



GREATER DUBLIN DRAINAGE PROJECT

Appendix 6B - RBSF Terrestrial Baseline Survey Report

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Appendices

Appendix A SSRS Summary Assessment Sheets

1 INTRODUCTION

RPS was commissioned by Uisce Éireann (UÉ) to complete update ecology surveys to inform the Greater Dublin Drainage Project, specifically the Regional Biosolids Storage Facility (RBSF) of the Project (hereafter referred to as the Proposed Project) Environmental Impact Assessment Report (EIAR).

An EIAR was prepared for the Proposed Project and was submitted in the 2018 planning application. Chapter 6 of the EIAR considered terrestrial biodiversity.

As detailed in Chapter A1 (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Section 6 (Biodiversity - Terrestrial) in Volume 4 Part A of the EIAR submitted with the original 2018 planning application, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys;
- Updated development plans;
- The updated cumulative assessment;
- EPA updated guidelines; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

In updating the baseline ecology information for the Proposed Project this was completed cognisant of the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine (hereafter referred to as the CIEEM Guideline) (CIEEM 2018), with respect to the validity of baseline data.

This Appendix is a factual account of the update surveys which have been completed in 2023; documenting the methodology and findings of these surveys respectively. The update surveys completed are:

- Terrestrial Habitat Survey 2023 - updated to identify any material changes since the last survey completed in 2017;
- Invasive Alien Plant Species Survey 2023 - updated to identify any material changes since the last survey completed in 2017;
- Badger and Large Mammal Survey 2023 - updated to identify any material changes since the original surveys completed in 2017 and 2018;
- Bat Roosting and Activity Surveys 2023 - updated to identify any material changes since the original surveys completed in 2017 and with reference to updates in guidance^{2,3};
- Bird Surveys 2023 - updated to identify any material changes since the last surveys completed in 2017 & 2018; and
- Aquatic Surveys 2023 - updated to identify any material changes since the last survey completed in 2017.

In addition, the data has been compared with the relevant baseline in the 2018 EIAR to identify any material changes to the baseline conditions in the intervening period. Any identified material changes have then been used to inform an Addendum to Section 6 of the 2018 EIAR Volume 4.

² Collins, J. (ed.) (2016) Bat surveys for professional ecologists: Good practice guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

³ NPWS (2022) Bat mitigation guidelines for Ireland – V2. Irish Wildlife Manuals., No. 134. ISSN 1393-6670

2 METHODOLOGY

This section sets out the methodology of the surveys which were completed in 2023.

2.1 Terrestrial Habitats Survey

2.1.1 Terrestrial Habitats Survey

On the 18 April 2023 an experienced RPS ecologist completed a walkover survey of the whole proposed RBSF Site boundary during daylight hours. The aim of the survey was to identify any material changes to the distribution or description of the habitats within and immediately adjacent to the Proposed Project Boundary since the original survey was completed in 2017. The mapping and description of the habitats was completed with reference to Fossitt (2000)⁴; consistent with the surveys completed in August 2017. The results of the survey were digitally mapped in GIS. The weather conditions during the survey were mild (c.8-11°C) and dry with light winds.

Such surveys can be completed at any time of year, however optimally during the Spring and Summer. The completion of the update survey occurred during the Spring 2023, but additional species were recorded during the later species surveys in May and June 2023. Therefore, the survey has been undertaken at an optimum survey period and is not considered to be a limitation in assessing the value of habitats within the site.

2.1.2 Invasive Alien Plant Species Survey

An Invasive Alien Plant Species (IAPS) survey to determine the presence / likely absence of IAPS, particularly those listed on the Third Schedule of the Birds and Natural Habitats Regulations 2011 (as amended), was conducted within the Proposed Project Boundary on the 24 May 2023. The survey comprised a walkover survey undertaken by experienced RPS ecologists. Any incidental records of IAPS were recorded. The weather conditions during the survey were clear with light cloud and a temperature of 16°C

The survey was completed at an optimal time of year for detecting the presence/likely absence of such species and given the previous surveys undertaken the survey is not regarded to have limitations.

2.2 Species

2.2.1 Badger Survey

A badger survey was conducted on the 18 April 2023 within Proposed Project Boundary and, where possible/access allowed, all land within 50m of the Proposed Project Boundary. The surveys were undertaken during daylight hours commencing at approximately 09.00hrs and finishing approximately 16.30hrs. The weather conditions during the survey were clear with light cloud and a temperature of 16°C.

The surveys were conducted with reference to published guidelines⁵ and completed by experienced RPS surveyors. Broadly, the survey involved mapping and describing any actual or potential signs of activity by badger e.g. setts, footprints, hairs, latrines. No wildlife licences, issued by National Parks and Wildlife Service were required for the surveys.

2.2.2 Bat Surveys

The bat surveys consisted of bat roost surveys of the trees and buildings within the RBSF site and bat activity surveys, using both static detectors and transect surveys.

⁴ Fossitt (2000) A Guide to Habitats in Ireland. The Heritage Council. ISSN 1393-6808

⁵ NRA (2009) *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*.

2.2.2.1 Bat Roost Assessments

2.2.2.1.1 Preliminary Ground-level Roost Assessment – Trees

A preliminary ground-level roost assessment was carried out during daylight hours, using close focusing binoculars. The focus area for the preliminary bat roost assessment were the trees/hedgerows proposed for removal as part of the project. Surveys were conducted by two RPS ecologists on the 18 April 2023.

