Bat Fauna Survey for a proposed development at Main Street Upper, Newcastle, Co. Dublin.

6th March 2023

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: LIDL Ireland GmbH

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SUMMARY

Structure:	Several buildings on site including prefab structures.
Location:	Main Street Upper, Newcastle, Co. Dublin.
Bat species present:	None Roosting. Minor foraging within the proposed site.
Proposed work:	Construction of Discount Foodstore Supermarket.
Impact on bats:	The present survey found no evidence of roosting bats in any onsite tree or nearby structure therefore the proposed development will not result in the loss of any bat roost as no bats are roosting onsite. The proposed development will change the local environment as existing buildings are to be demolished and vegetation removed. There would be expected to be a short to medium term reduction in foraging until the landscaping and in particular the trees within the landscaping proposal mature. Based on the small number of common species found using the site the displacement from this site, the significant design measures to retain and enhance the site for bats, it will not have any significant effect on local bat populations, and that any such effect will be only significant at the local level. All lighting is set at 2700oK in compliance with bat lighting guidelines and are low lights (4m). A short term minor adverse not significant impact would be foreseen until landscaping matures. In the medium-long term bat foraging would be expected to continue on site and no significant effect would be foreseen. It important to note that hedgerows are to be retained and enhanced and connectivity to surrounding hedgerows will be maintained. Additional roosting opportunities and pollinator friendly mixes will be placed on site.
Survey by:	Bryan Deegan MCIEEM
Survey date:	5th July 2022

Receiving Environment

Background

Permission for development at Main Street Upper, Newcastle, Co. Dublin, principally consisting of the construction of a Discount Foodstore Supermarket with ancillary off-licence sales. The proposed development comprises:

1) The construction of a part single part two storey Discount Foodstore Supermarket with ancillary off-licence use (with mono-pitch roof and overall building height of c. 7.01 metres) measuring c. 2,167 sqm gross floor space with a net retail sales area of c. 1,373 sqm;

2) Construction of a vehicular access point to Main Street Upper and associated works to carriageway and including partial removal of boundary wall / façade, modification of existing footpaths / public realm and associated and ancillary works including proposed entrance plaza area;

3) Demolition of part of an existing rear / southern single storey residential extension (and related alterations to remaining structure) of 'Kelly Estates' building. The original 'Kelly Estates' building (a protected structure - Eircode: D22 Y9H7) will not be modified;

4) Demolition of detached single storey accommodation / residential structure and ancillary wall / fence demolitions to rear of existing 'Kelly Estates' building;

5) Demolition of existing single storey (stable) building along Main Street and construction of single storey retail / café unit on an extended footprint measuring c. 118 sqm and associated alterations to existing Main Street boundary façade;

6) Renovation and change of use of existing (vacant) two storey vernacular townhouse structure to Main Street, and single storey extension to rear, for retail / commercial use (single level throughout) totalling c. 61 sqm;

7) Repair and renewal of existing Western and Eastern 'burgage plot' tree and hedgerow site boundaries; and,

8) Provision of associated car parking, cycle parking (and staff cycle parking shelter), pedestrian access routes and (ramp and stair) structures (to / through the southern site boundary to facilitate connections to potential future development), signage, free standing trolley bay cover / enclosure, refrigeration and air conditioning plant and equipment, roof mounted solar panels, public lighting, hard and soft landscaping, boundary treatments and divisions, retaining wall structures, drainage infrastructure and connections to services / utilities, electricity Substation and all other associated and ancillary development and works above and below ground level including within the curtilage of a protected structure.

Request for Further Information

A Request for Further Information (RFI) was submitted by South Dublin County Council on the 19th September 2022. In relation to the RFI the following information related to ecology:

'2. The Applicant is requested to provide a revised lighting layout plan and lighting impact assessment report to reflect the amendments applied to the Site Layout Plan and to ensure the lighting design is sensitive to the presence of foraging and commuting bats, including the known bat commuting route along the western boundary. The revised lighting layout should be assessed by an appropriately qualified bat expert, providing a comprehensive bat survey and assessment of the amended lighting design. The Applicant should engage with the Public Lighting Department, Parks and Public Realm Department and Heritage Officer of South Dublin County Council prior to the submission of a revised lighting layout.'

'11. The submitted Ecological Impact Assessment underestimates the significance of biodiversity on the site, particularly in the context of potential cumulative impact on ecology in Newcastle. While the Ecological Impact Assessment lists the relevant pertinent surrounding developments and plans, the report fails to adequately assess the actual cumulative impact on the ecology of the wider area arising from the cumulative impact from these developments. The cumulative impact on ecology on this site and in this area of Newcastle is not insignificant, and it has been under-assessed in this submission. No proposals for appropriate mitigation for this

loss have been proposed in the material submitted. The Applicant is requested to submit a revised Ecological Impact Assessment which provides an assessment of the cumulative impact on the ecology of the subject site, Newcastle and the surrounding area and outlining appropriate mitigation measures. Prior to the submission of a response to the request for Additional Information, the Applicant should liaise with the Heritage Officer of South Dublin County Council.'

'12. It is noted that the documents submitted by the Applicant incorrectly state that the proposed development is not in proximity to sensitive bat locations. The village of Newcastle is a known site of importance for bats and, in particular, bat roosts. Bats are known to commute along linear landscape features such as hedgerows and tree lines. It appears that only a single dusk/emergence survey for bats was undertaken as part of this submission. This is considered to be insufficient survey effort to adequately assess bat usage of this site, particularly as it is in close proximity to known bat roosts. A more robust assessment of potential impact on local bat populations is required.

The Applicant is therefore requested to provide a detailed Bat Assessment Report carried out by an appropriately qualified Bat Expert. Prior to the submission of a response to the request for Additional Information, the Applicant should liaise with the Heritage Officer of South Dublin County Council.'

In relation to bats, as RFI stage numerous meetings were held to discuss the enhancements that could be made to the scheme, not only to ensure that bats remain actively foraging on site but, that their foraging and roosting potential is improved. In order to provide sufficient additional detail in relation to the project additional information in relation to the project layout, landscape, drainage, arborist and lighting has been provided. It should be noted that a significant consultation has been carried out amongst the project team to address the points raised above and elsewhere in the RFI.
This has included but not limited to:

1. Redesign of public lighting (height – from 8m to 4m, position of columns, colour temperature of luminaires, and inclusion of motion detection elements) with resultant reduction in average lighting levels);
2. Removal of pedestrian / cycle link on western site boundary
3. Removal of pedestrian / cycle link to lands to the west;
4. Relocation / redistribution of cycle parking within the site (no change to number of spaces);
5. Reconfiguration of western boundary treatment / burgage plot buffer zone, including preservation of existing open natural spring and ditch, omission of retaining wall and provision of bio-engineered gabion wall detail and riparian planting mix;
6. Reconfiguration of car parking spaces along western boundary (in tandem with nos. 2 + 5) to provide landscaped breaks and associated increase in car parking spaces from 93 no. to 95 no.;
7. Provision of wildflower green roof to portion of Foodstore roof, with reconfigured solar panel array;
8. Reconfiguration of eastern boundary treatment / burgage plot buffer zone, including repositioning of retaining structures further from boundary;
9. Expansion of SUDs features including additional tree pits and permeable parking areas and consequential reduction in attenuation storage requirements by 82% (from 459 m^3 to 80 m^3);
10. Revised surface water outfall;
11. Provision of Toucan crossing facilities to Main Street;
12. Reduction in scale of Flagpole sign to Main Street;
13. Provision of series of bat and bird boxes and associated biodiversity measures;
14. Greater use of wildflower, native, pollinator and bat friendly planting and screening in lieu of grass, etc.; and,
15. Translocating plant (*Anthyllis vulneraria*) and soil to the back of the store.

