

ECOLOGICAL IMPACT ASSESSMENT

Machaire BESS

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Machaire BESS
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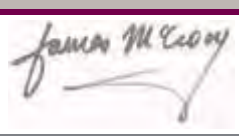
REPORT

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SUMMARY

RPS was commissioned by RES to produce an Ecological Impact Assessment (EclA) to support a planning application for a proposed Battery Energy Storage System (BESS) on land adjacent to the south and east of 6 Magheraboy Road, Ballymena.

The proposed project involves the creation of a BESS unit including a substation compound and an allowance for an attenuation basin.

The EclA includes the results of consultation, a desk study and an Extended Phase 1 Habitat Survey in order to identify potential impacts associated with the proposed project; to evaluate the likely significance of effects; to implement the mitigation hierarchy; and to highlight potential opportunities for ecological enhancement.

The site of the proposed project is approximately 6.06 ha in size and consists of improved grassland, scrub, hardstanding / bare ground, amenity grassland, hedgerows / treelines and bordering watercourses.

The site of the proposed project is not located within the boundary of any statutory or non-statutory designated sites of international, national or local nature conservation importance. The site is hydrologically linked via the tributary of the River Bann to Tully Hill ASSI, Agivey Bridge SLNCI, Colebreene Wood SLNCI, Knockantern SLNCI, Sandelford Bridge SLNCI, Bann Estuary SAC and ASSI, Magilligan SAC, ASSI and NR, and Ballymaclary NR, Skerries and Causeway SAC, Portrush West Strand ASSI, Ramore Head and the Skerries ASSI and Portrush NNR, White Rocks ASSI, Runkerry ASSI, Portballintrae ASSI, Giant's Causeway and Dunseverick ASSI and Giant's Causeway NNR.

The following mitigation measures will be implemented in order to avoid and / or reduce the negative effects on the ecological environment including: DAERA Standing Advice for Pollution Prevention Guidance (DAERA 2023) to protect watercourses from potential adverse effects; Mitigation measures to protect watercourses from adverse effects associated with the proposed project are to be detailed in an accompanying CEMP and Construction Method Statement (CMS) for the proposed new access crossing point; All trees that are to be retained on site will be protected in accordance with BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations (BSI 2012) prior to pre-construction site preparation and construction works; Compensation for any significant loss of hedgerows / treelines; The Lighting Strategy for the proposed project will be designed in accordance with the Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (ILP 2021) and Bats and Artificial Lighting in the UK (ILP 2023); and timing of works will ensure that the removal or management of vegetation including hedgerows / treelines and scrub will take place outside the bird breeding season, which extends between 1st March and 31st August inclusive, to ensure breeding birds are protected from harm.

The proposed project will have **No Significant Effect** on the ecological features identified within the site due to the design of the proposed project and the implementation of mitigation, compensation and enhancement measures.

1 INTRODUCTION

RPS was commissioned by RES to produce an Ecological Impact Assessment (EcIA) to support a planning application for a proposed Battery Energy Storage System (BESS) on land adjacent to the south and east of 6 Magheraboy Road, Ballymena.

1.1 Ecological Impact Assessment

EcIA is the process of identifying, quantifying and evaluating the potential effects of a proposed project on ecological features based on objective assessment of the best information available (CIEEM, 2024). An ecological feature is defined as a species, habitat or ecosystem that has the potential to be affected by a proposed project.

The aim of the EcIA is therefore to describe the existing ecological environment within and surrounding the proposed project; to identify important ecological features; to identify the potential impacts associated with the proposed project; to evaluate the likely significance of effects on the important ecological features; to apply the mitigation hierarchy to avoid, mitigate and compensate for significant ecological effects; to highlight potential opportunities for ecological enhancement; and to set out requirements for post-construction monitoring (CIEEM, 2024).

The EcIA has been written in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2024).

1.2 Proposed Project

The proposed project involves the creation of a BESS unit including a substation compound and an allowance for an attenuation basin. The location of the site and the red line boundary are illustrated in **Figure 1.0 Site Location**.

2 LEGISLATION & PLANNING POLICY

2.1 International Directives

Ramsar Convention on Wetlands of International Importance (1971)

The principal aims of the Convention are to halt the worldwide loss of wetlands and to provide a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The provisions of the Convention underlie the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 (as amended).

Bern Convention on Conservation of European Wildlife and Natural Habitats (1979)

The principal aims of the Convention are to ensure the conservation and protection of wild plants and animal species, with particular emphasis on endangered and vulnerable species and their natural habitats. The provisions of the Convention underlie the Wildlife (Northern Ireland) Order 1985, the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended).

Bonn Convention on Conservation of Migratory Species of Wild Animals (1979)

The principal aims of the Convention are to conserve migratory species and their habitats by providing strict protection for endangered migratory species. The provisions of the Convention underlie the Wildlife (Northern Ireland) Order 1985 and the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended).

Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (The Habitats Directive)

The main aim of the Directive is to promote the maintenance of biodiversity through the conservation of natural habitats and wild species listed on the Annexes of the Directive. The provisions of the Directive underlie the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended).

Convention on Biological Diversity (1993)

The principal aims of the Convention are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising from the use of genetic resources. The provisions of the Convention underlie the Wildlife and Natural Environment Act (Northern Ireland) 2011 which introduced new provisions and amendments to the Wildlife (Northern Ireland) Order 1985 (as amended).

Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive)

The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It makes provisions for the maintenance of the wild bird populations across their natural range; conserves the habitats for rare or vulnerable species listed in Annex I and of migratory species through the classification of SPAs and provides protection for all wild birds. The provisions of the Directive underlie the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended).

2.2 Northern Ireland Legislation

The Wildlife (Northern Ireland) Order 1985 (as amended)

The Order prohibits the intentional killing, taking or injuring of certain wild birds or wild animals; or the intentional destruction, uprooting or picking of certain wild plants. It also allows for the establishment of Wildlife Refuges (akin to Nature Reserves) for the special protection of certain species of rare plants or animals.

Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 (as amended)

The Order provides for the establishment of National Nature Reserves (NNRs), Nature Reserves (NRs) and Marine Nature Reserves (MNRs). It also provides for the designation and formulation of proposals for National Parks and Areas of Outstanding Natural Beauty (AONBs).

Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)

The Regulations promote the maintenance of biodiversity through the conservation of natural habitats and wild species listed in the Annexes of the Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (The Habitats Directive) and the Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive). The Regulations require measures to maintain or restore, at favourable conservation status, biodiversity whilst taking account of economic, social, cultural requirements and regional and local characteristics. They give effect to site and species protection measures through establishment of the UK national site network and designation of European Sites including Special Areas of Conservation (SAC) and Special Protection Areas (SPA). They also establish a list of species (other than birds) whose habitats must be protected to secure their survival. These priority species and habitats are subject to a higher level of protection. The Regulations also requires appropriate assessment of any plan or project not directly connected with or necessary to the management of a European site, but likely to have significant effects upon a European site, either individually or in combination with other plans or projects.

Environment (Northern Ireland) Order 2002

The Order provides for the designation, management and protection of Areas of Special Scientific Interest (ASSIs). ASSIs may be designated for important geology and land forms as well as for wildlife and habitats. The legislation repeals Part VI of the Nature Conservation and Amenity (Northern Ireland) Order 1985.

Wildlife and Natural Environment Act (Northern Ireland) 2011

The Act makes provision about biodiversity; amends the Wildlife (Northern Ireland) Order 1985 and Part 4 of the Environment (Northern Ireland) Order 2002; abolishes game licences and game dealers' licences; prohibits hare coursing events and amends the Game Preservation Act (Northern Ireland) 1928.

Marine Act (Northern Ireland) 2013 (The Marine Act)

The Marine Act establishes a network of Marine Protected Areas (MPA) in the inshore region of Northern Ireland, which comprises of the territorial sea out to twelve nautical miles, including all tidal rivers and sea loughs (including Lough Foyle and Carlingford Lough, that contributes to the conservation and improvement of the marine environment in the UK marine area.

Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019 (as amended)

The Order imposes strict restrictions on a list of species known as 'species of special concern'. Species whose potential adverse impacts are such that concerted action is required. Restrictions mean that (subject to certain defences or exemptions) species of special concern cannot be imported into the United Kingdom, kept, bred, transported, placed on the market, used or exchanged, allowed to reproduce, grown or cultivated, or released into the environment.

2.3 Northern Ireland Planning Policy

Strategic Planning Policy Statement for Northern Ireland (SPPS) 2015

The SPPS consolidates all planning policy in Northern Ireland and sets out strategic planning policy. The regional strategic objectives for natural heritage are delivered through regional strategic policies that must be taken into account in the determination of planning applications. Table 1 below provides a summary of regional strategic policies for natural heritage.

