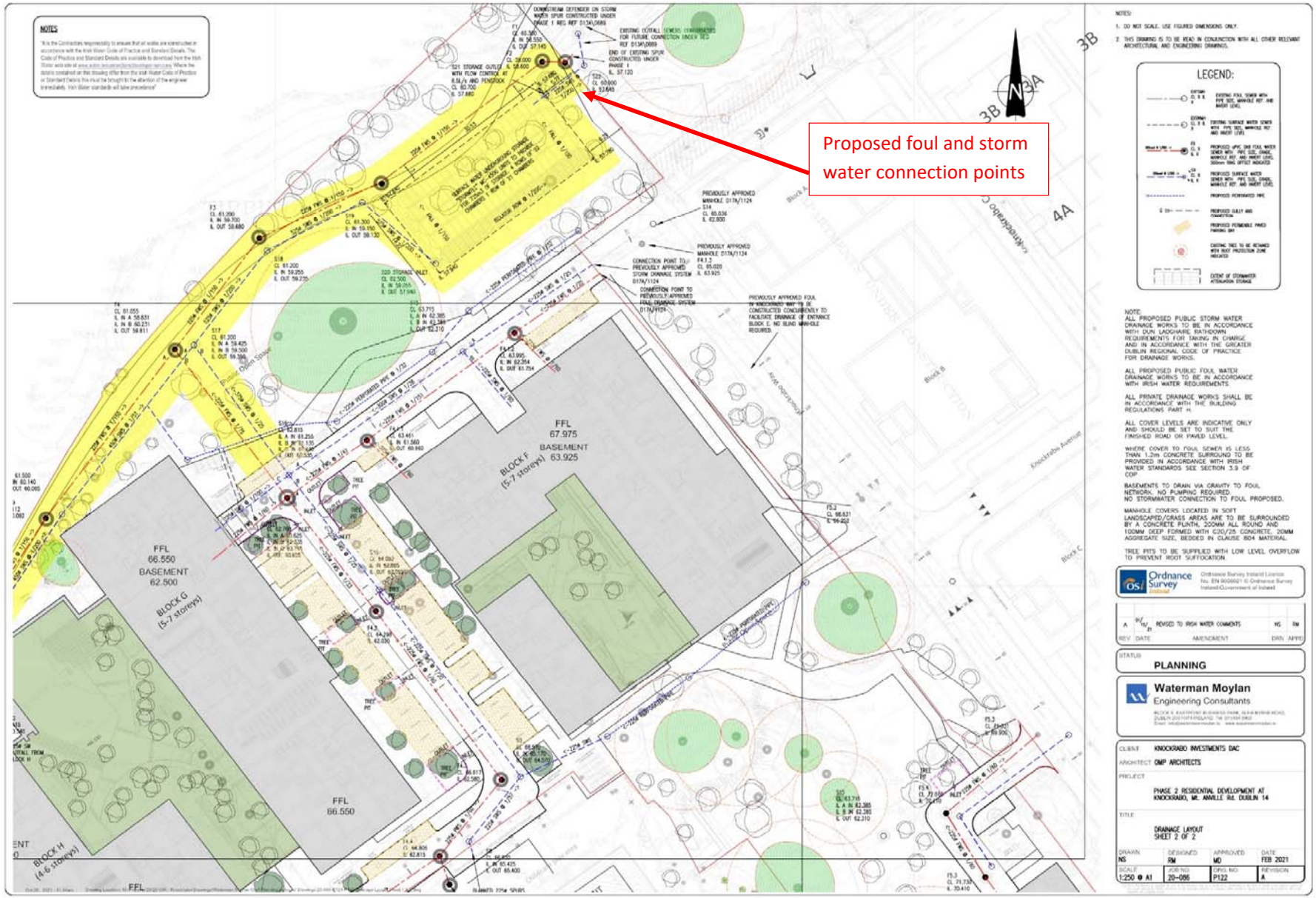

Figure 6. Proposed Drainage Layout – Layout 2.

Figure 7. Proposed Lighting Details

3) Ecological Assessment Methodology

3.1 Desk study

A desk study was undertaken to gather and assess ecological data prior to undertaking fieldwork elements. A provisional desk based assessment of the potential species and habitats of conservation importance was carried out in 2017 and updated in March 2021. Sources of datasets and information included The National Parks and Wildlife Service, National Biological Data Centre and Satellite, aerial and 6" map imagery.

3.2 Field survey

Initial field surveys were carried out in by Scott Cawley in 2017 and are seen in Appendix I. Further in season assessments are due to be carried out on the 1st September 2021 (Habitat and Bat Assessments (Appendix III) and Breeding Bird surveys (Appendix IV) in 2021. However, it should be noted that since the original surveys in 2017 additional works have been carried out on site, including the treatment of Japanese knotweed (*Reynoutria japonica*) (previously known as *Fallopia japonica*) (Appendix II).

3.3 Spatial Scope and Zone of Influence

IEEM (2018) defined the zone of influence as "*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 the marine environment, zones of influence can be extensive e.g. pollution and materials can easily be transported elsewhere, currents and waves can be altered causing effects well beyond the site and effects on mobile species may be manifest elsewhere. Activities associated with the construction, operation (best and worst-case operating conditions), decommissioning and restoration phases should be separately identified. The location and distribution of activities are best shown on geo-referenced maps, plans or charts for overlaying onto maps of ecological features*." In order to define the extent of the study area for ecological assessment, all elements of the project were assessed and reviewed in order to identify the spatial scale at which ecological features could be impacted. Due to the self-contained nature and limited temporal/ geographical scale of the project, within an urban/suburban environment with set boundaries including walls, fence and treelines, it is considered that the impacts of the proposed works would not extend beyond site outline, with the exception of light, noise, surface water and dust which may extend into the local area, in the absence of mitigation.

3.4 Impact Assessment Significance Criteria

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

Magnitude of impact and typical descriptions

Magnitude of impact (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 impact on attribute or a reduced risk of negative impact 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 Potential Impacts on Biodiversity

	Impact Description
Negative /Adverse Impact	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 Impact	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Impact	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Significance of Impacts

Significance of Impact	Description of Potential Impact
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.

Significance of Impact	Description of Potential Impact
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 impact which obliterates sensitive characteristics.

Duration of Impact

Duration of Impact	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
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.
Extent of Effects	Description
Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.

4) Results

4.1 Proximity to designated conservation sites

Designated conservation sites (National and international) within 15km of the proposed development are shown in Figures (7-9). It should be noted that the proposed development site is not within a designated conservation area. The closest conservation site is Booterstown Marsh (pNHA) 2.3km from the proposed development, which is located at a higher elevation (Figure 6). Internationally designated sites (SAC and SPA) are located at minimum, 2.4 km from the site (Figures 4 & 5)(Table 3). The nearest NHA (Skerries Islands) is 31.6km from the site. The closest RAMSAR Site is Sandymount Strand/Tolka Estuary, 2.4km from the site. A separate Appropriate Assessment Screening has also been carried out for Natura 2000 sites (SAC & SPA's). Details of international conservation sites within 15km and National Conservation sites within 10km of the proposed site are detailed in Table 3.

Table 3. Conservation sites within 15km (pNHA 10km) of the proposed site.

Code	NATURA 2000 Site	Distance	Direct Hydrological / Biodiversity Connection
Special Areas of Conservation			
IE0000210	South Dublin Bay SAC	2.5 km	No
IE0002122	Wicklow Mountains SAC	7.3 km	No
IE0000206	North Dublin Bay SAC	7.4 km	No
IE0003000	Rockabill to Dalkey Island SAC	8.8 km	No
IE000725	Knocksink Wood SAC	9.1 km	No
IE001209	Glenasmole Valley SAC	10.2 km	No
IE000713	Ballyman Glen SAC	10.2 km	No
IE0000202	Howth Head SAC	11.8 km	No
IE000199	Baldoyle Bay SAC	12.9 km	No
IE000714	Bray Head SAC	14.0 km	No
Special Protection Area			
IE0004024	South Dublin Bay and River Tolka Estuary SPA	2.4 km	No
IE0004006	North Bull Island SPA	7.4 km	No
IE0004040	Wicklow Mountains SPA	7.5 km	No
IE0004172	Dalkey Islands SPA	8.7 km	No
IE0004016	Baldoyle Bay SPA	12.9 km	No
IE0004113	Howth Head Coast SPA	13.7 km	No
Natural Heritage Area			
	South Dublin Bay pNHA	2.5km	No
	Booterstown Marsh pNHA	2.3km	No
	Grand Canal pNHA 4.6km	4.6km	No
	Fitzsimon's Wood pNHA	2.6km	No
	Grand Canal pNHA	4.7km	No
	Dolphins, Dublin Docks pNHA	5.2 km	No
	Dalkey Coastal Zone and Killiney Hill pNHA	6.3km	No
	Dodder Valley pNHA	7.1km	No
	Dingle Glen pNHA	6.4km	No
	Royal Canal pNHA	6.1km	No
	Loughlinstown Woods pNHA	7.9km	No
	Ballybetagh Bog pNHA	7.7km	No
	North Dublin Bay pNHA	7.4km	No
	Knocksink Wood pNHA	9.1km	No

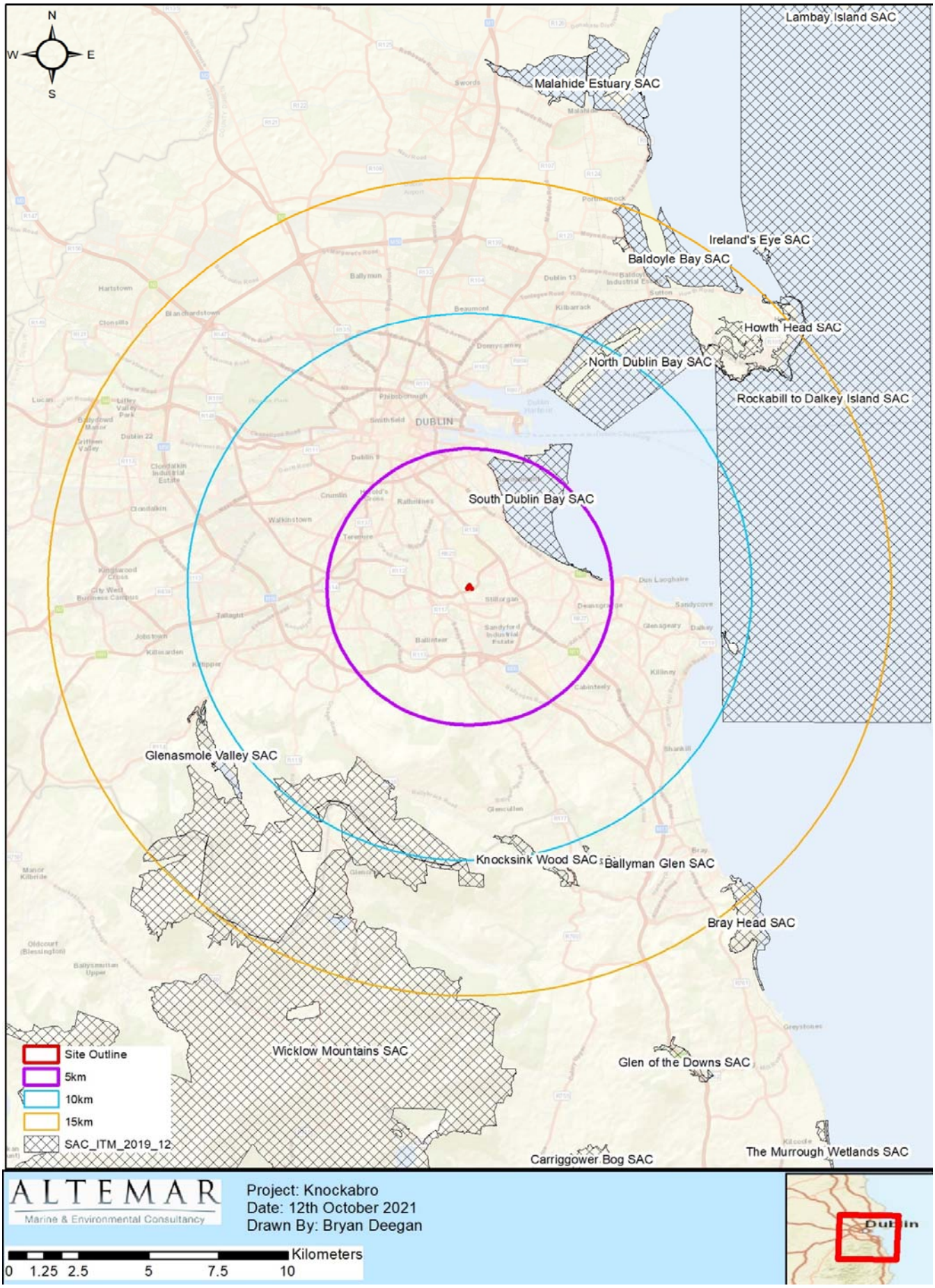

Figure 8. Special Areas of Conservation within 15km of the proposed development.

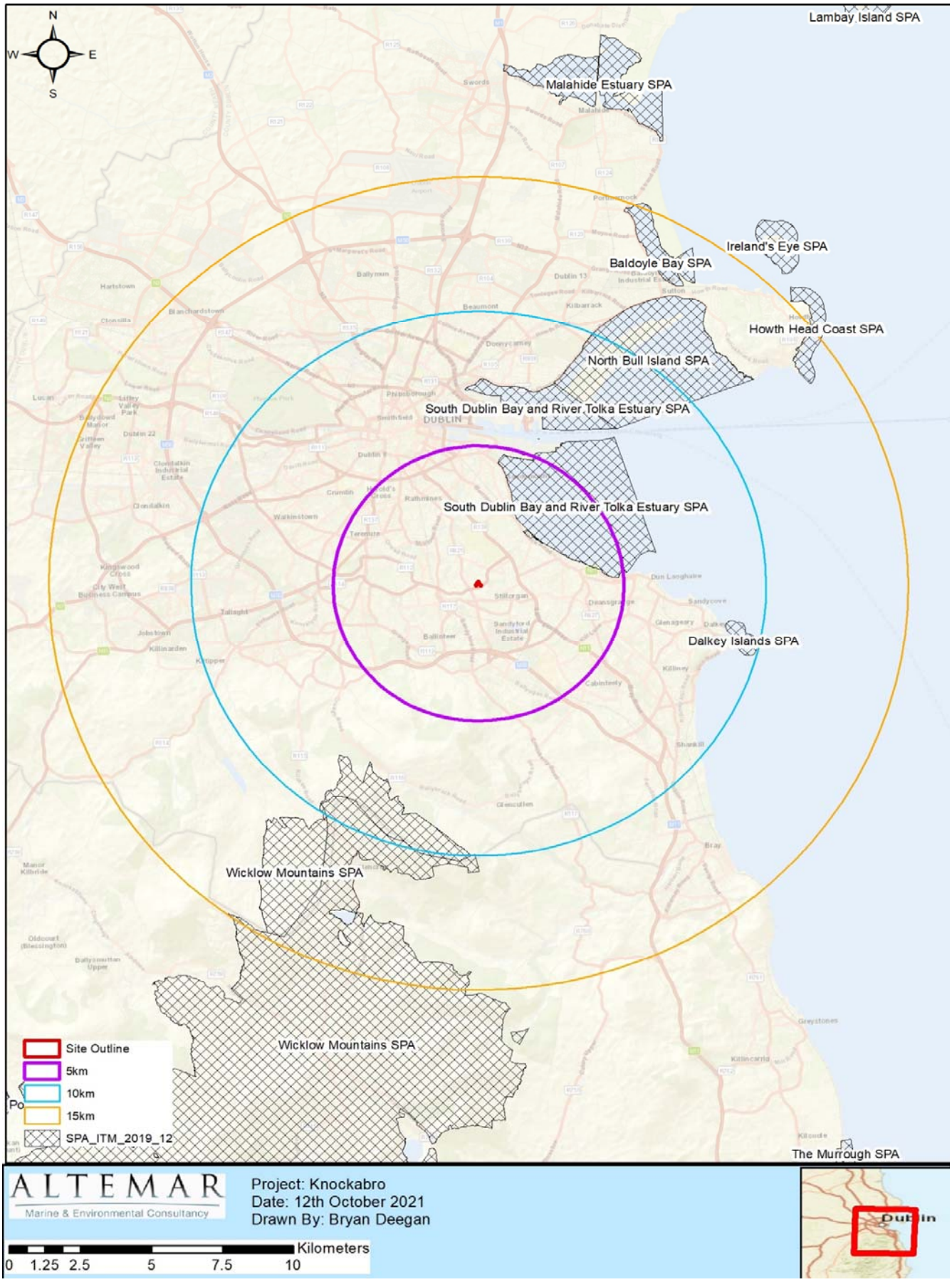

Figure 9. Special Protection Areas within 15km of the proposed development.