Clarification of Additional Information

As outlined in the Clarification of Additional Information:

5) *'The Applicant is requested to provide a revised lighting layout plan and lighting impact assessment report to address the outstanding concerns regarding the protection of the key ecology corridor along the western boundary of the subject site. The Applicant should consider the Application of design solutions such as the provision of low level lighting affixed to the gabion walls in this location to protect the integrity of the key ecological corridor in this location.*

The revised lighting layout should be assessed by an appropriately qualified bat expert, providing a revised bat survey and assessment of the amended lighting design. Furthermore, the revised lighting design should reflect any amendments applied to the Site Layout Plan as a result of any further design revisions arising from other items of Clarification of Additional Information.'

As outlined in the site lighting report (18th February 2023)

This revised report is based on Option 1. Briefly, these light sources consist of;

• 4-meter columns with area lighting, Veelite Durostar series

lanterns illuminating the LIDL Car park.

• 4-meter columns with area lighting, Veelite CHI series lanterns

illuminating the Plaza Area.

• Recessed wall lights will be used on the access ramp at the rear

entrance to the store and car park.

Option 1 also results in a significant reduction in lighting levels across the site when compared to the original lighting design (Average lux level of 6.32 v's original of 16)'

In addition, as outlined in the updated lighting drawing above:

1) All lighting has been removed in proximity to the western hedgerow where bat foraging was noted.
2) Lighting levels in the vicinity of the hedgerow are extermely low (< 1 lux).
3) The integrity of the hedgerow and ecological corridor will be retained.

The revised lighting design will not result in a significant negative effect on the local bat population. It would be expected that in the short term that bat foraging on site would continue at current levels, as the integrity of the ecological corridors are being maintained and light spill is being controlled.

Landscape

The landscape design for the proposed development has been prepared by Austen Associates. The proposed landscape masterplan is demonstrated in Figure 6. It should be noted that this has undergone significant revision since the RFI to incorporate additional biodiversity features and in particular elements to enhance bat foraging and roosting on site. The Landscape planting design proposed comprises of both native and pollinator-friendly non-native planting with the view to improve connectivity within the surrounding environments and encourage rich bio- diversity contributing to the wider population of flora and fauna within the area and in line with the All Ireland Pollinator Plan. A native screening mix is to be placed on the eastern boundary. On the western boundary a riparian mix, Bio-engineering retaining structure: Gabion wall as a permeable wall and a biodiversity measure (type Eco Surv Gabion Hibernacule), Existing mature hedgerows to be maintained with additional suitable native planting. Trees have been strategically placed in the car park area behind the lighting to provide additional shielding of lighting to protect the hedgerow and bat foraging areas. A green roof is to be located on the building and connectivity is maintained to adjacent hedgerows, while increased planting is places within the hedgerows (Figure 9). It should also be noted that the spring it to be maintained on site. A significant increase in pollinator friendly planting should also noted. Bat (3x 1FF Schwegler Bat Boxes) and bird boxes (15 assorted) are to be installed on site (Figure 9). The above measures would significantly improve the insect population on site and the potential for bat foraging and roosting.

The proposed site outline, lighting, green infrastructure plan and landscape plan are demonstrated in Figures 1-3.

Figure 1. Proposed site outline

Figure 2. Proposed landscape plan

Arborist

An arborist report has been prepared by Austen Associates (March 2023) to accompany this planning application. This report concludes with the following:

'The burgage plot boundaries are of important cultural, historic and ecological value and are to be retained and protected.

Part of the eastern burgage plot boundary is made up of unsuitable vegetation, including a large tract of Leyland Cypress X Cuprocyparis leylandii, along with some self-seeded poor-quality vegetation. It is proposed that this is removed, apart from a section of self-seeded vegetation that may be retained, Hawthorn Crataegus monogyna species.

Replacement and augmentation planting is proposed to re-instate the burgage plot boundaries. These works will see the removal of unsuitable spreading non native species. These species will be replaced with more suitable native species, resulting in an improvement to the burgage plot boundaries.

Tree protective fencing will be erected to prohibit access to the rooting area of the trees. This tree protective fencing to BS 5837:2012 will be in place all through construction, along with adherence by all on site with the instructions regarding the protection of the RPA. These steps are critical to the successful retention of trees.

At construction stage, the contractor must carefully read this report and use it as a basis for drawing up his/her own construction method statement in relation to tree protection.'

'In response to this RFI, the proposed ramped access route on the eastern boundary, has been moved. The original location would have resulted in the loss of a 6-8m width of Burgage Plot hedgerow. This access ramp is now proposed to the south of the site. This will not require any Burgage Plot hedgerow removal to accommodate the ramp.

A group of proposed cycle stands and an additional proposed link to the future development on the western boundary has also been removed from the RPA of the hedgerow, in order to retain and protect the entire hedgerow along this western boundary. The cycle stands have been relocated and the proposed link has been omitted.'

'The Spring is currently open with a concrete ring and culvert. See figure 1 and figure 2 below. It is now proposed that this spring area be left open and planted with riparian perennial species. Please refer to the landscape plan 077622_LP_01 for further details.

The culverted area cannot be daylighted without risking damage to the nearby Burgage Plot hedgerow. The Culverted watercourse is within the root protection area of hedgerow 02 and the opening up of the culvert would damage the roots of this hedgerow. This damage to the roots would see degradation to the above ground parts of the hedgerow and would be detrimental to the Burgage Plot hedgerow.

It is noted that there would most likely have been damage to have been dam-age to hedgerow and tree roots at the time when the culvert was put in place. There have also been works undertaken in the past, to level and stone the site in this area. These may have caused root damage also. It is not known when these works were undertaken, but it is expected that there will have been some regenerative root growth between then and now.

The approach to the site development design has always been to retain and protect the Burgage Plot hedgerows. The car parking along the western boundary has been carefully arranged to allow for Hedgerow and tree protection and retention.'

In relation to the CFI the tree survey plan and tree protection plan are demonstrated in Figures 3 & 4 and have been updated.

Lighting

A Lighting Impact Assessment Report has been prepared by Lawler Consulting to accompany this planning application. The Lighting Impact Assessment Report outlines the following:

'The preliminary lighting design and associated mitigations and assumptions for the proposed development of a Lidl store at Newcastle Mainstreet Upper, Co. Dublin and have been based upon the following British Standards and best practice guidelines;

- *BS EN 12464-2:2014 'Lighting of Work Places – Part 2 – Outdoor Workplaces'*
- *BS5489-1 (2020) – Code of practice for the Design of Road Lighting – Lighting of roads and public amenity areas*
- *Guidance note for the Reduction of Obtrusive Light – GN01:2021, produced by the Institute of Lighting Professionals (ILP)*

• *Society of Light and Lighting (SLL) – Lighting Handbook 2012*
• *CIBSE Environmental considerations for External Lighting – Factfile no.7 (2003)*
• *ILP Guidance Note 08/18 Bats and artificial lighting in the UK Bats and the Built Environment series.'*

In relation to the design and potential impacts on the surrounding areas due to the proposed lighting scheme, this report outlines the following:

This report assesses the impact of the external lighting for the proposed development of a Lidl store at Mainstreet Upper Newcastle Co. Dublin and associated grounds, on the surrounding residential properties, ecology, environment and public roadways and pathways. Colour temperature of the associated lighting will be 2700 Kelvin due to the sensitivity of bats in the area.

The original impact assessment report submitted was based on 8m high columns. Following SDCC FI request two alternative site lighting designs were carried out, Option 1 based on 4m high columns & Option 2 based on low level bollard type fittings.

Option 2 utilising low level bollards resulted in excessive glare, poor illumination efficiency, excessive upward light pollution. It also results in poor facial recognition, creating safety and security concerns. Based on these results option 2 was excluded.

This revised report is based on Option 1. Briefly, these light sources consist of;

• 4-meter columns with area lighting, Veelite Durostar series lanterns illuminating the LIDL Car park.

• 4-meter columns with area lighting, Veelite CHI series lanterns illuminating the Plaza Area.

• Recessed wall lights will be used on the access ramp at the rear entrance to the store and car park.