Trees within or adjoining the footprint of the Proposed Project Boundary were assessed for the presence of features with suitability for roosting bats including cavities, frost cracks, trunk and branch splits, rot holes and hollow sections of trunk and branches. Trees were also assessed for evidence of use by bats (e.g. staining and splashed, bat specimens, and droppings) in the vicinity of suitable trees/features.

The results of this assessment were used to grade trees as having Negligible, Low, Moderate, or High suitability for roosting bats with reference to the Bat Conservation Trust's (BCT) Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins 2016)⁶.

The survey was completed within an optimal season for the completion of such surveys.

2.2.2.1.2 Preliminary Ground-level Roost Assessment – Structures

An initial preliminary ground-level roost assessment was carried out during daylight hours using close focusing binoculars. The focus area for the preliminary bat roost assessment was the proposed buildings/structures for removal associated as part of the project. Surveys were conducted by two RPS ecologists on the 18 April 2023. Building/structures were identified during the tree assessment surveys.

Buildings and structures were assessed externally for features with suitability for roosting bats including rafters, stonework, chimney breasts, ridge and hip beams and other beams, mortise and tenon joints, and the junction of roof timbers. Buildings were also assessed for evidence of use by bats (e.g. staining and splashed, bat specimens, and droppings).

The results of this assessment were used to grade buildings/structures as having Negligible, Low, Moderate, or High suitability for roosting bats with reference to the BCT Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016).

The survey was completed within an optimal season for the completion of such surveys.

2.2.2.2 Bat Activity Surveys

The bat activity survey consisted of two separate but complimentary methodologies, namely walked transect surveys and fixed static detector surveys. The aims of both were to characterise the bat activity present within the Proposed Project Boundary in relation to the species and levels of activity by each species. The surveys were completed with reference to Collins (2016) and NPWS (2022)⁷. All bat detector data from the surveys was processed with Kaleidoscope software using AutoID to identify bat species.

2.2.2.2.1 Walked Transect Survey

In 2017 a single transect survey was walked on 21 September, in 2023 a single transect was undertaken on two occasions in May and June. The transect route was designed to cover the important habitats within the Proposed Project Boundary. Transects started at sunset and ended two hours after sunset with a full spectrum recording bat detector (Elekon Batlogger M2). Weather conditions for the bat activity surveys are shown in Table 2-1.

⁶ Collins, J. (ed.) (2016) Bat surveys for professional ecologists: Good practice guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

⁷ NPWS (2022) Bat mitigation guidelines for Ireland – V2. Irish Wildlife Manuals., No. 134. ISSN 1393-6670

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Table 2-1: Weather conditions during 2023 walked transect surveys

Date	Cloud cover	Precipitation	Wind (0-7)	Temperature	Description
24/5	100%	None	3-4	14°C	Mild with slight breeze
13/6	10%	None	1	18°C	Warm Night with little wind rain during the previous night.

2.2.2.2.2 Static Bat Detector Surveys

In September 2017 a single static bat detector was placed in a location within the centre of the Site for a period of 6 nights. In 2023 a single full-spectrum recording bat detector (Anabat Swift), was placed in a similar location to the 2017 survey and was left in place to record for a minimum of 5 nights through the months of April, May and June. The weather conditions during these periods was generally during periods of good weather and would not provide a limitation to the data.

2.2.2.2.3 Data Analysis

Recordings from the bat activity surveys were analysed with specialised software (Kaleidoscope Pro, Version 5.4.2) by an experienced ecologist to confirm the bat species present.

Kaleidoscope Pro software (Version 5.4.2) was used to compare the echolocation pulses to an integrated library of bat calls, and automatically identify species. Following the batch analysis of all calls, 10% of all *Pipistrellus* species (spp.) calls and noise files were manually checked. All calls of *Myotis* spp., *Nyctalus* spp. and calls with no auto-identification or with multiple bats within the same call were checked manually to confirm identification.

During manual analysis, calls were assigned to species according to their key parameters and where applicable their peak frequency, as shown in Table 2-2 (Russ, 2021).

Table 2-2: Bat Species and their Call Frequency Parameters

Species	Latin Name	Call Frequency
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	FM/qCF calls above 2 kHz
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	FM/qCF calls between 40 kHz and 48 kHz
Nathusius Pipistrelle	<i>Pipistrellus nathusii</i>	FM/qCF calls below 40 kHz
<i>Pipistrellus</i> spp.	–	FM/qCF calls between 40 and 42 kHz; and, 48 and 52 kHz
Natterer's Bat	<i>Myotis nattereri</i>	FM call with wide range between 23 and 107 kHz
Daubenton's Bat	<i>Myotis daubentonii</i>	FM call with wide range between 30 and 81 kHz
<i>Myotis</i> spp.	–	FM calls greater than 30 kHz
Brown Long-eared Bat	<i>Plecotus auritus</i>	FM calls greater than 30 kHz with two harmonics
Leisler's bat	<i>Nyctalus leisleri</i>	qCF calls between 23 and 28 kHz
<i>Nyctalus</i> spp.	–	Low (less than 30 kHz) qCF or FM calls

Not all calls could be positively assigned to a species. Call frequencies and shapes can be shared by bat species within the same genus and can change according to the habitat they are flying such as open areas with no trees or structures, moorlands, cluttered environments which contain trees, areas of scrub, or linear features such as streams and conifer plantation/woodland edge. Bats adapt their call patterns within their habitats to enable prey detection and navigation and as such, the recordings may differ in parameters. For example, a bat was classified as *Myotis* species (spp.) if differences in call shape and frequency between Daubenton's bats and Natterer's bats (most likely *Myotis* spp. bat to be found in the area) could not be discerned.