Table 1 Northern Ireland Strategic Policy for Natural Heritage

International Designations	Planning permission will only be granted for a project proposal that, either individually or in combination with existing and/or proposed plans or projects, is not likely to have a significant effect on a European Site or Ramsar site. A project proposal which could adversely affect the integrity of a European or Ramsar site may only be permitted in exceptional circumstances as laid down in the relevant statutory provisions.
National Designations	Planning permission will only be granted for a project proposal that is not likely to have an adverse effect on the integrity, including the value of the site to the habitat network, or special interest of an ASSIs, NRs, NNRs or MCZs. A project proposal which could adversely affect any of the above-mentioned sites of national importance may only be permitted where the benefits of the proposed project clearly outweigh the value of the site. In such cases, appropriate mitigation and/or compensatory measures will be required.
Local Designations	A project proposal which could have a significant adverse impact on a site of local importance should only be permitted where the benefits of the proposed project outweigh the value of the site. In such cases, appropriate mitigation and/or compensatory measures shall be required.
Protected Species	Planning permission will only be granted for a project proposal that is not likely to harm a European Protected Species. In exceptional circumstances a project proposal that is likely to harm these species may only be permitted where: • there are no alternative solutions; and • it is required for imperative reasons of overriding public interest; and • there is no detriment to the maintenance of the population of the species at a favourable conservation status; and • compensatory measures are agreed and fully secured. Planning permission will only be granted for a project proposal that is not likely to harm any other statutorily protected species (including National Protected Species) and which can be adequately mitigated or compensated against.
Other Habitats, Species or Features of Natural Heritage Importance	Planning permission should only be granted for a project proposal which is not likely to result in the unacceptable adverse impact on, or damage to known: • priority habitats; • priority species; • active peatland; • ancient and long-established woodland; • features of earth science conservation importance; • features of the landscape which are of major importance for wild flora and fauna;

- rare or threatened native species;
- wetlands (includes river corridors); or
- other natural heritage features worthy of protection, including trees and woodland.

A project proposal which is likely to result in an unacceptable adverse impact on, or damage to, habitats, species or features listed above may only be permitted where the benefits of the proposed project outweigh the value of the habitat, species or feature. In such cases, appropriate mitigation and/or compensatory measures will be required.

Development Plans

- Northern Area Plan 2016 (NAP)
- The Causeway and Coast and Glens Council Local Biodiversity Action Plan (LBAP, 2013 - 2018)

2.4 Northern Area Plan 2016 (NAP)

The site of the proposed project is located within land covered by Causeway Coast and Glens Council.

3 METHODOLOGY

3.1 Statement of Authority

The report has been approved for issue by James McCrory, Technical Director of Ecology with RPS. James holds a BA (Hons) in Natural Sciences (Mod) Botany and a MSc in Habitat Creation and Management. James is a Chartered Environmentalist (CEnv), a Chartered Ecologist (CEcol), a Chartered Biologist (CBiol) and a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Royal Society of Biology (MRSB). James is a former member of the CIEEM Irish Section Committee and CIEEM Policy Review Group in Ireland and a member of the CIEEM technical working group updating the Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland. James currently sits on the CIEEM technical working group for EcIA accreditation across the Institutes practitioner network.

The report has been reviewed and edited by Suzanne Lowry, a Senior Associate of Ecology within RPS. Suzanne holds a BSc (Hons) in Biological Sciences, a MSc in Environmental Management and has over 20 years of experience in the field of ecology and environmental consultancy. Suzanne has extensive experience of project management and co-ordination, ecology field survey and technical report writing. Suzanne is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Conor Finlay, author and lead surveyor, carried out the Extended Phase 1 Habitat Survey. Conor is an Ecologist with RPS and holds a BSc (Hons) in Environmental Science, a MSc in Ecological Management and Conservation Biology with over three years of experience in ecological consultancy. Conor has experience of habitat, mammal, reptile, and bird survey and is a protected licence holder. Conor is a Qualifying member of the CIEEM and a volunteer with the Northern Ireland Amphibian and Reptile Group.

RPS confirm that the professional judgement expressed herein is the true and bona fide opinion of our professional ecologists. The information prepared and provided is accurate at the time of issue of this report and has been prepared and provided in accordance with the CIEEM Code of Professional Conduct (CIEEM, 2024²).

3.2 Zone of Influence

The Zone of Influence (Zoi) is the area over which ecological features may be affected by biophysical changes resulting from the proposed project and its associated activities. The Zoi varies for different ecological features depending on their sensitivity to environmental change and therefore further details on the specific Zoi for each ecological feature is described below under the relevant sections. In some instances, the Zoi may extend beyond the red line boundary of the site.

3.3 Desk Study

A desk study was undertaken to review existing information relevant to the site of the proposed project and the surrounding environment. The information gathered is third party controlled data purchased or obtained for the purposes of this report only. RPS cannot guarantee its accuracy and cannot be held liable for any inaccuracies.

The Northern Ireland Environment Agency (NIEA) Natural Environment Map Viewer (DAERA, 2023) was used to identify the location of designated sites of nature conservation importance; priority habitats, priority species and other features of natural heritage importance that have the potential to be affected by the proposed project.

The NIEA Catchment Data Map Viewer (DAERA, 2023) was used to identify the river and marine waterbodies hydrological linked to the site of the proposed project.

The National Biodiversity Network (NBN) Atlas Northern Ireland (NBN Atlas Partnership, 2021) was used to identify the existence of historical records of protected species or species of natural heritage importance within 1 km of the site of the proposed project.

The Woodland Trust Ancient Tree Inventory (Woodland Trust, 2023) was used to identify ancient, veteran and notable trees within the site of the proposed project.

3.4 Extended Phase 1 Habitat Survey

An Extended Phase 1 Habitat Survey was carried out in 24.10.2024 within the site of the proposed project. Phase 1 Habitat Survey (JNCC, 2010) is the standard system used to rapidly record, categorise and map habitats. Habitats are mapped using standard colour codes and target notes are used to describe any features of ecological or natural heritage importance. Aerial photographs were used as an aid to map habitats. The survey was extended to include further information on the potential of the habitats identified to support species protected by law or of natural heritage importance.

It should be noted that whilst every effort has been made to provide a comprehensive description of the site no survey can consist of a complete characterisation and prediction of the ecological environment. The habitat survey will remain valid for a period of one year of being carried out in accordance with NIEA survey specifications (DAERA, 2023²).

3.5 Ecological Survey for Bats

The Phase 1 Habitat Survey was extended to include a Preliminary Ecological Appraisal for Bats (PEAB) within the site of the proposed project. The aim of the survey was to observe, assess and record the potential suitability of the site to support bat roosting, commuting and/or foraging habitat within the Zol of the proposed project and to determine the requirement for further bat surveys. Habitat features were classified as None, Negligible, Low, Moderate or High in accordance with Bat Conservation Trust (BCT) Good Practice Guidelines (Collins, 2023).

Ecological Survey for Bats including a Daytime Bat Walkover (DBW) and Ground Level Tree Assessment (GLTA) were carried on 24.10.2024 to inform the EclA. Full details of the bat survey methods, results and an interpretation of the results can be found in **Appendix B**. A summary of the results can be found below in **Section 4.3 Bats**.

3.6 Ecological Survey for Otter

The Phase 1 Habitat Survey was extended to include a Preliminary Otter Survey within the site of the proposed project, within 30 m of the red line boundary, and 150 m upstream and downstream of any watercourse within the red line boundary. The aim of the survey was to establish the presence of otter *Lutra lutra*, otter holts and/or otter foraging areas within the Zol of the proposed project and determine the requirement for further survey. The results can be found below in **Section 4.4 Otter**.

3.7 Ecological Survey for Badger

The Phase 1 Habitat Survey was extended to include a Preliminary Badger Survey within the site of the proposed project and within 30 m of the red line boundary. The aim of the survey was to establish the presence of badger *Meles meles*, badger setts and/or badger foraging areas within the Zol of the proposed project and determine the requirement for further badger surveys.

3.8 Ecological Survey for Marsh Fritillary

The Phase 1 Habitat Survey was extended to include a habitat survey for marsh fritillary *Euphydryas aurinia* butterfly within the site of the proposed project. The aim of the survey was to establish the presence of devil's bit scabious *Succisa pratensis* within the site of the proposed project and determine the requirement for further marsh fritillary surveys.

3.9 Ecological Survey for Smooth Newt

The Phase 1 Habitat Survey was extended to identify ponds within the site of proposed project and within 200 m of the red line boundary. The aim of the survey was to establish the potential for smooth newt *Lissotriton vulgaris* within the ZOI of the proposed project and determine the requirement for further smooth newt surveys.

3.10 Ecological Impact Assessment

The EclA has been prepared taking into consideration the British Standard (BS) 42020:2013 and guidelines produced by the CIEEM (CIEEM, 2024).

The ecological value of a feature was determined using a geographic frame of reference (Table 2). Professional judgement was used to define the geographic framework based on available guidance, existing criteria, historical trends and information on the distribution, abundance and status of the ecological feature.

The assessment takes into account the source-pathway-receptor model. The source is defined as the individual elements of the proposed project that have the potential to affect identified ecological features. The pathway is defined as the means or route by which a source can affect the ecological feature. The receptor is defined as the ecological feature (species, habitat or ecosystem) of natural heritage importance. Each element can exist independently however an effect is created where there is a linkage between the source, pathway and receptor.

For the purposes of this assessment an impact is defined as an action that results in changes to an ecological feature. An effect is defined as the outcome to an ecological feature from an impact. The likely significance of effects is the combined function of the value of the ecological feature; the type, magnitude and duration of the impact and/or effect; the extent to which the impact and/or effect occurs; the timing and frequency of the impact and the reversibility of impacts and/or effects (CIEEM 2024). The geographic level at which the ecological feature is considered important needs to be considered when assessing the likely significance of effects.

A significant effect is a positive or negative effect that either supports or undermines the conservation objectives of a designated site; results in changes in ecosystem structure and function; or affects the conservation status of habitats or species. Effects can be considered significant at a wide range of scales from international to site level.

The CIEEM (2024) defines a significant effect as “...an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring”.

BS 42020:2013 states “...if an effect is sufficiently important to be given weight in the planning balance or to warrant the imposition of a planning condition, e.g. to provide or guarantee necessary mitigation measures, it is likely to be “significant” in that context at the level under consideration. The converse is also true: insignificant effects would not warrant a refusal of permission or the imposition of conditions”.

