Advanced Technology Campus

Ecological Appraisal

Prepared by:
The Environmental Dimension Partnership Ltd

On behalf of:
Cardiff and Vale College

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DISCLAIMER TEXT

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S1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of Cardiff and Vale College (hereafter referred to as 'the Applicant'). This Appraisal considers the ecological implications of proposed development at Advanced Technology Campus (hereafter referred to as 'the Site'). In brief, the proposed development comprises a new educational campus for Cardiff and Vale College including landscaping, related infrastructure and engineering works.

S2 To establish the ecological baseline of the Site and subsequently inform a planning application submission for proposed development, a desk-study, Extended Phase 1 Habitat survey and further detailed surveys with respect to bats, [redacted] and common reptiles were completed by EDP during 2023.

S3 Pertinent statutory and non-statutory designated sites identified within the Zone of Influence (ZoI) of the Site, upon which impacts are likely to arise following development of the Site include: the Severn Estuary Ramsar Site and Special Protection Area (SPA); Barry Woodland Site of Specifical Scientific Interest (SSSI); and Land North of Blackton Farm Site of Importance for Nature Conservation (SINC).

S4 The Site comprises three fields (**F1**-**F3**), two of which comprise arable grassland whilst the third is characteristic of a poor semi-improved grassland sward, albeit with much bramble scrub encroaching from field margins. Such habitats are predominantly considered to be of Negligible Site level ecological importance, albeit with potential to support protected and notable species. Site/internal field boundaries are, however, delineated by native hedgerows and/or woodland which are considered of greater ecological importance and require further consideration in the context of the development proposals.

S5 Following progression of detailed surveys no common reptiles were identified on-site, indicating their likely absence and/or presence in such low numbers so as to be undetectable. With respect to bats, habitats support low activity levels relating primarily to common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygaemus*), with a single tree of low suitability to support roosting bats. Otherwise, habitats were considered suitable to support breeding birds, [redacted], common amphibians and other notable mammal species such as European hedgehog (*Erinaceus europaeus*), polecat (*Mustela putorius*) and brown hare (Lepus europaeus).

S6 Accordingly, EDP has provided specific proposals for the avoidance, mitigation and compensation of any predicted impacts including, where possible, the retention, protection and enhancement of those features of ecological importance (namely broadleaved woodland), combined with the creation of new habitat features including species-rich hedgerows, grassland and tree and shrub planting in compensation for proposed losses, combined with their sensitive management over the long term to provide benefits to biodiversity.

S7 Overall, given the scope of those proposed mitigation measures in respect of habitats and protected species, EDP considers that the scheme is capable of compliance with relevant wildlife legislation and planning policy for the conservation of the natural environment at all levels.

Section 1
Introduction

1.1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of Cardiff and Vale College (hereafter referred to as 'the Applicant'). This Appraisal considers the ecological implications of proposed development at Advanced Technology Campus (hereafter referred to as 'the Site').

1.2 This report has been prepared with reference to the following key guidance:

- Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Preliminary Ecological Appraisal*[1];
- CIEEM *Guidelines for Ecological Impact Assessment*[2]; and
- British Standard: *Biodiversity - Code of Practice for Planning and Development*[3].

1.3 EDP is an independent environmental planning consultancy with offices in Cirencester, Cardiff and Cheltenham. The practice provides advice to private and public sector clients throughout the UK in the fields of landscape, ecology, archaeology, cultural heritage, arboriculture, rights of way and masterplanning. Details of the practice can be obtained at our website (www.edp-uk.co.uk).

SITE CONTEXT

1.4 The Site is centred at Ordnance Survey Grid Reference (OSGR) ST 07429 67656. The Local Planning Authority (LPA) is Vale of Glamorgan Council (VoGC). The location and extents of the Site are illustrated on **Plan EDP 1** and described in the material supporting the planning application.

1.5 The Site measures approximately 3.7 hectares (ha) and is located in the town of Rhoose, within the district of Barry. The Site comprises greenfield land and overlaps with two arable fields. A third field in the south of the Site comprises poor semi-improved grassland which is subject to much scrub encroachment from relict hedgerow field boundaries. The eastern boundary of the Site is delineated by a linear strip of broadleaved woodland and tree line, while the southern boundary encompasses amenity grassland comprising the verge of an adjacent road.

