Limerick City Greenway (UL to Annacotty)

Breeding Bird Survey

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Client	Limerick City & County Council
Project No.	2535
Project Title	Limerick City Greenway (UL to Annacotty)
Report Title	Breeding Bird Survey

Rev.	Status	Author	Reviewed By	Approved By	Issue Date
0	Draft for Client Review	BQ	TS	BL	23/07/2024

1 INTRODUCTION

Breeding bird surveys were conducted within the 2023 breeding bird season, in addition to the surveys that were carried out in 2021/2022, due to a change in the proposed Limerick City Greenway route. These surveys were undertaken to assess the presence, pattern of usage and current conservation status of breeding bird species found within and in the vicinity of the route **(Figure 3-1).** These surveys were also used to evaluate the importance and potential ecological significance of the study area and its environs to support breeding avifauna.

1.1 Project Description

The Limerick City Greenway (UL to Annacotty) forms part of a larger cycleway plan, the proposed Castletroy Cycle Network as outlined in the Limerick Metropolitan Cycle Network Study (LMCNS) 2025. The focus of the LMCNS is to promote cycling as a realistic choice as a mode of transport in the Limerick Metropolitan Area, making it an attractive location for cyclists of all ages and abilities by proposing the development of a consistent, clear, and continuous network of urban and suburban cycle networks throughout the area.

1.2 Aims of the Proposed Survey

- To survey the new routes added to the proposed UL Greenway and,
- To record quantitative spatial data on breeding birds within the footprint, environs and Zone of Influence of the proposed Limerick City Greenway (UL to Annacotty).

1.3 Brief Description of the Study Site

The Limerick City Greenway (UL to Annacotty) Project will form an extension to the already constructed Limerick Smarter Travel, Route 2, which involved the upgrade of an existing pathway, 1.5km in length between University of Limerick and the Guinness Bridge along the bank of the River Shannon which connects directly into the city centre.

The proposed Greenway route will continue from the existing Limerick Smarter Travel, Route 2 west of the River Groody bridge and extend along an existing section of paved and gravel pathway along the River Shannon, providing for access to and from the University of Limerick and the National Technology Park in Castletroy. The proposed Greenway will connect along University Road and McLoughlin Road via (existing Active Travel infrastructure) to Plassey Park Road through Annacotty Village and ends at Cappamore Junction as its eastern extent.

The Study Area covers approximately 5.8 km^2 in the Counties of Limerick and Clare encompassing the main UL campus, the NTP, sections of the Dublin Road (R445) and northern banks of the Lower River Shannon, including the UL campus located in Cappavilla, Co. Clare (**Figure 2.1**).

The Study Area is situated within the Lower Shannon River Catchment, with two main water bodies present including the Lower River Shannon which traverses through the centre of the Study Area and Mulkear River to the east of the Study Area. A small section of the Blackwater (Clare) river is present to the north of the Study Area near the Cappavilla UL campus (See **Figure 1.1**).