Table 2 Geographic Frame of Reference for Important Ecological Features

Ecological Value	Criteria
International	• 'European Sites' including Special Areas of Conservation (SAC) & Special Protection Areas (SPA) • Sites that satisfy the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended) • Features essential to maintaining the coherence of the UK National Site Network • Sites containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive • Resident or regularly occurring populations (assessed to be important at the national level) of the following: - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive • Ramsar Sites (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971) • World Heritage Sites (Convention for the Protection of World Cultural & Natural Heritage, 1972) • Sites hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979) • Sites hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979)
National	• Areas of Special Scientific Interest (ASSI) • National Nature Reserves (NNR) • Marine Nature Reserves (MNR) • Refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended) • Undesignated sites fulfilling the criteria for designation as an ASSI; NNR; MNR; and/or refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended) • Resident or regularly occurring populations (assessed to be important at the national level) of the following: - Species protected under Wildlife (Northern Ireland) Order 1985 (as amended); and/or - Species listed on the relevant Red Data list • Sites containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive
Regional	• Sites of Local Nature Conservation Importance (SLNCI) or Local Wildlife Sites (LWS) • Areas subject to a Tree Preservation Order • Resident or regularly occurring populations (assessed to be important at the Regional level) of the following: - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive - Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or - Species listed on the relevant Red Data list - Sites containing areas of the habitat types listed in Annex I of the Habitats Directive that do not satisfy the criteria for valuation as of International or National importance • Regionally important populations of species or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP) • Sites containing semi-natural habitat types with high biodiversity in a regional context and a high degree of naturalness, or populations of species that are uncommon within the region • Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level
Local	• Locally important populations of priority species or habitats or features of natural heritage importance identified in the Local BAP • Resident or regularly occurring populations (assessed to be important at the Local level) of the following: - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive - Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or - Species listed on the relevant Red Data list • Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality • Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value
Site	• Sites containing small areas of semi-natural habitat that are of some local importance for wildlife • Sites or features containing non-native species that are of some importance in maintaining habitat links

4 BASELINE ECOLOGICAL CONDITIONS

4.1 Designated Sites

The site of the proposed project is not located within the boundary of any statutory or non-statutory designated sites of international, national, or local nature conservation importance. There are however a number of designated sites hydrologically linked to the proposed project.

Table 3 below provides descriptive details of designated sites located outside the site of the proposed project but connected to it through an identifiable impact pathway. The boundary of each of the designated sites in relation the proposed project is illustrated in **Figure 2.0 Designated Sites and Feature of Natural Heritage Importance**.

Table 3 Designated Sites & Features of Natural Heritage Importance

Designated Site/Feature	Distance from Site (km)	Description
Tully Hill ASSI	8.7 km (hydrological distance)	Glacial landform (Flat topped Delta) in the Bann River Basin
Agivey Bridge SLNCI	19 km (hydrological distance)	No information available
Colebreene Wood SLNCI	23 km (hydrological distance)	No information available
Knockantern SLNCI	26 km (hydrological distance)	No information available
Sandelford Bridge SLNCI	29 km (hydrological distance)	No information available
Bann Estuary SAC and ASSI	34.1 km (hydrological distance)	- Fixed dunes with herbaceous vegetation - Atlantic salt meadows - Embryonic shifting dunes - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")
Magilligan SAC, ASSI and NR, and Ballymaclary NR	42.1 km (hydrological distance)	- Fixed dunes with herbaceous vegetation ("grey dunes") - Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) - Humid dune slacks - Embryonic shifting dunes <i>Euphydryas</i> (<i>Eurodryas</i>, <i>Hypodryas</i>) <i>aurinia</i> <i>Petalophyllum ralfsii</i> - Shifting dunes along the shoreline with <i>Ammophila arenaria</i>
Skerries and Causeway SAC	42.8km (hydrological distance)	- Sandbanks which are slightly covered by sea water all the time - Reefs - Submerged or partially submerged sea caves - Harbour porpoise
Portrush West Strand ASSI	55 km (hydrological distance)	Beds of peat containing large fragments of wood, infrequently exposed, which are important for understanding and dating sea level changes
Ramore Head and the Skerries ASSI and Portrush NNR	56 km (hydrological distance)	- Igneous dolerite with abundant fossils - Breeding birds including kittiwake, black guillemot and eider duck
White Rocks ASSI	59 km (hydrological distance)	- Geological and geomorphological features - Coastal cliffs, shore platforms, caves, arches and sea stacks - Breeding birds including peregrine falcon and black guillemot
Runkerry ASSI	63 km (hydrological distance)	- Geological interest as the highest energy beach in Northern Ireland - Uninterrupted exchange of material between bay, beach, and dunes - Offshore bars
Portballintrae ASSI	63 km (hydrological distance)	Coastal cliffs displaying sediment deposition and fluctuations in the relative level of land and sea

Giant's Causeway and Dunseverick ASSI and Giant's Causeway NNR

64 km (hydrological distance)

- Giant's Causeway igneous rock formations
- Cliffs and screes
- Isolated sea stacks, arch of Portbradden and stranded cliff - lines and Dunseverick River
- Maritime cliff plant communities
- Saltmarshes
- Dry heath and wet heath
- Beach stacks and knolls
- Awl-leaved pearlwort, spring sandwort, frog orchid and sea spleenwort
- Intertidal area
- Invertebrate assemblages
- Breeding and wintering birds including chough, peregrine falcon, twite, fulmar and black guillemot

4.2 Habitats

A map illustrating the red line boundary and the existing habitats on the site can be found in **Figure 3.0 Extended Phase 1 Habitat Survey**. The DAFOR scale was used to describe species abundance (D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare).

4.2.1 Improved Grassland

The vast majority of the site is covered by improved grassland used for sheep grazing covering ~ 5.69 ha (94% of the total land cover). These areas are generally species poor with a short sward length and of low ecological value. Forbs are generally present at low density and principally confined to the field margins. The dominant species within this habitat is perennial rye-grass *Lolium perenne*.

Species within this habitat include perennial rye-grass (D), Yorkshire-fog *Holcus lanatus* (A), cock's-foot *Dactylis glomerata* (O), creeping buttercup *Ranunculus repens* (O), dandelion *Taraxacum officinale* (O), soft-rush *Juncus effusus* (O), tufted hair-grass *Deschampsia cespitosa* (O), broad-leaved dock *Rumex obtusifolius* (R), common vetch *Vicia sativa* (R), cow parsley *Anthriscus sylvestris* (R), curled dock *Rumex crispus* (R), field horsetail *Equisetum arvense* (R), herb-Robert *Geranium robertianum* (R) and timothy *Phleum pratense* (R).

Improved grassland is considered of ecological value at a site level.

4.2.2 Scrub

Bordering the site and surrounding the watercourse along the eastern and northern boundaries of the site are sections of dense scrub covering ~ 0.25 ha (4% of the total land cover). These areas generally act as an addition to the bordering hedgerows / treelines. The dominant species within this habitat is blackberry *Rubus fruticosus*.

Species within this habitat include blackberry (D), ivy *Hedera helix* (A), gorse *Ulex europaeus* (F), dog-rose *Rosa canina* (O), cherry laurel *Prunus laurocerasus* (R), elder *Sambucus nigra* (R), Himalayan honeysuckle *Leycesteria formosa* (R), honeysuckle *Lonicera periclymenum* (R) and male fern *Dryopteris filix-mas* (R).

Scrub is considered of ecological value at a local level.

4.2.3 Hardstanding

Along the northern boundary of the site is the Magheraboy Road with additional sections of private access lanes covering ~ 0.1 ha (0.3% of the total land cover).

4.2.4 Amenity Grassland

Along the northern boundary of the site are several strips of amenity grassland associated with grassy verges and private gardens. These areas are regularly mown and support a low species diversity. The dominant species within this habitat is cock's-foot.

Species within this habitat include cock's-foot (D), common nettle *Urtica dioica* (F), creeping buttercup (F), tufted hair-grass (F), bush vetch *Vicia sepium* (O), cow parsley (O), dandelion (O), ground-ivy *Glechoma hederacea* (O), common sorrel *Rumex acetosa* (R), false oat-grass *Arrhenatherum elatius* (R), meadowsweet *Filipendula ulmaria* (R) and spear thistle *Cirsium vulgare* (R).

Amenity grassland is considered of ecological value at a site level.

4.2.5 Hedgerows / Treelines

Bordering the agricultural fields on site and dividing the northern and southern fields are a series of hedgerows and treelines. The northern, eastern, and southern hedgerows and treelines are deemed to be native species-rich due to the presence of at least five native species. The breakdown of each hedgerow is given below:

- Northern boundary hedgerow and treeline: Consists of blackthorn *Prunus spinosa* (D), ash *Fraxinus excelsior* (A), holly *Ilex aquifolium* (A), hawthorn *Crataegus monogyna* (F), alder *Alnus glutinosa* (O) and beech *Fagus sylvatica* (O).
- Eastern boundary hedgerow and treeline: Consists of hawthorn (D), alder (A), ash (A), grey willow *Salix cinerea* (F), holly (O), sycamore *Acer pseudoplatanus* (O) and crab apple *Malus sylvestris* (R).
- Dividing hedgerow and treeline: Consists of hawthorn (D), holly (F) and ash (O).
- Southern treeline: Consists of hawthorn (D), ash (O), holly (O), alder (R), blackthorn (R) and grey willow (R).
- Western hedgerow and treeline: Consists of blackthorn (D), hawthorn (A), holly (F), ash (O), and sycamore (R).