2.2.3 Breeding Bird Surveys

The survey method employed was an adapted version of the British Trust for Ornithology (BTO) Common Bird Census (CBC) methodology of Bibby et al. (2000)⁸ and Gilbert et al. (1998)⁹, which aims to capture breeding bird activity within a survey area.

Three monthly visits were made in April, May and June 2023, where the ornithologist slowly walked transects through the survey area, stopping at regular intervals to scan with binoculars and to listen for calls or song. Transects chosen ensured the observer passed within at least 25-50m of all parts of the survey area.

Survey visits were made in the early morning to coincide with the peak period of bird activity and all species seen or heard in the survey area and immediate environs were recorded, including those in flight. Visits were made during favourable weather conditions.

All species encountered during survey were mapped and coded using standard BTO species codes and if breeding activity was observed, an additional code was assigned using the BTO codes for breeding evidence which allows the species to be classified into one of four categories; non-breeding, possible breeder, probable breeder and confirmed breeding.

2.3 Freshwater Aquatic Habitat Surveys

The previous EIA provided details of the Small Stream Risk Score (SSRS) assessments of two locations at site and downstream of the proposed development site. The SSRS is a biological risk assessment system for identifying rivers that are 'at risk' of failing to achieve the 'good' water quality status objectives of the Water Framework Directive (WFD). The SSRS method is a rapid field methodology for risk assessment that is based solely on macroinvertebrate indicators of water quality and their well-understood response to pollution (Ryan et al., 2015). Sites are evaluated based on their macroinvertebrate assemblage and are assigned to one of 3 risk categories: "At risk", "Probably at risk" and "Probably not at risk".

These assessments were repeated at the same locations on 18th April 2023, in clear weather conditions during average flow conditions. There was no evidence of recent high water flow conditions.

The general physical characteristics and hydro-morphological features of the stream were recorded including substrate, flow types and aquatic vegetation. The stream was assessed in terms of:

- Stream width and depth;
- Substrate type, listing substrate fractions in order of dominance;
- Flow type, listing prevalence of flow types in the area;
- Instream vegetation;
- Dominant bankside vegetation, listing the main species overhanging the watercourse;
- Estimated cover by bankside vegetation, and estimated shading of the sampling site; and
- The degree of siltation within the stream, recorded on a scale of clean, slight, moderate, and heavy, prior to kick sampling.

A deep layer of silt was recorded at the monitoring site located at the proposed development site which prevented the surveyor from standing within the stream. As such, macroinvertebrates were collected from the riverbank by pulling a standard hand net (250mm width, mesh size 1mm) upstream along the riverbed to cover as much surface area as possible, whilst simultaneously agitating the stream bed. The margins of the stream bank were also swept as part of this assessment. Due to dense vegetation growth on the stream banks, only a small area (c. 10m) of the stream was accessible.

⁸ Bibby, C.J., Burgess, N.D., Hillis, D.M., Hill, D.A. and Mustoe, S. (2000) Bird census techniques. Elsevier.

⁹ Gilbert, G., Gibbons, D.W. and Evans, J. (1998) Bird Monitoring Methods: A Manual of Techniques for UK Key Species. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.

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At the downstream sampling site, macroinvertebrates were collected using the standard 2-minute 'kick' sampling method. Stonewashing was undertaken to ensure that species that cling to stone surfaces – e.g., leeches and gastropods, were adequately collected.

Macroinvertebrates were identified at the stream bank and returned to the stream on completion of analysis.

3 RESULTS

3.1 Habitats

Habitats detailed during the field study within the Proposed Project Boundary are illustrated in Figure 3-1. This includes the relevant habitat codes from Fossitt (2000). The habitats that were recorded across the Site reflect the brownfield nature of the Proposed Scheme. A description of the principal habitats that would be potentially impacted by the Proposed Scheme is set out below.



Figure 3-1: Habitats Within the Proposed RBSF Site

3.1.1 Terrestrial Habitats

GS2 Dry meadows and grassy verges

The vast majority of the site consisted of dry meadows and grassy verges. The grassland had areas of scattered scrub and occasionally there were small areas of wetter grassland with rushes (See Figure 3-2). The area has been disturbed in the past, typical of such brownfield sites, and there were areas that had short swards over poor soils and others with thick tall swards over deeper soils. This habitat was occasionally grazed by horses and rabbits had maintained short swards in other locations. The vegetation was relatively species rich especially in the shorter sward areas. The sward mainly consisted of false oatgrass (*Arrhenatherum elatius*), Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*), crested dog's tail (*Cynosurus cristatus*), creeping bent (*Agrostis stolonifera*), meadow grasses (*Poa sp.*), glaucous sedge (*Carex flacca*) and hairy sedge (*Carex hirta*). Herb species present include birdsfoot trefoil (*Lotus corniculatus*), cowslip (*Primula veris*), common vetch (*Vicia sativa*), selfheal (*Prunella vulgaris*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), meadow buttercup (*Ranunculus acris*), Goat's-beard (*Tragopogon pratensis*), meadow vetchling (*Lathyrus pratensis*), common mouse-ear (*Cerastium fontanum*), meadowsweet (*Filipendula ulmaria*), silverweed (*Potentilla anserina*), yellow wort (*Blackstonia perfoliate*),

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common century (*Centaureum erythraea*), ragwort (*Senecio jacobaea*), dandelion (*Taraxacum* agg.) and creeping buttercup (*Ranunculus repens*).