Option 1 also results in a significant reduction in lighting levels across the site when compared to the original lighting design (Average lux level of 6.32 v's original of 16)'

'***7.1. Light pollution reduction***

Careful consideration was taken when preparing our lighting schemes to ensure there is no risk of light pollution. Lighting systems frequently emit light that, in addition to performing their primary function of illumination of exterior functions, illuminate beyond what is necessary. Light Pollution is often considered a nuisance, a safety hazard when it causes 'blind' spots to pedestrians and drivers and also poses environmental concerns as it disrupts human health, affects bird migration patterns and other natural cycles. Another negative condition that arises from light pollution is the inability to view the night sky by the general public.

The requirements which we shall be following in our design of the relevant lighting schemes shall be as follows:

- *BSEN 12464-2:2014 'Lighting of Work Places – Part 2 – Outdoor Workplaces'*
- *BS5489-1 (2020) – Code of practice for the Design of Road Lighting – Lighting of roads and public amenity areas*
- *Guidance note for the Reduction of Obtrusive Light – GN01:2020, produced by the Institute of Lighting Professionals (ILP)*
- *We shall specify light fittings which have lighting shields to prevent the risk of light pollution to adjacent properties.*
- *We shall specify Light Emitting Diode (LED) lamps and fixtures for all exterior lighting including parking lots and streets.*

As highlighted within our calculations and within Section 5.1 of this report we achieve all regulations in relation to potential light intrusion/spill and skyglow.

7.2. Impact upon wider urban area and landscape

Careful consideration was taken when preparing our lighting schemes to ensure there is no risk of upsetting the existing lighting schemes throughout the local area. The proposed lighting scheme will only enhance the lighting within our boundary thus enhancing the general feel while driving through the area.'

'7.4 Impact upon Bats

Introduction:

Many Species of Bat, insects and other wildlife are in danger from increasing urbanisation in general and lighting is part of the problem. Legislation protects the Roost (Resting places for Bats) from being intentionally or recklessly

disturbed. If a lighting scheme is being developed in an area with Bats, a survey is carried out to plan and minimise the disruption to Bats.

For safety reasons lighting will be required to illuminate the car park on the site. However, several factors have been included in the lighting design to mitigate the disruption to Bats at the boundary areas.

The requirements which we shall be following in our design of the relevant lighting schemes are as follows:

ILP – Guidance Note 08/18 : Bats and artificial lighting in the UK/Bats and the Built Environment series and recommendations of the Environmental Consultants Report.

The Proposed Lighting Design Factors which will minimise the effect on Bats at the boundary areas:

1. *The lighting installation has been designed to only illuminate the new car parking. The proposed luminaires minimise light spill to any other area forming part of the Bats commute. The luminaires provide no uplight, and have narrow downward beams of light, and optics that prevent back spill.*
2. *Lighting Cowls/Shields shall be installed on luminaires where there may be the potential for any light spill on the perimeter to further minimise the effects on bats.*
3. *Lighting Controls - The peak time for feeding for Bats is dusk. This is when they exit the Roost to go foraging. The light output from dusk to dawn can be restricted using LED controls to dim the luminaires located across the carpark and along the boundaries, this would benefit the Bats as the dimmer can be set to suitable times throughout the year.*
4. *Artificial Lighting – LED This is the light source of choice for most local authorities. The light emitted is more directional and normally controlled by lenses or sometimes reflectors. The light is produced in a narrow beam. It is an instant light source. LED is available in several colour temperatures. 'Warm white' (more yellow/orange colour) at 2700°K can now be used with little reduction in lumen output. LED typically features no UV component and research indicates that while lower UV components attract fewer invertebrates, warmer colour temperatures with peak wavelengths greater than 550nm (~2700°K) cause less impacts on bats (Stone, 2012, 2015a, 2015b).).*

The proposed lighting layout is demonstrated in Figure 5.