Hedgerows and treelines are considered of ecological value at a regional level. This is due to hedgerows being included within the Causeway Coast and Glens Council's LBAP.

4.2.6 Watercourses

A single shallow and fast flowing stream, which is a tributary of the River Bann, is located along the northern and parts of the eastern boundary. At the time of the survey the stream along the northern boundary was culverted with the stream observed flowing in a general northeast direction off site.

The stream is considered of ecological value at a regional level. This is due to the habitat being included within the Causeway Coast and Glens Council's LBAP.

4.3 Bats

Consultation with the NBN Atlas Northern Ireland (NBN Atlas Partnership 2021) identified no historical records of bat species within the site. A total of one bat record highlighting common pipistrelle *Pipistrellus pipistrellus* was returned ~ 1739 m northwest of the site, dated 2012.

The site supports a series of bordering hedgerows / treelines with underlying scrub and accompanying watercourses in a rural setting. The observed habitat features provide moderate potential for foraging and commuting bats as they provide “continuous habitat connected to the wider landscape that could be used by bats for commuting such as trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland, or water” (Collins, 2023).

4.3.1.1 Ground Level Tree Assessment

Trees within the study area were subject to a GLTA to identify Potential Roosting Features (PRFs) and determine the potential suitability of trees to provide roosting habitat for bats. A single dead ash tree was classified as “Further Assessment Required” (FAR).

A map illustrating the location of trees with PRFs can be found in **Figure 3 Extended Phase 1 Habitat Map** and the results of the GLTA can be found in **Appendix B**.

4.4 Otter

The NBN Atlas NI (NBN Atlas Partnership 2021) identified no historical records of otter within 1 km of the site. There were no otter underground holts, above ground couches or evidence of otter recorded within the site or within 30 m of the boundary of the site. Otter has therefore been removed from any further assessment.

4.5 Badger

The NBN Atlas NI (NBN Atlas Partnership 2021) identified no historical records of badger within 1 km of the site. There were no badger setts or evidence indicating the presence of badger recorded within the site or within 30 m of the site of the proposed project. Badger has therefore been removed from any further assessment.

4.6 Marsh Fritillary

The NBN Atlas NI (NBN Atlas Partnership 2021) identified a single record for both marsh fritillary and devil's-bit scabious within 10 km of the proposed project. These were both located ~ 8815 m east of the site, dated 2020 and 1995 respectively.

4.7 Birds

The NBN Atlas NI (NBN Atlas Partnership 2021) identified no historical records of birds within 1 km of the site. The site has potential to provide habitat for an assemblage of common and widespread breeding bird species associated with scrub and hedgerow / treeline habitats bordering the site.

5 IMPACT ASSESSMENT

5.1 Designated Sites

Legislation & Policy

The principal legislation in Northern Ireland relating to designated sites includes the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), which provides for the designation on European Sites (SPAs and SACs); the Environment (Northern Ireland) Order 2002, which provides for the designation of ASSIs; and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985, which provides for the designation of NRs, NNRs and MNRs.

Designated sites are a material consideration in the determination of the planning application as set out in the SPPS (DOE 2015). The strategic policies state that; a project, either individually or in combination with existing and/or proposed plans or projects, must not have a significant effect on a designated site of international importance; must not have an adverse effect on the integrity, including the value of the site to the habitat network, on a designated site of national importance; and must not have a significant adverse impact on a designated site of local importance.

Potential Impacts & Effects

International Designated Sites (SACs, SPAs & Ramsar Sites)

The site is hydrologically linked to the Bann Estuary SAC, Magilligan SAC and Skerries and Causeway SAC. These designated sites are located approximately 34.1 km, 42.1 km and 42.8km (hydrological distance) respectively downstream of the proposed development.

Pre-construction site clearance and construction works have the potential to directly impact on the Bann tributary causing deterioration of water quality flowing into the designated sites located downstream of the proposed project. Given the spatial separation between the site boundary and the downstream European sites, the tenuous hydrological link supported between these sites and the site boundary and the nature of the proposals which are limited in their extent, the proposed development has no potential to give rise to an adverse effect upon the conservation interests of any European site. Therefore, construction of the proposed project is predicted to have a **No Significant Effect** on internationally important designated sites in the absence of mitigation measures.

The site will be unmanned, and operational works will be restricted to general maintenance and cleaning. Operation of the proposed project therefore is predicted to have a **No Significant Effect** on internationally important designated sites in the absence of mitigation measures.

Additionally, a shadow Habitats Regulation Assessment (sHRA) has been completed, which concluded that the proposed project will not give rise to significant effects on the qualifying features of any European site.

National Designated Sites (ASSI, NNR & MCZs)

The site is hydrologically linked to the Bann Estuary ASSI, Magilligan ASSI and NR, Portrush West Strand ASSI, Ramore Head and the Skerries ASSI and Portrush NNR, White Rocks ASSI, Runkerry ASSI, Portballintrae ASSI, Giant's Causeway and Dunseverick ASSI, and Giant's Causeway NNR. These designated sites are located approximately 8.7 km, 34.1 km, 42.1 km, 55 km, 56 km, 59 km, 63 km, 63 km, and 64 km (hydrological distance) respectively downstream of the proposed development.

Pre-construction site clearance and construction works have the potential to directly impact on the Bann tributary causing deterioration of water quality flowing into the designated sites located downstream of the proposed project. Construction of the proposed project has the potential to have a **Significant Negative Effect** on nationally important designated sites in the absence of mitigation measures.

The site will be unmanned, and operational works will be restricted to general maintenance and cleaning. Operation of the proposed project therefore is predicted to have a **No Significant Effect** on nationally important designated sites in the absence of mitigation measures.

Local Designated Sites (SLNCI & LWS)

The site is hydrologically linked to the Agivey Bridge SLNCI, Colebreene Wood SLNCI, Knockantern SLNCI and Sandelford Bridge SLNCI. These designated sites are located approximately 19 km, 23 km, 26 km, and 29 km (hydrological distance) respectively downstream of the proposed development.

Pre-construction site clearance and construction works have the potential to directly impact on the Bann tributary. Given the spatial separation between the site boundary and the downstream local sites, the tenuous hydrological link supported between these sites and the site boundary, the nature of the proposals which are limited in their extent, and the nature of the local sites, the proposed development has no potential to give rise to an adverse effect upon any local site. Therefore, construction of the proposed project is predicted to have a **No Significant Effect** on locally important designated sites in the absence of mitigation measures.

The site will be unmanned, and operational works will be restricted to general maintenance and cleaning. Operation of the proposed project therefore is predicted to have a **No Significant Effect** on locally important designated sites in the absence of mitigation measures.

Mitigation Measures

DAERA Standing Advice for Pollution Prevention Guidance (DAERA 2023) will be adhered to in order to protect watercourses from potential adverse effects during all phases of the proposed project.

Mitigation measures to protect watercourses from adverse effects associated with the proposed project are to be detailed in an accompanying CEMP and Construction Method Statement (CMS) for the proposed new access crossing point. The focus regarding watercourses should be on reducing the impacts from sedimentation, potential hydrocarbon spills and to reduce the amount of vegetation clearance. It is also recommended that construction methods implemented keep water out of the working area using appropriate isolation techniques, such as coffer dams and by-pass channels. A silt collection barrier system will be constructed along the base of any loose stockpiled materials. The silt barrier will consist of a fence with a geotextile fabric strip fixed to the bottom of the fence. The filter fabric will be entrenched into the ground. The filter fabric will remove any coarse particles from any surface water run-off. Additionally, as works will impact on the free flow of a watercourse, approval is required from Department for Infrastructure (DfI) Rivers under a schedule 6 application for consent to undertake works to a watercourse. The CEMP sets out details of contractor standards that must be implemented throughout the life of the project; provides details of construction activities and environmental management measures that will be put in place to mitigate environmental impacts; and provides details of monitoring.

The implementation of the mitigation measures as set out above will reduce the likely significance of effects on national designated sites from **Significant Negative Effect** to **No Significant Effect**.

Significance of Residual Effects

The proposed project will have **No Significant Effect** on any designated site.

5.2 Habitats

Legislation & Policy

Priority habitats include both those listed on Annex I of the Habitats Directive, which is transposed into national law by means of the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 (as Amended) and those identified under the Northern Ireland Biodiversity Strategy (NIBS). Priority habitats require conservation action due to their decline, rarity and importance.

The presence of priority habitat, active peatland, ancient and long-established woodland and wetlands is a material consideration in the determination of the planning application as set out in the SPPS (DOE 2015). The strategic policies state that a project must not have an unacceptable adverse impact on, or damage to, these habitats.

Potential Impacts & Effects

The proposed project has been designed, as far as possible, to avoid the loss of hedgerows / treelines.

Pre-construction site clearance and construction works will result in a direct impact to habitats with the removal of areas of improved grassland, amenity grassland and sections of hedgerows / treelines with underlying scrub within the construction footprint. **Table 4** below provides a summary of the habitat loss associated with the proposed project.

Table 4 Habitat Loss

Habitat Type	Total Area (m ²)	Habitat Loss (m ²)
Improved Grassland	56,860	27,580
Scrub	2499	60
Amenity Grassland	196	5
Hedgerows / Treelines	3,948	23

The site will be unmanned, and operational works will be restricted to general maintenance and cleaning. Operation of the proposed project therefore is predicted to have a **No Significant Effect** on habitats in the absence of mitigation measures.