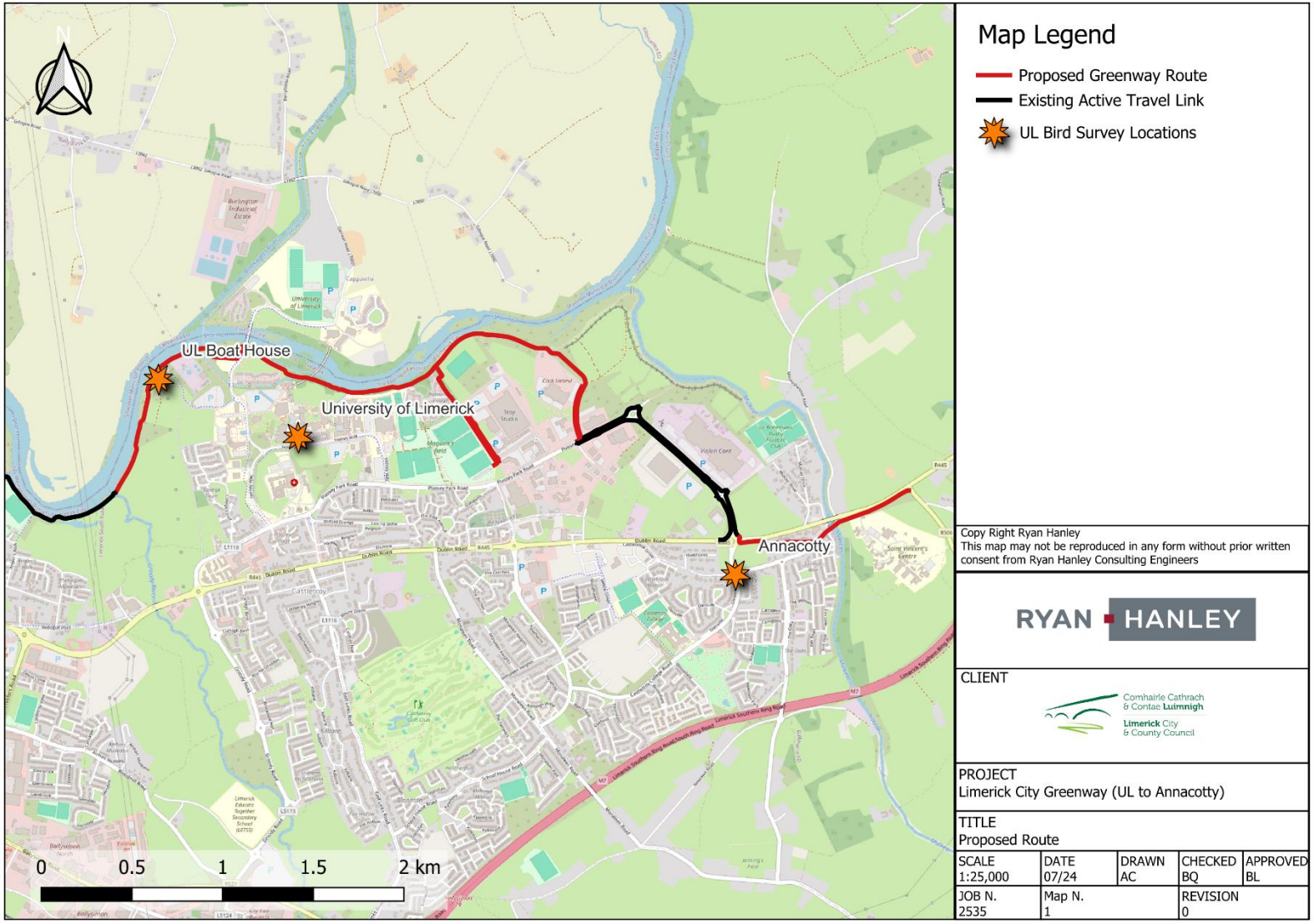

Figure 1-1: Study area and extent of the proposed greenway

2 METHODOLOGY

2.1.1 Bird Surveys

Bird Survey methodology undertaken for the Limerick City Greenway (UL to Annacotty) included four line transects. Four belted transects (T1-T4) were surveyed with all birds seen or heard recorded (Bibby *et al*. 2000) and line transect methodologies presented in BirdWatch Ireland (2012). Birds were recorded in three distance bands from the observer: <25m, 25-100m and >100m.

Five survey visits were conducted; an early breeding season survey (before May 15th) to identify and determine the occurrence abundances of resident breeding birds and a second later breeding season survey (after May 15th) to identify the occurrence and abundance of all breeding bird species including migratory breeding bird species. Surveys commenced in late 2021, missing the early breeding survey window. Therefore, it was decided to complete both early and late breeding bird surveys in 2022 to fully provide a baseline of breeding bird activity at the proposed greenway development site. Results of these surveys can be seen in the Draft UL Breeding Bird Survey Report (Delichon Ecology, 2022).

Due to a route change, two more surveys were conducted in the early and late breeding season of 2023. The first of which was completed in the early breeding season of the 3rd of May and the second was within the late breeding season of the 14th of June.

The survey area extent and the line transects are based on a representative sample of the proposed greenway footprint and surrounding environs, focusing mainly on the new route areas.

The line transect locations are presented in **Figure 3.1**. The survey locations remained the same for both field visits.

Two field walkover surveys were undertaken between May 2023 and June 2023, during suitable weather conditions (Bibby *et al*. 2000). Survey dates and survey conditions are provided in **Table 2.1** below.