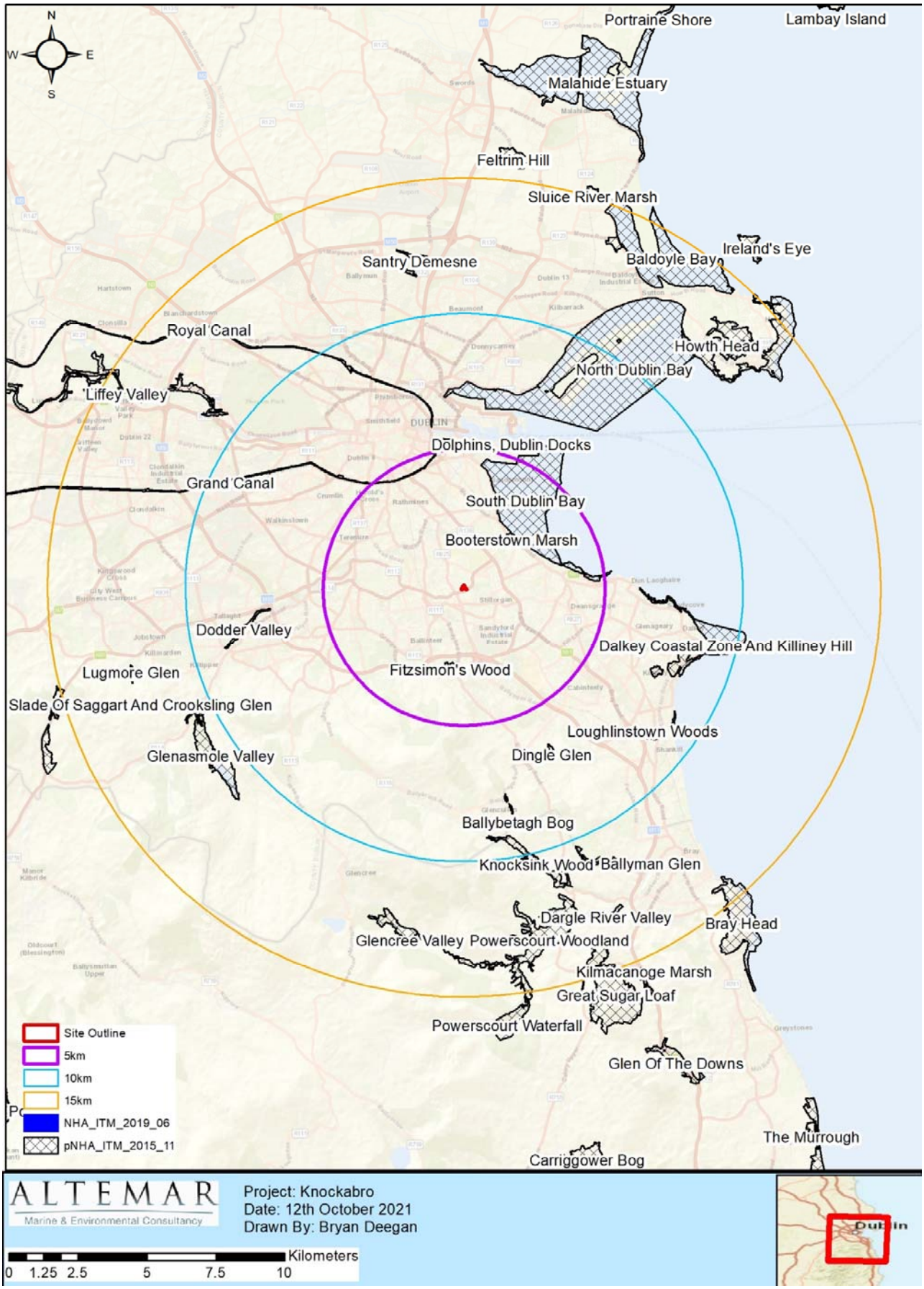

Figure 10. Proposed Natural Heritage Areas and Natural Heritage Areas within 15km of the proposed development.

4.2 Habitats and Species

Scott Cawley carried out desktop and site assessments in 2017 (Appendix I). This initial EcIA is based on these assessments. As outlined in the Scott Cawley EcIA (2017) "*The following ecological features are considered to be KER[1]s in relation to the proposed development due to its urban context and its potential construction and/or operational impacts:*

- *Bats are considered to be KERs on a precautionary basis as all bats and their roosts are protected under the Wildlife Acts and under the Habitats Directive. A number of trees and buildings located within the proposed development site contained potential roost features (PRFs) that may be utilised by bats. During the activity survey, bats were recorded commuting through and possibly foraging on the site.*
- *Breeding birds are considered to be KERs on a precautionary basis due to their protection under the Wildlife Acts and the presence of suitable breeding bird habitat (e.g. treelines and woodlands) was noted across the proposed development site.*
- *Treelines, woodland, scattered trees and parkland and ornamental/non-native shrub recorded within the study area provides potential roost foraging/commuting habitat for bats and subsequently have been included as a KER for their function in supporting the local bat population.*

The non-native, highly invasive species Japanese knotweed was identified within the proposed development site. Whilst this species is not considered to be a KER, its potential impact is still assessed in the context of habitats within the proposed development site. Under Section 49(2) of the European Communities (Birds and Natural Habitats) Regulations, 2011, it is illegal to plant, disperse, allow/cause to disperse, spread or otherwise grow any species on the Third Schedule, i.e. Japanese knotweed. Mitigation is provided in section 6.3.1 below to ensure this legal requirement is met. Table 4 summarises all ecological features identified as KERs based on the completion of the desk study and field survey of the subject lands. KERs have been identified as at risk of potentially significant impacts via a source-pathway-receptor link."

Table 1 - Ecological Evaluation of Key Ecological Receptors (Highlighted in grey)

Habitat / Species	Highest Ecological Valuation Level	Key Ecological Receptor?
Fauna		
Potential Roosting/Foraging/Commuting Bats	Local Importance (Higher Value)	Yes
Breeding birds	Local Importance (Higher Value)	Yes
Habitats & Flora		
Amenity Grassland (GA2)	Local Importance (Lower Value)	No
Dry meadows and grassy verges (GS2)	Local Importance (Lower Value)	No
Treeline (WL2)	Local Importance (Higher Value)	Yes but only in reference to its function in supporting Bats & Breeding Birds
(Mixed) Broadleaved Woodland (WD1)	Local Importance (Higher Value)	Yes but only in reference to its function in supporting Bats & Breeding Birds
Scattered Trees and Parkland (WD5)	Local Importance (Lower Value)	No
Scrub (WS1)	Local Importance (Lower Value)	No
Ornamental/Non-native Shrub (WS3)	Local Importance (Higher Value)	Yes but only in reference to its function in supporting Bats & Breeding Birds
Spoil and Bare Ground (ED2)	Local Importance (Lower Value)	No
Recolonising Bare Ground (ED3)	Local Importance (Lower Value)	No

[1] KERs are defined in accordance with NRA guidelines (2009) as being '*both of sufficient value to be material in decision making and likely to be affected significantly*'

Habitat / Species	Highest Ecological Valuation Level	Key Ecological Receptor?
Buildings and Artificial Surfaces (BL3)	Local Importance (Lower Value)	No

However, it should be noted that site clearance works have been carried out on site since the 2017 surveys, which has resulted in many of the habitats outlined in the Scott Cawley report being modified. As a result of the conclusion of the Scott Cawley Assessment in 2017, further assessments were carried out in 2021 and included habitat, breeding bird and bat assessments. The Fossitt habitat map based on the 1st September 2021 is seen in Figure 11. Habitats are outlined based on this site assessment.

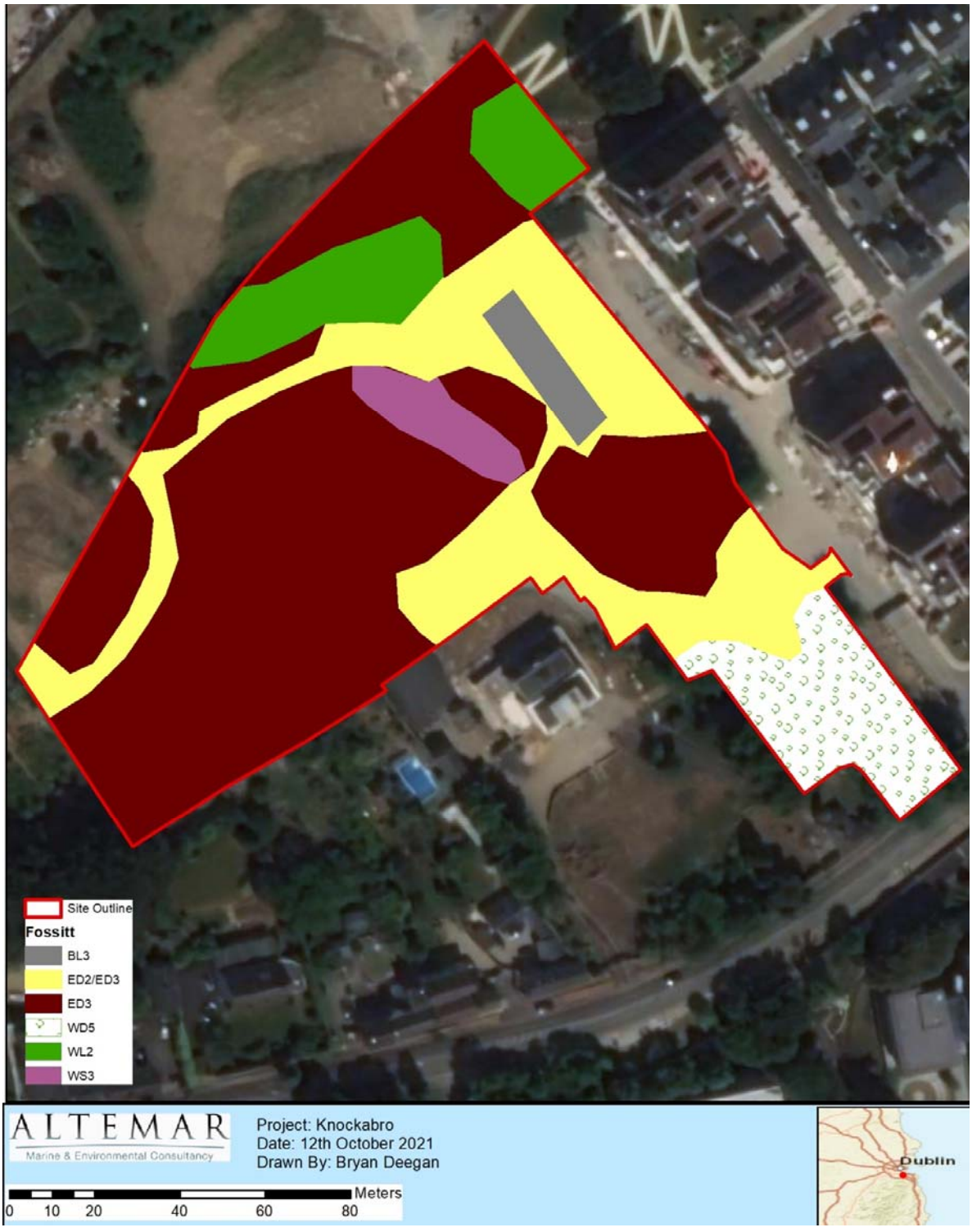

Figure 11. Fossitt Habitat map from the site survey on the 1st September 2021.

ED3 Recolonising Bare Ground

As can be seen from figure 11 the vast majority of the proposed development site consists of an area of Recolonising Bare Ground. Areas that have been more recently cleared and are recolonising have been classed as ED2 (Spoil and Bare Ground)/ED3 (Recolonising Bare Ground). Based upon an examination of historic satellite imagery (Google Historic Imagery and Geohive) significant works and site clearance were carried out in 2019. This site is being recolonised by opportunistic species such as nettle (*Urtica dioica*), rape (*Brassica napus*), dandelion (*Taraxacum spp.*), red valerian (*Centranthus ruber*), bramble (*Rubus fruticosus agg*.), colt's foot (Tussilago farfara), pampas grass (Cortaderia selloana), wild teasel (Dipsacus fullonum), common poppy (Papaver rhoeas), hoary willowherb (Epilobium parviflorum), burnet rose (Rosa pimpinellifolia), common mallow (*Malva sylvestris*), creeping buttercup (*Ranunculus repens*), hedge bindweed (*Calystegia sepium*), clover (*Trifolium spp*.), purple-loosestrife (Lythrum salicaria), cow parsley (*Anthriscus sylvestris*), daisy (*Bellis perennis*), plantains (*Plantago spp*.), docks (*Rumex spp*.), cat's-ear (*Hypochaeris radicata*), pineappleweed (*Matricaria discoidea*), Fennel (Foeniculum vulgare), butterfly-bush (*Buddleja spp*.`), wild carrot (*Daucus carota*), lesser trefoil (*Trifolium dubium*), butterbur (Petasites hybridus), ragwort (*Senecio sp*.) and rosebay willowherb (*Chamaenerion angustifolium*). It should be noted that Japanese Knotweed (*Reynoutria japonica*) is located to the north of the site and has been previously been treated on site (Appendix II). This is a high impact species listed on the third Schedule of regulation 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2011. An invasive species progress report (2019) is seen in Appendix II.

Plate 1. ED2 Spoil and Bare Ground/ED3-Recolonising bare Ground

Plate 2. ED3-Recolonising bare Ground

WD5-Scattered Trees and Parkland.

Tree species in this area included copper beech (*Fagus sylvatica 'Purpurea'*), sycamore (*Acer pseudoplatanus*), willow (*Salix so*.), birch (*Betula pendula*), horse chestnut (*Aesculus hippocastanum*), oak (*Quercus s*p), deodar cedar (*Cedrus deodara*), holly (*Ilex aquifolium*), larch (*Larix decidua*), western red cedar (*Thuja pilcata*). Biodiversity within the grassland area was poor and this habitat also showed signs of recent disturbance, with several clover species (Trifolium sp.), rosebay willowherb (*Chamaenerion angustifolium*), nettle (*Urtica dioica*), dandelion (*Taraxacum spp.*), bramble (*Rubus fruticosus agg*.), hoary willowherb (*Epilobium parviflorum*), common mallow (*Malva sylvestris*), creeping buttercup (*Ranunculus repens*), daisy (*Bellis perennis*), plantains (*Plantago spp.*), docks (*Rumex spp*.), bamboo species and common snowberry (*Symphoricarpos albus*).

Plate 3. WD5-Scattered Trees and Parkland.

WL2- Treeline

The western portion of the main development site is bordered by a treeline consisting of beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), elder (Sambucus nigra) and holly (*Ilex aquifolium*).

WS3- Ornamental/Non-native Shrub
An area of dense cherry laurel (*Prunus laurocerasus*) was noted on site.

Evaluation of Habitats
The proposed development site is primarily spoil and bare ground, recolonising bare ground. The Scattered Trees and Parkland (WD5) and Treelines (WL2) would be considered to be of local biodiversity importance, primarily as a result of the nesting resource for birds and providing a foraging habitat for bat species. No habitats of conservation significance were noted within the site outline.

Plant Species
The plant species encountered at the various locations on site are detailed above. No rare or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded within the proposed development site. Japanese knotweed is located to the north of the site and a management plan is in place.

Fauna
Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened faunal species were recorded within the proposed development site. Details of rare and protected species within 2km in addition to results of previous bat surveys in 2017 are seen in Appendix I. No signs of protected fauna were noted on site.

Bats
A bat survey was carried out by Scott Cawley in 2017 and the results of the survey are seen in Appendix I. As outlined in Appendix I "*Although no evidence of bats was encountered during the internal and external inspection of the Knockrabo Gate Lodge (West)*," (Outside red line) "*the house was considered suitable for roosting bats. It contains an attic space, which was only partially accessible through its entrance, that was considered suitable for roosting bats at it was dark and of a constant cool temperature*."

"*A post-dusk survey was carried out on the subject lands on the evening of 28th September 2017. Only one bat species was recorded, i.e. Leisler's bat Nyctalus leisleri. The first bat recorded was at 19:05 (i.e. c. three minutes before sunset). It was observed commuting across the site, c. 10m north of Cedar Mount House. The second bat recorded was at 19:23 (i.e. c. 15 minutes after sunset). Again, it was observed c. 25m west of Cedar Mount House. The final bat was recorded at 19:45 (i.e. c. 37 minutes after sunset) along the eastern boundary of the proposed development site. As a precautionary approach due to the potential suitability of habitats within the subject lands for bat activity, the value of the site for bats have been valued as a local Importance (higher value).*"

A further bat assessment was carried out by Altemar on the 1st September 2021. The results of this survey are seen in Appendix III. As outlined in Appendix III "*There is no evidence of an actual bat roost on site, therefore no negative impacts on roosts or these animals are expected to result from the proposed development. The proposed development is within a built-up area with existing lighting and light spill. Lighting has been designed taking bats into consideration and will comply with Bats & Lighting: Guidance Notes for: Planners, engineers, architects and developers. The likelihood bat collision is not significant as the materials proposed for the apartment blocks are generally solid and would have good acoustic properties to reflect echolocation signals. As a result, the buildings would be clearly visible to bat species.*

The impact of the proposed development on bats would be minor adverse, not significant, negative impact in the long term based on the loss of a small area of foraging on site. However, foraging would be expected to continue on site based on the implementation of the sympathetic lighting strategy for bats."

Birds

The proposed development site consists of Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3), Scrub (WS1), Treeline (WL2) and areas of the Scattered Trees and Parkland (WD5). These are not typical habitats associated with wintering birds. However, due to the presence of habitats that may provide a nesting resource a Breeding Bird Assessment was carried out. As outlined in Appendix IV "*28 Bird species were recorded at the Knockabro site over 3 visits in June 2021. Of these 8 species were proved breeding, with juveniles observed on-site indicating likely breeding on-site or in immediate adjacent areas. No red-listed or amber-listed breeding species from the recently updated Birdwatch Ireland's Birds of Conservation Concern in Ireland List (2020-2021) were recorded on the Knockabro site*."

Amphibians/Reptiles

The common frog (*Rana temporaria*) was not observed on site. There are no features within the site boundary that could be important to frogs.

5) Analysis of the Potential Impacts

5.1 Introduction

The proposed development will involve the removal of the majority of existing habitats on site. Habitats on site in Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3), Treeline (WL2), Scattered Trees and Parkland (WD5), Ornamental Scrub (WS3) and built land. It should be noted that previous site clearance (2019) has resulted in the majority of the site consisting of spoil and bare ground (ED2) and recolonising bare ground (ED3).

5.2 Do Nothing Scenario.

If nothing was done on site it would be expected that the recently disturbed areas would recolonise and increase in biodiversity value. Based on the 2021 assessment, in the absence of controls on site, there may be potential for the Japanese knotweed to spread. It would be expected that the biodiversity value of the site would increase if no development was carried out on site.

5.3 Impacts

Construction Impacts

Designated Conservation Sites

As outlined in the Hydrological and Hydrogeological Qualitative Risk Assessment "*there are no pollutant linkages as a result of the construction or operation (without mitigation) of the proposed development which could result in a water quality impact which could alter the habitat requirements of the Natura sites within Dublin Bay*." No impacts are foreseen on designated sites.

Habitats and Species.

The overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3), Scrub (WS1), Treeline (WL2) and areas within the Scattered Trees and Parkland (WD5). This will result in a loss of nesting habitat for birds and foraging habitats for bats within the site outline until the landscaping in has been established. As outlined in Appendix I and Appendix III, no bat roosts were recorded on site but, mitigation measures will be required to ensure that bats are not significantly impacted. No protected terrestrial mammals or water features that may be important to protected amphibians were recorded on site.

However, as previously noted, works have been carried out on site since 2017 including the works outlined in Appendix II in relation to the invasive species on site. It should be noted that Scott Cawley based their bird and bat assessments on a precautionary approach as bird surveys were outside of breeding season and the potential suitability of habitats within the subject lands for bat activity, despite no evidence of bats roosting on site. However, an in season breeding bird survey and a bat survey was carried out in 2021. Mitigation measures are proposed to limit the impact on local biodiversity**.**

Operational Impacts

Designated Conservation Sites

As outlined in the Hydrological and Hydrogeological Qualitative Risk Assessment "*there are no pollutant linkages as a result of the construction or operation (without mitigation) of the proposed development which could result in a water quality impact which could alter the habitat requirements of the Natura sites within Dublin Bay*." No impacts are foreseen on designated sites.

Habitats and Species.