Figure 3-2: View of Scattered Scrub within grassland habitat

Later in the season during following species surveys orchid species were recorded within the sward (see Figure 3-3) and include pyramidal orchid (*Anacamptis pyramidalis*), common spotted orchid (*Dactylorhiza fuchsii*) and bee orchid (*Ophrys apifera*).

Areas of scattered scrub were present and colonising the dry grassland and consisted of hawthorn (*Crataegus monogyna*), dogrose (*Rosa canina*), butterfly bush (*Buddleia davidii*), and young willow (*Salix* sp.) and birch (*Betula* sp.) saplings.

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Figure 3-3: Area of pyramidal orchid recorded in June 2023 within grassland habitat

WS1 Scrub

In certain areas and especially around the boundaries of the site dense scrub habitat had formed. These were typically characterised by low botanical diversity and the presence or dominance of a single species and occasionally non-native or garden escapees. The areas of scrub were usually dominated by bramble (*Rubus fruticosus* agg.) or gorse (*Ulex europaeus*) but contained many of those species listed as colonising the dry grassland.

BL3 Buildings and artificial surfaces

This anthropogenic habitat represents all hard, made surfaces and buildings within the Site. These consisted of the 4 administrative building within the site and the asphalt roadways that are present. Flora is rarely a feature of well-maintained hard surfaces, although small pioneer herbs and /or bryophytes/lichens can become established on suitable situations or where patches of soil accumulate in sheltered crevices, as is the case here, but holds no significant ecological value.

ED2 Spoil and bare ground

There are a couple of locations where areas of ground had very limited ground cover. These include an area of disturbed ground to the east of the Site and an area that was formally part of an attenuation pond, but the lining was damaged and had drained to leave bare earth and gravels. The area of disturbed ground was

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colonising with pineapple weed (*Matricaria discoidea*), broadleaf plantain (*Plantago major*), coltsfoot (*Tussilago farfara*) and black medic (*Medicago lupulina*).

FL8 Other Artificial lakes and ponds

A former attenuation pond that has mainly dried out holds a small amount of shallow water, but this is very shallow and has little aquatic vegetation within it. The depth was a maximum of 15cm during the period that surveys were undertaken within the Site and the base of the area of water was mainly silt with some gravel.

FW4 Drainage Ditches

There is a drainage ditch that borders the western boundary of the Site. The stream corridor is approximately 2m wide and has a very slow flow with water depths of approximately 0.3m, but a significant silt layer below that. The ditch was canalised with steep banks and significantly overgrown causing shading in most places. The banks comprised dense bramble, meadowsweet and rose. In an area where a more open canopy was present *Sparganium* sp. and water mint (*Mentha aquatica*) were noted.

WL2 Treelines

Surrounding the boundaries to the south and to the west of the drainage ditch are treelines. These were potentially hedgerows that are now out grown and have developed into areas of scrub encroaching the Site. The treelines comprised sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*) and hawthorn. Understorey vegetation comprised ivy (*Hedera helix*), hart's tongue fern (*Asplenium scolopendrium*), nettle (*Urtica dioica*) and elder (*Sambucus nigra*).

3.1.1.1 Summary of Habitats

The habitats recorded during the 2023 survey are similar to those recorded during the 2017 baseline surveys. The grassland appears to be more species diverse than reported in the previous EIAR but would still be regarded as no more than of local importance (Higher Value). The other habitats would be regarded as having no more than local importance (Lower Value) and would not be regarded as an Important Ecological Feature (IEF)

3.1.2 Invasive Alien Plant Species

The 2018 EIAR reported that no invasive species were present on Site. The 2023 survey identified a number of IAPS within the Site, but confirmed that there were no Third Schedule Invasive Alien Plant Species. The identified IAPS in 2023 comprised medium impact species such as Sycamore (*Acer pseudoplatanus*) and Butterfly bush (*Buddleia davidii*), which were recorded as present within the 2018 habitat descriptions, but not classified as invasive. As these species are not included on the third schedule they are not discussed further.

3.2 Species

3.2.1 Badgers

During the 2017 survey, no badger setts or latrines were identified within the Site, but evidence of badger foraging activity was recorded. During the 2023 badger surveys no evidence of badger activity was identified within the Site.

A number of Mammal trails were recorded within the Site during the survey which could be utilised by badgers, but evidence of both fox (*Vulpes vulpes*) (sightings and scat) and rabbit (*Oryctolagus cuniculus*) (sightings, burrows and droppings) are also present within the Site and could have created the trails.