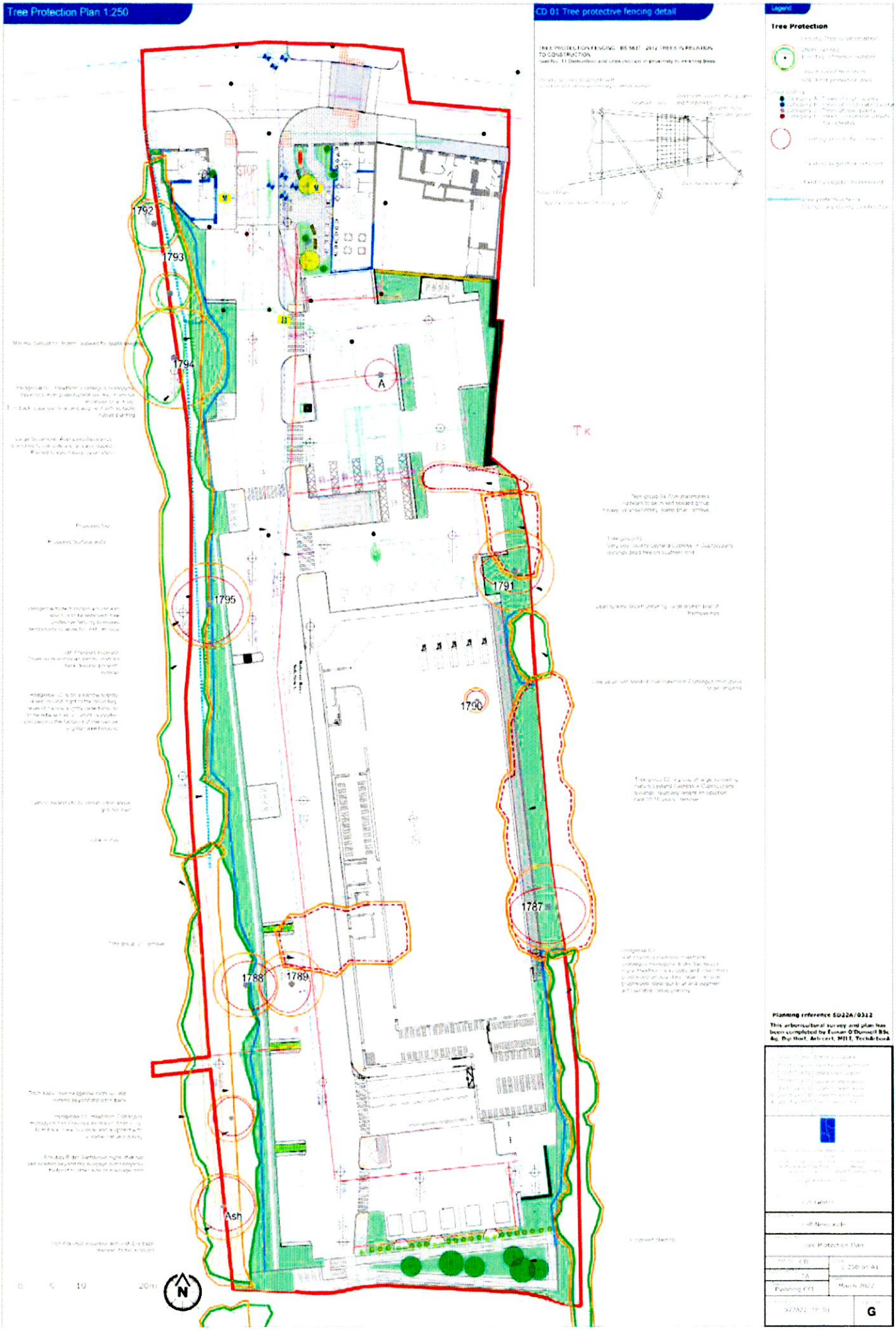

Figure 3. Tree survey plan

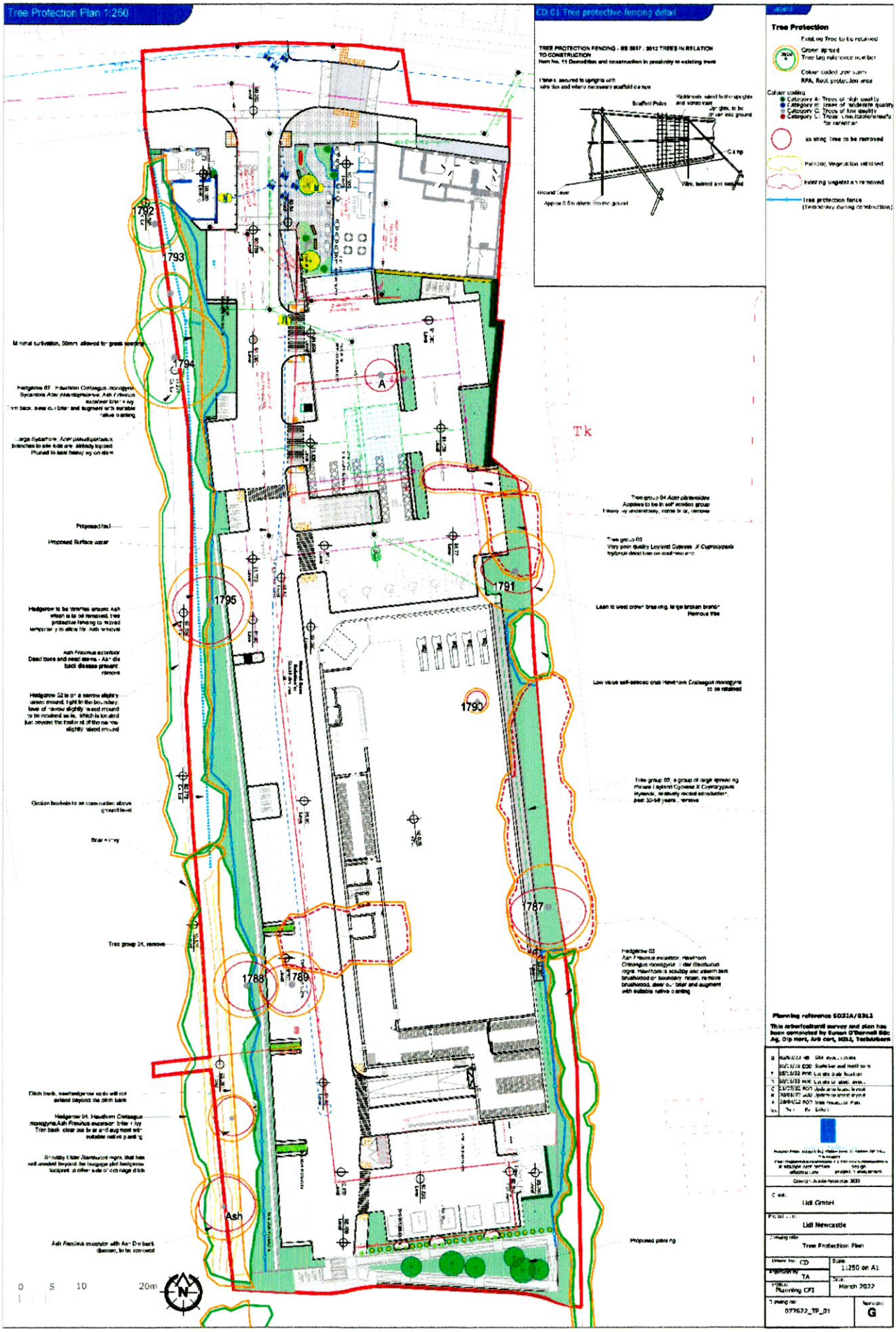

Figure 4. Tree protection plan

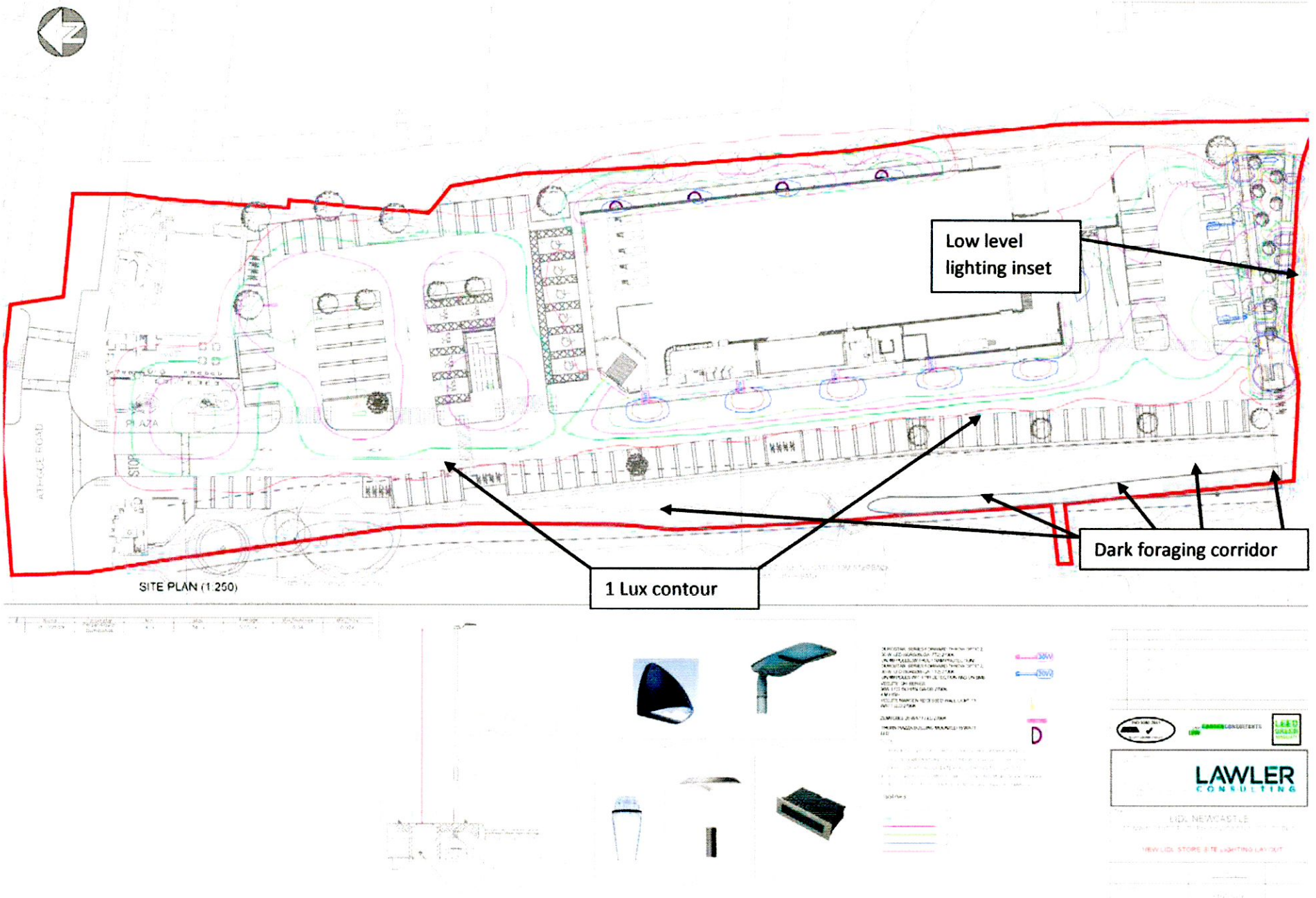

Figure 9. Site lighting layout

Drainage Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 27 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on Bats. Bryan trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Kelleher and Marnell (2022)) and Bryan is currently providing bat ecology (impact assessment and enhancement) services to Dun Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan. The desk and field surveys were carried out having regard to the guidance: Bat Surveys for Professional Ecologists – Good Practice Guidelines 3rd Edition (Collins, J. (Ed.) 2016) and Marnell, Kelleher and Mullen (2022), Bat Mitigation Guidelines for Ireland V2 (which update and replace the Bat Mitigation Guidelines for Ireland published in 2006).

Legislative Context

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

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

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

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

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

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

Bat survey

This report presents the results of site visit by Bryan Deegan (MCIEEM) on the 5th July 2022. A bat emergent and detector survey was carried out. Trees and buildings on site were examined for bat roosting potential.