Table 2-1: Breeding bird survey dates

Survey Date and Period	Survey Time (Extent)	Survey Conditions	Survey Effort
May 3rd 2023 (Eary season)	06.45 – 09.00	Cool and dry. 4 degrees Celsius. Good visibility. Cloud cover at 55%.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.
June 14th 2023 (Late season)	07.30 – 09:30	Cool and dry. 5 degrees Celsius. Good visibility. Cloud cover at 70%.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.

All bird species encountered (seen or heard) during the surveys were recorded, together with the abundance of each species. Birds flying over the site were also included as part of the observations. Casual records of birds encountered during the spot counts and field walkovers, but outside of dedicated survey period were also noted.

2.1.2 Conservation Status of Bird Species

The conservation status of bird species recorded during the transect surveys and scoping exercise was assessed with reference to the EU Birds Directive (2009/147/EC) Annex I list and Birds of Conservation Concern in Ireland (BoCCI), (Gilbert & Lewis, 2021)[1]. For the BoCCI list, Red-listed species are of high conservation concern in Ireland, Amber-listed species are considered of medium conservation concern,

[1] Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026". Irish Birds 9: 523—544

while Green-listed species are not of conservation concern in Ireland at present. Bird species listed on Annex I of the EU Birds Directive have been identified as requiring special conservation measures in relation to their habitats and have been listed due to risk of extinction; vulnerability to specific changes in their habitat and due to their relatively small population size or restricted distribution[2]. The numbers of birds along each transect was recorded and breeding evidence / behaviour of the birds identified were recorded in accordance with the breeding status codes outlined by the British Trust for Ornithology (BTO)[3]. The BTO Breeding Status Codes are presented in **Appendix A** (Delichon Ecology, 2022).

2.1.3 Zone of Influence

The current guidance on ecological assessments (CIEEM, 2017) recommends that all ecological features that occur within a Zone of Influence (ZoI) for a proposed development are investigated.

The ZoI for these breeding bird surveys are as follows:

- areas directly within the proposed greenway;
- areas adjoining and in proximity to the proposed greenway providing suitable breeding avifaunal habitat;
- areas adjoining the proposed greenway footprint subject to indirect impacts (such as disturbance impacts) from the proposed works;
- areas which will be temporarily affected during construction;
- areas where there is a risk of pollution and noise disturbance during construction and/or operation.

The ZoI is variable depending on the ecological receptors affected. Given the extent of the proposed cycleway study area (**Figure 3.1**), in this case the ZoI is the footprint of the proposed greenway and immediately adjoining and surrounding lands (Delichon Ecology, 2022).

[2] https://www.npws.ie/directive-2009147ec-conservation-wild-birds-codified-version
[3] https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence

3 RESULTS

3.1 Birds in the Existing Environment

The breeding birds recorded during the 2023 surveys were typical species found within the UL Greenway environs (**See Table 3.1 & Table 3.2**). Breeding bird abundances were moderate – high within the woodland, scrub and riverine habitats adjacent to some of the transects. These habitats are highly suitable for breeding birds, providing plenty of shelter, water and food. Instream and/or riverside breeding birds were less abundant than the woodland avifauna.

Kingfisher was not recorded within the 2023 breeding bird survey but has been recorded within the 2023/2024 Winter Bird survey (Winter Bird Survey Report, 2024) and again in June 2024 during an Invasive Alien Plant Species (IAPS) Survey. Both times the kingfisher was spotted using the Groody River, west of the UL Boat house, where the UL Greenway works are proposed to start. Suitable habitat for this species, including overhanging branches and fringing vegetation, is found within the River Shannon for this species.

All four transects were adjoined by woodland/treeline habitats which supported consistent activity and numerous territories of resident breeding passerine species including Wren, Robin, Song Thrush, Blackbird, Blue tit, Great tit, Chaffinch, Bullfinch, Goldfinch and Dunnock. These were typically associated with areas of scrub and woodland adjoining the proposed greenway footprint within Transect 1. Mute Swan, Mallard, Grey Wagtail, Greylag Geese and Cormorants were identified along the main channel of the River Shannon within Transect 1 also.

Migratory species identified within the survey area included Willow Warbler, Chiffchaff, Blackcap, Sand martin, Swallow, and House martin. These species were mostly identified during the second (late season) survey. Willow Warbler and Blackcap were associated with the scrub and wet woodland habitats within Transects 1 & 3. Sand Martin, House martin and Swallow were identified foraging over urban and peri-urban habitats within the University of Limerick campus and Annacotty urban environs.