Once developed, the site would be seen as a stable ecological environment. It would be expected that there will be no significant ecological impact arising from the day to day operation of the proposed residential development.

All effluent will be discharged to the public sewage system. The construction of new drainage networks will have to comply with SUDS and planning requirements and as a result would have negligible impact on habitats and species surrounding proposed development site. Lighting has been designed to comply with bat lighting guidance. No significant impacts are foreseen from the operation of the proposed development.

Indirect Impacts

All soil removed from the site during ground works would have to comply with planning requirements and policies of Dun Laoghaire Rathdown County Council and would need to be disposed of in an appropriate manner.

5.4 Avoidance and Remedial Measures

Mitigation by Avoidance

Direct negative impacts upon the existing vegetation and houses within the site are not regarded as being significant due to the absence of species and habitats of conservation importance and as a result do not require mitigation. In addition, a preconstruction bat and mammal assessment will be carried out.

Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August).

A pre-construction Invasive species survey will be carried out to ensure containment of invasive species on site. Updating of the invasive species management plan will be required. This will be carried out prior to any site clearance on site. All Japanese knotweed stands will be marked with a 7m perimeter prior to any machinery coming on site.

Mitigation by Remedy

Materials excavated may need to be exported off-site. Dewatering of excavations may be necessary and given the sloped nature of the site there is potential for surface water runoff during construction. Appropriate monitoring of groundwater levels during site works will be undertaken. In order to prevent "downstream impacts" appropriate mitigation measures will be developed including silt fences, retention ponds and filtering of excess water for suspended solids prior to discharge, if required. A wheel wash will be present on site and road sweeping of surrounding roads will be in place during enabling works. Terrestrial mammal surveys will be required pre-construction to ensure that terrestrial mammals of conservation importance have not become resident on site since the previous surveys and the commencement of construction.

Mitigation for bats

As no evidence of a bat roost was noted onsite, no mitigation measures in regard to these animals are needed during the proposed works. There is also no requirement for a National Parks and Wildlife Service derogation licence application to allow the planned works. The potential bat roost within a tree will be retained (Refer to Bat Survey – Page 85 of this report). The foraging areas within the site will not be directly lit during the construction phase. Lighting on site during operation will be as per Bats & Lighting: Guidance Notes for: Planners, engineers, architects and developers, to ensure that foraging continues on site. A pre-construction bat assessment will be carried out. A post construction assessment of lighting will be carried out to confirm lighting and spill is as per designed lighting strategy.

5.5 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:

Ref. No.	Address	Proposal
PL06D.309430	Our Lady's Grove, Goatstown Road, Goatstown, Dublin 14.	Current application for a 698 no. student bedspace accommodation and associated site works.
D19A/0460	106, Goatstown Road, Dublin 14	Permission is sought for demolition of existing 2-storey house and the erection of an 854 sq.m. 3-storey (part 2-storey) building containing 9 apartments (3 x 1-bed, 4 x 2-bed, 2 x 3-bed), and associated works including balconies, 11 car parking spaces and modifications to vehicular entrance.
PL06D.307545	Walled Garden, Gort Muire, Dundrum, Dublin 14	Modifications to previous permitted ABP-304590-19 to provide an additional storey on each of the 4 no. permitted blocks to provide a total of 26 no. additional apartments and associated site works. http://www.pleanala.ie/casenum/307545.htm
PL06D.306682	Greenacres, Longacre and Drumahill House, Upper Kilmacud Road, Dundrum, Dublin 14	Provision of 67 no. apartments on the previously permitted Greenacres residential development of 253 no. apartments as permitted under ABP Reg. Ref. 304469 and associated site works

In the ABP Order/Decision document for application reference **ABP30442019** the following is stated in relation to Appropriate Assessment Screening:

''In completing the screening exercise, the Board adopted the report of the Inspector and concluded that, by itself or in combination with other development in the vicinity, the proposed development would not be likely to have significant effect on any European Site in view of the conservation objectives of such sites, and that a Stage 2 Appropriate Assessment is not, therefore, required.''

The Planner's report for application reference **D19A/0460** states the following in relation to Appropriate Assessment Screening:

''The proposed development has been screened for AA (report on file) and it has been determined that the development to be retained would not significantly impact upon a Natura 2000 Site.''

The foul sewer terminates at Ringsend Waste Water Treatment Plant (WWTP). The foul water from the site will transfer to the Ringsend WWTP via public foul sewer where it will be diluted and mixed with other effluent. Treatment will take place at Ringsend WWTP prior to discharge into Dublin Bay. Irish Water operate this facility under licence (EPA D0034-01) and are required to comply with environmental legislation. In 2019 (ABP Ref. PL29S.301798), the facility received planning to upgrade capacity to 2.4 million PE, which will be in place by the time the proposed project becomes operational. The EIAR for the upgrading of Ringsend WWTP stated that *"The likely cumulative impact of the Proposed WwTP Component is that the resident population of the Greater Dublin Area will be capable of growing to its target population levels over time due to the increased capacity of the Ringsend WwTP. This will enable objectives at both national and regional levels to be met."*

Emissions from the plant are currently not in compliance with the Urban Wastewater Treatment Directive. Note that Phase 1 of these works is currently underway with a target completion date of 2021.

Note that as part of this application an Environmental Impact Assessment Report (EIAR) was submitted. Sections 5 and 6 of this EIAR related to Marine Biodiversity and Terrestrial Biodiversity respectively and each contained a section on the 'do nothing scenario'. These review the effects to biodiversity in Dublin Bay in the absence of the upgrade works.

"*If the status quo is maintained there will be little or no change in the majority of the intertidal faunal assemblages found in Dublin Bay which would likely continue to be relatively diverse and rich across the bay. Previous studies suggest that the outer and south bays are largely unaffected by the nutrient inputs from the WwTP at Ringsend and from the Liffey and Tolka rivers. Therefore, the sandy communities found in those areas will likely remain dominated by the same assemblage of Nepthys, tellinids and other pollution-sensitive species, albeit subjected to natural spatial and seasonal variations.*

However, the areas in the Tolka Estuary and North Bull Island channel will continue to be affected by the cumulative nutrient loads from the river Liffey and Tolka and the effluent from the Ringsend WwTP. These areas will likely continue to be colonised by opportunistic taxa tolerant of organic enrichment. There is a possibility that an increase in the nutrient outputs from the plant due to the operational overload and storm water discharges could result in a decline in the biodiversity of these communities as a result of low oxygen availability caused by increased organic enrichment. Considering the existing situation, it is possible that through the future oversupply of DIN to the area impacted by the existing outfall, benthic production could be adversely impacted due to hypoxic or even anoxic conditions. An increase in the cover of opportunistic macroalgae could lead to further deterioration in the lagoons in the North Bull as they add to the organic load on the benthos and further increase the BOD. These events, although localised, could deteriorate the biological status for Dublin Bay as a whole. Nonetheless, it is unlikely, as existing historical data suggests that pollution in Dublin Bay has had little or no effect on the composition and richness of the benthic macroinvertebrate. Although a localised decline could occur, it is not envisaged to be to a scale that could pose a threat to the shellfish, fish, bird or marine mammal populations that occur in the area. (section 5.7.1)

If the Proposed WwTP component is not implemented, there is a possibility that an increase in the nutrient outputs from the plant due to operational overload and storm water discharges could result in a decline in the biodiversity of invertebrate communities in the Tolka Estuary and North Bull Island channel as a result of low oxygen availability caused by increased organic enrichment.

An increase in the cover of opportunistic macroalgae could lead to further deterioration in the lagoons in the North Bull as they add to the organic load on the benthos and further increase the BOD. These events, although localised, could deteriorate the biological status for Dublin Bay as a whole. It is unlikely that they would have any significant impact on the waterbird populations that forage on invertebrates in Dublin Bay.

A graphic from the EIAR prepared by Irish Water in 2018 showed the zone of influence of the discharge from the Ringsend WwTP and this indicated that effects from the discharge do not extend to the south side of the bay."

The proposed development will make a very small contribution to the overall capacity of the licensed WwTP at Ringsend. While there are capacity issues at the WwTP, substantial upgrades to capacity are expected to be delivered over the medium term. Water quality assessment undertaken in Dublin Bay confirms that Dublin Bay is classified as "unpolluted" and there is no evidence that operations from the WwTP are affecting the conservation objectives of the European sites in Dublin Bay. It is assessed that the proposed development in combination with the WwTP won't have any significant effects on any European sites.

As previously noted, site clearance has been carried out on site. It should be noted that this has resulted in much of the habitat spoil and bare ground/recolonising bare ground. However, site assessments were carried out prior to works being carried out and no significant effects are noted as a result of the site clearance works on site, due to the lack of habitats of importance on site.

No cumulative or in combination effects on Natura 2000 sites are foreseen.

6) Impacts and Conclusion

The proposed development site consists of the grounds of existing houses in a suburban environment. No species of conservation importance, with the exception of one foraging bat, were observed on site. The site itself is not of significant ecological importance and is not in close proximity to a conservation site. The following residual impacts on habitats (Table 5a) and species (Table 5b) would be expected as a result of the construction of the proposed development. No residual impacts are foreseen from the operational impacts.

Table 5a. Impacts on habitats

Habitat	Fossitt	Habitats Directive	Rating	Construction Impact	Impact Significance
Treelines	WL2	No	C	See Arborist Report. Mitigation proposed in relation to birds and bats.	Negligible
Scattered trees and parkland	WD5	No	E	Construction will result in the partial removal of this habitat. This habitat is not of significant conservation importance and the works are localised in nature. Mitigation proposed in relation to birds and bats.	Negligible
Ornamental Scrub	WS3	No	E	Construction will result in the complete removal of this habitat. This habitat is not of conservation importance and the works are localised in nature.	Negligible
Bare Ground/Recolonising bare ground.	ED2/ED3	No	E	Mitigation proposed in relation to birds and invasive species.	Negligible

Table 5b. Construction Impacts on species

Species	Rating	Construction Impact	Impact Significance
Mammal-Bats	A	The proposed development will change the local environment as new structures are to be erected in place of the existing buildings, new roads and parking areas constructed and some of the existing vegetation will be removed. Lightings will be as per bat lighting guidelines.	Negligible
Mammals	A-D	No terrestrial mammals of conservation importance were noted on site.	Negligible
Amphibians-Frogs	B	Amphibians were not observed on site and there were no water features observed during the site visit.	Negligible
Birds	D	Clearance of the site will result in the loss of nesting habitat. Subsequent planting throughout the development, particularly of native hedgerows, could result in a positive impact. No clearance will take place within bird nesting season.	Minor Adverse/ localised/short-term
Terrestrial Flora	A-D	No flora of conservation significance were found on the site. Japanese knotweed is located to the north of the site, mitigation is required.	Negligible

Construction would result in the removal of the majority existing habitats, with the exception of the trees that are to be protected from the construction works. But, due to the fact that the site is poor in species diversity and no species of conservation importance, except foraging bats, were found these impacts would be limited, localised and reversible depending on the planting regime. Despite the site being of relatively low biodiversity importance a robust series of standard mitigation measures are proposed. Mitigation will include pre construction surveys for bats, invasive species and mammals, the clearance of the site outside of bird nesting season, measures to prevent contaminated surface water runoff and the presence of an ecologist to monitor site works. However, none of the measures proposed are necessary for the protection of Natura 2000 sites.

The outlined construction and operational mitigation proposed for the proposed development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the application the standard construction and operational phase controls in addition to a sensitive lighting plan. The overall impact on the ecology of the proposed development will result in a long term minor adverse, not significant impact on the ecology of the area and locality overall. This is primarily as a result of the loss of terrestrial habitats on site, increased light spill and increased human activity. No significant negative environmental effects will be as a result of the proposed development.

No significant ecological impacts would be foreseen outside the immediate vicinity of the proposed development.

7) References

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Appendix I-Scott Cawley 2017 Habitat and Species Assessment.

Habitats and Flora

Desk Study Flora Records

The National Biodiversity Data Centre (NBDC) database search did not return any records of the protected flora species under the Flora (Protection) Order 2015 within 2km of the subject lands.

The NPWS search returned the historic records (*i.e.* from 1849 to 1898) of the following protected flora species under the Flora (Protection) Order 2015 within 2km of the subject lands: red hemp-nettle *Galeopsis angustifolia* and lesser snapdragon *Misopates orontium*.

The NBDC database search returned records of the following five invasive species within 2km of the subject lands, *i.e.*:

- Japanese Knotweed *Fallopia japonica*: The NBDC lists this species as a high impact invasive species. It is listed on the Third Schedule of the Birds and Habitats Regulations and is therefore subject to restrictions under Regulations 49 and 50 of the same legislation, which prohibits the introduction and dispersal, and the dealing and keeping of listed species. The site survey confirmed that this plant does occur within the proposed development site.
- Indian balsam or Himalayan balsam *Impatiens glandulifera*: The NBDC lists this species as a high impact invasive species and is listed on the Third Schedule of the Birds and Habitats Regulations. The site survey confirmed that this plant species do not occur within the proposed development site.
- Nuttall's waterweed *Elodea nuttallii* and Canadian waterweed *Elodea canadensis*: The NBDC lists this species as a high impact invasive species. It is not listed on the Third Schedule of the Birds and Habitats Regulations. The site survey confirmed that this plant does not occur within the proposed development site.
- Water fern *Azolla filiculoides*, black current *Ribes nigrum*, Sycamore *Acer psuedoplatanus,* Butterfly-bush *Buddleja davidii* and Canadian fleabane *Conyza canadensis*: The NBDC lists these species as a medium impact invasive species. They are not listed on the Third Schedule of the Birds and Habitats Regulations. The site survey confirmed that the latter three species do occur within the proposed development site.

Field Surveys

The following habitat types of the Heritage Council classification system (Fossitt, 2000) were identified within and directly adjacent to the proposed development site, as mapped in Figure 4. No species protected under the Flora (Protection) Order were recorded on the site.

Amenity Grassland (GA2)

This habitat type was identified to the north and south of the existing Cedar Mount House (see Plate 1 below). Dominant to abundant species present included those typical of this habitat type, such as grass species perennial rye-grass *Lolium perenne*, Yorkshire fog *Holcus lanatus and* annual meadow grass *Poa annua* and forb species broadleaved plantain *Plantago lanceolata*, daisy *Bellis perennis*

and white clover *Trifolium repens*. Other frequent to occasional species present included common hogweed *Heracleum sphondylium* and cleavers *Galium aparine*. This habitat is assessed as being of local ecological importance (lower value).

Plate 1: Amenity Grassland (GA2), i.e. a managed lawn in the garden of Cedar Mount House, located adjacent to habitat types ornamental/non-native shrubs (WS3) and (mixed) broadleaved woodland (WD1).

Dry Meadows and Grassy Verges (GS2)

This habitat type was identified within the field located west of Cedar Mount House adjacent to other habitat types of hedgerow (WL1), scrub (WS1) and stone walls and other stone work (BL1) (see Plate 2 below). It was also found present in a mosaic with scrub (WS1) at the same location as well as along the northern boundary of the proposed development site. It is dominated by grass species false oat-grass *Arrhenatherum elatius*, typically found in this habitat type, red fescue *Festuca rubra* and Yorkshire fog *Holcus lanatus*. Dominant forb species present included ribwort plantain *Plantago lanceolata*, creeping buttercup *Ranunculus repens*, nettle *Urtica dioica* and creeping thistle *Cirsium arvense*. Occasionally-occurring species included herb-robert *Geranium robertianum*, common hogweed *Heracleum sphondylium*, bush vetch *Vicia sepium* and cleavers *Galium aparine*. This habitat is assessed as being of local ecological importance (lower value).

Plate 2: Dry Meadows and Grassy Verges (GS2) located adjacent to scrub (WS1) habitat.

Scrub (WS1)

This habitat type was located within the western section and northern section of the proposed development site. It was dominated by brambles *Rubus fruticosus agg.* Other frequent to occasionally occurring species present included creeping thistle Cirsium arvense, common nettle *Urtica dioica* and hedge bindweed *Calystegia sepium*. Some areas of brambles scrub were infested by the non-native, invasive species Japanese knotweed *Fallopia japonica* (see Plate 3 below). This habitat is assessed as being of local ecological importance (lower value).

Plate 3: Stand of Japanese knotweed located in an area of bramble scrub (WS1) within the proposed development site.

Treeline (WL2)

Three treelines were noted within the within the proposed development site (see Plate 4 below): along the boundary of the garden of Cedar Mount House to the south and an area dense scrub to the north; within the garden of Cedar Mount House itself adjacent to a linear stretch of Bamboo;

and within the field located within the western section of the site. Abundant plant species present included sycamore *Acer pseudoplatanus*, Norway maple *Acer platanoides*, beech Fagus sylvatica, ash *Fraxinus excelsior*, Monterey cypress *Cupressus macrocarpa*, while occasionally occurring species included common alder *Alnus incana*, Larch *Larix decidua* and Blue cedar *Cedrus atlantica 'Glauca'*. Rarer species included Oak *Quercus sp.* and Holly *Ilex aquifolium*. The understorey of treelines was generally limited to plant species associated with adjacent habitats, such as bramble scrub (WS1) and dry meadows and grassy verges (GS2). Overall, this habitat is assessed as being of local ecological importance (higher value); however only in the context of it supporting bats and breeding birds.

Plate 4: Example of a Treeline (WL1) located along the boundary of the garden of Cedar Mount House to the south and an area dense scrub to the north.

(Mixed) Broadleaved Woodland (WD1)

This habitat type was located within the southern section of the proposed development site adjacent to habitat types amenity grassland (GA2) and Ornamental/Non-native Shrubs (WS3). It was dominated by planted non-native tree species, such as Horse-chestnut *Aesculus hippocastanum*, copper beech *Fagus sylvatica f. purpurea*, sycamore, larch and blue cedar. Some native tree species were also present, *i.e.* Ash and Holly. The understory of this habitat type was limited to the plant species associated with the amenity grassland (GA2) habitat type described above. Overall, this habitat is assessed as being of local ecological importance (higher value); however only in the context of it supporting bats and breeding birds.

Scattered Trees and Parkland (WD5)

This habitat type was located within the south-eastern section of the proposed development site. It was dominated by horse chestnut trees with associated amenity grassland (GA2) habitat type, as described above, (see Plate 4 below). Overall, this habitat is assessed as being of local ecological importance (lower value).

Plate 4: Example of Scattered Trees and Parkland (WD5) located within the south-eastern section of the proposed development site. Photograph taken facing a northerly direction.