Survey methodology

As outlined in Marnell et al. 2022 *'The presence of a large maternity roost can normally be determined on a single visit at any time of year, provided that the entire structure is accessible and that any signs of bats have not been removed by others. However, most roosts are less obvious. A visit during the summer or autumn has the advantage that bats may be seen or heard. Buildings (which for this definition exclude cellars and other underground structures) are rarely used for hibernation alone, so droppings deposited by active bats provide the best clues. Roosts of species which habitually enter roof voids are probably the easiest to detect as the droppings will normally be readily visible. Roosts of crevice-dwelling species may require careful searching and, in some situations, the opening up of otherwise inaccessible areas. If this is not possible, best judgement might have to be used and a precautionary approach adopted. Roosts used by a small number of bats, as opposed to large maternity sites, can be particularly difficult to detect and may require extensive searching backed up by bat detector surveys (including static detectors) or emergence counts.'* In relation to the factors influencing survey results the guidelines outlines the following *'During the winter, bats will move around to find sites that present*

the optimum environmental conditions for their age, sex and bodyweight and some species will only be found in underground sites when the weather is particularly cold. During the summer, bats may be reluctant to leave their roost during heavy rain or when the temperature is unseasonably low, so exit counts should record the conditions under which they were made. Similarly, there may be times when females with young do not emerge at all or emerge only briefly and return while other bats are still emerging thus confusing the count. Within roosts, bats will move around according to the temperature and may or may not be visible on any particular visit. Bats also react to disturbance, so a survey the day after a disturbance event, may give a misleading picture of roost usage.'

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

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

Survey Results

Trees as potential bat roosts.

A ground level roost assessment was carried and used to examine the trees on site for features that could form bat roosts. Potential roosting features include heavy ivy growth, broken limbs, areas of decay, vertical or horizontal cracks, cracks in bark etc. None of the trees on site had features that would be considered to be of importance to roosting bats. All trees on site were assessed. No bats, evidence of bats or bat roost were identified in any of the onsite trees. A derogation license is therefore not required for the removal of trees on site.

Buildings as potential bat roosts.

All buildings on site were assessed. No bats, evidence of bats or bat roost were identified in any of the onsite buildings. A derogation license is therefore not required for the removal of trees on site. However, the stone ruin has potential for bats roosting but is within a brightly lit area by the street. As a precaution all buildings will be assessed prior to demolition in case bats have commenced roosting in the interim.

Emergent/detector surveys.

Emergent/detector surveys were carried out by Bryan Deegan on the 5th July 2022.The detector survey was undertaken within the active bat season and the transects covered the entire site multiple times during the night. Weather conditions were good with mild temperatures of 16°C after sunset. Winds were light and there was no rainfall. Insects were observed in flight.

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

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

Soprano Pipistrelle (*Pipistrellus pygmaeus*) bats were observed foraging on site (Figure 12). A single Lesser Noctule (*Nyctalus leisleri)* was also noted foraging along the treeline located to the east of the subject site. No bats were observed emerging from onsite trees or structures proximate to the subject site. Activity was concentrated along the treeline and hedgerow to the east and centre of the site.

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 N92Z) encompassing the study area reveals that three of the nine known Irish species have been observed locally (Table 1). The National Biodiversity Data Centre's online viewer was consulted in order to determine whether there have been recorded bat sightings in the wider area. This is visually represented in Figures 6 & 7. The following species were noted in the wider area: Daubenton's Bat (*Myotis daubentonii*), Brown Long-eared Bat (*Plecotus auritus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Lesser Noctule (*Nyctalus leisleri*) (Figures 6 & 7).

Table 1: *Status of bat species within a 2km^2 grid encompassing the subject site (Reference no. O22E)*

Species name	Record count	Date of last record	Note
Lesser Noctule (*Nyctalus leisleri*)	2	10/05/2010	National Bat Database of Ireland
Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	2	10/05/2010	National Bat Database of Ireland
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	2	10/05/2010	National Bat Database of Ireland

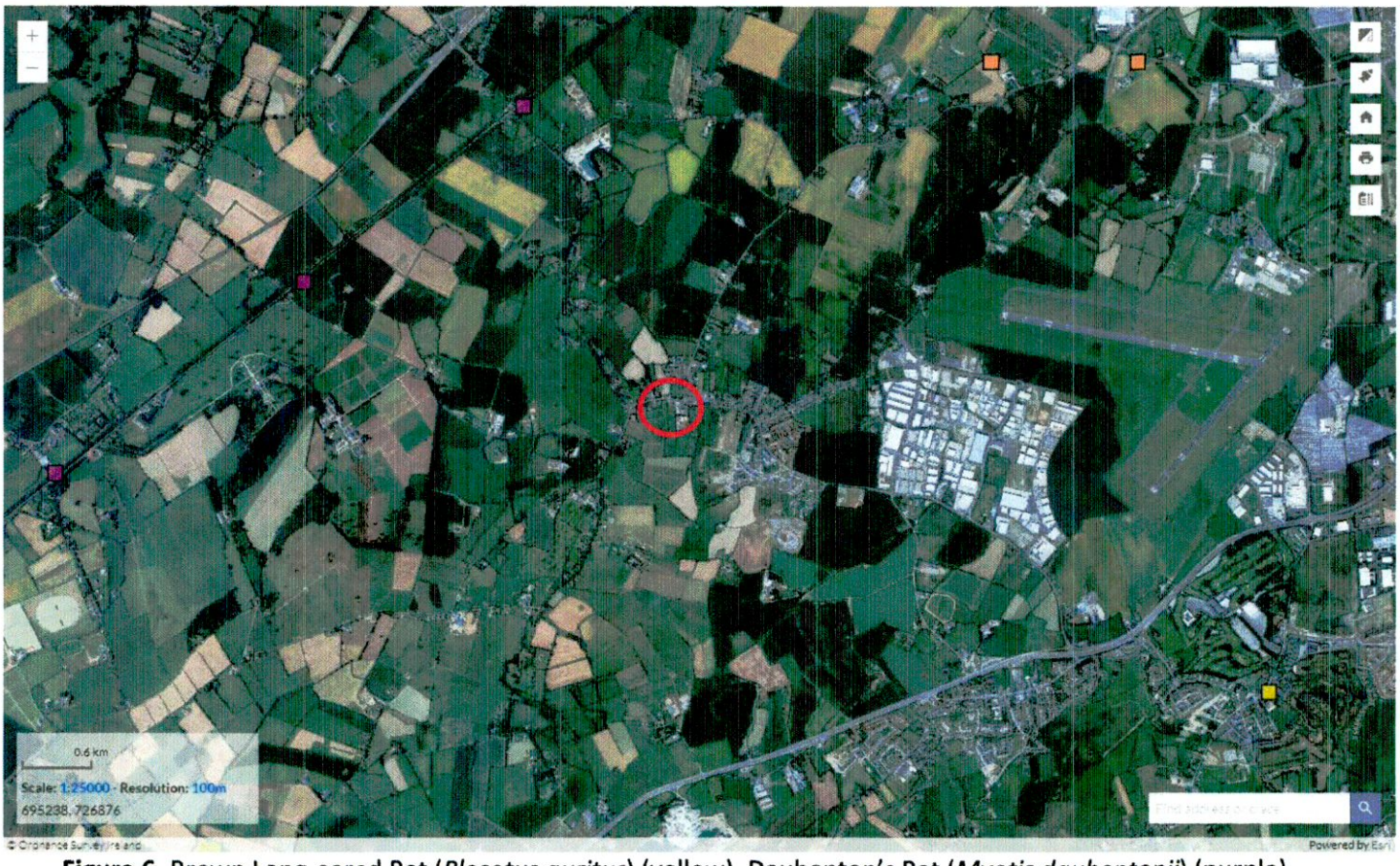

Figure 6. Brown Long-eared Bat (*Plecotus auritus*) (yellow), Daubenton's Bat (*Myotis daubentonii*) (purple), and both Brown Long-eared Bat and Daubenton's Bat (orange) (Source NBDC) (Site location – red circle)