1.6 Land to the north and east of the Site predominantly comprises arable farmland with field boundaries defined by hedgerows and woodland. Land to the south/south-west is associated with Cardiff Airport and Business Park, with the town of Rhoose located south of the airport. Overall, however, the Site and agricultural fields immediately adjacent to the north are enclosed

[1] CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester

[2] CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2*. Chartered Institute of Ecology and Environmental Management, Winchester

[3] BSI (2013). *Biodiversity - Code of Practice for Planning and Development*. BS 42020:2013. British Standards Institute

by existing development and main roads. Port Road lies directly adjacent to the eastern boundary, whilst the A4226 travels east to west c.240m north of the Site.

DEVELOPMENT PROPOSALS

1.7 In brief, the proposed development comprises a new educational campus for Cardiff and Vale College including landscaping, related infrastructure and engineering works. Of some pertinence, the Site is allocated for development as part of the St. Athan - Cardiff Airport Enterprise Zone Strategic proposals (Policy MG9, SP2 and SP5).

1.8 The proposals are to be the subject of a detailed planning application and the Illustrative Landscape Masterplan is provided as **Appendix EDP 1** to this report. The ecological sensitivities of the Site have influenced the final layout through an iterative design process. Thus, the masterplan incorporates a degree of 'inherent' mitigation to avoid or reduce the severity of any potential ecological impacts.

SCOPE OF THE ASSESSMENT

1.9 This Ecological Appraisal describes the current ecological interest within and around the Site, which has been identified through standard desk- and field-based investigations. It then considers the potential ecological impacts and opportunities for ecological enhancement, based on the final masterplan (incorporating inherent mitigation), in the context of relevant legislation and planning policy. Finally, this Appraisal identifies the necessary additional measures to avoid, mitigate or provide compensation for potential impacts, and the mechanisms for securing such measures.

1.10 The remainder of this report is structured as follows:

- **Section 2** summarises the methodology employed in determining the baseline ecological conditions within and around the Site (with further details provided within Appendices and on Plans where appropriate);
- **Section 3** summarises the baseline ecological conditions (with further details also provided within Appendices and on Plans where appropriate) and identifies and evaluates any pertinent ecological features/receptors;
- **Section 4** describes how the development design has responded to the ecological constraints and any embedded/inherent mitigation, and then considers the potential impacts of the proposals on pertinent ecological features;
- **Section 5** proposes mitigation and enhancement measures for the current and possible future planning stages, in the context of relevant legislation and planning policy, and mechanisms to secure their delivery; and
- **Section 6** summarises the Mitigation and Enhancement Strategy for the Site and provides the overall conclusions of the Appraisal.

Section 2
Baseline Methodology

2.1 This section of the Ecological Appraisal summarises the methodologies employed in determining the baseline ecological conditions within and around the Site. This has been undertaken by appropriately qualified ecologists, using relevant best practice methodologies wherever possible. Reasons for any departure from best practice methodology are given and normally relate to the timing of EDP's commission and/or the availability of access to parts of the Site or wider study area. Full details of the techniques and process adopted are, where appropriate, provided within Appendices and on Plans to the rear of this report.

DESK STUDY

2.2 The desk study is an important element of undertaking an initial ecological appraisal of a site proposed for development, which entails the initial collation and review of contextual information, such as designated sites, together with known records of important habitats or species.

2.3 The desk-study involved collating biodiversity information from the following sources:

- South and East Wales Biological Records Centre (SEWBReC); and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website[4].

2.4 The desk-study was undertaken during May 2023 and involved obtaining the following information:

- International statutory designations (10km radius around site);
- National statutory designations and non-statutory local sites (2km radius);
- Annex II bat species[5] records (6km radius);
- All other protected, priority[6] and notable[7] species records (2km radius); and
- All other notable habitat records (500m radius).

2.5 These search areas are considered sufficient to cover the potential Zones of Influence (ZoI)[8] of the proposed development in relation to designated sites, habitats and species.

[4] www.magic.gov.uk

[5] Bat species listed in Annex II of the EC *Habitats Directive*, namely Greater horseshoe, Lesser horseshoe, Barbastelle and Bechstein's bats

[6] Species considered of key significance to sustain and improve biodiversity in Wales, as defined under Section 7 of Part 1 of the *Environment (Wales) Act* 2016.

[7] Notable species are those which are not legally protected but are formally identified as being of conservation concern

[8] Zone of Influence - the areas and resources that may be affected by the proposed development

2.6 The adopted Vale of Glamorgan Local Development Plan (LDP)[9] and Supplementary Planning Guidance (SPG) - Trees, Woodlands, Hedgerows and Development (2018)[10] and Biodiversity and Development (2018)[11] were also reviewed as part of the desk study, to understand local priorities with regard to protection of ecological features/biodiversity.