The habitats on site are suitable for the use of badgers in terms of sett building, foraging and commuting. The 2023 surveys have found no evidence that badgers are currently utilising the Site.

3.2.2 Bats

3.2.2.1 Preliminary Bat Roost Assessments – Trees and Structure

The preliminary roost assessment of trees and structures within the Proposed Site Boundary recorded no trees that had potential to support roosting bats. The four structures within the site were of modern construction with single storey concrete rendered walls and a pitched tiled roof; but were all in good condition with no lifted tiles or gaps that would allow access for bat roosting. No roost confirmation surveys were required given that no roosting potential was identified during the preliminary assessments.

3.2.2.2 Bat Activity Surveys

3.2.2.2.1 Walked Transect Survey

The walked transects in May and June 2023 recorded a relatively low level of bat activity.

The survey on the 24 May 2023 commenced at sunset at 21:32hrs. The first registration was for a Leisler's bat at 22:08, 36 minutes after sunset. A total of 6 passes by Leisler's bat was recorded through the survey with single passes of common pipistrelle and soprano pipistrelle also recorded. The majority of activity was recorded within the southern part of the site and along the western boundary of the site.

The survey on the 13 June 2023 commenced at sunset at 21:54. The first registration was of Leisler's bat at 22:26, 32 minutes after sunset. A total of 8 passes by Leisler's bat were recorded during the transect and 5 passes by common pipistrelle and a single pass by soprano pipistrelle. Again, the majority of the activity was concentrated within the southern portion of the Site.

Given that Leisler's bats are early roosts emergers, and typically emerge at sunset, the timing of the first registrations suggests that a roost is not situated in close proximity to the Site. The majority of the activity is concentrated to the south of the Site and outside of the proposed development footprint.

3.2.2.2.2 Static Bat Detector Surveys

Data was collected from a single location across three months from April 2023 to June 2023 with 5 nights of data collected each month. The results tables are provided in Table 3-1 to Table 3-3 below. A total of three species of bat were recorded during the surveys with Leisler's bat, common pipistrelle and soprano pipistrelle all recorded as present.

In the month of April only a total of 24 bat passes over the five nights were recorded, with soprano pipistrelle being the most numerous with 11 passes over the 5 nights.

In the month of May a total of 525 bat passes were recorded over the five nights, with Leisler's bat being the most numerous, with 334 bat passes recorded over the five nights.

In the month of June a total of 876 bat passes were recorded over the five nights, with Leisler's bat being the most numerous, with 686 bat passes recorded over the five nights.

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The results are similar to the previous survey results. The same species have been recorded with only the absence of a Myotis species of bat during the 2023 surveys, which was only recorded a single time previously.

Although the number of bat passes recorded exceeds those recorded during the previous surveys it should be noted that as the previous survey was undertaken in September, at the end of the active seasons and therefore activity would be lower and that the detectors used for the 2023 surveys are more sensitive and may record higher numbers now.

Table 3-1: Static bat detector results April

Species	18/04/2023	19/04/2023	20/04/2023	21/04/2023	22/04/2023	Total
Leisler's Bat	2	0	2	3	0	7
Common Pipistrelle	1	0	1	4	0	6
Soprano Pipistrelle	0	1	1	6	3	11
Total	3	1	4	13	3	24

Table 3-2: Static bat detector results May

Species	24/05/2023	25/05/2023	26/05/2023	27/05/2023	28/05/2023	Total
Leisler's Bat	101	72	56	70	35	334
Common Pipistrelle	28	7	26	71	50	182
Soprano Pipistrelle	3	2	1	1	2	9
Total	132	81	83	142	87	525

Table 3-3: Static bat detector results June

Species	13/06/2023	14/06/2023	15/06/2023	16/06/2023	17/06/2023	Total
Leisler's Bat	125	150	184	0	227	686
Common Pipistrelle	35	10	64	0	58	167
Soprano Pipistrelle	5	1	14	0	3	23
Total	165	161	262	0	288	876

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3.2.3 Breeding bird surveys

The results of the bird survey are shown in Table 3-. All survey visits were undertaken in suitable conditions, with no visits made during inclement weather that would limit the activity of birds during the surveys.

Table 3-4: Bird species recorded during the three breeding bird surveys and their status within the site

Species	April 2023	May 2023	June 2023	Status within Site	Birds of Conservation Concern ¹⁰
Blackbird	Singing	Carrying food	Singing	Breeding	Not listed
Blackcap	Singing	Singing	Singing	Breeding	Not listed
Blue tit	Present	Singing	Singing	Breeding	Not listed
Chaffinch	Singing	Singing	Present	Breeding	Not listed
Chiffchaff	Singing	Singing	Singing	Breeding	Not listed
Duncock	Singing	Singing	Singing	Breeding	Not listed
Goldfinch	Present	Singing	Present	Breeding	Not listed
Great tit	Present		Singing	Probably Breeding	Not listed
Herring gull	Flyover	Present	Flyover	Non-breeding	Amber listed
Hooded crow	Present	Present		Non-breeding	Not listed
Jackdaw		Present	Present	Non-breeding	Not listed
Linnet	Singing	Singing	Present	Breeding	Amber listed
Magpie	Present	With young	Present	Probably Breeding	Not listed
Meadow pipit	Singing	Singing		Probably Breeding	Red list
Reed bunting	Singing	Singing	Present	Probably Breeding	Not listed
Robin	Singing	Singing	Singing	Breeding	Not listed
Song thrush	Singing	Singing		Probably Breeding	Not listed
Starling	Nesting	Nesting	Nesting	Breeding	Amber listed
Whitethroat		Singing	Singing	Probably Breeding	Not listed
Willow warbler	Singing	Singing	Singing	Breeding	Amber listed
Woodpigeon	Present	Singing	Present	Probably Breeding	Not listed
Wren	Singing	Singing	Singing	Breeding	Not listed