The transects undertaken for the 2023 Breeding bird surveys focused mainly on the new route locations. They do not cover the full extent of the proposed greenway, but in conjunction with the 2022 Breeding birds survey (UL Breeding Bird Survey, 2022), most of the proposed greenway has been covered. Transects 1 – 4 range from riverine habitats, treelines, woodlands, scrub and urban habitats. A brief analysis of each transect is provided below. The findings of the breeding bird survey results are presented in full in **Table 3.1** (early season 2023) and **Table 3.2** (late season 2023) below. This includes the number of bird species identified in addition to the British Trust for Ornithology Breeding Status Codes for each breeding bird species identified (See **Appendix A**).

Line Transect 1 – This transect is located west of the UL Boat house, commencing in a south-westerly direction until the Groody River bridge (See **Figure 3-1**). The transects follows the existing tarmac pathway, which is surrounded by grassy verges, which have been dominated by IAPS, treelines, woodland and riverine habitats surrounding the River Shannon. This transect contained the most amount of bird species variety, due to the differing habitats. Within the treeline and woodland, a range of common passerine species including Wren, Robin, Song Thrush, Blackbird, Blue Tit, Great tit, Chaffinch, Blackcap and Coal Tit were recorded, all of which were exhibiting breeding activity. Mallard, Mute Swan, Greylag Goose, Grey Heron, Kingfisher (within the 2024 breeding bird season) and Grey Wagtail were all recorded within the River Shannon and its tributaries. The greenway footprint along transect 1 and its immediate environs do not provide suitable breeding habitat for these species.

Line Transect 2 – This transect is located to the east of the UL campus, traversing the Kilmurry Village accommodation and local roads adjacent to Maguires Pitches. The northern half of this transect is adjacent to a broadleaved woodland where common passerines were recorded, including Wren, Great tit, and Goldfinch. This habitat is screened off by a fence. Migratory species, including the Swallow, were recorded in the later breeding season utilising the urban nature of Kilmurry Village accommodation. The rest of the transect included treelines, amenity grassland and urban habitats where some passerines and corvid species were recorded. The treelines and woodland may provide suitable habitat for breeding passerines.

Line Transect 3 – This transect is located east of the UL campus, within woodland, McLaughlan Road and Plassey Park Road. The woodland to the south of the transect is dominated by willows and provides optimal cover for passerines and migratory warbler species, as seen in the results of the breeding bird surveys completed in 2021, 2022 and 2023. Evidence of probable or possible breeding activity by Wren, Goldfinch, Goldcrest, Song Thrush and Blackbird was identified in addition to possible or probable breeding activity by migratory species including Blackcap, Willow Warbler and Chiffchaff.

Line Transect 4 – This transect is located in the urban environments of Ashgrove and Woodstown roads, as well as the Annacotty Heron's Bridge. This habitat includes treelines, private gardens, the Mulkear River, broadleaved woodland and amenity grass land. The treeline and woodland habitats provide optimal habitat for breeding passerines, including Wren, House sparrow, corvid species, Goldcrest, Bullfinch, Chaffinch, and Robin. In the later season survey, migratory species, Sand martins were recorded flying under and around the Annacotty Heron's bridge. These species were also recorded in June 2024, during the IAPS survey.

Table 3-1: Breeding Bird Survey Results May 2023[4]

Species Name[5]	Transect 1	Transect 2	Transect 3	Transect 4
Starling (*Sturnus vulgaris*)	7 (H,S)		4 (F)	
Magpie (*Pica pica*)	1 (F)		1 (H)	
Blue Tit (*Cyanistes caeruleus*)	2 (H,S)		1 (H,S)	1 (H)
Blackbird (*Turdus merula*)	7 (H,S)	2 (H)	6 (H,S)	4 (H,S)
Great Tit (*Parus major*)	1 (F)			
Wren (*Troglodytes troglodytes*)	10 (H,S)	3 (H,S)	5 (H,S)	4 (H,S)
Blackcap (*Sylvia atricapilla*)	3 (H)		2 (H,S)	2 (H)
Willow Warbler (*Phylloscopus trochilus*)	5 (H,S)		4 (F)	5 (H,S)
Bullfinch (*Pyrrhula pyrrhula*)	1 (F)		1 (H)	
Chaffinch (*Fringilla coelebs*)	1 (H)		1 (H)	3 (H)
Jackdaw (*Corvus monedula*)	2 (F)		2 (F)	2 (H)
Robin (*Erithacus rubecula*)	7 (H,S)		2 (H,S)	3 (H,S)
Collared dove (*Streptopelia decaocto*)	1 (H)			
Woodpigeon (*Columba palumbus*)	1 (H)		2 (H)	2 (H)
Dunnock (*Prunella modularis*)	1 (H,S)			