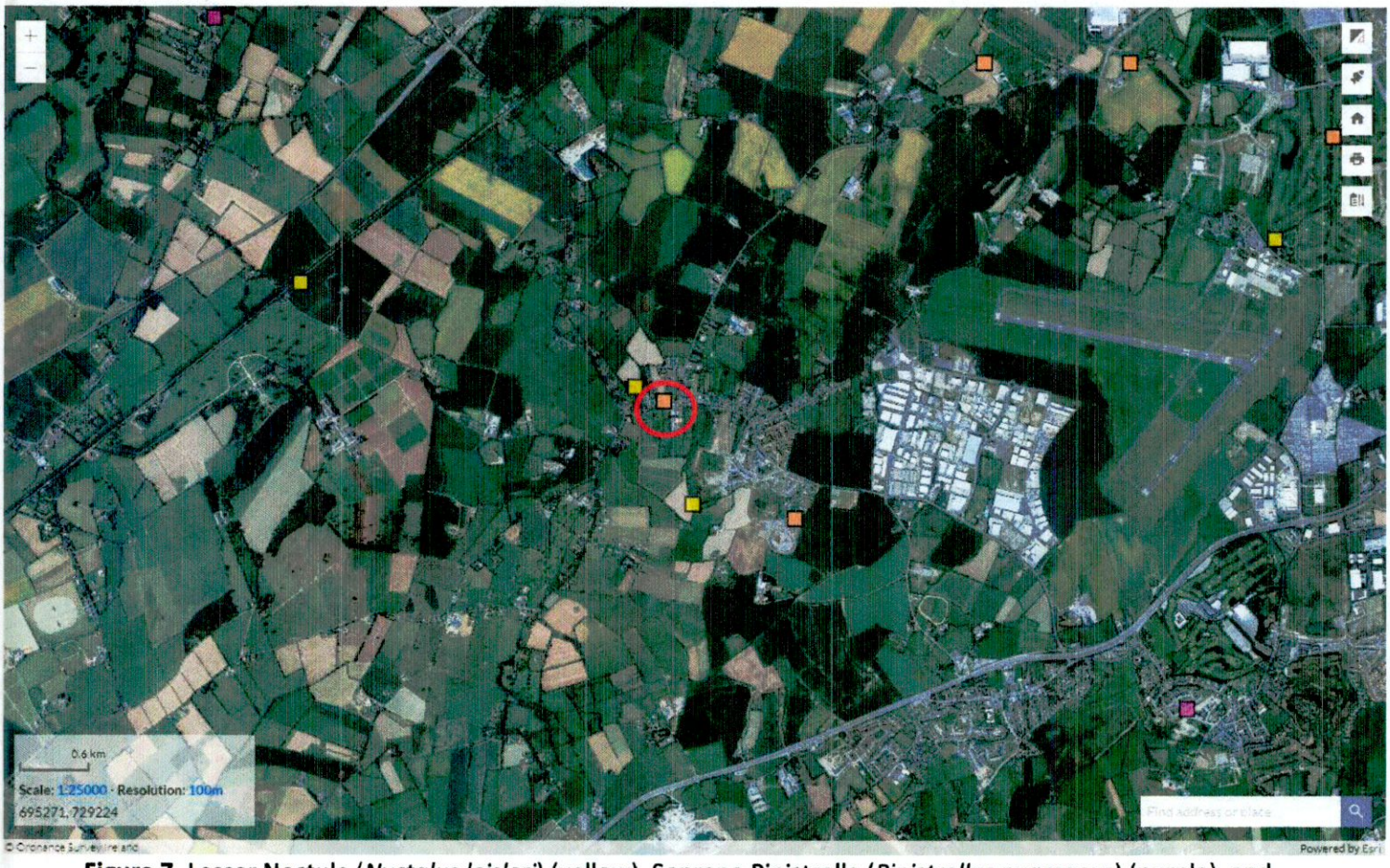

Figure 7. Lesser Noctule (*Nyctalus leisleri*) (yellow), Soprano Pipistrelle (*Pipistrellus pygmaeus*) (purple), and both Soprano Pipistrelle and Lesser Noctule (orange) (Source NBDC) (Site location – red circle)

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 N998287. Recorded on 10/05/2010 and located in a grid that encompasses the northern portion of the subject site.
2. Lesser Noctule (*Nyctalus leisleri)* in grid reference N998287. Recorded on 10/05/2010 and located in a grid that encompasses the northern portion of the subject site.
3. Lesser Noctule (*Nyctalus leisleri)* in grid reference N996288. Recorded on 20/01/2006 and located 140m North-West of the subject site.
4. Lesser Noctule (*Nyctalus leisleri)* in grid reference O000280. Recorded on 23/09/2005 and located 450m South of the subject site.
5. Lesser Noctule (*Nyctalus leisleri)* in grid reference O007279. Recorded on 29/06/2012 and located 1 km South East of the subject site.
6. Lesser Noctule (*Nyctalus leisleri)* in grid reference O007279. Recorded on 12/07/2011 and located 1 km South East of the subject site.
7. Soprano Pipistrelle (*Pipistrellus pygmaeus*) in grid reference O007279. Recorded on 29/06/2012 and located 1 km South East of the subject site.
8. Soprano Pipistrelle (*Pipistrellus pygmaeus*) in grid reference O007279. Recorded on 12/07/2011 and located 1 km South East of the subject site.

Historic bat survey proximate to the site.

Following the receipt of the RFI additional investigations were carried out in relation to the planning applications in the vicinity of the proposed development and bat surveys that had been carried out in relation to corresponding planning applications:

Oakville House

In 2010 Scott Cawley was commissioned by OMS Architects to undertake a bat survey for a development on the grounds of Oakville House (to the north of the proposed development site on the far side of the street). The survey was undertaken in response to a Request for Further information from the planning authority. A maternity roost of over two hundred Soprano Pipistrelle bats was found in the south west corner of the main house. As outlined in the report '*The bats appear to be roosting in the fascia / soffit boards, but there is also some evidence that they may also crawl between the tiles and roof felt and that they may periodically enter the attic.*

Most of the bats flew to the ***north to feed over open farmland or to the west through the gardens of 'Glebe House'. Several other species were recorded feeding along the hedgerows to the of the main house, indicating that this field is an important for feeding and commuting bats***.' (Emphasis added)

In relation to '*Likely roosts in the surrounding area*' the report states the following:

'*Common Pipistrelle, Leisler's and Myotls bats were also recorded foraging within the site, suggesting that there are other roosts nearby. The Glebe House and its surrounding outbuildings and mature ·trees appear highly likely to support roosting bats, It was not possible to inspect these buildings as they lay outside the site boundary.*'

An abandoned, boarded up house was found approximately 100m to the south west of the site across the Main Street. It would have moderate potential to support bat roosts, Many of the residential properties in Ihe surrounding/area appear to be 20-50 years old, and several of these would also have potential to support bats,

In relation to '*Foraging Activity throughout the site*' the report states the following:

'*Relatively large numbers of bats were recorded feeding and commuting on the site, many of which were soprano pipistrelle bats associated with the roost. Activity in the east of the site was very low, but bats were observed in many locations along the west and north of the sile. A map showing foraging / commuting activity is shown in Figure 10.*

Common Pipistrelles, Lelsler's and Myotis spp; were recorded feeding in the field to the north of the main house, particularly on the two parallel hedgerows to the north of the main house (see Fig 1 for a diagram}. As part of the proposed development, it is intended that the eastrn of the two hedgerows will be removed, while the western hedgerow will be retained. It is clear that these areas are important for feeding bats, and that the roosting Soprano Pipistrelle bats use this area for commuting to and from their roosts. As bats often use linear features as (sic.) commuting routes, it was deemed possible that the removal of the eastern hedgerow could have impacts upon the bats commuting along this route.'

The report also states that 'The most important areas for commuting and feeding bats are around the location of the existing roost, along the two parallel hedgerows to the north of the main property {west of the Site) and in the open farmland in the north of the site. Few bats were recorded in the eastern half of the site. Therefore it is highly important that the commuting route along the western side of the site will be maintained and the conditions in the north of the site will be suitable for foraging.