Of the 22 species recorded during the surveys 19 were regarded as confirmed breeding or probably breeding within the site. Of those 19 species one is red listed (high conservation concern) and three are amber listed (medium conservation concern) within Bird of Conservation Concern in Ireland Gilbert et al (2021).

The species and numbers recorded within the proposed Site are typical of habitats found within urban edge/agricultural land. Although, the red listed meadow pipit and amber listed linnet, starling and willow warbler were recorded as probably or confirmed breeders within the site these species although have suffered population declines (hence their inclusion as birds of conservation concern) are still relatively common bird species within Ireland.

¹⁰ Gilbert, G., Stanbury, A. and Lewis, L. (2021) Birds of conservation concern in Ireland 4: 2020–2026. Irish Birds, 43, pp.1-22.

3.3 Aquatic Habitats

The stream was very slow flowing at both sites with a heavy deposit of a fine silt. Both streams were canalised with steep banks. A hydrocarbon sheen was noted at Site 2. Bankside vegetation at Site 1 (at the proposed site) comprised dense bramble (*Rubus fruticosus*), meadowsweet (*Filipendula ulmaria*) and rose (*Rosa* sp.). Bankside vegetation at Site 2 (downstream) comprised treelines with sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*) and hawthorn (*Crataegus monogyna*). Understorey vegetation comprised ivy (*Hedera helix*), hart's tongue fern (*Asplenium scolopendrium*), nettle (*Urtica dioica*) and elder (*Sambucus nigra*). *Sparganium* sp. and water mint (*Mentha aquatica*) were noted within the stream at Site 1 (at the proposed development site), whereas no in-stream macrophytes were noted at Site 2 (see Figure 3-4).

The number of different macroinvertebrate types observed was low compared to an unimpacted stream. SSRS values of 0.8 (see Table 3-55) were recorded at both sites. These low SSRS values at both sites put the stream 'at risk' of not meeting 'good' status under the WFD.

These results are consistent with the EPA risk classification of the Ward_ 030 stream, which is classified as "at risk".

Table 3-5: Summary of SSRS results and macroinvertebrate species observed

Site	SSRS Score	Macroinvertebrates Observed
Site 1 (at the proposed development site)	0.8	Dytiscidae, Hirudinea, <i>Asellus aquaticus</i> , <i>Chironomus</i> , Chironomidae, <i>Potamopygus antipodorum</i> , <i>Planorbis</i> , Tubificidae, Sphaeriidae, Limnephilidae (2 species).
Site 2 (downstream of the proposed development site)	0.8	Dytiscidae, Hirudinea, <i>Asellus aquaticus</i> , <i>Chironomus</i> , Chironomidae, <i>Gammarus</i> sp.

Note that not all macroinvertebrates observed were used in the SSRS calculation (e.g., *Gammarus* and coleoptera species).

A full record of the Small Stream Risk Score (SSRS) assessment sheets for both sites are provided at Appendix A.