[4] Numbers of birds identified along each transect are presented in this table. In addition, the British Trust for Ornithology Breeding Status Codes are also included for each species identified.

[5] Conservation status assigned by 'traffic light' system of colour coding, in accordance with the Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021).

Species Name[5]	Transect 1	Transect 2	Transect 3	Transect 4
Goldcrest (*Regulus regulus*)	1 (H)	1 (H)		3 (H,S)
Greylag goose (*Anser anser*)	12 (H)			
Mallard (*Anas platyrhyncos*)	4 (H)			
Mute swan (*Cygnus olor*)	1 (H)			
Hooded Crow (*Corvus corone*)		1 (H,S)		
Song thrush (*Turdus philomelos*)		2 (H,S)		
Pied wagtail (*Motacilla alba yarrellii*)		1 (H)		
Chiffchaff (*Phylloscopus collybita*)				4 (H,S)
Rook (*Corvus frugilegus*)	1 (F)			
Coal Tit (*Periparus ater*)	1 (H)			

Table 3-2: Breeding Bird Survey Results June 2023[6]

Species Name[7]	Transect 1	Transect 2	Transect 3	Transect 4
Starling (*Sturnus vulgaris*)	5 (F)		9 (F)	
Magpie (*Pica pica*)	4 (F)		2 (H)	5 (F)
Blue Tit (*Cyanistes caeruleus*)	5 (H,S)		3 (H,S)	2 (H)

[6] Numbers of birds identified along each transect are presented in this table. In addition, the British Trust for Ornithology Breeding Status Codes are also included for each species identified.
[7] Conservation status assigned by 'traffic light' system of colour coding, in accordance with the Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021).

Breeding Bird Survey 2023

Species Name[7]	Transect 1	Transect 2	Transect 3	Transect 4
Blackbird (*Turdus merula*)	2 (H,S)	1 (H)	3 (H,S)	2 (H,S)
Great Tit (*Parus major*)	5 (H,S)	1 (S)	3 (H,S)	2 (P)
Wren (*Troglodytes troglodytes*)	5 (H,S)	2 (S)	2 (H)	2 (H,S)
Blackcap (*Sylvia atricapilla*)	4 (H,S)			
Willow Warbler (*Phylloscopus trochilus*)	2 (H,S)		2 (H,S)	
Bullfinch (*Pyrrhula pyrrhula*)	2 (H,S)		2 (H,S)	
Chaffinch (*Fringilla coelebs*)	2 (H)			2 (H)
Jackdaw (*Corvus monedula*)	7 (F)		4 (F)	6 (F)
Robin (*Erithacus rubecula*)	3 (H,S)		2 (H,S)	1 (S)
Grey heron (*Ardea cinerea*)	1 (H)			
Woodpigeon (*Columba palumbus*)	4 (H)		1 (S)	2 (F)
House sparrow (*Passer domesticus*)		4 (F)	3 (H)	12 (F)
Goldcrest (*Regulus regulus*)				1 (H,S)
Greylag goose (*Anser anser*)	6 (H)			
House martin (*Delichon urbicum*)			2 (F)	
Mute swan (*Cygnus olor*)	2 (H)			
Hooded Crow (*Corvus corone*)		4 (F)		
Song thrush (*Turdus philomelos*)		1 (S)		

Breeding Bird Survey 2023

Species Name[7]	Transect 1	Transect 2	Transect 3	Transect 4
Pied wagtail (*Motacilla alba yarrellii*)		1 (F)		
Chiffchaff (*Phylloscopus collybita*)			3 (H,S)	
Rook (*Corvus frugilegus*)	5 (F)			
Cormorant (*Phalacrocorax carbo*)	3 (F,H)			
Sand martin (*Riparia riparia*)				17 (F)
Grey wagtail (*Motacilla cinerea*)	1 (H)			
Swallow (Hirundo rustica)		5 (F)	7 (F)	