The proposed project will have a **Significant Negative Effect** at a regional scale with the permanent loss of NIPHs ~ 23 m² of hedgerows / treelines (~ 15 m total in length) and **Significant Negative Effect** at a site level with the permanent loss of ~ 27,580 m² of improved grassland, 60 m² of scrub and 5 m² of amenity grassland.

Avoidance & Mitigation Measures

All trees that are to be retained on site will be protected in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* (BSI 2012) prior to pre-construction site preparation and construction works.

DAERA Standing Advice for Pollution Prevention Guidance (DAERA 2023) will be adhered to in order to protect watercourses from potential adverse effects during all phases of the proposed project.

Compensation

It is considered that proposed development would be required to provide compensation for any significant loss of hedgerows / treelines.

In our experience compensation is usually required at a minimum 2:1 ratio for that lost. It is considered however that there should be adequate scope within the proposed development to include for suitable compensatory planting.

Compensation planting should aim to incorporate planting that prioritises the use of native and wildlife friendly species and includes both species diversity and structural diversity into planting and enhance the ecological connectivity of the site to the surrounding environment.

Biodiversity Enhancement

Landscape design should aim to deliver no net loss of habitat; incorporate planting that prioritises the use of native and wildlife friendly species; include both species diversity and structural diversity; leave areas of the site for natural succession with no active management; and enhance the ecological connectivity of the site to the surrounding environment.

Recommendations for further enhancement include:

- Native meadow seed mix used on remaining grassland areas: if so, it should consist only of native species of Irish provenance, include a mixture of perennial flowers and grasses, and be tailored to the sites' soils and hydrology. Non-native 'wildflower' seed mixes should never be used, as they are typically of low biodiversity value.
- Creation of a pond or similar semi-natural wetland feature with native fringing vegetation. Ponds may also be suitable for frogs / newts. These measures may be feasible for above-ground SUDS features (e.g. attenuation ponds, swales).
- Managing grassland areas as meadows, by mowing only once per growing season and removing cuttings. Guidance is provided in the All-Ireland Pollinator Plan.

Significance of Residual Effects

The proposed project will have a **No Significant Effect** on habitats.

The implementation of the mitigation and enhancement measures as set out above will ensure a **Significant Positive Effect** for biodiversity at a site level with a no net loss and potential for net gain in habitats of wildlife value in an rural environment.

5.3 Bats

Legislation & Policy

All species of bats are European Protected Species (EPS) listed on Schedule 2 of the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 (as Amended). Under the Regulations it is illegal to deliberately capture, injure or kill a EPS; deliberately disturb a EPS while it is occupying a structure or place it uses for shelter or protection; or deliberately disturb a EPS in such a way as is likely to affect its local distribution or abundance; impair its ability to survive, breed, reproduce or care for its young; impair its ability to hibernate or migrate; or deliberately obstruct access to or damage or destroy a resting or breeding site.

The presence of bat species is a material consideration in the determination of the planning application as set out in the SPPS and described above in Section 2.3, Table 1. The strategic policies state that the proposed development must not harm EPS; must be sensitive to all protected species; and must be sited and designed to protect EPS, their habitats and prevent deterioration and destruction of their breeding or resting sites.

Potential Impacts & Effects

Construction works will result in significant changes to the physical characteristics of the site alongside visual and noise disturbance from physical construction over the construction period.

The site will be unmanned, and operational works will be restricted to general maintenance and cleaning. Operation of the proposed project therefore is predicted to have a **No Significant Effect** on bats in the absence of mitigation measures.

The proposed project will have a **Significant Effect** on bats with the reduction in the amount of available foraging and commuting habitat of a species of regional importance in the absence of mitigation measures.

Avoidance & Mitigation Measures

Mitigation and enhancement have been recommended for the proposed loss of sections of hedgerows / treelines.

The Lighting Strategy for the proposed project will be designed in accordance with the Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (ILP 2021) and Bats and Artificial Lighting in the UK (ILP 2023).

Lighting design will only be installed where and when necessary, i.e. when it is needed for safety reasons or to comply with statutory guidelines. There will be no direct illumination of existing woodland or trees to be retained and a dark buffer zone will be maintained around these areas where light levels will not exceed 1 Lux.

Lighting design will aim to use narrow spectrum lights with no UV content; warm white light emitting diodes (LED) (Colour Temperature <2700 K and UV Wavelength >550 nm); directional downlights illuminating below the horizontal plane; bollard or low level downward directional luminaires; external security lighting should be set on motion-sensors and/or short timers; and use accessories such as baffles, shields, louvres or adjusting the angle of the lamp where necessary (ILP 2023).

Biodiversity Enhancement

There is an opportunity to incorporate artificial bat roosts into the proposed project and this would be strongly recommended given the location of the site. Bat bricks, bat access panels or bat access roof tiles can be incorporated directly into the structure of a building to provide access to bat roosting units, existing cavity walls or roof voids. Bat boxes can also be attached the exterior of buildings. An Ecological Clerk of Works can provide advice to the exact number, type, and location of artificial bat roosts.

Significance of Residual Effects

The implementation of the mitigation and enhancement measures as set out above will ensure a **Significant Positive Effect** for biodiversity at a site level with a net gain in habitats of wildlife value in a rural environment.

5.4 Birds

Legislation & Policy

Birds are protected under the Wildlife (Northern Ireland) Order 1985 (as Amended). Under Article 4 it is an offence to intentionally or recklessly kill, injure or take any wild bird; or take, damage or destroy the nest of any wild bird while that nest is in use or being built; or at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or obstruct or prevent any wild bird from using its nest; or take or destroy an egg of any wild bird. Under Article 6 it is an offence to intentionally or recklessly disturb any wild bird other than one included in Part II of Schedule 2 while it is building a nest or is in, on or near a nest containing eggs or young; or disturb dependent young of such a bird. Disturbance of birds included in Schedule 1 is liable to special penalties. It is also an offence if any person knowingly causes or permits an act which is made unlawful by any of the foregoing provisions of Article 6.

Potential Impacts & Effects

Pre-construction site clearance and construction works will require to removal of sections of hedgerows / treelines with underlying scrub. The works have potential to result in destruction of bird nests and disturbance to breeding birds, if carried out during the bird breeding season, which extends between 1st March and 31st August inclusive. Construction works will result in visual and noise disturbance from physical construction over the construction period.

The site will be unmanned, and operational works will be restricted to general maintenance and cleaning. Operation of the proposed project therefore is predicted to have a **No Significant Effect** on birds in the absence of mitigation measures.

There is limited suitable habitat on site that provides nesting, roosting and foraging habitat for bird species as it primarily consists of large, improved grassland fields. Examples of suitable habitat include the various hedgerows / treelines and underlying scrub bordering these fields. The project will have **Significant Negative Effect** on breeding bird species in the absence of mitigation measures.

Avoidance & Mitigation Measures

Timing of works will ensure that the removal or management of vegetation including hedgerows / treelines and scrub will take place outside the bird breeding season, which extends between 1st March and 31st August inclusive, to ensure breeding birds are protected from harm. If pre-construction site clearance and removal of vegetation is deemed unavoidable within the bird breeding season an Ecological Clerk of Works (ECoW) will undertake a survey to check for breeding birds immediately prior to works. If breeding birds are found to be present the ECoW will establish species-specific Ecological Exclusion Zones around active nests to ensure birds will be protected from disturbance or harm during works.

Biodiversity Enhancement

There is potential on site for the provision of bird boxes, including designs suitable for common garden birds (e.g. finches, tits, blackbirds), or species that nest on buildings (martins and swallows).

Significance of Residual Effects

The implementation of the mitigation and enhancement measures as set out above will ensure a **Significant Positive Effect** for biodiversity at a site level with a net gain in habitats of some wildlife value in an industrial environment.

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Plate 1 Existing culverted stream



Plate 2 Treeline with underlying scrub over the culverted stream at the proposed access lane



Plate 3 Overview of the northern field



Plate 4 Tributary of the Bann along the eastern and northern boundary of the site