Of the two hedgerows to the north of the main house, it is proposed that the eastern will be removed, and that the western hedgerow (which borders the Glebe· House gardens) will be retained. Surveys using Anabat detectors have shown that the western hedgerow is more important for commuting bats.

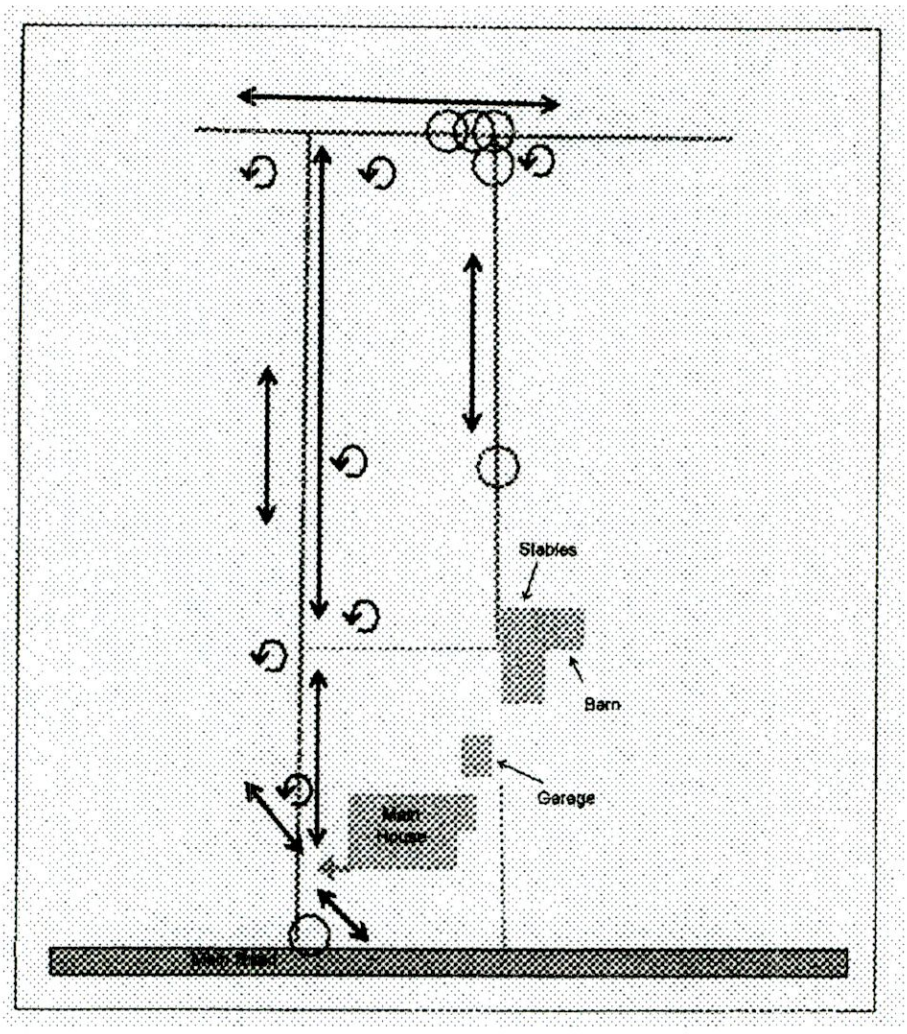

Figure 8. foraging and commuting activity in the southern part of the site. of the site. Linear arrows show commuting routes through the site, and curved arrows show feeding locations.'

Agricultural land to the North of the proposed development site (2022).

A Bat Survey for Housing Development, Newcastle Village, Co. Dublin was prepared by Faith Wilson on the 5th May 2022 for agricultural land to the North of the proposed development site. *'The site is bounded to the west by a historic townland boundary that is heavily planted with mature trees. This boundary separates the townlands of the Glebe to the west and Newcastle North to the east. It is bounded to the east by the existing residential developments of the Glebe and Market Square.'*

The report outlines the following *'There are detector records of Leisler's bat and common pipistrelle from previous surveys conducted in the village for an EIS. Bat surveys conducted at Ballynakelly to the SE of the village have recorded Leisler's bat, soprano pipistrelle and an unidentified pipistrelle species.*

There are several confirmed bat roosts from the wider area of Newcastle Village – these include several roosts of unidentified bats in Rathcoole Village and a roost of brown long eared bat at the Church of the Nativity of the Blessed Mary in Saggart.' The report also outlines the information in relation to Oakville House above.

In relation to the 2021 survey assessment the report outlines:

'The most frequent of these were the common pipistrelle (Pipistrellus pipistrellu s) and soprano pipistrelle (Pipistrelllls pygmnell s), which were recorded throughout the night and foraged across the site. The tree lines extending from Oakvale House are used as commuting routes by bats and were the subject of detailed surveys previously conducted by Scott Cawley in 2010 (see Figure 3.5 and 3.6 above). Leisler' s bat (Nyctnlus leisleri) was recorded less frequently then the pipistrelle bats and was mostly recorded hunting high overhead.

Most unusually Nathusius's pipistrelle (Pipistrellus nathusii) was detected on the lands (mostly early in the night) and may be availing of the large waterbody in the adjacent Glebe House property for foraging purposes. There was a single detection of a Myotis bat species (either Daubenton's Bat (Myotis daubentonii) or whiskered bat (Myotis mystacinus)) during the survey. No roosts were recorded roosting within any of the buildings on site.'

Dr Tina Aughney Bat Eco Services Surveys (2018/20199)

Bat Eco Services was commissioned Cairn Homes Properties Ltd. to survey lands proposed to be developed in Newcastle, Co. Dublin. A 2019 report was prepared. This included assessments to the south, east and west of the proposed development site. The survey noted the presence of single encounters of Soprano and Common Pipistrelle bats on the proposed development site. It also noted the following.

*'**Bat Foraging Habitat & Commuting Routes***

A number of locations within the survey area have been identified as important foraging habitats and commuting routes for bats. These are represented on the aerial below. Yellow circled locations represent MEDIUM-HIGH importance (due to medium to high level of bat activity recorded within this area) and blue represent MEDIUM importance (due to medium level of bat activity recorded within this area).