Ornamental/Non-native Shrub (WS3)

This habitat type was located to the north, east and south of Cedar Mount House adjacent to the habitat type Amenity Grassland (GA2) and along an existing pathway located near the western boundary of the proposed development site. It was dominated by a variety of non-native ornamental small tree and shrub species, such as Mimosa *Acacia dealbata*, Magnolia *Magnolia grandiflora,* Pittosporum *Pittosporum tenuifolium, Rhododendron sp. Olive Olea Europa*, Chilean Plum Yew *Prumnopitys andina* and Himalayan honeysuckle *Leycesteria formosa*. This habitat type also included a short hedge of *Buxus sempervirens* located around the periphery of Cedar Mount House. Some individual larger non-native trees were present within this habitat type, such as Wellingtonia *Sequoiadendron giganteum*, Larch *Larix decidua*, blue cedar and Corsican Pine *Pinus nigra sub sp*. The invasive species Cotoneaster was noted in this habitat type near to the western boundary. Overall, this habitat is assessed as being of local ecological importance (higher value); however only in the context of it supporting bats and breeding birds.

Spoil and Bare Ground (ED2)

This habitat type consisted of pathways of bare ground and large, steep mounds of spoil and rubble located generally within the north-eastern of the proposed development site (see Plate 5 below). There was little to no plant cover associated with this habitat type. This habitat is assessed as being of local ecological importance (lower value).

Plate 5: Area of spoil and bare ground (ED2) located within the north-eastern section of the proposed development site. Stand of Japanese knotweed located area of bramble scrub (WS1) within the proposed development site. Photograph taken facing south-easterly direction.

Recolonising Bare Ground (ED3)

This habitat type consisted of overgrown, brick paths located within the western field of the proposed development site and a large spoil mound that has been recolonised by typical, ruderal plant species (See Plate 6 below). Dominant to abundant species present included those commonly found in this habitat type, such as lesser trefoil *Trifolium dubium*, groundsel *Senecio vulgaris*, nipplewort *Lapsana communis*, poppy species *Papaver sp.* and coltsfoot *Tussilago farfara*. Frequent to occasionally occurring species present include purple toadflax *Linaria purpurea* and dandelion *Taraxacum officinale*. The non-native invasive species Canadian fleabane *Conyza canadensis* and butterfly-bush *Buddleja davidii* were also identified growing in this habitat type at a low abundance. This habitat is assessed as being of local ecological importance (lower value).

Plate 6: Area of recolonising bare ground (ED3), consisting of a path and spoil mound, located within the eastern section of the proposed development site. Photograph taken facing an easterly direction.

Buildings and Artificial Surfaces (BL3)

This habitat type consisted of the existing buildings on site (*i.e.* Cedar Mount House and associated outbuildings and the Knockrabo Gate Lodge (West), brick pathways located within the western field and the Cedar Mount garden and the driveway to Cedar Mount House and other areas of hardstanding. This habitat is assessed as being of local ecological importance (lower value).

Invasive Flora

Japanese knotweed was identified growing in a large dense stands of scrub located within the western and northern sections of the proposed development site. This plant species is listed the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011. Under Section 49(2) of the European Communities (Birds and Natural Habitats) Regulations, 2011, it is illegal to plant, disperse, allow/cause to disperse, spread or otherwise grow any species on the Third Schedule, *i.e.* Japanese knotweed.

Canadian-fleabane, butterfly-bush and sycamore, non-native medium risk impact species according to NBDC[2], were recorded across the proposed development site. Winter Heliotrope *Petasites fragans*, a non-native low risk impact species according to NBDC[3], was recorded adjacent to the treeline and grassland located within the field to the west of Cedar Mount house garden within the proposed development site boundary.

Fauna

Desk Study Fauna Records

The following records for rare, threatened or protected fauna species were generated from a 2km search around the proposed development site using the National Biodiversity Data Centre's online map viewer:

Amphibians:

- Smooth Newt *Lissotriton vulgaris:* A record for this species exists from within 2km of the subject lands and is dated 2013. Smooth Newt are protected under the Wildlife Acts.
- Common Frog *Rana temporaria:* Records for this species exist from within 2km of the subject lands and associated dates range from 2003 to 2015. Common Frog are protected under the Wildlife Acts and are listed on Annex V of the EU's Habitats Directive (1992).

Insects:

The following species, for which records exist within 2km from the subject lands, are currently regarded as near threatened:

- Large red-tailed bumble bee (2014)

[2] List of risk of Medium Impact invasive species in Ireland according to National Biodiversity Data Centre (NBDC). Last accessed 8th December 2017 at http://www.biodiversityireland.ie/wordpress/wp-content/uploads/Invasives_taggedMediumImpact_2013RA3.pdf

[3] Winter Heliotrope *Petasites fragans.* National Biodiversity Data Centre (NBDC). Last accessed 8th December 2017 at http://species.biodiversityireland.ie/profile.php?taxonId=43895&taxonName=Petasites%20fragrans&keyword=Catalogue%20of%20Irelands%20Non-native%20Species

The following species, for which records exist within 2km from the subject lands, are currently regarded as vulnerable:

- *Andrena (Melandrena) nigroaenea* (1923 and 1896)
- Neat Mining Bee *Andrena (Melandrena) nigroaenea* (1923)

The following species, for which records exist within 2km from the subject lands, are currently regarded as endangered:

- Small Blue *Cupido minimus* (2013)
- *Limnebius nitidus* (1897)
- Gooden's Nomad Bee *Nomada goodeniana* (1923 and 1896)

Records within 2km also exist for *Donacia semicuprea* (1919), which is currently regarded as regionally extinct.

Mammals:

The following bat species are all found within 2km of the subject lands and are all considered to be of least concern:

- Leisler's Bat *Nyctalus leisleri* (2003 and 2001)
- Common Pipistrelle *Pipistrellus pipistrellus* (2011 and 2009)
- Soprano Pipistrelle *Pipistrellus pygmaeus* (20011 and 2004)
- Brown long-eared Bat *Plecotus auritus* (2003)

The review of records held by Bat Conservation Ireland returned 47 records of bat roosts from within 10km of the subject lands. Bat species recorded in roosts in the immediate surrounding area (within 1km) included soprano pipistrelle, common pipistrelle, Leisler's and brown long-eared bats. All species have a widespread distribution across the region.

These bat species are also all protected under the Wildlife Acts and the European Habitats Directive, where they are listed on Annex IV.

The following mammal species are protected under the Wildlife Acts:

- European Hedgehog *Erinaceus europaeus* (2014 and 2011)- currently regarded as being of least concern
- Badger *Meles meles* (2016 and 2013) - currently regarded as being of least concern
- Red Squirrel *Sciurus vulgaris* (2016 and 2012) - currently regarded as near threatened
- Eurasian Pygmy Shrew (*Sorex minutus*) – currently regarded as being of least concern

Birds:

The following bird species are protected under the Wildlife Acts:

- **Red Listed Species-** herring gull *Larus argentatus* (2011), black-headed gull *Chroicocephalus ridibundus* (2013), grey wagtail *Motacilla cinerea* (2015) and Common *Redshank Tringa totanus* (2011)
- **Amber Listed Species-** Eurasian sparrowhawk *Accipiter nisus* (2011), common swift *Apus apus* (2011), common linnet *Carduelis cannabina* (2011), greenfinch *Carduelis chloris* (2016), mute swan *Cygnus olor* (2011), great spotted woodpecker *Dendrocopos major* (2015), European robin *Erithacus rubecula* (2016), common kestrel *Falco tinnunculus*

(2012), oystercatcher *Haematopus ostralegus* (2013), barn swallow *Hirundo rustica* (2011), Common Snipe *Gallinago gallinago* (2017), cormorant *Phalacrocorax carbo* (2016), goldcrest *Regulus regulus* (2016), mistle thrush *Turdus viscivorus* (2011), mew gull *Larus canus* (2011), lesser black-backed gull *Larus fuscus* (2016), great black-backed gull *Larus marinus* (2011), house sparrow *Passer domesticus* (2011), great cormorant *Phalacrocorax carbo* (2016), sand martin *Riparia riparia* (2011), house martin *Delichon urbicum* (2011) and starling *Sturnus vulgaris* (2016).

The following bird species are protected under Annex I of EU's Bird Directive Annex I as well as the Wildlife Acts:

- **Red Listed Species-** Curlew *Numenius arquata* (2011).
- **Amber Listed Species-** Common kingfisher (2011) and snowy owl *Nyctea scandiaca* (2016),
- **Green Listed Species-** Little Egret *Egretta garzetta* (2011) and Peregrine Falcon *Falco peregrinus* (2014).

Birds

As baseline surveys were carried out outside the breeding bird season, a precautionary approach was taken to assume that typical species of the suburban environment occur in suitable nesting habitat located within and adjacent to the proposed site. Suitable habitat includes the treelines, hedgerow, woodland and dense scrub as well as the planted ornamental trees scattered across the site.

Bats

Tree Inspections

Suitably mature trees within the site were checked for evidence of bats using an endoscope and features that could be used as potential bat roosts. Features identified within trees that could potentially be used as a bat roost feature include: flaking bark, knot holes, cavities, broken limb and dense ivy cover.

Building Inspections

Although no evidence of bats was encountered during the internal and external inspection of the two-storey building Cedar Mount House, the house was considered suitable for roosting bats. The house is an old-brick building with a modern extension to the north. It contains two attics, one of which was a fully accessed and inspected by the surveyors (*i.e.* the attic located above the main bathroom on the first floor), while the other was only assessed from its entrance (*i.e.* the attic located above the corridor outside the same main bathroom). Both attic spaces were considered suitable for roosting bats, as they were dark, of a constant cool temperature and contained suitable roost spaces. There was also another room located within the basement of the house, which was also considered suitable for bats (*e.g.* crevices between cement blocks (see Plate 7 below).

	
Plate 7.1 View of north-eastern end of Cedar Mount House.	Plate 7.2 View of northern end of Cedar Mount House.
	
Plate 7.3 Fully accessed attic, where no evidence of roosting bats was found.	Plate 7.4 Narrow gap between cement blocks (indicated by red arrow) located within the basement, suitable for roosting bats.

Plate 7: Photographs of Cedar Mount House taken during the internal and external inspections for bats.

Two relatively small outbuildings and a small two-storey building (*i.e.* the Coach House) were also internally and externally inspected for bats (see Plate 8 below) and no evidence of bats was encountered in any of them. These consisted of an old, small stone structure which contained a single circular-shaped room. This building was considered to be too exposed to varying temperature conditions and lacked any suitable internal spaces for bats to roost in. The second outbuilding consisted of a small, single-bed modern studio, which was located adjacent to Cedar Mount House. This building was brightly lit, with large windows and lacked an attic space. The third building was the two-storey Coach House. Whilst there was no evidence of bats, the possibility of them roosting in this structure (*i.e.* in gaps between the roof tiles and the ceiling) cannot be ruled.

Plate 8.1 Relatively small circular stone structure located north-west of Cedar Mount House.

Plate 8.2 Internal space of the circular stone structure, which was considered to be too exposed for roosting bats.

Plate 8.3 Brightly lit single-room modern studio located adjacent to Cedar Mount House.

Plate 8.4 Brightly lit upstairs room in the Coach House.

Plate 8: Photographs of other structures taken during the internal and external inspections for bats.

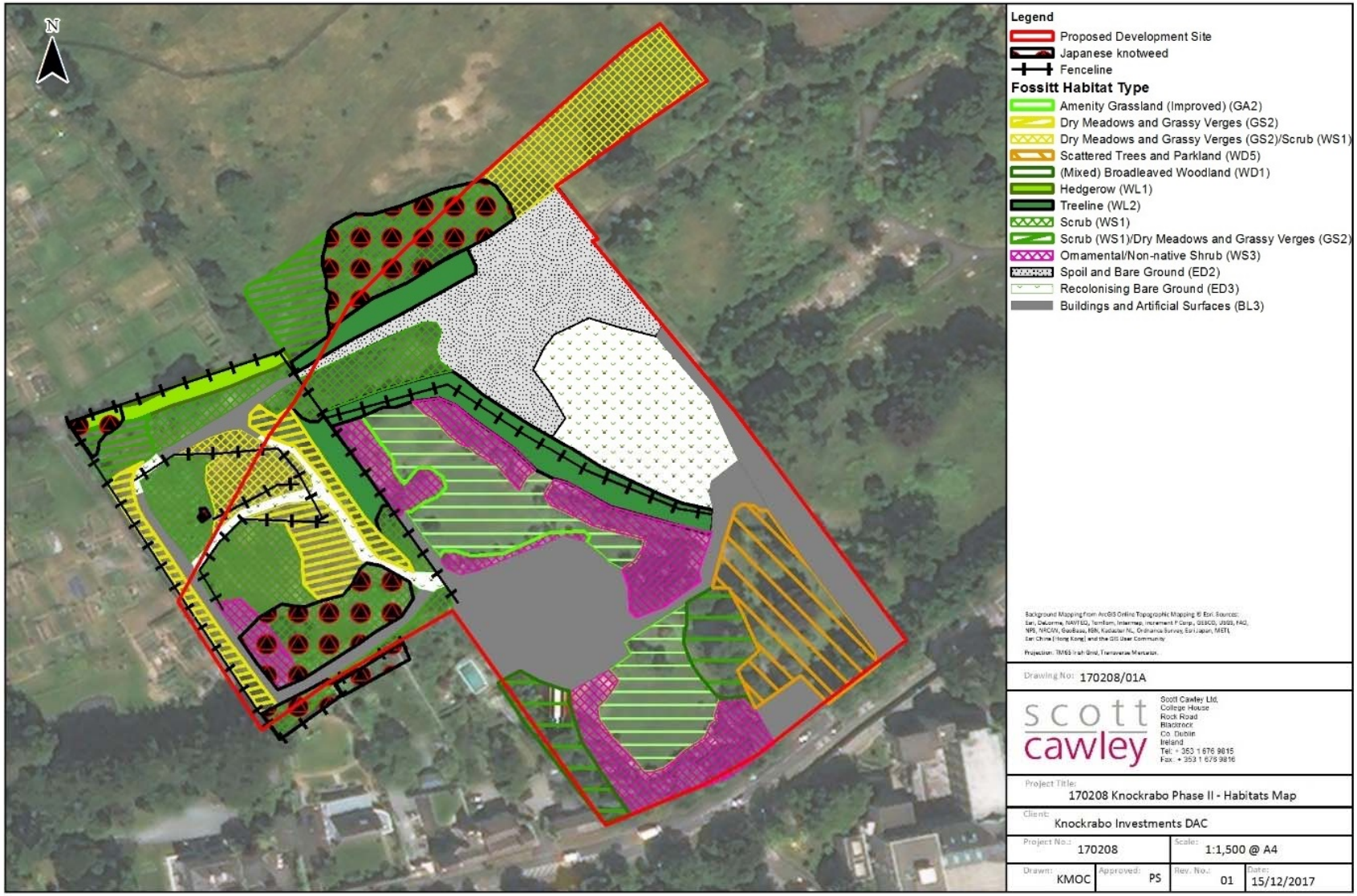
Although no evidence of bats was encountered during the internal and external inspection of the Knockrabo Gate Lodge (West), the house was considered suitable for roosting bats. It contains an attic space, which was only partially accessible through its entrance, that was considered suitable for roosting bats at it was dark and of a constant cool temperature.

Bat Activity Survey

A post-dusk survey was carried out on the subject lands on the evening of 28th September 2017. Only one bat species was recorded, *i.e.* Leisler's bat *Nyctalus leisleri*. The first bat recorded was at 19:05 (*i.e. c.* three minutes before sunset). It was observed commuting across the site, *c.* 10m north of Cedar Mount House. The second bat recorded was at 19:23 (*i.e. c.* 15 minutes after sunset). Again, it was observed *c.* 25m west of Cedar Mount House. The final bat was recorded at 19:45 (*i.e. c.* 37 minutes after sunset) along the eastern boundary of the proposed development site.

As a precautionary approach due to the potential suitability of habitats within the subject lands for bat activity, the value of the site for bats have been valued as a local Importance (higher value).

Figure 4 – Habitat Map



Summary of Key Ecological Features

The following ecological features are considered to be KERs in relation to the proposed development due to its urban context and its potential construction and/or operational impacts:

- Bats are considered to be KERs on a precautionary basis as all bats and their roosts are protected under the Wildlife Acts and under the Habitats Directive. A number of trees and buildings located within the proposed development site contained potential roost features (PRFs) that may be utilised by bats. During the activity survey, bats were recorded commuting through and possibly foraging on the site.
- Breeding birds are considered to be KERs on a precautionary basis due to their protection under the Wildlife Acts and the presence of suitable breeding bird habitat (*e.g.* treelines and woodlands) was noted across the proposed development site.
- Treelines, woodland, scattered trees and parkland and ornamental/non-native shrub recorded within the study area provides potential roost foraging/commuting habitat for bats and subsequently have been included as a KER for their function in supporting the local bat population.

The non-native, highly invasive species Japanese knotweed was identified within the proposed development site. Whilst this species is not considered to be a KER, its potential impact is still assessed in the context of habitats within the proposed development site. Under Section 49(2) of the European Communities (Birds and Natural Habitats) Regulations, 2011, it is illegal to plant, disperse, allow/cause to disperse, spread or otherwise grow any species on the Third Schedule, *i.e.* Japanese knotweed. Mitigation is provided in section 6.3.1 below to ensure this legal requirement is met.

Table 4 summarises all ecological features identified as KERs based on the completion of the desk study and field survey of the subject lands. KERs have been identified as at risk of potentially significant impacts via a source-pathway-receptor link.

Table 2 - Ecological Evaluation of Key Ecological Receptors (Highlighted in grey)

Habitat / Species	Highest Ecological Valuation Level	Key Ecological Receptor?
Designated Sites		
European Sites	International Importance	Yes
Proposed Natural Heritage Areas	National Importance	Yes
Fauna		
Potential Roosting/Foraging/Commuting Bats	Local Importance (Higher Value)	Yes
Breeding birds	Local Importance (Higher Value)	Yes
Habitats & Flora		
Amenity Grassland (GA2)	Local Importance (Lower Value)	No
Dry meadows and grassy verges (GS2)	Local Importance (Lower Value)	No
Treeline (WL2)	Local Importance (Higher Value)	Yes but only in reference to its function in supporting Bats & Breeding Birds
(Mixed) Broadleaved Woodland (WD1)	Local Importance (Higher Value)	Yes but only in reference to its function in supporting Bats & Breeding Birds
Scattered Trees and Parkland (WD5)	Local Importance (Lower Value)	No
Scrub (WS1)	Local Importance (Lower Value)	No
Ornamental/Non-native Shrub (WS3)	Local Importance (Higher Value)	Yes but only in reference to its function in supporting Bats & Breeding Birds
Spoil and Bare Ground (ED2)	Local Importance (Lower Value)	No
Recolonising Bare Ground (ED3)	Local Importance (Lower Value)	No
Buildings and Artificial Surfaces (BL3)	Local Importance (Lower Value)	No

Appendix II Invasive Species Progress Report.