Plate 5 Central hedgerow / treeline



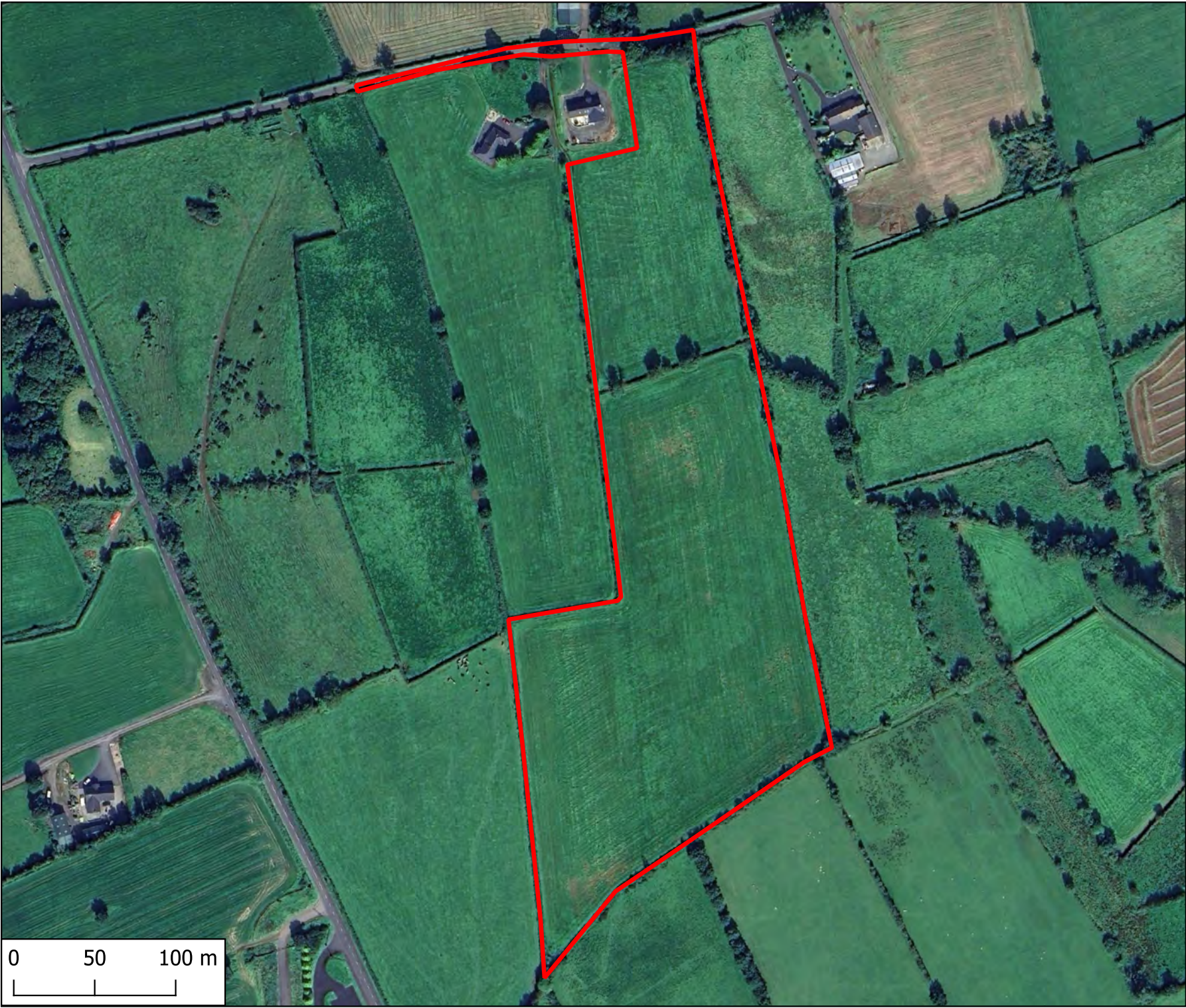
Plate 6 Overview of the southern field

Figures

Figure 1 Site Location

Figure 2 Designated Sites

Figure 3 Extended Phase 1 Habitat Map



Legend

Site Boundary

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74 Boucher Road F +44(0) 28 90 668286
Belfast W www.rpsgroup.com/ireland
BT12 6RZ E ireland@rpsgroup.com
A TETRA TECH COMPANY

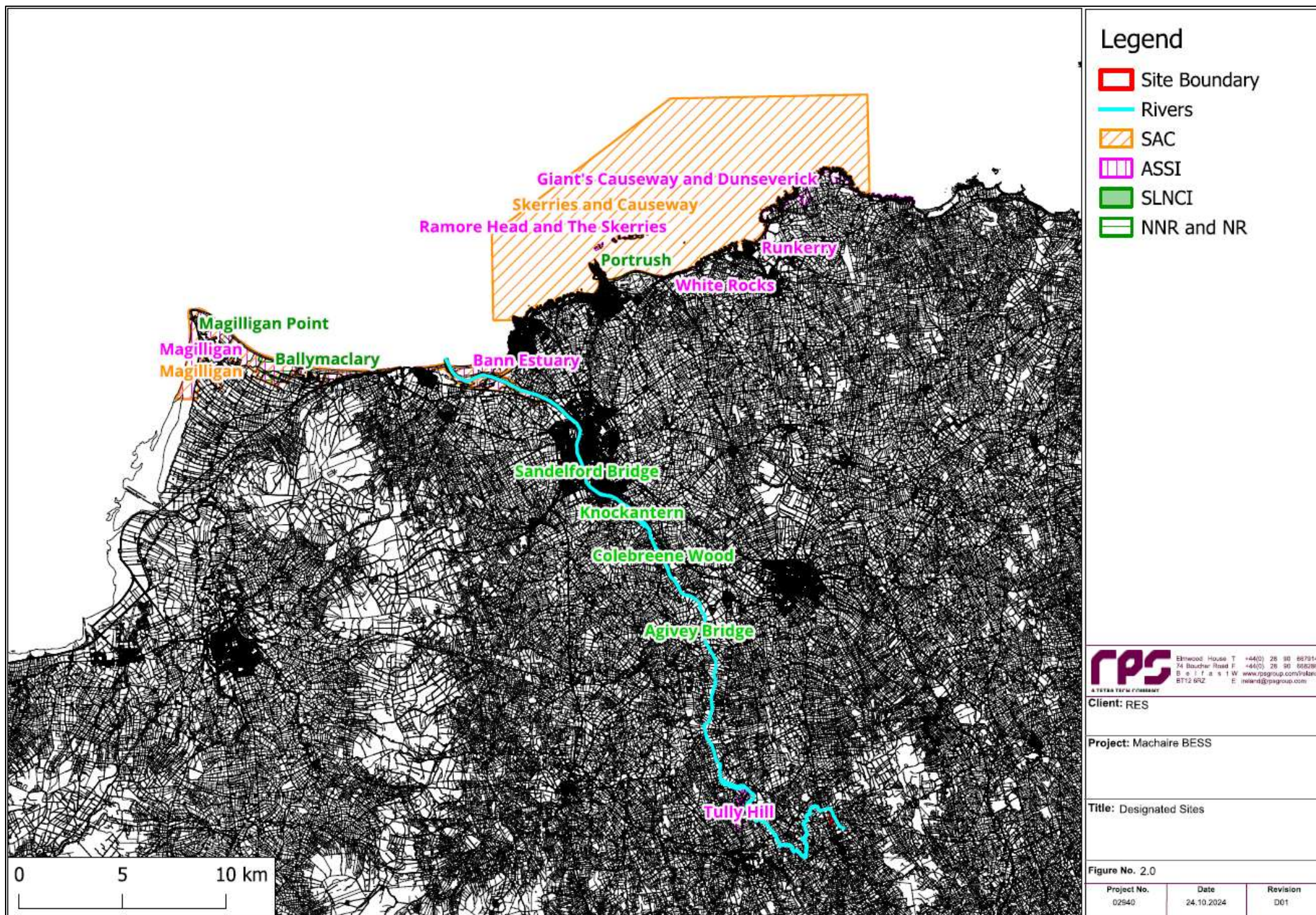
Client: RES

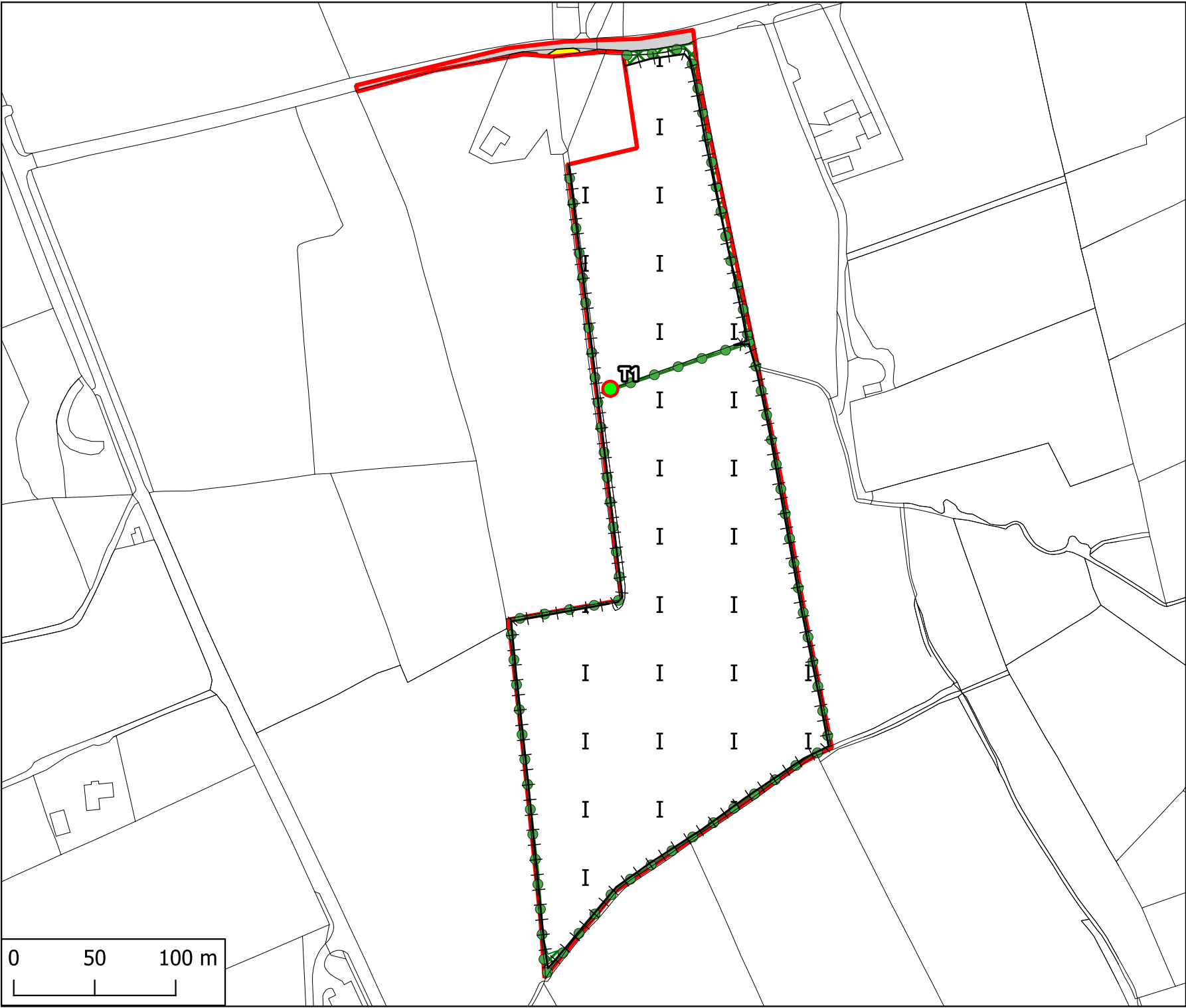
Project: Machaire BESS

Title: Site Location

Figure No. 1.0

Project No.	Date	Revision
02940	24.10.2024	D01





Legend

- Site Boundary
- Tree with Bat Roost Potential
- Native Species-rich Hedgerow / Treeline
- Fencing
- Dense Scrub
- Improved Grassland
- Amenity Grassland
- Hardstanding