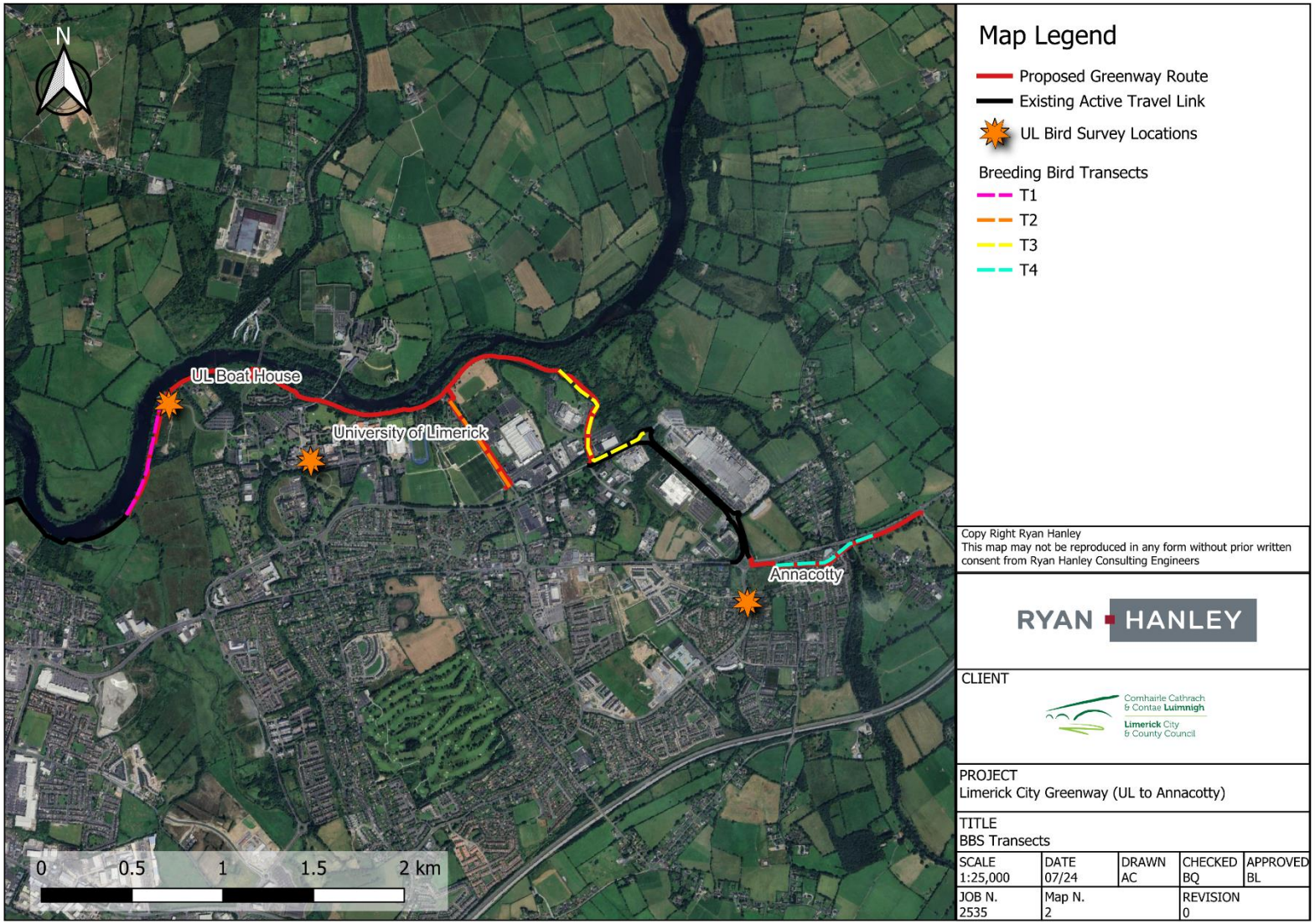

Figure 3-1: Breeding Bird Survey Line Transect Locations

3.2 Summary and Conclusions

The proposed greenway is surrounded by treelines, woodland or scrub for most of its footprint. These habits provide suitable cover and refuge to support breeding birds, particularly the passerine species.