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Japanese Knotweed Annual Progress Report 2019 (Year1) For Knockrabo Phase 2

Report is property of SAP Landscapes Ltd – Prepared by Brendan Webster brendan.webster@saplandscapes.ie

Client:	Regency 18 Fitzwilliam Street Upper Dublin 2
Client Contact:	Patricia Hinch Chief Operating Officer Regency Tel: +353 1 518 0850 Mobile: +353 86 290 1047 Email: patricia.hinch@regency.ie
Date:	25th May 2020
Report By:	Brendan Webster Certified Surveyor of Japanese Knotweed Maintenance Department SAP Landscapes Ltd Mobile : +353 (0) 87 231 4496 Office: +353 (0) 1 6275177 Email: brendan.webster@saplandscapes.ie

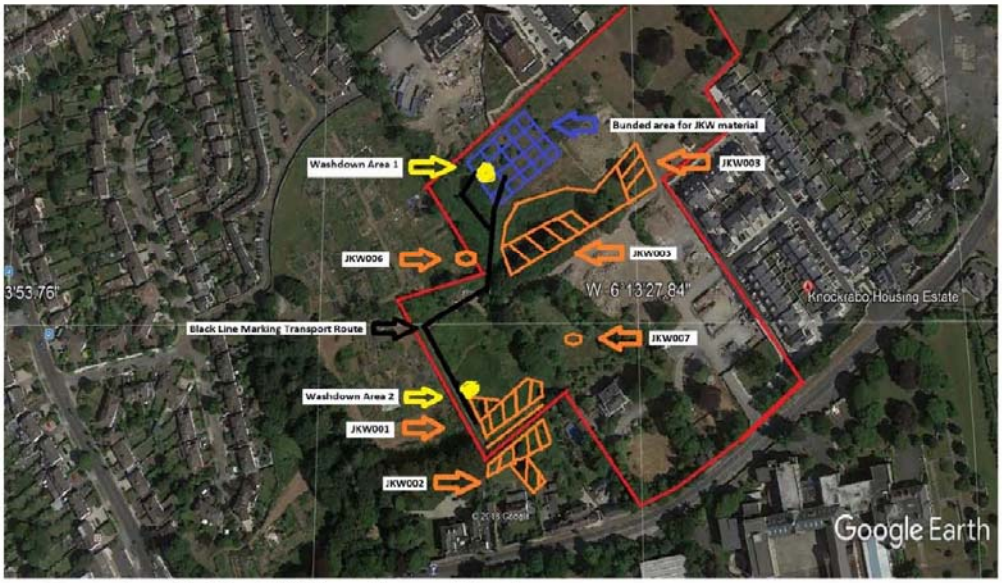
Note: The information outlined in this Report is based on SAP Landscapes Ltd site visit in May 2020 detailing results achieved from Control Works carried out in 2019 and forms the Year 1 (2019) Annual Progress Report.

Background

SAP Landscapes Ltd were engaged by Regency to oversee the excavation of multiple stands of Japanese Knotweed ***(Fallopia japonica)*** located in Phase 2 of the Knockrabo housing development and to carry out a herbicide treatment programme to further stands in private residences adjacent to the property and within the bounds of a newly formed berm area of JKW material in the lower field.

Several locations containing large infestations of Japanese Knotweed had been identified on a previous Site Survey carried out by Scott Cawley on the 12/06/18.

With future building works programmed to start the Japanese Knotweed present in the area zoned for development was excavated and relocated to a constructed berm area in the lower field where it would be treated as part of a Controlled Herbicide Treatment Programme carried out by SAP Landscapes Ltd.



Aerial overview of original JKW Locations and Bund area.

Inventory of Japanese Knotweed Control Measures

- ***JKW001*: *Large infestation on south facing perimeter*** – Excavated and relocated to lower field berm. SAP Landscapes Ltd & Site Contractor.
- ***JKW002: Stands of various sizes located in neighbouring gardens*** – Treated in situ as part of ongoing Herbicide Treatment Programme. SAP Landscapes Ltd.
- ***JKW003: Growing through large bank of briar in lower field*** – Included as part of Bund area and under ongoing Herbicide Treatment Programme. SAP Landscapes Ltd.
- ***JKW006: Located at entrance to lower field*** – Included as part of Bund area and under ongoing Herbicide Treatment Programme. SAP Landscapes Ltd.
- ***JKW007: Small stand growing in middle of property around service drain*** – Excavated and relocated to lower field berm area. SAP Landscapes Ltd & Site Contractor.
- ***JKW005: Stand was not included in the original Site Survey map by Scott Cawley and was identified at later date by SAP Landscapes Ltd*** – Excavated and relocated to lower field berm area. SAP Landscapes Ltd & Site Contractor.

Aerial Image of JKW005 location.

Site Visit

Brendan Webster, Certified Surveyor of Japanese Knotweed, SAP Landscapes Ltd, carried out a site inspection visit on 22/05/2020. The purpose of this visit was to review the areas of ***JKW*** infestations and assess the level of success from the 2019 management works carried out in reducing stand size and containing re-emergence.

Year 1 – Treatment Evaluation & Images

The following findings and images will give indication to the success of the Management Programme to date.

JKW001: Was excavated to 0.5m beyond last visible rhizome and material removed to the lower field berm to receive ongoing Herbicide Treatment. The excavation also saw the installation of a DENDRO SCOTT Root Membrane to contain any *JKW* spread and emergence from ***JKW002*** in the neighbouring private garden.

Image of Geo- Textile Root Barrier between JKW001 & JKW002.

Image of JKW001 from May 2020 inspection. No JKW present.

JKW002: Private Garden was treated with herbicide only. No excavation works took place here. The area saw a substantial reduction in ***JKW*** with approximately 70% of the stands remaining in a died back state and a 30% level of ***JKW*** re-emergence.

Image of JKW002 at time of Initial Treatment.

Image of JKW002 from May 2020.

JKW001 -Treatment Area: To rear of Niall Mellon property was not excavated as it was deemed part of the Niall Mellon property. This was Herbicide Treated and is showing approximately 20% JKW re-emergence.

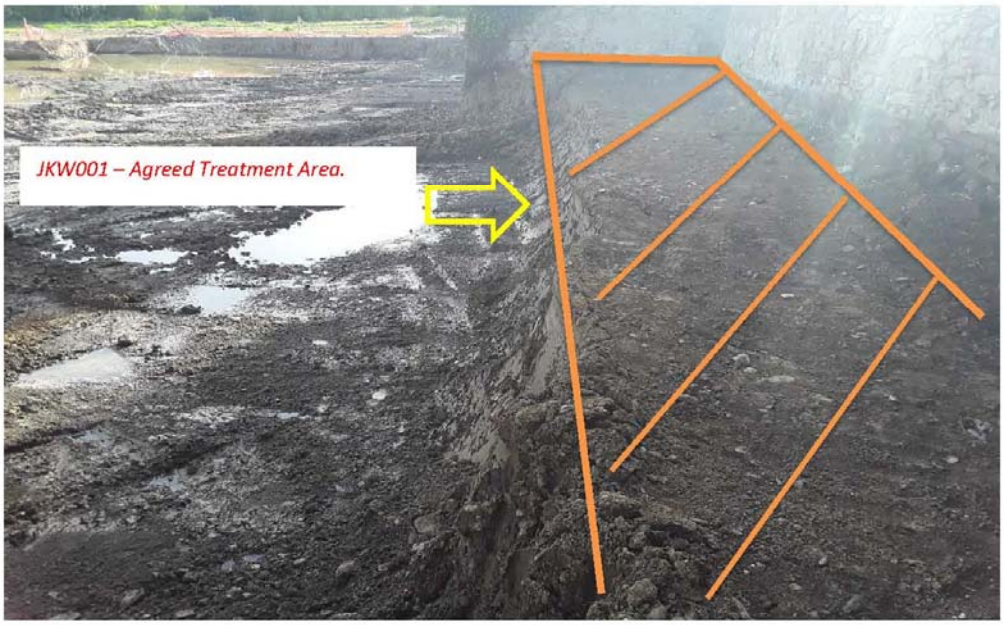


Image of agreed Treatment Area outside Niall Mellon's property.

JKW re-emergence September 2019.

Image from May 2020 showing good level of JKW reduction from Herbicide Treatment.

JKW003 & JKW006: Now incorporate part of the Bund area due to the level of material that had to be moved to the lower field from the main ***JKW001*** excavation.

In September 2019 both these areas were showing strong signs of re-emergence. At the time of site visit in May 2020 the JKW in these areas were showing good levels of reduction with a 30% level of re-emergence. These areas will fall under an Herbicide Treatment Programme going forward.

Image of JKW006, September 2019.

Image of JKW006 from May 2020 shows good reduction of JKW from previous Herbicide Treatment.

JKW005: This infestation was not included in the original Site Survey and was discovered by SAP Landscapes Ltd at the time of initial excavation works. The area was excavated, and the material relocated to the berm area. Inspections were carried out in September 2019 & May 2020 and no evidence of JKW was found to be present. The area will continue to be monitored going forward.

Image of JKW005 excavation. No JKW present in September 2019 or May 2020.

JKW007: Was located growing around service drain cover in the middle of the development area of Phase 2 of the property. The stand was excavated to 0.5m past the last found rhizome and all material was moved to the lower field berm. Inspections were carried out in September in 2019 & May 2020 and no ***JKW*** was found to be present.

Image of original JKW007 stand.

Image from May 2020 shows no JKW present with natural vegetation taken over.

Bund Area including JKW003: Due to the level of material relocated to the Bund strong levels of re-emergence are to be expected and this was the case in both September 2019 and May 2020. Reduction levels in the re-emergence of the ***JKW*** were however evident with a 30% reduction of ***JKW*** from previous Treatment. This area falls under the current Herbicide Treatment Programme and will continue to receive Annual Treatments going forward until the point of no new re-emergence or development works.

JKW re-emergence present in Bund, September 2019.

Weaker JKW re-emergence in May 2020.

Summary of Treatment

The provided report outlines the findings from the site visit carried out in May 2020 and details the results from the 2019 ***"Control"*** works carried out by Excavations and Herbicide Treatments and forms the Year 1 Annual Progress Report.

Results show the main areas of excavation ***JKW001, JKW007 & JKW005*** containing no presence of Japanese Knotweed.

JKW002 & JKW001 Treatment Area showing good reduction levels from previous Herbicide Treatment.

JKW006 showing good reduction levels from previous Herbicide Treatment.

JKW003 & Bund Area showing expected levels of strong re-emergence with an evident reduction from previous Herbicide Treatment.

All results and findings are in line with Treatment Programme expectations.

Report By

Brendan Webster

Certified Surveyor of Japanese Knotweed

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ALTEMAR
Marine & Environmental Consultancy

Appendix III. Bat fauna impact assessment for a Proposed Development at Knockrabo, Goatstown, Dublin 14.

26TH October 2021

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Knockrabo Investments DAC.

Document Control Sheet			
Client	Knockrabo Investments DAC		
Project	Bat fauna impact assessment for a Proposed Development at Knockrabo, Goatstown, Dublin 14.		
Report	Bat Fauna Assessment		
Date	26th October 2021		
Version	Author	Reviewed	Date
Draft 01	Bryan Deegan	Jack Doyle	26th October 2021

SUMMARY

Structure:	None. The site is a combination of a greenfield and previously cleared brownfield site.
Location:	Knockrabo, Goatstown, Dublin 14.
Bat species present:	None Roosting. Two foraging soprano pipistrelle (*Pipistrellus pygmaeus*) and a Leisler's bat (Nyctalus leisleri) *on site*
Proposed work:	Proposed Strategic Housing Development (SHD).
Impact on bats:	None based on successful implementation of mitigation of light spill.
Survey by:	Bryan Deegan MCIEEM
Survey date:	1st September 2021

Introduction

Development Description

Knockrabo Investments DAC intend to apply to An Bord Pleanála for permission for a Strategic Housing Development with a total application site area of c. 1.78 ha, on a site located at Knockrabo, Mount Anville Road, Goatstown, Dublin 14.

The proposed development relates to Phase 2 of the development on the 'Knockrabo' lands. Phase 1 of 'Knockrabo' was granted under Dún Laoghaire-Rathdown County Council (DLRCC) Reg. Ref. D13A/0689/An Bord Pleanála (ABP) Ref. PL06D.243799 and DLRCC Reg. Ref. D16A/0821 (Phase 1) and DLRCC Reg. Ref. D16A/0960 (Phase 1A) and comprises a total of 125 no. units. The proposed development will consist of the amendment of the permitted 'Phase 2' residential development of 93 no. units, childcare facility and community/leisure uses (DLRCC Reg. Ref. D17A/1124) on a site of 2.75ha. The proposed development will provide for the reconfiguration and redesign of the approved residential development. The Knockrabo Way entrance road (constructed and unconstructed), the renovation of Cedar Mount House including childcare facility and community/leisure uses, the Coach House, Gate Lodge (West), the Gate House and all associated landscaping permitted under D17A/1124 which are outside the boundary of the current application are proposed to remain as previously granted.

The site is bounded to the south-east by Mount Anville Road; to the south by 'Mount Anville Lodge' and by the rear boundaries of 'Thendara' (a Protected Structure – RPS Ref. 812), 'The Garth' (a Protected Structure – RPS Ref. 819), 'Chimes', 'Hollywood House' (a Protected Structure – RPS Ref. 829); to the south-west by existing allotments; to the north by the reservation corridor for the Dublin Eastern By-Pass (DEBP); and to the east by the site of residential development 'Knockrabo'. There are 3 no. Protected Structures located in the overall 'Knockrabo' landholding, but which are outside the application boundary. These include 'Cedar Mount' (a Protected Structure - RPS Ref. 783), 'Knockrabo Gate Lodge (West)' (a Protected Structure - RPS Ref. 796), including Entrance Gates and Piers, and 'Knockrabo Gate Lodge (East)' (a Protected Structure – RPS 740) including Entrance Gates and Piers. For clarity no works are proposed to any Protected Structures as part of this proposed development.

The development, with a total gross internal area of c. 23,097.2 sqm, will consist of the construction of 227 no. residential units in 4 no. apartment blocks ranging in height from Part 2 – Part 8 storeys including semi-basement podium. The development will provide 76 no. 1 bed units, 145 no. 2 bed units and 6 no. 3 bed units as follows:

- Block E (c. 1015.3 sqm GIA) is a 5-storey including semi-basement podium apartment block comprising of 8 no. units (1 no. one bed unit and 7 no. 2 bed units).

- Block F (c. 8042.2 sqm GIA) is a Part 2 to Part 8 storeys including semi-basement podium apartment block comprising 84 no. units (53 no. 1 bed units and 31 no. 2 bed units).

- Block G (c. 8626.5 sqm GIA) is a Part 6 including semi-basement podium to Part 8 storey including semi-basement podium apartment block comprising of 82 no. units (37 no. 1 bed units, 40 no. 2 bed units and 5 no. 3 bed units).

- Block H (c. 5413.7 sqm GIA) is a Part 6 to Part 7 storey apartment block including semi-basement podium comprising 53 no. units (7 no. 1 bed units, 45 no. 2 bed units and 1 no. 3 bed unit).

Residential Tenant Amenities comprising c. 537.2 sqm are provided at Level 00 of Block G and H to serve all residential units within this application. Balconies/Wintergardens are provided on all elevations at all levels for the 4 no. apartment blocks, with (Private) Terraces provided at top floor levels and a communal Roof Terrace of c. 198 sqm to be provided on Block F. The development will also provide 178 no. car parking spaces, which comprises 125 no. residential podium parking spaces, 35 no. on-street parking spaces, 16 no. visitor/drop off parking and 2 no. car sharing on-street parking spaces are provided; Provision of 389 no. private residential bicycle parking spaces and 130 no. visitor bicycle parking spaces; Provision of 12 no. motorcycle parking spaces.

All other ancillary site development works to facilitate construction, site services, piped infrastructure, 2 no. sub-stations, plant, public lighting, bin stores, bike stores, boundary treatments, provision of public, communal and private open space areas comprising hard and soft landscaping, site services all other associated site excavation, infrastructural and site development works above and below ground. The development will be served by the permitted access road 'Knockrabo Way' (DLRCC Reg. Ref. D13A/0689; ABP Ref. PL.06D.243799, DLRCC Reg. Ref. D16A/0821 and DLRCC Reg. Ref. D16A/0960). The application does not impact on the future access to the Reservation for the Dublin Eastern Bypass. The development will be served by the permitted access road 'Knockrabo Way' (DLRCC Reg. Ref. D13A/0689; ABP Ref. PL.06D.243799, DLRCC Reg. Ref. D16A/0821 and DLRCC Reg. Ref. D16A/0960). The application does not impact on the future access to the Reservation for the Dublin Eastern Bypass.

The proposed site outline and location are demonstrated in Figure 1.

Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 26 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on Bats. Bryan trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Kelleher and Marnell (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.

Bat survey

This report presents the results of site visits by Bryan Deegan (MCIEEM) on the 1st September 2021 during which the proposed development site was searched for bat use or presence. A bat emergent survey was also carried out.

Survey methodology

At dusk, a bat detector survey was carried out onsite using an Echo Meter Touch Pro 2 bat 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).

Survey constraints

The detector survey was undertaken during the active bat season in September. Weather conditions were good with mild temperatures of 15°C after sunset. Winds were light and there was no rainfall.

Landscape

The landscape strategy for the proposed development at Knockrabo, Goatstown, Dublin 14 has been prepared by Dermot Foley Landscape Architects. The proposed landscape masterplan is demonstrated in Figure 2.

Arboricultural Assessment

An Arboricultural Assessment has been prepared by Arborist Associates Ltd. to accompany this planning application. This report outlines the following:

'***4.0 Summary of Survey Findings***

The site area is made up of part of the formal grounds of "Cedarmount" and a small part of the adjoining site area known as "Knockrabo Lands" which have been developed for a permitted residential development. They initially comprised of two separate properties that had been incorporated into one when these grounds were used as the "Bank of Ireland Sports Grounds" and have since been divided up again into two properties. The grounds around "Knockrabo" had been left derelict for many years and the grounds around "Cedarmount" were developed as a private residence with formal grounds and these have also been left derelict in recent years.

The site area slopes generally uniform and gentle except at the extreme northern end of the site where the land falls away towards the 'Eastern Bypass' reservation. It is adjoined to the north by other lands originally belonging to this property that have been set aside for a road reservation and further north of this again, the lands are being developed for another residential scheme. To the south it is adjoined by the existing 'Mount Annville Road and cordoned off from this by a stone wall', to the east by the remaining grounds of 'Knockrabo' which have been developed and to the west by a neighbouring residential house and a plot of land set aside for allotments.