EXTENDED PHASE 1 HABITAT SURVEY

2.7 The main habitats within the Site, together with their dominant/characteristic plant species, were identified by undertaking an Extended Phase 1 Habitat survey in May 2023.

2.8 Full details of the habitat survey methodology, and any limitations encountered are provided within **Appendix EDP 2**, whilst the survey area is illustrated at **Plan EDP 1**.

DETAILED (PHASE 2) SURVEYS

2.9 The scope of Phase 2 surveys undertaken within the Site was defined following the initial studies described above.

2.10 The surveys 'scoped in' based upon the findings of the Extended Phase 1 Habitat survey are summarised in turn below, with reference to sources of further detailed information where applicable.

Bat Surveys

2.11 During the Extended Phase 1 Habitat survey, two trees present within, or immediately adjacent to the Site were identified as having potential to support roosting bats. In addition, a number of habitats present within the Site, including scrub, hedgerow and poor semi-improved grassland, were identified as being of low suitability to support foraging and commuting bats. The following surveys for bats were therefore undertaken, with reference to best practice guidelines[12], current at the time of survey.

Bat Roost Inspection Surveys - Trees

- Preliminary ground-level roost assessment of trees for bat roosting suitability, undertaken on 16 May 2023.

[9] Vale of Glamorgan (201). Vale of Glamorgan Local Development Plan 2011-2026. Available at: https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/LDP/LDP-Adoption/Adopted-LDP-Written-Statement-June-2017-final-interactive-web-version.pdf [Accessed on 10 November 2023]

[10] Vale of Glamorgan (2018). Trees, Woodland, Hedgerows and Development Supplementary Planning Guidance. Available at: https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/SPG/Final-Trees-Woodlands-Hedgerows-and-Development-SPG-2018-v2.pdf [Accessed on 10 November 2023]

[11] Vale of Glamorgan (2018). Biodiversity and Development Supplementary Planning Guidance. Available at: https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/Biodiversity-and-Development-SPG-2018.pdf [Accessed on 10 November 2023]

[12] Collins, J. (ed.) (2016). *Bat Surveys: for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London

Bat Activity Surveys:

- Manual transect surveys conducted seasonally in May, July and September 2023; and
- Automated detector surveys conducted seasonally in May, July and September 2023.

2.12 Full details of the bat survey methodologies, and any limitations encountered, are provided in **Appendix EDP 3**.

[redacted]

Reptile Survey

2.16 Areas of scrub, poor semi-improved grassland, arable field margins and hedgerows/woodland present within the Site provide suitable basking, foraging, dispersal and hibernation habitats for common and widespread reptile species. A detailed refugia-based reptile survey was therefore undertaken to confirm the presence and distribution, or likely absence, of reptiles within the Site. with reference to best practice guidelines.[13]

2.17 A total of 68 artificial refugia were deployed within suitable habitats across the Site on 30 May 2023. Areas of exceptionally low or negligible suitability for reptiles (for example, mown amenity grassland) were excluded from the survey. This equates to c.18 refugia per hectare, which is greater than the recommended 5 to 10 refuges per hectare as set out in the

[13] Froglife (1999). *Reptile Survey: an Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation*. Froglife Advice Sheet 10, Froglife, Halesworth

best practice guidelines for 'general survey purposes.' Survey visits were undertaken on seven subsequent occasions in suitable weather conditions and involved two techniques:

- Visual encounter surveys – entailing a walked transect across the Site to undertake a visual search for basking animals in suitable habitat or evidence of animals (e.g., sloughed skin); and
- Checking of the artificial refugia for sheltering or basking animals to establish the presence/likely absence of reptiles.

2.18 This ensured that all accessible areas were represented in the survey, and that the survey was not biased towards those reptiles more likely to use refugia, such as slow-worm (*Anguis fragilis*).

2.19 During each survey visit, the following information was recorded: species, number of animals observed, and sex where possible, location (refugia or visual encounter), date, start and finish times, and weather. A summary of the survey dates, times and weather conditions are presented in **Table EDP 2.1**. The locations of the artificial refugia are shown on **Plan EDP 2**.