Breeding passerine birds were commonly found throughout the four transects but were in their largest abundance and occurrence within transect 1, which had treeline, woodland and riverine habitats. The species most commonly identified birds within these areas include Wren, Robin, Song Thrush, Blackbird, Chaffinch, Blue Tit, Great Tit, Goldcrest and corvid species.

Migratory species were also recorded during the 2023 breeding bird survey, mainly during the late (second) survey. Willow warbler and blackcap were recorded within wet woodland and scrub habitat, while Swallows, House martins and Sand martins were recorded within more urban habitats.

Amber listed species identified during the 2023 breeding bird survey included the Starling, Willow warbler, Goldcrest, Greylag goose, Mallard, Mute swan, House sparrow, Cormorant, Sand martin and Swallow. The Mute swan, cormorant, mallard and greylag geese were recorded within transect 1 and were associated with the River Shannon riverine habitats. Sand martins were also associated within riverine habitat but were recorded foraging under and over the bridge in Annacotty which crossed the Mulkear River. Starlings and goldcrest were mainly recorded within treeline/woodland habitats while swallows and house sparrows were recorded in the more urban environments surrounding the proposed greenway. Willow warblers were mainly recorded within wet woodland habitats.

Kingfisher was not recorded during the 2023 breeding bird survey but had been recorded during the 2022 breeding bird survey and in the breeding season of 2024. In 2022, breeding activity was not confirmed, but it is highly likely that Kingfisher hold territory along the section of the River Shannon north of the Greenway, in addition to another potential territory along the Mulkear River (Delichon Ecology, 2022). In 2024, one Kingfisher was seen in June foraging and calling out throughout the Groody river and the River Shannon.

Grey wagtail, a Red listed species, was recorded during the 2023 breeding bird survey, within transect 1, near the UL pontoon. Grey Wagtail generally nests along streams and rivers, within the riverbank, among tree roots or within suitable bridges. Theres are some small stone bridges within the UL greenway proposed route which may be suitable for grey wagtail to nest within, therefore any works on these bridges must be completed outside of the breeding bird season. As these bridges are quite small, these birds may utilise the dense woodland and scrub covered islands within the main channel of the River Shannon instead.

The proposed greenway footprint and environs do not provide suitable habitat for ground nesting wading or wildfowl species, given the abundance of tree and scrub cover and the baseline levels of anthropogenic activity and associated baseline disturbances to ground nesting bird species (Delichon Ecology, 2022).

4 REFERENCES

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APPENDIX A – BTO Breeding Status Codes

Breeding Status Codes

Non-breeding	
F	**F**lying over
M	Species observed but suspected to be still on **M**igration
U	Species observed but suspected to be s**U**mmering non-breeder
Possible breeder	
H	Species observed in breeding season in suitable nesting **H**abitat
S	**S**inging male present (or breeding calls heard) in breeding season in suitable breeding habitat
Probable breeding	
P	**P**air observed in suitable nesting habitat in breeding season
T	Permanent **T**erritory presumed through registration of territorial behaviour (song etc) on at least two different days a week or more part at the same place or many individuals on one day
D	Courtship and **D**isplay (judged to be in or near potential breeding habitat; be cautious with wildfowl)
N	Visiting probable **N**est site
A	**A**gitated behaviour or anxiety calls from adults, suggesting probable presence of nest or young nearby
I	Brood patch on adult examined in the hand, suggesting **I**ncubation
B	Nest **B**uilding or excavating nest-hole
Confirmed breeding	
DD	**D**istraction-**D**isplay or injury feigning
UN	**U**sed **N**est or eggshells found (occupied or laid within period of survey)
FL	Recently **FL**edged young (nidicolous species) or downy young (nidifugous species). Careful consideration should be given to the likely provenance of any fledged juvenile capable of significant geographical movement. Evidence of dependency on adults (e.g. feeding) is helpful. Be cautious, even if the record comes from suitable habitat.
ON	Adults entering or leaving nest-site in circumstances indicating **O**ccupied **N**est (including high nests or nest holes, the contents of which can not be seem) or adults seen incubating
FF	Adult carrying **F**aecal sac or **F**ood for young
NE	**N**est containing **E**ggs
NY	**N**est with **Y**oung seen or heard