This site area is located within a mature, suburban area on lands with a zoning of 'A' within the County Development Plan which has a stated objective to 'Protect and Preserve Trees, Woodland and Hedges'.

The grounds of 'Cedarmount" had been maintained formally up until recent years and had open lawn areas with the bulk of the trees being located around its perimeter. There is a mix of tree species present from those that

formed part of the original planting on these grounds which include species such as Horse Chestnut, Ash, Sycamore, Beech, Oak and Monterey Cypress to those that have been added as part of landscaping of these grounds in the last twenty or so years particularly along the eastern boundary separating it from the 'Knockrabo' lands. A diverse mix of tree species have been used in this landscape planting which includes a number of Wellingtonia, Larch and Cedar trees which are in keeping with the tree species used in the original planting layout. The bulk of these trees would appear to have been planted as either extra heavy standards or large semi-mature trees and some have struggled to establish with a number of them failing and having to be removed. The bulk of those remaining would appear to be establishing well and have the potential to form part of the long-term tree cover on these grounds.

A planning permission has been granted on this site area under planning reference D17A/1124 and the bulk of the trees that had been highlighted for removal under this planning permission have been removed in preparation of the commencement of that development.'

Further:

'***5.0.0 Arboricultural Implication Study***

5.1.0 Introduction

There is a current live granted planning permission on this site area, (Planning reference D17A/1124) and in preparation for the commencement of this development, the bulk of the trees that had been highlighted for removal to facilitate this have been removed. The current proposal is to develop this site area with a larger density of units using a similar footprint of development as the current live planning permission.

The current proposed site layout has been generated in consultation with the projects design team which have worked closely to retain a substantial number of the better quality existing trees on site and this will be strengthened with new tree, shrub and hedge planting using a mix of tree species including native species within the completed landscaped development. Engineering requirements for drainage and utilities have also been integrated into the overall site while being mindful of the required root zones around the trees being retained.

This section of my report is designed to assess the impact of the proposed development layout on the existing tree vegetation on this site area and to look at the necessary measures that will need to be undertaken to help retain the trees shown for retention free from adverse impacts for the duration of the construction period.

On the accompany drawing (DWG. No.KB-P2-002), I have marked the trees for retention with 'Hatched Green' crown spreads and those for removal either directly as a result of the proposed development layout, condition or as part of the most appropriate management with 'Red Hatched' crown spreads.

I have also shown on this drawing using 'Orange Hatching' the position of the protective fencing that needs to be erected at the very start of the works and be maintained in place throughout the construction works period around those trees to be retained.

5.2.0 Impact on Tree Vegetation

5.2.1 The following is a list of the trees for removal either due to condition/management or due to the proposed development layout:

Reason for Removal	Tree No.	Category Grade
Being removed directly due to condition as part of management.	**Tree Nos. 0693, 0739, 0740 & 0741** These trees are in poor condition physiologically and/or structurally with limited remaining life expectancy and removal is being recommended as part of active management.	**U** (4No. Trees)
Being removed directly due to the development layout.	**Tree Nos. 0710, 0711 & 0802.** These are young trees planted as part of more recent landscaping with long life potential. Two of these trees (Nos.0710 & 0711) where highlighted for removal under the current live planning permission, D17A/1124.	**A1** (3No. trees)
	Tree No. 0745 This tree had been highlighted for removal under the current live planning permission, D17A/1124.	**B1** (1No. tree)
	Tree Nos. 0707, 0708, 0765, 0804, Tree No.1, Tree No.2, Tree No.3 & Tree No.4.	**C1** (8No. Trees)
	Hedge Nos.1 & 2. All of the above trees were highlighted for removal in the current live planning permission, D17A/1124. Tree Nos.0708 & 0742 have been downgraded from a category grade of 'B' to 'C' and tree No.0741 downgraded from a category 'C' to 'U' due to deterioration in their condition. Tree Nos.1-4 had not been identified individually previously, but had been included as part of hedge No.2 for removal.	**C2** (2No. hedges)

Breakdown of Trees for Removal:

From the 37No. trees surveyed within the site area, 16 (43.2%) are being shown for removal to accommodate the current proposed development or as part of active management and this is made up of a mix of tree species, age classes and sizes with many being of a small size having been planted in more recent years.

This is broken down into the following category grades:

- *4No. category **'U'** trees.*
- *3No. category **'A'** trees.*
- *1No. category **'B'** tree.*
- *8No. category **'C'** trees plus 2No. hedges.*

All efforts have been made to retain as much of the tree and shrub vegetation around the site area that is important to its treescape and sylvan character. The loss of the above list of trees will have minimal impact on the overall treescape and sylvan character of this area as the bulk of the trees requiring removal to facilitate the proposed development are of a small size, many of which had been planted in more recent years as part of a landscaping project when 'Cedarmount House' was separated from the 'Knockrabo' lands and refurbished as a private residential home.

To help mitigate the loss of tree vegetation from this area as a result of the proposed development layout; condition and to improve the diversity and continuity of trees on these grounds, new tree, shrub and hedge planting using a variety of species and sizes including extra heavy standards (35-40 cm girth) are to be used in

the landscaping of these grounds once the development is completed. See landscape architects drawings and schedules for details.

The majority of the large prominent mature trees that are important to the treescape of these grounds or the greater area are being retained within open areas within this development and will continue to be an asset to the treescape of this area for the future.

For those trees proposed for retention, all necessary mitigation measures will need to be put in place in order to prevent or reduce impact to its very minimum. Mitigation measures used will include the erection of protective fencing at the very start of the works, monitoring of the works by the project Arboriculturist throughout the construction process and the use of tree friendly techniques and products for the construction process.

For the most part, the trees are being retained within open spaces around the proposed development and will be easily incorporated into these open spaces with no impact from the works. It will be important that the root zones of these trees as shown on our tree protection plan are cordoned off at the commencement of the construction works by strong sturdy protective fencing as shown in the sample of such fencing on our tree protection plan and within appendix 1 of this report. Landscaping within the root zone of the trees will need to be kept simple with minimal hard landscaping and planting within these root zones.

The following two trees will be located in close proximity to the main construction works:

***Tree No.0715** is a mature Ash (Fraxinus excelsior) which is being retained in close proximity to the proposed apartment block 'E' will have the corner of the basement and building positioned in its calculated root zone on its south-eastern side, but this encroachment is not expected to have a negative impact on this trees health and its ability to be retained. The excavation for the basement towards the tree is to be kept to its minimum with minimal battering back of the excavated face if roots are encountered and it may also be necessary to look at piling as a means to reduce the extent of the excavation into the root zone of this tree. All works on the basement and the building of Block E will need to work away from this tree and outside its remaining root zone. If any access is required for working on the building façade within the remaining root zone of the this tree, then ground protection to the recommendations of 'Section 6 of BS5837 2012' will need be put in place for the duration of these works and this is to be fit for purpose to protect the underlying ground from damage. The construction process around this tree will need to be discussed with the building contractor pre-commencement to review how the basement will be excavated and built and so that a detailed building method statement can be prepared by the building contractor to ensure that the necessary tree protection measures can be put in place. It will also be important that these works are monitored by the project Arboriculturist during construction to ensure that the root protection area and the root zone of this tree are successfully secured and protected.*

***Tree No.0996** is a large mature Monterey Cypress (Cupressus macrocarpa) located along the northern side of the site area. This tree is being retained on an open space and all construction works including services have been positioned to be located outside its root zone. Tree protection will need to be erected at the commencement of the works around this tree and be retained in place for the duration of the construction works and the existing ground levels are to be incorporated into the completed landscaped grounds without changes that could result in soil and root damage.*

Main areas for consideration during the proposed development/ construction works are:

Item	Comments
Tree Pruning	As part of the initiating works, the crowns of some of the trees are to be pruned to remove dead/unstable growth, the pruning of individual limbs/branches or entire crowns to reduce size due to structural weaknesses or to improve their juxtaposition within the built environment. A preliminary list of these works is given within the condition tree assessment in 'Appendix 2' of this report and these are to be reviewed on site prior to being carried out. All tree felling and pruning work will need to be carried out by qualified and experienced tree surgery firm *before* any construction work commences and all tree works are to be in accordance with *BS3998 (2010) Tree Work – Recommendations*. All trees for removal will need identified by the project arborist and to be felled to stumps. All stumps in particular those which are located within the root zone of trees being retained are to be ground out using a mechanical stump grinder taking care not to cause root damage to the trees being retained. To abate concerns over safety, the necessary remedial tree surgery works required to promote health and safety will need to be carried out by a competent tree surgery firm. It will also be necessary for the trees health and safety to be reviewed by a suitably qualified Arboriculturist on a regular basis preferably ever 12 months and the necessary remedial tree surgery works carried out when required.
Tree Protection	Trees being retained will need to be protected from unnecessary damage during the construction process by effective construction-proof barriers that will define the limits for machinery drivers and other construction staff. Ground protected by the fencing will be known as the 'Work Exclusion Zone' and sturdy protective fencing will need to be erected along the points identified in the Tree Protection Plan (DWG No.KB-P2-002) **prior** to any soil disturbance and excavation work starting on site. This is essential to prevent any root or branch damage to the retained trees. The British Standard BS5837: *Trees in relation to design, demolition and construction (2012)* specifies appropriate fencing, see 'Appendix 1' for details. The fencing will need to be 2.3m high and constructed in accordance with figure 2 of BS 5837 2012 (see 'Appendix 1' for detail) using vertical and horizontal scaffold bars well braced
	together with the verticals spaced out at a maximum of 3m centres and onto this, weld mesh panels are to be securely fixed with wire or scaffold clamps. All weather notices will need to be erected on the fences with words such as: "Tree Protection Fence — Keep Out". When the fencing has been put in place, then construction work can commence. The fencing should be inspected on a regular basis during the duration of the construction process and shall remain in place until heavy building and landscaping work have finished and its removal is authorized by the project Arboriculturist.

Construction	It will be important that good housekeeping is in place at all times so that the site does not become congested. All construction works are to be well planned in advance so as not to put pressure on the protective zone around the trees. All works are to occur from outside the protective zones. Where work space between the works area and the protective fence lines is limited/ restricted, alternative work methods will need to be looked at so as to keep the work areas to their minimum in order to reduce the extent of soil and root damage occurring to the trees proposed for retention. See section 6.2.3 of BS5837 2012 for detail on working within the RPA of trees. Care will need to be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Materials, which can contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, cannot be discharged within 10m of a tree stem. Fires are not to be lit in a position where their flames can extend to within 5 m of foliage, branches or trunk. This will depend on the size of the fire and the wind direction. Notice boards, wires and such like are not to be attached to any trees. Site offices, material storage and contractor parking are to be located outside the work exclusion zones of the tree and hedge vegetation being retained.
Services	Services entering and leaving the site area are routed so they run outside the work exclusion zones (fenced off areas) of the trees being retained. There is sufficient space on the site to allow this to occur and in consultation with the project engineers a satisfactory juxtaposition has been achieved. See project engineer's drawings for detail for service routes.
	Prior to the installation of any services, these are to be marked out on site for review by the project Arboriculturist and a detail method statement is to be prepared by the installation contractor in conjunction with the project Arboriculturist on how these services are to be installed while providing protection to the tree vegetation shown for retention.

Landscaping	The existing ground levels within the RPA of the trees are to be retained and incorporated into the finished landscaped development. Where changes in levels occur, these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels. All soft and hard landscaping within the RPA of the trees to be retained are to be carried out manually and the soil levels are not to be lowered or raised resulting in root damage to the trees. All surfaces are to be porous to allow the free movement of air and moisture to the roots below. Recommendations of sections 8 of BS5837 2012 are to be adhered to during the landscaping within the RPA's of these trees. The following are the main areas where landscaping is proposed within the root protection area of the trees being retained: • Grass seeding will require the preparation of the ground. This should be planned in advance of the finishing landscaping of the development as it will take time to implement. The existing vegetation is to be strimmed off tight to ground level and left to sprout again. Then it is to be sprayed off with an appropriate herbicide to kill off the regrowth. Any loose material is to be removed manually and a thin layer of good quality top soil (50-100mm) is to be spread out over the area to create a level surface and a seed bed for the grass. No machinery is to be allowed into the root zone of the trees during these works and the ground for barrow routes should be protected by boarding. • Some paths run through the RPA of trees to be retained. Where these paths encroach into the RPA of trees, they will need to be laid above the existing ground levels prepared in advance similar as the area for grass seeding. To help create a stable surface, 100mm CellWeb should be laid on the existing ground, filled with a 20-40mm clean angular stone and the desired surface laid on this. See 'Section 6.8 of this report for further detail on installing a 'No Dig' path taking on board the product supplier's guidance and the advice of the project engineers.
Boundary Treatments	Along the southern (road side) boundary, the existing wall is to be made good where defective. To accommodate access in order to carry out these works, it will be necessary in places to carry out some cutting back of the tree and shrub vegetation. This should be kept to the minimum and should not have any negative impact on the treescape of this area. Were screening is weak or is weakened by this pruning, new tree and shrub planting can be added as mitigation. Some of the new proposed boundary treatments come within the RPA of the trees to be retained and where this occurs, these will need to be of a fence/rail type structure where there will only be a need to excavate small diameter holes for the uprights. To accommodate these works, it will be necessary for the pruning of the undergrowth in particular and in some instances the lower crowns of trees to facilitate these fences/railings and their erection. Again this pruning will need to be kept to a minimum and will not impact on the trees. For the boundary fences/ failings where they run through the root zone of trees small diameter holes will need to be dug for the uprights. These holes for the uprights are to be dug manually with no machinery allowed inside the root protection areas. Work zones within the root protection areas of these trees will need to be protected during the construction of the boundary fences by boarding as per section 6.2.3 of BS 5837 2012.

Monitoring

Any construction works in close proximity to retained trees are advised to be undertaken in accordance with approved method statements prepared by the construction contractor under the direct supervision of a qualified consultant Arboriculturist. Therefore, during the construction works, a professionally qualified Arboriculturist is recommended to be retained by the principal contractor or site manager to monitor and advice on any works within the RPA of retained trees to ensure successful tree retention and planning compliance.

It is advised that tree protection fencing, any required special engineering and supervision works must be included in the main tender documents, including responsibility for the installation, cost and maintenance of tree protection measures throughout all construction phases.

Copies of the tree retention and protection plan (DWG No. KB-P2-002) a copy of BS 5837(2012) and NJUG 4 (2007) should all be kept available on site during development. All works are to be in accordance with these documents.

On the completion of the construction works, all trees retained are to be reviewed by the project Arboriculturist and any necessary remedial tree surgery works required to promote the health of the trees and safety are to be implemented.

6.0 Arboricultural Method Statement/Tree Protection Strategy

The objective of this arboricultural method statement/tree protection strategy is to provide information for the main contractor/site manager on how the trees to be retained are to be protected during a construction project and so that they can prepare their own site specific detailed method statement for their works.

It is necessary for tree protective fencing to be erected and all other mitigation measures required to be put in place prior to the development works commencing on site and these are to enclose and protect the root zone of the trees proposed for retention. See drawing DWG No. KB-P2-002, for the position of the protective fencing and other mitigation measures.

The protection of the vegetation shown for retention within this proposed development is divided into three main sections starting with the preconstruction stage right through to post construction and the reassessment of this retained vegetation.'

A tree survey constraints plan and a tree protection plan have been prepared and are demonstrated in Figures 3 & 4.

Lighting

An Outdoor Lighting Report has been prepared by Sabre Electrical Services Ltd. for the proposed development at Knockrabo, Goatstown, Dublin 14. This report outlines the following lighting layout report:

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	718208.00	728429.00	277.00	291.00	1.50	1.50
2	Grid 2	718391.00	728569.00	36.00	36.00	1.50	1.50

Luminaires

Luminaire A Data

Supplier	
Type	BGP702 DW52
Lamp(s)	LED-HB 5.2S 727/2700
Lamp Flux (klm)	3.00
File Name	Luma Gen2 Micro_BGP702_DW52_3000_20LED_5.2S_CLO_L90_727.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	702.3, 55.2, 0.0
No. in Project	11

Luminaire C Data

Supplier	
Type	BGP702 DX10 BL1
Lamp(s)	LED-HB 5.2S 727/2700
Lamp Flux (klm)	3.00
File Name	Luma Gen2 Micro_BGP702_DX10 BL1_3000_20LED_5.2S_CLO_L90_727.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	503.9, 72.3, 0.0
No. in Project	2

Luminaire E Data

Supplier	
Type	BGP701 DN25 BL1
Lamp(s)	LED-HB 5.2S 727/2700
Lamp Flux (klm)	1.20
File Name	Luma Gen2 Nano_BGP701_DN25 BL1_1200_6LED_5.2S_CLO_L90_727.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	702.8, 68.4, 0.0
No. in Project	8

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	718363.39	728660.89	6.00	220.00	0.00	0.00	0.40			
2	A	718347.45	728641.65	6.00	127.00	0.00	0.00	0.40			
3	A	718318.68	728619.84	6.00	126.00	0.00	0.00	0.40			
4	A	718311.82	728594.51	6.00	38.00	0.00	0.00	0.40			
5	A	718299.56	728624.24	6.00	297.00	0.00	0.00	0.40			
6	A	718330.37	728571.05	6.00	40.00	0.00	0.00	0.40			
7	A	718316.13	728558.93	6.00	306.00	0.00	0.00	0.40			
8	A	718284.95	728537.31	6.00	312.00	0.00	0.00	0.40			
9	A	718254.25	728521.65	6.00	71.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
10	A	718249.43	728545.26	6.00	221.00	0.00	0.00	0.40			
11	E	718238.98	728568.82	5.00	329.00	0.00	0.00	0.40			
12	E	718252.15	728593.55	5.00	326.00	0.00	0.00	0.40			
13	E	718265.44	728617.72	5.00	330.00	0.00	0.00	0.40			
14	E	718282.09	728640.67	5.00	323.00	0.00	0.00	0.40			
15	E	718301.73	728657.74	5.00	304.00	0.00	0.00	0.40			
16	E	718325.36	728669.93	5.00	309.00	0.00	0.00	0.40			
17	E	718338.24	728689.98	5.00	333.00	0.00	0.00	0.40			
18	A	718329.92	728643.57	5.00	286.00	0.00	0.00	0.40			
19	C	718404.33	728557.81	6.00	34.00	0.00	0.00	0.40			
20	C	718412.39	728572.99	6.00	305.00	0.00	0.00	0.40			
21	E	718429.85	728530.90	5.00	294.00	0.00	0.00	0.40			

The proposed public lighting layout is demonstrated in Figure 5. The proposed horizontal illuminance (lux) levels (Grids 1 & 2) are demonstrated in Figures 6 & 7.