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Project: Machaire BESS

Title: Extended Phase 1 Habitat Map

Figure No. 3.0

Project No.	Date	Revision
02940	24.10.2024	D01

Appendix A

National Biodiversity Network Dataset Citations

APPENDICES

NBN Atlas (Northern Ireland) Records within 1 km of the Site			
Common Name	Taxon Latin Name	Event Date	Event Location
Hooded lady's tresses	<i>Spiranthes romanzoffiana</i>	10.08.1958	Lough Beg (Antrim)

NBN Atlas (Northern Ireland) Dataset Citations

Name	DOI	Citation	Rights	More Information	Records
Amphibian and Reptile Conservation	-	Records provided by Amphibian and Reptile Conservation, accessed through NBN Atlas website.	-	For more information: email enquiries@arc-trust.org, or https://registry.nbnatlas.org/public/show/dp58	3
Coleoptera records from iRecord for families not covered by a recording scheme	10.15468/qah8xl	Biological Records Centre. Coleoptera records from iRecord for families not covered by a recording scheme.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr2142	1
Tachinid Recording Scheme - GB and Ireland records	doi:10.15468/xps6uq	Tachinid Recording Scheme ([Insert download year]). Tachinid Recording Scheme - GB and Ireland records. Occurrence dataset on the NBN Atlas	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email Matsmith1@Compuserve.com, or https://registry.nbnatlas.org/public/show/dr1292	2
Bee, wasp and ant (Hymenoptera: Aculeata) records verified via iRecord	10.15468/idirhy	Biological Records Centre. [Date downloaded]. Bee, wasp and ant (Hymenoptera: Aculeata) records verified via iRecord.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr2140	91
Botanical Society of Britain & Ireland	-	Records provided by Botanical Society of Britain & Ireland, accessed through NBN Atlas website.	-	For more information: email enquiries@bsbi.org, or https://registry.nbnatlas.org/public/show/dp91	3
Silphidae Recording Scheme - data verified via iRecord	10.15468/h6nbqe	Records provided by Silphidae Recording Scheme - data verified via iRecord, accessed through NBN Atlas website.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr1850	1
Balfour-Browne Club	-	Records provided by Balfour-Browne Club, accessed through NBN Atlas website.	-	For more information: email latissimus@btinternet.com, or https://registry.nbnatlas.org/public/show/dp124	18
Bird Conservation Targeting Project (BCTP) in the UK, archived data (2001-2010)	doi:10.15468/y4z6zz	"The following acknowledgements of copyright and database right ownership, must be included in a conspicuous position in all copies of data and outputs: ""Reproduced by permission of the Bird Conservation Targeting Project. Â© Bird Conservation Targeting Project, 2010 (a partnership between the British Trust for Ornithology (BTO), the Centre for Environmental Data and Recording (CEDaR), the Countryside Council for Wales (CCW), the Department of Agriculture and Rural Development (DARD), Forestry Commission England (FCE), Forestry Commission Wales (FCW), Forest Service (FS), Natural England (NE), Northern Ireland Environment Agency, the RSPB and Scottish Natural Heritage (SNH)). All rights reserved."" The organisations contributing data to the project must also be acknowledged as follows: ""The Bird Conservation Targeting Project partners are grateful to the contributions of the data providers listed at www.rspb.org.uk/targeting", and to the many volunteers who collected these data."	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email dataunit@rspb.org.uk, or https://registry.nbnatlas.org/public/show/dr460	41

ANNEX

Soldier Beetle and Jewel Beetle (Coleoptera; Cantharoidea and Buprestoidea) records for Britain and Ireland to 2000	doi:10.15468/56c7z4	Biological Records Centre ([Insert download year]). Soldier Beetle and Jewel Beetle (Coleoptera; Cantharoidea and Buprestoidea) records for Britain and Ireland to 2000. Occurrence dataset on the NBN Atlas	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email brc@ceh.ac.uk , or https://registry.nbnatlas.org/public/show/dr744	3
Mammal records from Britain from the Atlas of Mammals (1993), with some subsequent records	doi:10.15468/1qyxis	Biological Records Centre ([Insert download year]). Mammal records from Britain from the Atlas of Mammals (1993), with some subsequent records. Occurrence dataset on the NBN Atlas	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email brc@ceh.ac.uk , or https://registry.nbnatlas.org/public/show/dr743	1
Earthworm Research Records (UK)	doi:10.15468/domlgi	Brown, K. D. & Ashwood, F. (2023) Earthworm Research Records (UK). Earthworm Society of Britain. Occurrence dataset	Creative Commons with Attribution 4.0 (CC-BY) CC-BY (c) Earthworm Society of Britain and database right	For more information: https://registry.nbnatlas.org/public/show/dr504	31
Tachinid Recording Scheme	-	Records provided by Tachinid Recording Scheme, accessed through NBN Atlas website.	-	For more information: email Matsmith1@Compuserve.com , or https://registry.nbnatlas.org/public/show/dp127	2
Earthworm Society of Britain	-	Records provided by Earthworm Society of Britain, accessed through NBN Atlas website.	-	For more information: email ESBenquiries@gmail.com , or https://registry.nbnatlas.org/public/show/dp88	31
Royal Society for the Protection of Birds	-	Records provided by Royal Society for the Protection of Birds, accessed through NBN Atlas website.	-	For more information: email Dataunit@rspb.org.uk , or https://registry.nbnatlas.org/public/show/dp0	124
Bryophyte data for Great Britain and Ireland from the British Bryological Society held by BRC	-	Please cite both Blockeel TL, Bosanquet SDS, Hill M, Preston C (eds) 2014. Atlas of British and Irish bryophytes. Newbury: Pisces Publications. (data up to 2013) and the specific DOI associated with this dataset here on the NBN (post-2013 data).	Creative Commons with Attribution 4.0 (CC-BY)	For more information: https://registry.nbnatlas.org/public/show/dr3044	835
Birda	-	Records provided by Birda, accessed through NBN Atlas website.	-	For more information: email support@birda.org , or https://registry.nbnatlas.org/public/show/dp280	6
Birda - Global Observation Dataset (UK records)	https://doi.org/10.15468/68/6kud7x	White J, White N, Barker D, Evans D, Steer T, David M, Benevente S, Cunningham S, Smith E, Fonseca F, Betteridge E (2023). Birda - Global Observation Dataset. Version 1.14. Birda. Occurrence dataset https://doi.org/10.15468/6kud7x	Creative Commons with Attribution 4.0 (CC-BY)	For more information: https://registry.nbnatlas.org/public/show/dr2992	6
Auchenorrhyncha Recording Scheme - records for UK verified via iRecord	10.15468/er62jj	Auchenorrhyncha Recording Scheme. [Date of download] Records verified via iRecord.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr2674	2
Collection Specimens	https://doi.org/10.5519/0002965	Natural History Museum (2023). Data Portal query on 1 resources https://doi.org/10.5519/qd.i4tk4lrk	Creative Commons Zero v1.0 (CC0) CC0-1.0	For more information: email data@nhm.ac.uk , or https://registry.nbnatlas.org/public/show/dr2677	8
Northern Ireland Environment Agency (NIEA) Collated Species Records	10.15468/gefbqb	Northern Ireland Environment Agency (NIEA) Collated Species Records, CEDaR (2019)	Open Government Licence (OGL)	For more information: https://registry.nbnatlas.org/public/show/dr1941	391