RBSF Site Terrestrial Baseline Survey Report

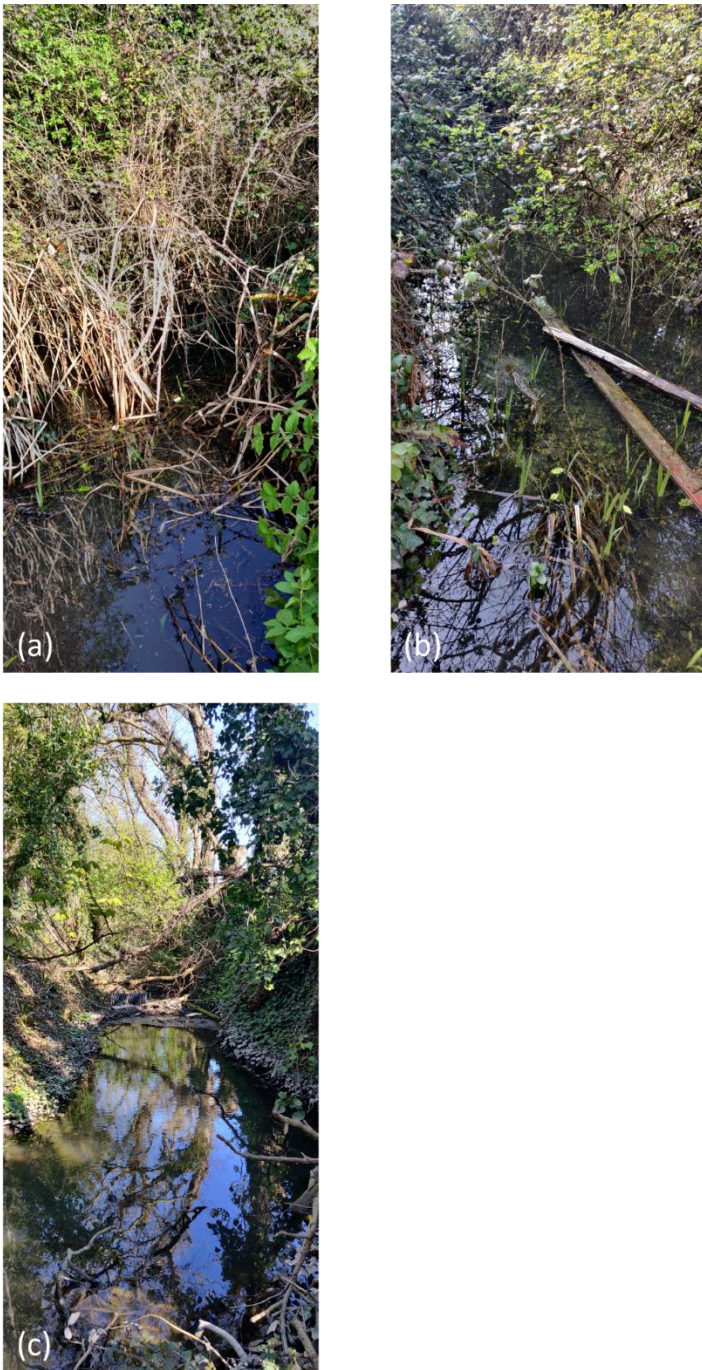


Figure 3-4: Photographs of site 1 (a and b) and site 2 (c)

4 KEY MATERIAL CHANGES IN BASELINE

4.1 Terrestrial Habitats

The key material changes within the RBSF Site are:

- Floristic diversity of the grassland habitats greater than stated previously;
- Areas of scrub have developed further to provide large areas of dense scrub; and
- Habitats have been mapped more accurately to reflect the different habitats within the Site.

4.2 Invasive Alien Plant Species

The presence of both Sycamore and Butterfly bush are present within the Site. However, these are not a Third Schedule invasive species and therefore has little material consideration.

4.3 Badger Survey

No material change with respect to the use of the site by Badgers.

4.4 Bat Surveys

No potential bat roosting features present within the site in either trees or structures.

The walked transect surveys found no material difference in the diversity or numbers of foraging bats within the Site. However, most of the activity recorded was to the south of the site and along the western boundary.

Although the number of bat passes, recorded during the static detectors, exceeds those recorded during the previous surveys it should be noted that as the previous survey was undertaken in September, at the end of the active season and therefore activity would be lower and that the detectors used for the 2023 surveys are more sensitive and may record higher numbers now. Therefore, it is concluded that there is no material change from the original baseline.

4.5 Breeding Bird Survey

The breeding bird survey recorded slightly higher numbers of probable and confirmed breeders. Of these there is one red listed species (meadow pipit) and three amber listed species (linnet, starling and willow warbler) of conservation concern. This is a material change from the original baseline.

4.6 Freshwater Aquatic Surveys

No material changes in freshwater aquatic habitats between 2017 and 2023.

Appendix A

SSRS Summary Assessment Sheets

Appendix 1: SSRS Summary Assessment Sheets

SSRS SUMMARY ASSESSMENT SHEET					
River	Tributary of Huntstown Stream	Date	18/04/2023	Time	10:00
Site Number	1	Location	At proposed development site	Grid Reference	53.418250, -6.326222
SSRS SCORE	0.8	STREAM ASSESSMENT	At Risk		
Habitat and Water Chemistry					
DO %	61.8%	Modifications	Canalised	Stream Flow	Slow flow/pool
DO mg/l	6.79	Substrate		Shading	Moderate
Temp °C	11.7	Bedrock		Cattle Access	None
Conductivity (µS/cm)	948	Boulder (>128mm)		Filamentous Algae	None
pH	7.81	Cobble (32-128mm)		Sewage Fungus	None
Bank width (m)	2	Gravel (8-32mm)		Main Landuse u/s	Pasture & Urban
Wetted width (m)	2	Fine Gravel (2-8mm)		Substratum Conditions	Loose
Av. Depth (m)	0.1-0.2	Sand (0.25-2mm)		Substratum	Muddy bottom
Velocity	Very Slow	Silt (<0.25mm)	100%	Degree of Siltation	Heavy
Colour	None	Discharge	Low	Depth of mud	>10cm
Clarity	Clear	Slope:	Low	Litter	Present
Geology	Calcareous				
Macroinvertebrate Composition (relative abundance)					
Invertebrate Groups			Number of Specimens	Relative Abundance (Ab)	
Group 1: Ephemeroptera			1-5	1	
Group 2: Plecoptera			5-20	2	
Group 3: Trichoptera			21-50	3	
Group 4: G.O.L.D (Gastropoda, oligocheata & Diptera)			51-100	4	
Group 5: Asellus			101+	5	
Ephemeroptera	Ab	Plecoptera	Ab	Trichoptera	Ab
<i>Ecdyonurus</i>		<i>Leuctra</i>		Hydropsychidae	
<i>Rhithrogena</i>		<i>Isoperla</i>		Polycentropodidae	
<i>Heptagenia</i>		<i>Protonemura</i>		<i>Rhyacophila</i>	
<i>Ephemerella</i>		<i>Amphinemura</i>		Philopotamidae	
<i>Caenis</i>		<i>Perla</i>		Limnephilidae	2
<i>Paraleptophlebia</i>		<i>Dinocras</i>		Sericostomatidae	
<i>Ephemeria danica</i>		Other		Glossosomatidae	
Other				Lepidostomatidae	
				Other	
Total no. taxa	0	Total no. taxa	0	Total no. taxa	1
Total relative abundance	0	Total relative abundance	0	Total relative abundance	2
G.O.L.D	Ab	G.O.L.D.	Ab	Asellus	
<i>Lymnaea</i> (G)		Chironomidae (D)	3	Absent	
<i>Potamopygrus</i> (G)	2	<i>Chironomus</i> (D)	3	Few (1-20)	
<i>Planorbis</i> (G)	1	Simuliidae (D)		Common (>20)	
<i>Ancylus</i> (G)		<i>Dicranota</i> (D)			
<i>Physa</i> (G)		Tipulidae (D)			
<i>Lumbriculus</i> (O)		Ceratopogonidae (D)			
<i>Eiseniella</i> (O)		Other GOLD			
Tubificidae (O)	1				
Total no. taxa	4				
Total rel. abundance	10				
SSRS Calculation					
Group	Score		Total Index Score		
Group 1: Ephemeroptera	0		2		
Group 2: Plecoptera	0		Average Index Score		
Group 3: Trichoptera	2		0.4		
Group 4: G.O.L.D (Gastropoda, oligocheata & Diptera)	0		SSRS Score		
Group 5: Asellus	0		0.8		
			At Risk		