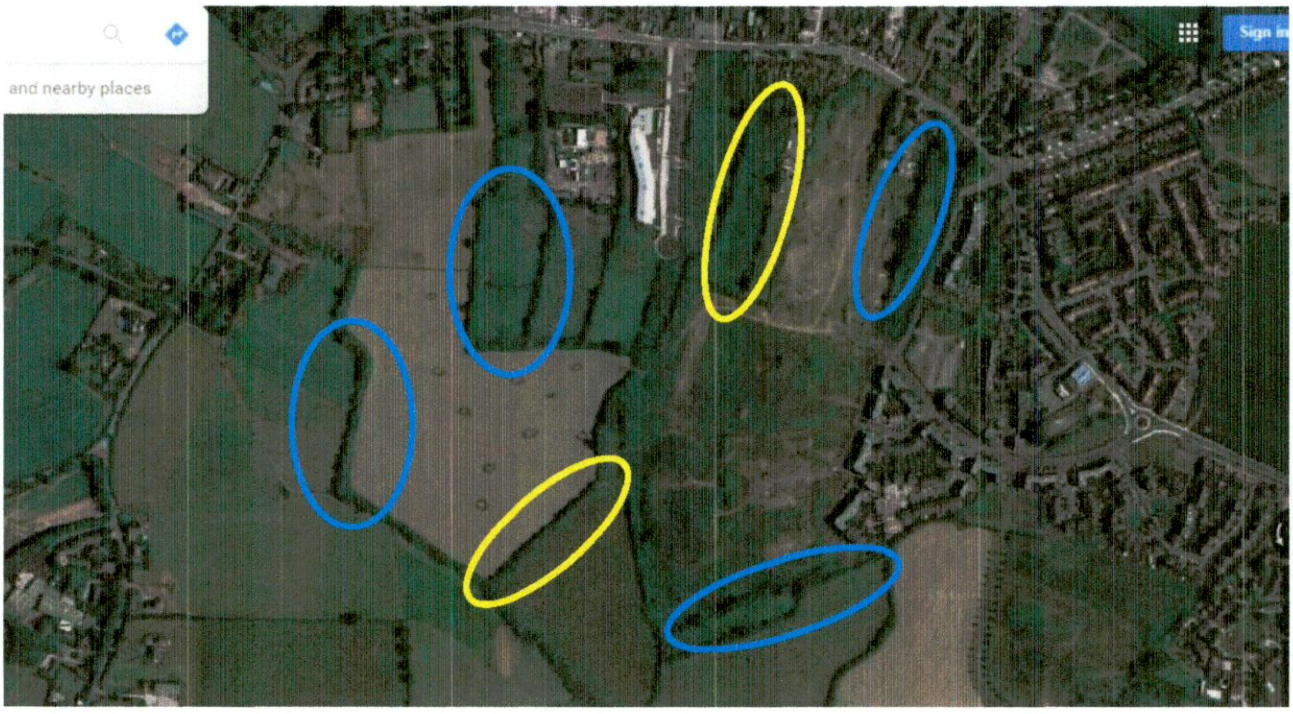

Figure 9: Aerial map of survey area indicating High and Medium important areas for local bat populations (note that the proposed development site is not within the areas of high or medium importance to local bat populations).

Zone of Influence – Bat Landscape Connectivity

'The survey area is located south of the town of Newcastle, Co. Dublin. It is primarily an agricultural landscape and offers a well-connected landscape for local bat populations. There is an industrial zone located to the east of the town towards Dublin city. As a consequence, it is important to retain the connectivity within the survey area to allow local bat populations to continue to commuting and foraging post-construction of the proposed development.'

Conclusion

Within the report conclusion the author states *'Three bat species were frequently recorded during these bat surveys: common pipistrelle, Leisler's bat and soprano pipistrelle. The additional two bat species recorded were*

Daubenton's bat and brown long-eared bat within the survey area, one of which was only recorded in the proposed development area (brown long-eared bat).

The medium-high level of bat activity of common pipistrelles and Leisler's bats was recorded, while a low-medium level of soprano pipistrelle bat activity was recorded and a low level of bat activity was recorded for Daubenton's bat and brown long-eared bat. Overall, the level of bat activity could be considered as Medium level. A satellite roost of common pipistrelles was recorded both in 2018 and 2019 in an agricultural shed within the proposed development area. In relation to the bat evidence collected by this report, it is deemed that the bat populations recorded within the survey area are of Local Importance.'

Evaluation of Results

The 2022 bat survey comply with bat survey guidance documentation including Marnell *et al* (2022) and Collins (2016). No bats were observed emerging from trees or buildings on site. No evidence of bats roosting in buildings was noted. Minor bat activity was noted on site by soprano pipistrelle and Leisler's /Lesser noctule bats. As outlined in the previous bat assessments carried out in Newcastle, there is a local bat population that is centered to the north of the site (on the far side of the R405) in the vicinity of Oakvale House and the hedgerows proximate to the roost and medium and high areas of importance to the south and east of the site. The site is of relatively low importance to the local bat population. This statement is further backed up by the 2019 report of Tina Aughney Bat Eco Services Surveys which outlines the areas of high or medium importance to local bat populations. The proposed development site is not within areas of high or medium importance to local bat populations. However, cumulatively, development has been taking place surrounding Newcastle with a loss of hedgerows and foraging areas and it would be expected that areas of low importance have the potential to become more important as development increases within Newcastle.

Potential Impact of the development on Bats

No confirmed bat roosts bat roosts will be lost. No trees of bat roosting potential are noted on site. The proposed development will change the local environment as new structures are to be erected and some of the existing vegetation will be removed. The development is likely to displace bats from foraging at the site during construction. Based on the small number of common species found using the site the displacement from this site it will not have any significant effect on local bat populations, and that any such effect will be only significant at the local level. No bat roosts or potential bat roosts will be lost due to this development and the species expected to occur onsite should persist.

It should be noted that following the RFI and CFI the development has undergone significant revision to incorporate additional biodiversity features and additional measures in relation to ensuring bats remain foraging on site. In particular elements have been incorporated to enhance bat foraging and roosting on site. Hedgerows are to be retained and enhanced with native species. The lighting installation has been designed to only illuminate the new car parking. Lighting has been removed from the western car park area so as to reduce light spill to areas forming part of the Bats commuting corridor. The luminaires provide no uplight, and have narrow downward beams of light, and optics that prevent back spill. Lighting Cowls/Shields shall be installed on luminaires where there may be the potential for any light spill on the perimeter to further minimise the effects on bats. The light output from dusk to dawn will be restricted using LED controls to dim the luminaires located across the carpark and along the boundaries, this would benefit the Bats as the dimmer can be set to suitable times throughout the year. 'Warm white' (more yellow/orange colour) at 2700°K will be used. LED.

The Landscape planting design proposed comprises of both native and pollinator-friendly non-native planting with the view to improve connectivity within the surrounding environments and encourage rich bio- diversity contributing to the wider population of flora and fauna within the area and in line with the All Ireland Pollinator Plan. A native screening mix is to be placed on the eastern boundary. On the western boundary a riparian mix, Bio-engineering retaining structure: Trees have been strategically placed in the car park area behind the lighting to provide additional shielding of lighting to protect the hedgerow and bat foraging areas. A green roof is to be located on the building and connectivity is maintained to adjacent hedgerows, while increased planting is places within the hedgerows (Figure 9). It should also be noted that the spring it to be maintained on site. A significant increase in pollinator friendly planting should also noted. Bat (3x 1FF Schwegler Bat Boxes) and bird boxes (15 assorted) are to be installed on site. The above measures would significantly improve the insect population on site and the potential for bat foraging and roosting.

The lighting plan has been designed to comply with bat lighting guidelines. Hedgerows are to be retained. However, foraging activity on site may be reduced in the short-medium term until the landscaping matures.

The proposed development is proximate to sensitive bat areas. No li9ghint is proposed in the main bat foraging area on the western boundary. Foraging will continue on site and may in fact improve as a result of the additional planting of pollinator friendly species. The potential for collision risk and impact on flight paths in relation to bats is considered is considered low due to the low level of bat activity on site and the buildings would be deemed to be clearly visible to bats.

Mitigation Measures

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

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

However, no bats were noted roosting on site. No trees of bat roosting potential are noted on site. The level of activity on site is low with common bat species foraging on site. As outlined significant consultation and enhancement has been incorporated into the design including the provision of a roosting resource (3 bat boxes). As a result, the following additional mitigation will be implemented:

- Pre Construction building inspection for bats
- Compliance with conditions of the bat derogation licence if required following the pre-construction inspection.
- Post Construction assessment/compliance with proposed lighting strategy.

Predicted Residual Impact of Planned Development on Bats

The present survey found no evidence of roosting bats in any onsite tree or nearby structure therefore the proposed development will not result in the loss of any bat roost as no bats are roosting onsite. The proposed development will change the local environment as existing buildings are to be demolished and vegetation removed. There would not be expected to result in a short to medium term reduction in foraging. When landscaping and in particular the trees within the landscaping proposal mature a positive effect on foraging may be seen. Based on the small number of common species found using the site, the significant design measures to retain and enhance the site for bats, the proposed development will not have any significant negative effect on local bat populations. The development may result in a positive effect on bats in the long term. All lighting is set at 2700°K in compliance with bat lighting guidelines and are low lights (4m). In the medium-long term bat foraging would be expected to continue and potentially improve on site and no significant negative effect would be foreseen. It important to note that hedgerows are to be retained and enhanced and connectivity to surrounding hedgerows will be maintained. Additional roosting opportunities and pollinator friendly mixes will be placed on site.

Figure 8. Bat foraging on site. Soprano pipistrelle (*Pipistrellus pygmaeus*) (yellow) and a Leisler's bat (*Nyctalus leisleri*)(blue).

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