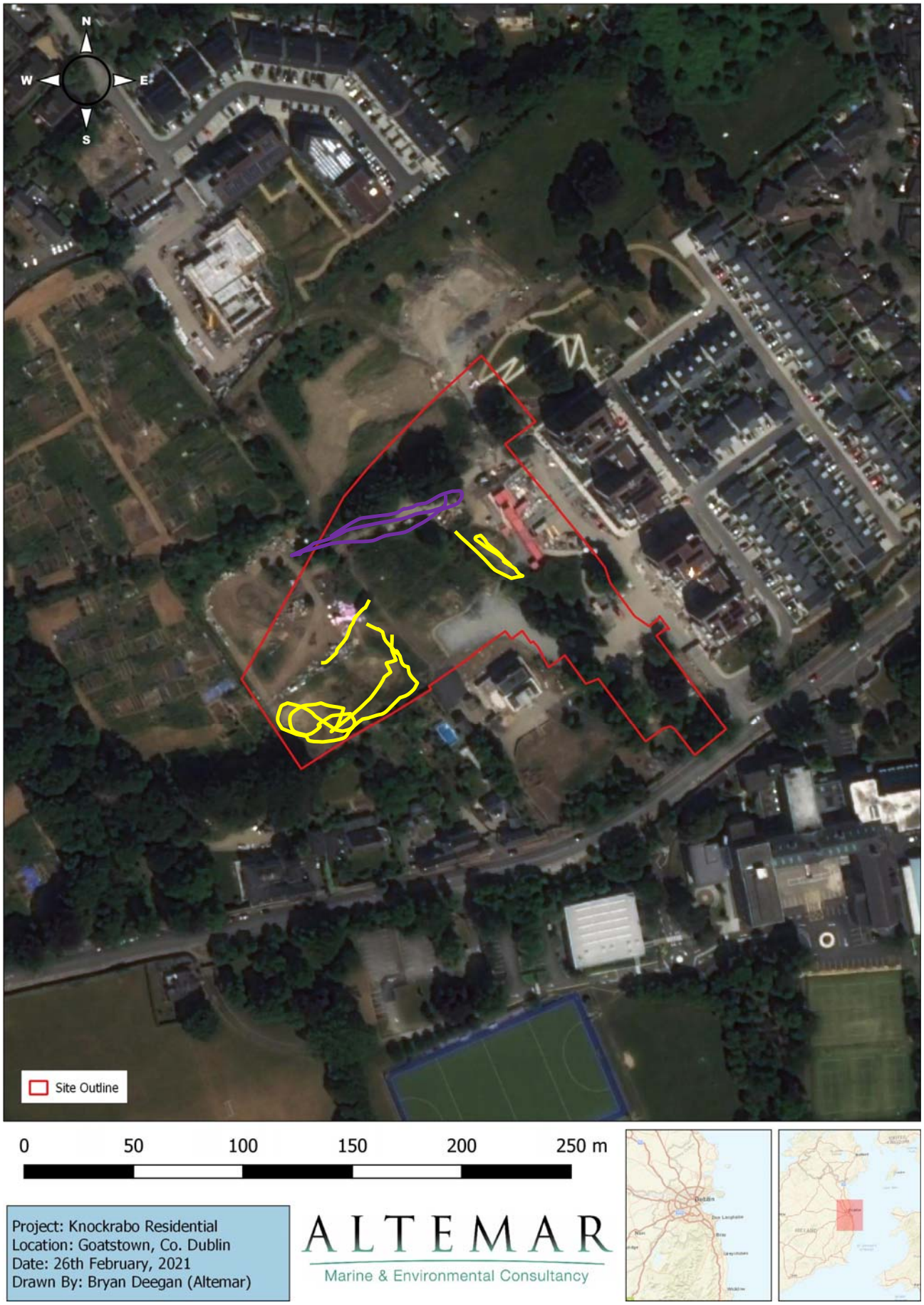

Figure 1: *Site outline and bat foraging activity soprano pipistrelle (yellow) & Leisler's bat (purple)*

Figure 2. *Proposed landscape masterplan*

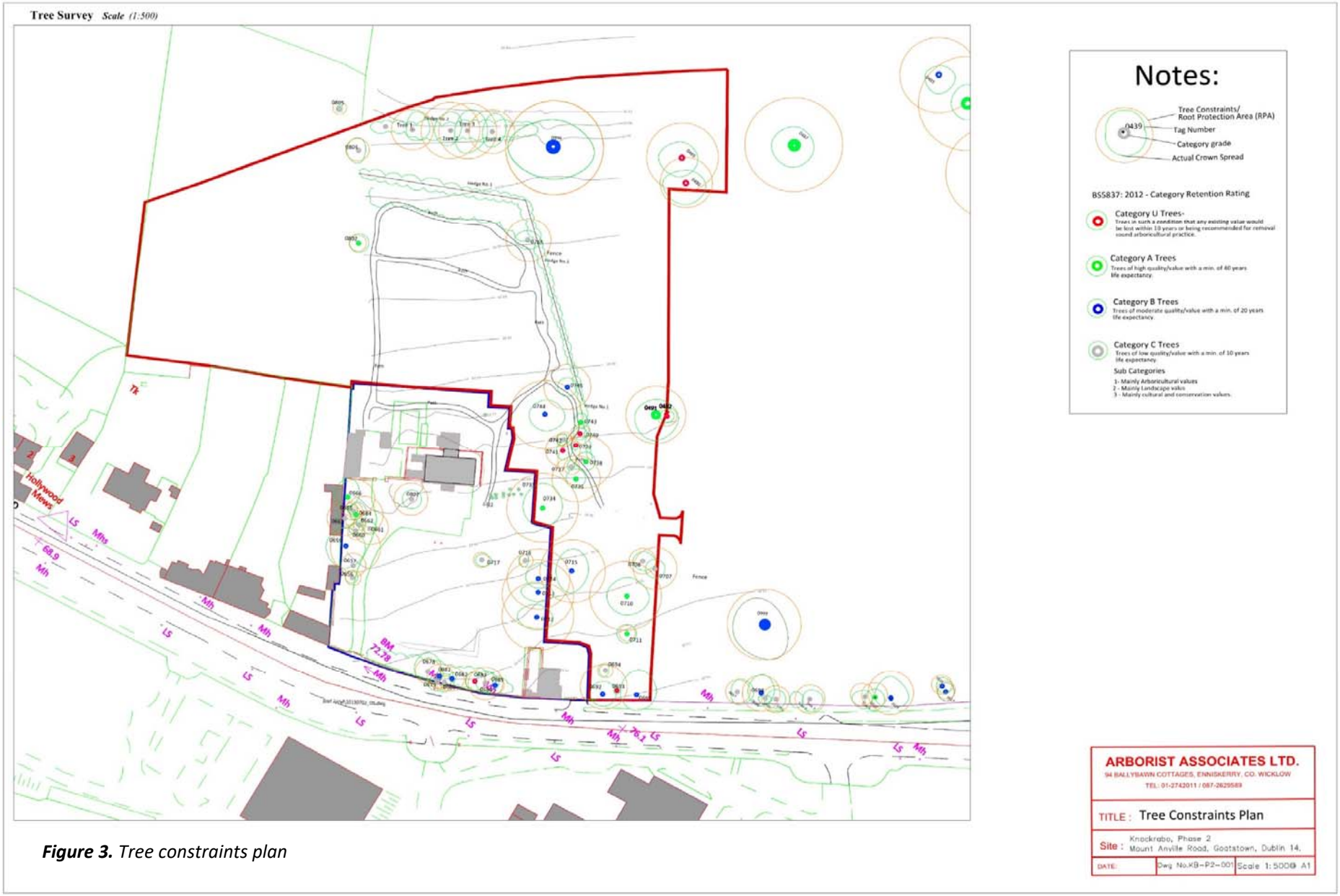

Figure 3. *Tree constraints plan*

Figure 3. *Tree survey constraints plan*

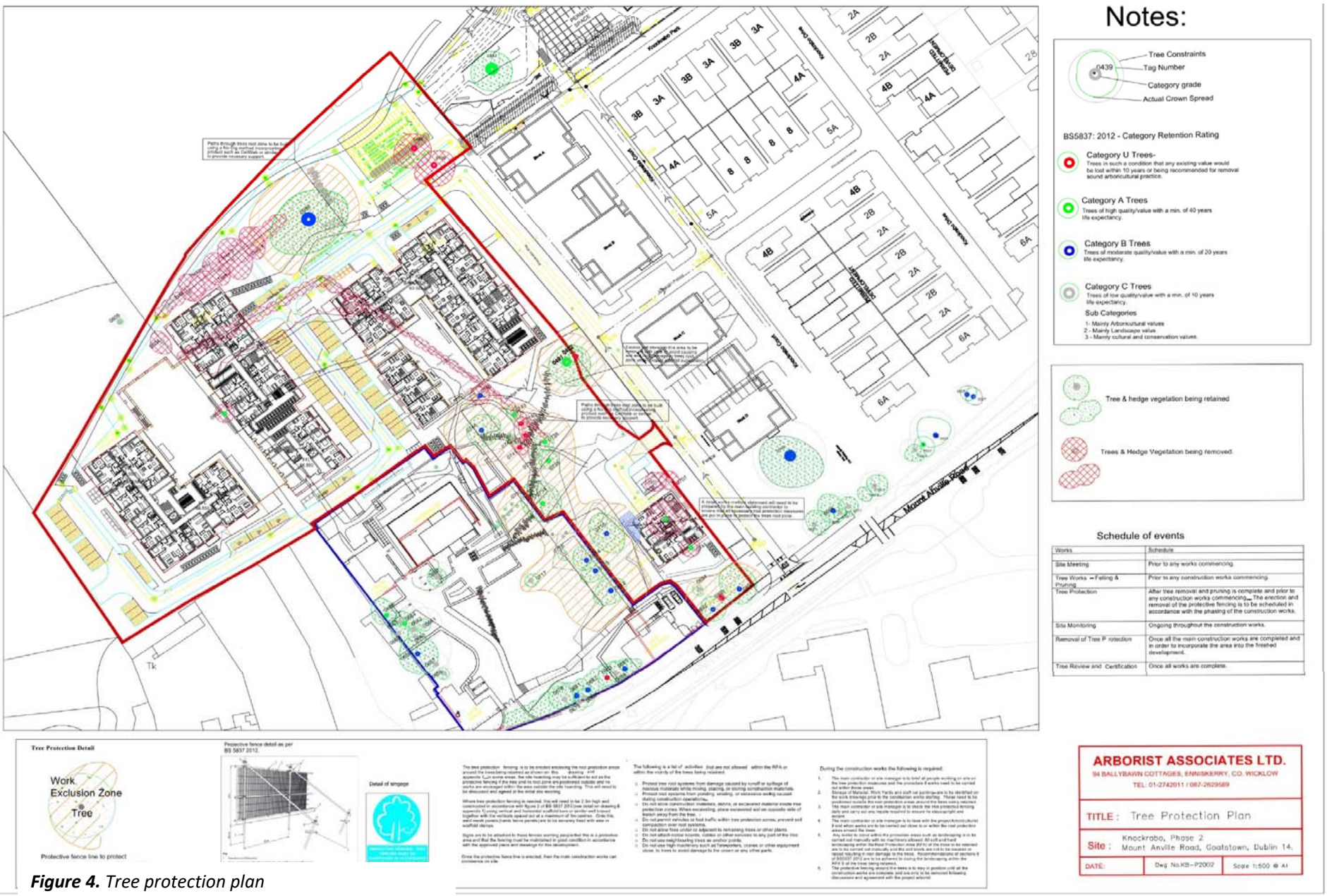

Figure 4. *Tree protection plan*

Figure 5. *Proposed public lighting layout*

Figure 6. *Horizontal illuminance (lux) – Grid 1*

DATE: 21 October 2021 DESIGNER: Alex Naper

PROJECT No: SES 02221 Rev C PROJECT NAME: Knockrabo - Knockrabo Investments DAC

Sabre ELECTRICAL SERVICES LTD.

Horizontal Illuminance (lux)

Grid 2

Results

Eav	6.12
Emin	1.50
Emax	9.35
Emin/Emax	0.16
Emin/Eav	0.25

Figure 7. *Horizontal illuminance (lux) – Grid 2*

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 O12Z) encompassing the study area reveals that one 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 8 - 10. The following species were noted in the wider area: Brown Long-eared Bat (Plecotus auritus), Soprano Pipistrelle (Pipistrellus pygmaeus), Daubenton's Bat (Myotis daubentonii), Whiskered Bat (*Myotis mystacinus*), Natterer's Bat (*Myotis nattereri*), and Pipistrelle (*Pipistrellus pipstrellus sensu lato*) (Figures 8- 10).

Table 1: Status of bat species within 2km2 grids encompassing the subject site (Reference No. O12Z)

Species name	Record count	Date of last record	Note
Lesser Noctule (*Nyctalus leisleri*)	3	01/04/2001	National Bat Database of Ireland

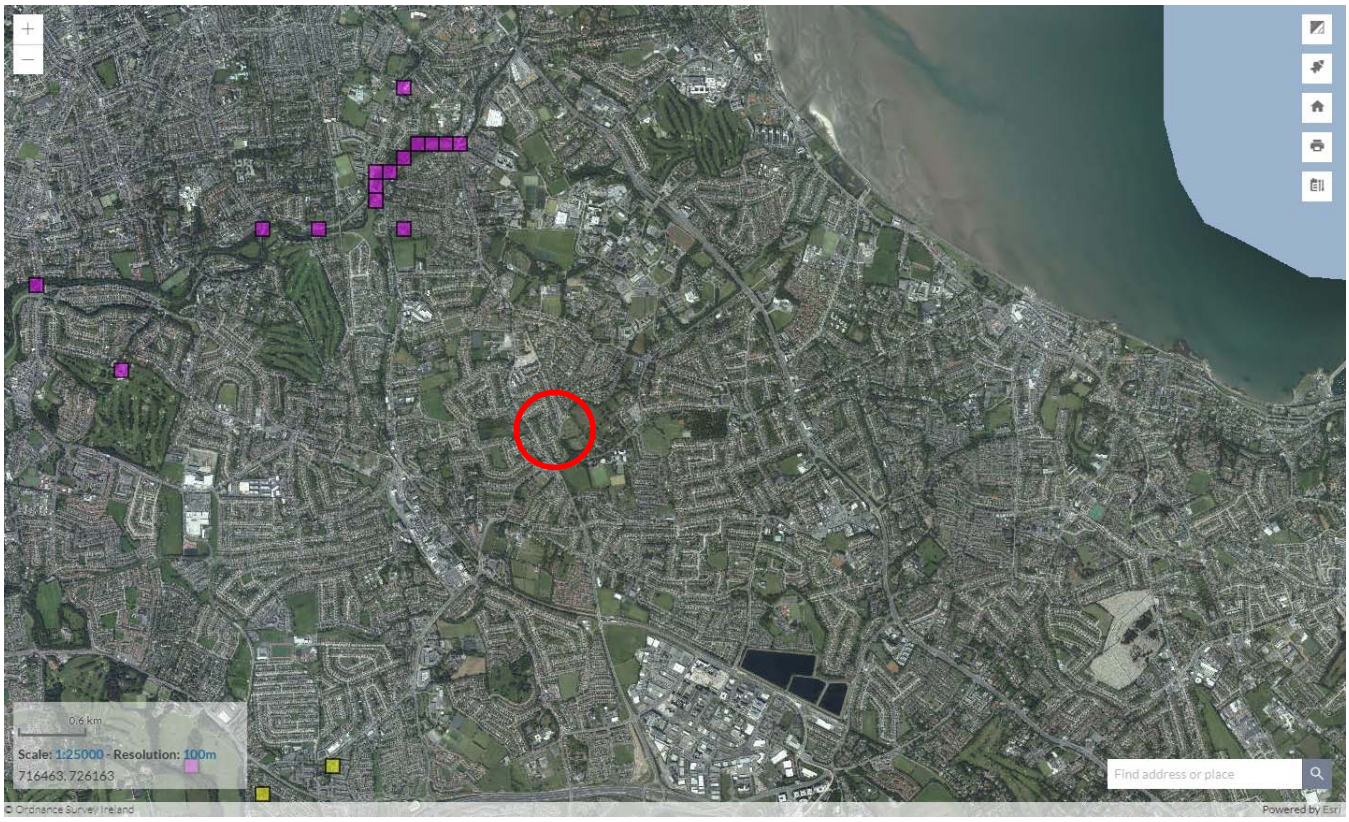

Figure 8. Brown Long-eared Bat (*Plecotus auritus*) (yellow) and Daubenton's Bat (*Myotis daubentonii*) (purple), (Source NBDC) (Site – red circle)

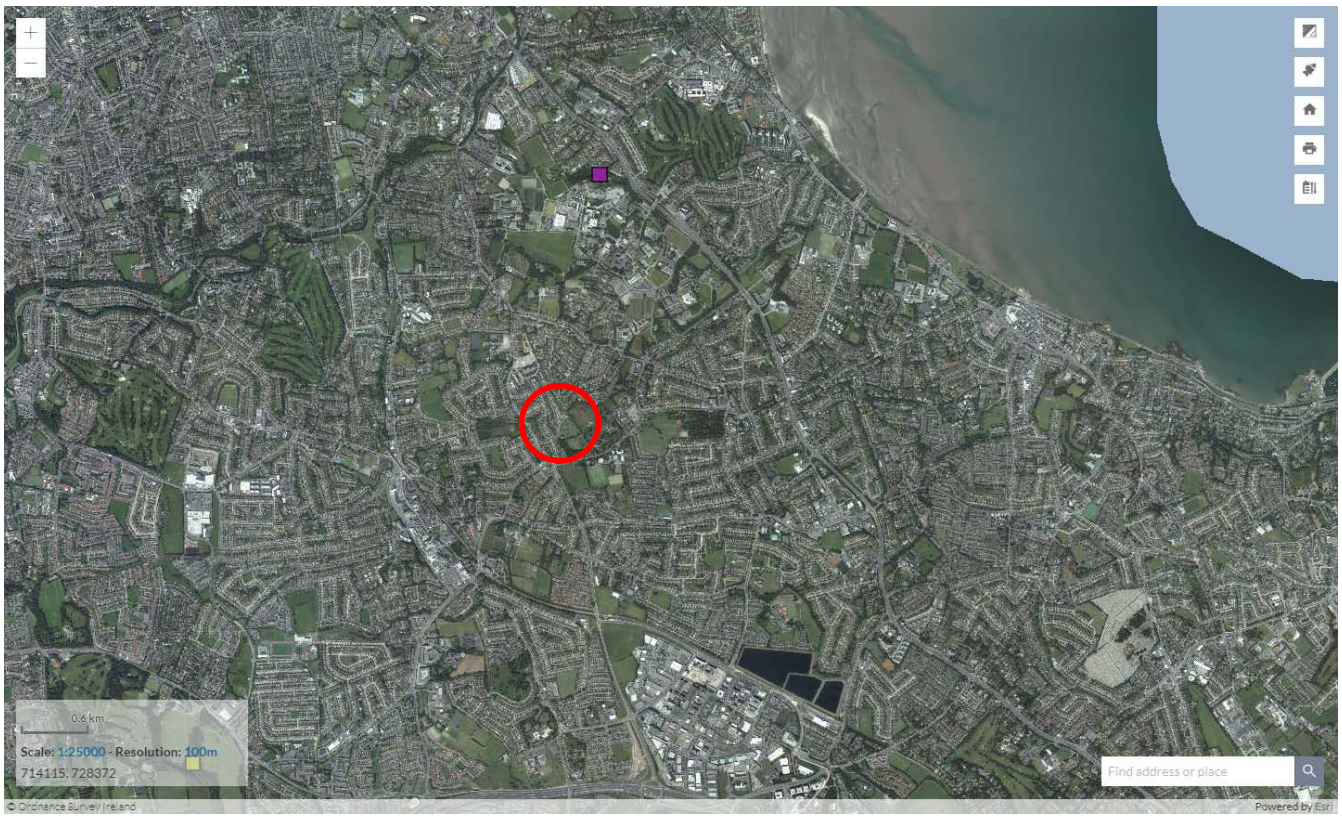

Figure 9. Natterer's Bat (*Myotis nattereri*) (purple) and Whiskered Bat (*Myotis mystacinus*) (yellow), (source NBDC) (Site – red circle)