SSRS SUMMARY ASSESSMENT SHEET					
River	Huntstown Stream	Date	18/04/2023	Time	11:15
Site Number	2	Location	Downstream of proposed development site	Grid Reference	53.423789, -6.324410
SSRS SCORE	0.8	STREAM ASSESSMENT	At Risk		
Habitat and Water Chemistry					
DO %	73.3%	Modifications	Canalised, over deep	Stream Flow	Slow flow/pool
DO mg/l	8.06	Substrate		Shading	High
Temp °C	11	Bedrock		Cattle Access	None
Conductivity (µS/cm)	875	Boulder (>128mm)		Filamentous Algae	Moderate
pH	7.63	Cobble (32-128mm)		Sewage Fungus	None
Bank width (m)	2.5	Gravel (8-32mm)		Main Landuse u/s	Pasture, Urban
Wetted width (m)	2.5	Fine Gravel (2-8mm)		Substratum Conditions	Normal
Av. Depth (m)	0.3	Sand (0.25-2mm)		Substratum	Muddy bottom
Velocity	Very Slow	Silt (<0.25mm)	100%	Degree of Siltation	Heavy
Colour	None	Discharge	Low	Depth of mud	>10cm
Clarity	Slightly turbid	Slope:	Low	Litter	Present
Geology	Calcareous				
Macroinvertebrate Composition (relative abundance)					
Invertebrate Groups		Number of Specimens		Relative Abundance (Ab)	
Group 1: Ephemeroptera		1-5		1	
Group 2: Plecoptera		5-20		2	
Group 3: Trichoptera		21-50		3	
Group 4: G.O.L.D (Gastropoda, oligocheata & Diptera)		51-100		4	
Group 5: Asellus		101+		5	
Ephemeroptera	Ab	Plecoptera	Ab	Trichoptera	Ab
<i>Ecdyonurus</i>		<i>Leuctra</i>		Hydropsychidae	
<i>Rhithrogena</i>		<i>Isoperla</i>		Polycentropodidae	
<i>Heptagenia</i>		<i>Protonemura</i>		<i>Rhyacophila</i>	
<i>Ephemerella</i>		<i>Amphinemura</i>		Philopotamidae	
<i>Caenis</i>		<i>Perla</i>		Limnephilidae	
<i>Paraleptophlebia</i>		<i>Dinocras</i>		Sericostomatidae	
<i>Ephemeria danica</i>		Other		Glossosomatidae	
Other				Lepidostomatidae	
				Other	
Total no. taxa	0	Total no. taxa	0	Total no. taxa	0
Total relative abundance	0	Total relative abundance	0	Total relative abundance	0
G.O.L.D	Ab	G.O.L.D.	Ab	Asellus	
<i>Lymnaea</i> (G)		Chironomidae (D)	2	Absent	
<i>Potamopygrus</i> (G)	2	<i>Chironomus</i> (D)	1	Few (1-20)	
<i>Planorbis</i> (G)	1	Simuliidae (D)		Common (>20)	X
<i>Ancylus</i> (G)		<i>Dicranota</i> (D)			
<i>Physa</i> (G)		Tipulidae (D)			
<i>Lumbriculus</i> (O)		Ceratopogonidae (D)			
<i>Eiseniella</i> (O)		Other GOLD			
Tubificidae (O)	1				
Total no. taxa	2				
Total rel. abundance	3				
SSRS Calculation					
Group	Score			Total Index Score	2
Group 1: Ephemeroptera	0			Average Index Score	0.4
Group 2: Plecoptera	0			SSRS Score	0.8
Group 3: Trichoptera	0				
Group 4: G.O.L.D (Gastropoda, oligocheata & Diptera)	2				
Group 5: Asellus	0				At Risk