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Ladybird Survey of the UK	doi:10.15468/3kvvxb	Biological Records Centre ([Insert download year]). Ladybird Survey of the UK. Occurrence dataset on the NBN Atlas	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email brc@ceh.ac.uk , or https://registry.nbnatlas.org/public/show/dr695	5
UK Ladybird Survey data from iRecord	doi:10.15468/trfsfu	Records provided by UK Ladybird Survey data from iRecord, accessed through NBN Atlas website.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr736	2
Sepsidae (Diptera) records from Britain and Ireland to 1985	doi:10.15468/tps7bt	Biological Records Centre ([Insert download year]). Sepsidae (Diptera) records from Britain and Ireland to 1985. Occurrence dataset on the NBN Atlas	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email brc@ceh.ac.uk , or https://registry.nbnatlas.org/public/show/dr735	1
Conchological Society of Great Britain & Ireland	-	Records provided by Conchological Society of Great Britain & Ireland, accessed through NBN Atlas website.	-	For more information: https://registry.nbnatlas.org/public/show/dp117	137
Biological Records Centre	-	Records provided by Biological Records Centre, accessed through NBN Atlas website.	-	For more information: email brc@ceh.ac.uk , or https://registry.nbnatlas.org/public/show/dp77	137
Pseudoscorpion Recording Scheme of the UK	doi:10.15468/kuczfi	Biological Records Centre ([Insert download year]). Pseudoscorpion Recording Scheme of the UK. Occurrence dataset on the NBN Atlas	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email brc@ceh.ac.uk , or https://registry.nbnatlas.org/public/show/dr1390	2
British Bryological Society	-	Records provided by British Bryological Society, accessed through NBN Atlas website.	-	For more information: email oliver.pescott@ceh.ac.uk , or https://registry.nbnatlas.org/public/show/dp74	835
British Lichen Society	-	Records provided by British Lichen Society, accessed through NBN Atlas website.	-	For more information: https://registry.nbnatlas.org/public/show/dp30	137
Silphidae Recording Scheme	-	Records provided by Silphidae Recording Scheme, accessed through NBN Atlas website.	-	For more information: https://registry.nbnatlas.org/public/show/dp222	1
Natural History Museum, London	-	Records provided by Natural History Museum, London, accessed through NBN Atlas website.	-	For more information: https://registry.nbnatlas.org/public/show/dp266	8
Bird Conservation Targeting Project (BCTP) in the UK, 2006-2011 (sensitive records)	doi:10.15468/595lfs	"The following acknowledgements of copyright and database right ownership, must be included in a conspicuous position in all copies of data and outputs: ""Reproduced by permission of the Bird Conservation Targeting Project. Â© Bird Conservation Targeting Project, 2010 (a partnership between the British Trust for Ornithology (BTO), the Centre for Environmental Data and Recording (CEDaR), the Countryside Council for Wales (CCW), the Department of Agriculture and Rural Development (DARD), Forestry Commission England (FCE), Forestry Commission Wales (FCW), Forest Service (FS), Natural England (NE), Northern Ireland Environment Agency, the RSPB and Scottish Natural Heritage (SNH)). All rights reserved."" The organisations contributing data to the project must also be acknowledged as follows: ""The Bird Conservation Targeting Project partners are grateful to the contributions of the data providers listed at www.rspb.org.uk/targeting """, and to	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email dataunit@rspb.org.uk , or https://registry.nbnatlas.org/public/show/dr489	2

		the many volunteers who collected these data."			
Water Beetle Surveys from Britain and Ireland	doi:10.15468/npcgrp	Balfour-Browne Club ([Insert download year]). Water Beetle Surveys from Britain and Ireland. Occurrence dataset on the NBN Atlas	Creative Commons Zero v1.0 (CC0) CC0	For more information: email Latissimus@btopenworld.com, or https://registry.nbnatlas.org/public/show/dr686	18
Records of amphibians and reptiles via iRecord	10.15468/vqyv5y	Amphibian and Reptile Conservation and Biological Records Centre. [Date of download] Records verified via iRecord.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr2769	3
Soldierflies and Allies Recording Scheme - data verified via iRecord	doi:10.15468/6pghte	Soldierflies and Allies Recording Scheme ([data of download]). Records via iRecord.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr680	1
CEDaR Online Recording	10.15468/ke4kw8	Records provided by CEDaR Online Recording, accessed through NBN Atlas website.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr1954	2106
Bird Conservation Targeting Project (BCTP) in the UK, 2006-2011	doi:10.15468/mep71d	"The following acknowledgements of copyright and database right ownership, must be included in a conspicuous position in all copies of data and outputs: ""Reproduced by permission of the Bird Conservation Targeting Project. Â© Bird Conservation Targeting Project, 2010 (a partnership between the British Trust for Ornithology (BTO), the Centre for Environmental Data and Recording (CEDaR), the Countryside Council for Wales (CCW), the Department of Agriculture and Rural Development (DARD), Forestry Commission England (FCE), Forestry Commission Wales (FCW), Forest Service (FS), Natural England (NE), Northern Ireland Environment Agency, the RSPB and Scottish Natural Heritage (SNH)). All rights reserved."" The organisations contributing data to the project must also be acknowledged as follows: ""The Bird Conservation Targeting Project partners are grateful to the contributions of the data providers listed at www.rspb.org.uk/targeting "" and to the many volunteers who collected these data."	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email dataunit@rspb.org.uk , or https://registry.nbnatlas.org/public/show/dr449	78
Soldierflies and Allies Recording Scheme	-	Records provided by Soldierflies and Allies Recording Scheme, accessed through NBN Atlas website.	-	For more information: https://registry.nbnatlas.org/public/show/dp37	1
Birds (BTO/JNCC/RS PB partnership)	-	Records provided by BTO, accessed through NBN Atlas website	Open Government Licence (OGL)	For more information: https://registry.nbnatlas.org/public/show/dr2370	2011
Ground Beetle Recording Scheme - data verified via iRecord	10.15468/gj8bkp	Ground Beetle Recording Scheme. [Date of download] Records verified via iRecord.	Creative Commons with Attribution 4.0 (CC-BY) CC BY Creative Commons Attribution	For more information: https://registry.nbnatlas.org/public/show/dr2377	29
Non-avian taxa (BTO/JNCC/RS PB partnership)	-	Records provided by BTO, accessed through NBN Atlas website	Open Government Licence (OGL)	For more information: https://registry.nbnatlas.org/public/show/dr2331	38
Vascular plant records verified via iRecord	10.15468/s4bje6	Botanical Society of Britain and Ireland. [Date of download.]	Creative Commons with Attribution 4.0 (CC-BY) CC BY	For more information: https://registry.nbnatlas.org/public/show/dr2177	3

		Vascular plant records verified via iRecord.	Creative Commons Attribution		
BLS Mapping Scheme dataset, 1750-2009	doi:10.15468/glbj05	Records provided by BLS Mapping Scheme dataset, 1750-2009, accessed through NBN Atlas website.	Records provided by BLS Mapping Scheme dataset, 1750-2009, accessed through NBN Atlas website.	For more information: email datamanager@britishlichensociety.org.uk , or https://registry.nbnatlas.org/public/show/dr753	137
Conchological Society of Great Britain & Ireland: non-marine molluscs (1999 Atlas dataset)	doi:10.15468/gbawjsj	Conchological Society of Great Britain & Ireland (2017), Conchological Society of Great Britain & Ireland: non-marine molluscs (1999 Atlas dataset). Occurrence dataset	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email secretary@conchsoc.org , or https://registry.nbnatlas.org/public/show/dr676	135
Collated IRTU Freshwater Surveys	10.15468/djppqaz	Collated IRTU Freshwater Surveys, CEDaR (2019)	Open Government Licence (OGL) NIEA	For more information: https://registry.nbnatlas.org/public/show/dr2019	3628
Bird Conservation Targeting Project (BCTP) in the UK, archived data (2001-2010) - sensitive records	doi:10.15468/k7ukcu	"The following acknowledgements of copyright and database right ownership, must be included in a conspicuous position in all copies of data and outputs: ""Reproduced by permission of the Bird Conservation Targeting Project. Â© Bird Conservation Targeting Project, 2010 (a partnership between the British Trust for Ornithology (BTO), the Centre for Environmental Data and Recording (CEDaR), the Countryside Council for Wales (CCW), the Department of Agriculture and Rural Development (DARD), Forestry Commission England (FCE), Forestry Commission Wales (FCW), Forest Service (FS), Natural England (NE), Northern Ireland Environment Agency, the RSPB and Scottish Natural Heritage (SNH)). All rights reserved."" The organisations contributing data to the project must also be acknowledged as follows: ""The Bird Conservation Targeting Project partners are grateful to the contributions of the data providers listed at www.rspb.org.uk/targeting ", and to the many volunteers who collected these data."	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email dataunit@rspb.org.uk , or https://registry.nbnatlas.org/public/show/dr474	3
Consultancy Contract Surveys - Marine Species Records	10.15468/hs4wyn	Centre for Environmental Data and Recording ([Insert download year]). Consultancy Contract Surveys - Marine Species Records. Occurrence dataset on the NBN Atlas	Open Government Licence (OGL) Centre for Environmental Data and Recording	For more information: https://registry.nbnatlas.org/public/show/dr1927	19
British Trust for Ornithology	-	Records provided by British Trust for Ornithology, accessed through NBN Atlas website.	-	For more information: email info@bto.org , or https://registry.nbnatlas.org/public/show/dp29	2049
Conchological Society of Great Britain & Ireland: non-marine mollusc records	doi:10.15468/6dexp9	Conchological Society of Great Britain & Ireland ([Insert download year]), Conchological Society of Great Britain & Ireland: non-marine mollusc records. Occurrence dataset on the NBN Atlas	Creative Commons with Attribution 4.0 (CC-BY) CC-BY	For more information: email secretary@conchsoc.org , or https://registry.nbnatlas.org/public/show/dr677	2
Centre for Environmental Data and Recording	-	Records provided by Centre for Environmental Data and Recording, accessed through NBN Atlas website.	-	For more information: email cedar.info@nmni.com , or https://registry.nbnatlas.org/public/show/dp139	6144

Appendix B

Ground Level Tree Assessment

ANNEX

GLTA						
No.	Date	Photo	Description	Evidence of Bats	GLTA	Tree Climbing Suitability
T1	24.10.24		Dead ash tree with rotten main stream with cavity present on the northern aspect and a wound ~ 3.5 m up on the northern aspect.	No	FAR	Yes (with ladders)