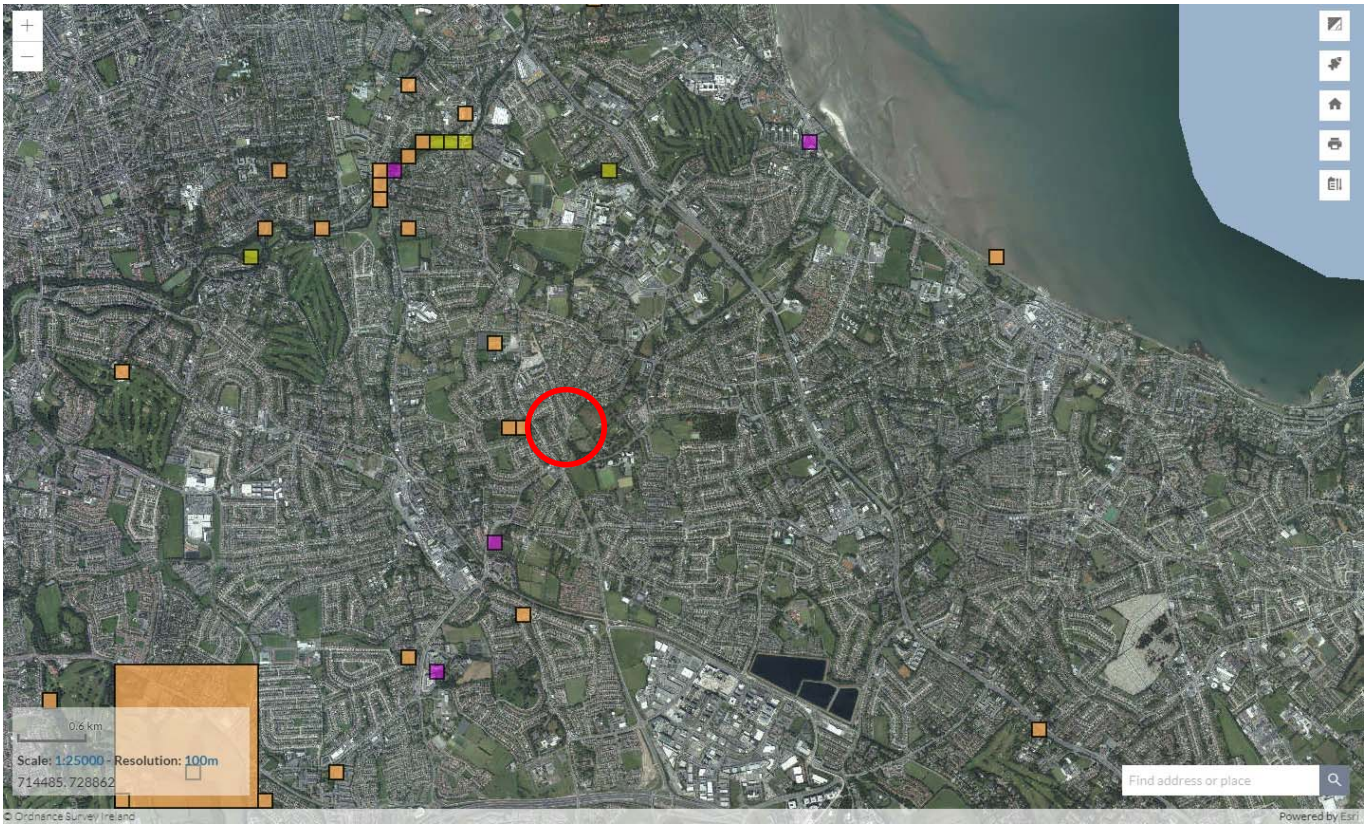

Figure 10. Pipistrelle (*Pipistrellus pipistrellus sensu lato*) (purple) (Species aggregate), Soprano Pipistrelle (*Pipistrellus pygmaeus*) (yellow), and both Pipistrelle and Soprano Pipistrelle (orange) (Source NBDC) (Site – red circle)

Specifically, NBDC records show sightings of bat species in locations that are in close proximity to the subject site:

1. Soprano Pipistrelle (*Pipistrellus pygmaeus*) in grid reference O178286. Recorded on 04/09/2003 and 380m West of the subject site.
2. Pipistrelle (*Pipistrellus pipistrellus sensu lato*) in grid reference O177286. Recorded on 04/09/2003 and 500m West of the subject site.
3. Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Pipistrelle (*Pipistrellus pipistrellus sensu lato*) in grid reference O176292. Recorded on 15/04/2011 and 850m North-West of the subject site.

Detector survey

Two foraging soprano pipistrelle (Pipistrellus pygmaeus) and a Leisler's bat (Nyctalus leisleri) on site (Figure 1).

Potential Bat Roost Survey

No buildings are on site. No bats were observed emerging from adjacent buildings or trees on site. It should be noted that a single ash on site had potential for a bat roost due to the presence of a hollow (plate 1). It is proposed to retain this tree (no. 715).

Plate 1. Ash tree with hollow.

Potential impacts of proposed redevelopment on bats

No roosts or bats emerging from the onsite trees were observed. A single tree (Ash-no.715) has a hollow (i.e. potential bat roost) and will be retained. The lighting plan was discussed with Sabre and was designed to comply with Guidance Notes for: Planners, engineers, architects and developers[4]. Lighting on site will be warm lighting at 2700°K. The light spill during construction could have the potential to reduce foraging activity for bats. No roosts or potential roosts will be removed by the development.

[4] https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIrelandGuidelines_Lighting.pdf

Mitigation measures

As no evidence of a bat roost was noted onsite, no mitigation measures in regard to these animals are needed during the proposed works. There is also no requirement for a *National Parks and Wildlife Service* derogation licence application to allow the planned works. The potential bat roost within a tree will be retained. The foraging areas within the site will not be directly lit during the construction phase. Lighting on site during operation will be as per Bats & Lighting: Guidance Notes for: Planners, engineers, architects and developers, to ensure that foraging continues on site. A pre-construction bat assessment will be carried out. A post construction assessment of lighting will be carried out to confirm lighting and spill is as per designed lighting strategy.

Predicted and residual impact of the proposal

There is no evidence of an actual bat roost on site, therefore no negative impacts on roosts these animals are expected to result from the proposed development. The proposed development is within a built-up area with existing lighting and light spill. Lighting has been designed taking bats into consideration and will comply with Bats & Lighting: Guidance Notes for: Planners, engineers, architects and developers. The likelihood bat collision is not significant as the materials proposed for the apartment blocks are generally solid and would have good acoustic properties to reflect echolocation signals. As a result, the buildings would be clearly visible to bat species.

The impact of the proposed development on bats would be minor adverse, not significant, negative impact in the long term based on the loss of a small area of foraging on site. However, foraging would be expected to continue on site based on the implementation of the sympathetic lighting strategy for bats.

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
Daubenton's bat *Myotis daubentonii*	Yes	Least Concern	Annex IV	Appendix II
Natterer's bat *M. nattereri*	Yes	Least Concern	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
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 IV- Knockabro, Goatstown, Co. Dublin, Breeding Bird Surveys 2021

Introduction

In June 2021 breeding bird surveys were conducted at Knockabro, Goatstown, Co Dublin. Three breeding bird surveys were completed in all by Hugh Delaney, a freelance Ecologist (Birds primarily) with having completed work on numerous sites with ecological consultancies over 10+ years. Hugh is local to the Dun Laoghaire-Rathdown area in County 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 at all possible in order to gather the most data.

Site Location and description

The Knockabro site (2.7566ha) is situated in suburban south county Dublin at Goatstown, it is surrounded by urban and residential lands, nearby are situated Mount Anville School and Deerpark. The site is a mixed habitat of rough ground, with patches of low scrub interspersed with large trees in places.

Survey Results –

June 11th, 2021

Sunrise- 04.57hrs/Sunset- 21.52hrs. Weather – Wind F4 West, Cloud 7/8, Dry, 18c, Excellent visibility. On-site 07.45hrs – 12.30hrs.

Species recorded – Magpie, Coal Tit, Wren, Dunnock, Robin, Linnet, Greenfinch, Goldfinch, Feral Pigeon, Jackdaw, Woodpigeon, Swallow, Blue Tit, Blackbird, Herring Gull, Goldcrest, Rook, Song Thrush, Starling, Long-tailed Tit, Great tit, Hooded Crow.

07.45hrs – 12.30hrs – Site systematically traversed several times in its entirety from the end nearest main road towards the rest of the site towards northeast and then back in reverse, also use was made of a small hillock towards the north end of site as an advantageous position to overlook part of the site.

Magpie (x10) Small numbers observed 2-4 foraging around site, 7 observed together near road at once, estimate of at least 10 recorded on-site.
Coal Tit (X2) One in song in center of site, in large evergreen tree, with at least one other in area.
Wren (x5) 3 in song around site, also two juveniles heard from cover in northeast of site.
Dunnock (x2) Two in song on site.
Robin (x6) 3 in song on site, also 3 juveniles observed being provisioned food in center of site.
Linnet (x1) One heard passing over site at 10.05hrs.
Greenfinch (x2) Two observed foraging on rough ground near entrance to site at 09.30hrs.
Goldfinch (x5) 3 in song on site and two others observed foraging near main road.
Feral Pigeon (x6) 2-3 occasionally observed foraging on rough open ground around site.
Jackdaw (x15) Maximum count of 5 near entrance foraging on rough ground. Estimate of 15 recorded on site.
Woodpigeon (x8) Small numbers 2-3 observed passing through site and occasional single birds perched in trees.
Swallow (x4) Up to four birds observed foraging over site during morning.
Blue tit (x5) Two heard in song at west site of site, 3 others noted foraging in trees.
Blackbird (x8) Estimate of 8 observed on site, 2 juveniles noted being provisioned food by adults at north side of site.
Herring Gull (x6) Estimate of 6 observed passing through site, none observed to land into site.
Goldcrest (x1) One in song in middle of site.
Rook (x7) Observed passing over site, 3 briefly observed foraging on hillock at north end of site.
Song Thrush (x2) Two observed foraging in cover at northeast side of site.
Starling (x20) Most birds passing through site, 3-4 also observed perched in trees in center of site.
Long-tailed tit (x3) Three observed foraging at north and northeast side of site.
Great tit (x1) One in song at west side of side near boundary.
Hooded Crow (x6) Estimate of 6 observed on site, mainly single birds foraging.

Species proved breeding – Juveniles of Wren, Robin and Blackbird observed indicating likely breeding on-site.

June 19th, 2021

Sunrise- 04.56hrs/Sunset- 21.56hrs. Weather – Wind F2 East, Cloud 6/8, Dry, 16c, Excellent visibility. On-site 06.00hrs – 11.30hrs.

Species recorded – Magpie, Coal Tit, Wren, Dunnock, Robin, Goldfinch, Feral Pigeon, Jackdaw, Woodpigeon, Swallow, Blue Tit, Blackbird, Herring Gull, Goldcrest, Rook, Song Thrush, Starling, Long-tailed Tit, Hooded Crow, Bullfinch, Swift, Chaffinch.

06.00hrs – 11.30hrs – Site systematically traversed several times in its entirety from the end nearest main road towards the rest of the site towards northeast and then back in reverse, also use was made of a small hillock towards the north end of site as an advantageous position to overlook part of the site.

Magpie (x8) Small numbers observed foraging around site, 4 observed together at north end, estimate of at least 8 recorded on-site.

Coal Tit (X3) One in song in center of site, two juveniles observed at northeast side of site.

Wren (x7) 2 in song around site, also five juveniles observed on site, 2 at north end and 3 at south end.

Dunnock (x4) Two in song on site, 2 juveniles observed at northeast side of site.

Robin (x8) 3 in song on site, also 5 juveniles observed being provisioned food at south side of site.

Goldfinch (x9) 2 in song on site and 7 others observed foraging mostly in center of site on rough ground.

Feral Pigeon (x20) 2-3 Occasionally observed foraging on rough open ground in middle of site, others observed passing over site.

Jackdaw (x12) Maximum count of 6 near entrance foraging on rough ground. Estimate of 12 recorded on site.

Woodpigeon (x14) Small numbers 2-3 observed passing through site and occasional single birds perched in trees. 2 juveniles observed in trees at the northeast corner of site.

Swallow (x6) Up to six birds observed foraging over site during morning.

Blue tit (x6) Two heard in song at east of site, 4 juveniles noted foraging in trees at north side of site.

Blackbird (x12) Estimate of 12 observed on site, 3 in song, 3 juveniles foraging at north and east side of site.

Herring Gull (x15) Estimate of 15 observed passing through site, none observed to land into site.

Goldcrest (x1) One in song at northeast of site.

Rook (x25) Estimated number observed passing over site, 3-4 observed foraging on hillock at north end of site during morning.

Song Thrush (x4) Two observed foraging in cover at center of site and 2 more in northeast of site.

Starling (x30) Most birds passing through site, 6 also observed perched in trees at north of site.

Long-tailed tit (x2) Three observed foraging in trees at north side of site.

Hooded Crow (x8) Estimate of 8 observed on site, mainly 1-2 birds foraging.

Bullfinch (x2) One pair observed foraging at northeast corner of site in trees.

Swift (X3) 3 birds observed foraging over site during morning.

Chaffinch (x1) One in song at northeast corner of site.

Species proved breeding – Juveniles of Coal tit, Wren, Dunnock, Robin, Woodpigeon, and Blackbird observed on-site indicating likely breeding on-site.

June 27th, 2021

Sunrise- 04.59hrs/Sunset- 21.57hrs. Weather – Wind F3 Northeast, Cloud 5/8, Dry, 14c, Excellent visibility. On-site 05.45hrs – 11.15hrs.

Species recorded – Magpie, Coal Tit, Wren, Dunnock, Robin, Goldfinch, Feral Pigeon, Jackdaw, Woodpigeon, Swallow, Blue Tit, Blackbird, Herring Gull, Lesser black-backed Gull, Goldcrest, Rook, Song Thrush, Starling, Hooded Crow, Swift, Chaffinch, Sparrowhawk, Great tit.

06.00hrs – 11.30hrs – Site systematically traversed several times in its entirety from the end nearest main road towards the rest of the site towards northeast and then back in reverse, also use was made of a small hillock towards the north end of site as an advantageous position to overlook part of the site.

Magpie (x12) Small numbers observed foraging around site, 5 observed together at north end, estimate of at least 12 recorded on-site.

Coal Tit (X2) Two observed foraging at northeast corner of site.

Wren (x6) 3 in song around site and 3 juveniles observed at north end of site.

Dunnock (x4) Two in song in center of site. Two observed foraging in northeast corner.

Robin (x6) 3 in song on site, also 3 juveniles observed in center and south side of site.

Goldfinch (x14) 2 in song on site and others observed foraging mostly in center of site on rough ground, including a group of 5 juveniles. 14 estimated count on-site.

Feral Pigeon (x15) 2-3 Occasionally observed foraging on rough open ground in middle of site, others observed passing over site.

Jackdaw (x16) Maximum count of 8 foraging on rough ground in center of site. Estimate of 16 recorded on site.

Woodpigeon (x18) Small numbers observed passing through site, 3-4 observed foraging on ground at northeast corner of site. Estimated count of 18 recorded on site.

Swallow (x3) Up to three birds observed foraging over site during morning.

Blue tit (x9) Two in song at east of site, 7 juveniles noted foraging in trees at north side of site and being provisioned food by parents.

Blackbird (x14) Estimate of 14 observed on site, 2 in song, 4 juveniles foraging east side of site.

Herring Gull (x18) Estimate of 18 observed passing through site, none observed to land into site.

Lesser black-backed Gull (x3) Three observed passing through site.

Goldcrest (x1) One in song at east of site.

Rook (x20) Estimated number observed mainly passing over site, 5 observed foraging on hillock at north end of site during morning.

Song Thrush (x5) Two in song at center and east of site, 3 juveniles recorded in northeast corner of site.

Starling (x40) Most birds passing through site, small parties of juveniles (x10) observed foraging at north end of site during morning.

Hooded Crow (x10) Estimate of 10 observed on site, mainly 1-2 birds foraging.

Swift (X2) 2 birds observed foraging over site during morning.

Chaffinch (x1) One in song at north side of site.

Sparrowhawk (x1) One female passed west through middle of site at 09.20hrs.

Great tit (X4) Adult and 3 juveniles observed foraging in cover at northeast corner of site.

Species proved breeding – Juveniles of Wren, Robin, Goldfinch, Blue tit, Blackbird, Song Thrush, Starling and Great tit observed on-site indicating likely breeding on-site.

Summary of Breeding Bird Survey observations at Knockabro (Goatstown) site, June 2021

28 Bird species were recorded at the Knockabro site over 3 visits in June 2021. Of these 8 species were proved breeding, with juveniles observed on-site indicating likely breeding on-site or in immediate adjacent areas. No red-listed or amber-listed breeding species from the recently updated Birdwatch Ireland's Birds of Conservation Concern in Ireland List (2020-2021) were recorded on the Knockabro site.