Table EDP 2.1: Reptile Survey Visits Weather Conditions

Survey Visit	Date	Start Time	End Time	Wind Speed (Beaufort Scale)		Temperature (^{0}C)		Cloud Cover (%)	
				Min	Max	Min	Max	Min	Max
1	27.06.23	08:27	09:22	1	2	15	17	50	100
2	17.07.23	09:24	10:40	3	3	16	16	50	60
3	30.08.23	09:35	10:46	2	2-3	14	16	10	50
4	13.09.23	09:00	11:00	0	0	13	16	10	10
5	21.09.23	09:30	10:30	0	1	15	15	20	30
6	26.09.23	09:47	10:38	2	4	15	17	20	80
7	05.10.23	15:00	16:30	2	3	16	17	50	70

Limitations

2.20 Throughout the duration of the survey, a number of the mats where disturbed or moved. It was thought that this was due to vandalism with unknown persons occupying the Site from August onwards. Additionally, some land management was undertaken during September 2023 and required relocation of some mats to facilitate this (**Plan EDP 2**). This is not considered a significant limitation to the survey effort, with more than the recommended number of artificial refugia deployed for the purpose of the survey.

2.21 All surveys were completed during suitable weather considers within the reptile active season, such that the survey is not considered to be constrained by seasonal and climatic factors.

ECOLOGICAL SURVEYS SCOPED OUT

2.22 **Table EDP 2.2** summarises other survey types which, whilst occasionally required to inform a planning submission for development sites, are not deemed to be necessary/appropriate in this case.

Table EDP 2.2: Ecology Surveys Scoped Out

Survey Type	Reasons for Scoping Out
Detailed Botanical Survey	The Site is dominated by arable land, dense scrub and poor semi-improved grassland. Woodland and hedgerows delineate the Site and internal field boundaries. Such habitats were typically species-poor and lacking in structural diversity. No notable plants species were recorded during the Extended Phase 1 survey. No further assessment of floristic communities is, therefore, considered necessary to inform a planning application.
Hedgerow Assessment	A formal assessment of the hedgerow network in accordance with the wildlife criteria of the *Hedgerow Regulations* 1997 was not possible due to the proliferation of dense scrub, which prevented access to the base of each hedgerow. Identification of woody species comprising each hedgerow was, however, possible from a distance with the on-site hedgerow network considered unlikely to qualify as 'important,' given their species-poor nature with limited connections and apparent absence of hedgerow features (banks/ditches etc).
Breeding and Wintering Birds	Given the relatively small size of the Site and nature of those habitats supported therein, no further breeding or wintering bird surveys are recommended in this instance. Precautionary measures of clearance during the pre-construction phases of development are instead recommended to ensure no harm/disturbance to nesting birds (if found to be present).
Dormouse (*Muscardinus avellanarius*)	Although dense scrub and hedgerow/woodland boundaries comprise suitable habitat for dormouse, the Site and adjacent fields are isolated from suitable habitat in the wider landscape by Port Road to the east, the A4226 carriageway to the north and Cardiff Airport to the south and west, all considered significant barriers to the dispersal of dormouse. Combined with the absence of desk study records within 2km of the Site, this species is presumed absent.
Otter (*Lutra lutra*)/ Water Vole (*Arvicola amphibius*)	There is no suitable habitat for either species on or adjacent to the Site, with both species presumed absent.

Survey Type	Reasons for Scoping Out
Great Crested Newt (*Triturus cristatus*)	There is no suitable aquatic habitat on-site. Although poor semi-improved grassland, scrub and hedgerow/woodland boundaries provide suitable terrestrial habitat for this species, the Site and adjacent fields are isolated from suitable habitat in the wider landscape by Port Road to the east, the A4226 carriageway to the north and Cardiff Airport to the south and west; all considered significant barriers to the dispersal of great crested newt. Combined with the absence of connecting and suitable breeding habitat within 500m of the Site, this species is presumed absent.
Invertebrates	Habitats present on-site, dominated by arable land and species-poor grassland and scrub, are considered likely to support a limited assemblage of common and widespread invertebrate species only. No further survey is considered necessary in this instance.

Section 3
Baseline Results

3.1 This section of the Ecological Appraisal summarises the baseline ecological conditions determined through the course of desk-based and field-based investigations described in **Section 2**. In particular, this section identifies and evaluates those ecological features/-receptors that lie within the Site's potential ZoI and which are pertinent in the context of the proposed development. Further technical details are, where appropriate, provided within Appendices and on Plans to the rear of this report.

3.2 Where a particular ecological feature/receptor has been confirmed to be present, or presence is inferred based on habitat suitability, its ecological importance is assessed. The level of ecological importance assigned to each ecological feature is based upon established geographical value systems and the uses the following scale: International and European (highest) > National > Regional > County > District > Local > Negligible (lowest).

DESIGNATED SITES

3.3 Information regarding designated sites was obtained during the desk study. Statutory designations (those receiving legal and planning policy protection) and non-statutory designations (those receiving planning policy protection only) are discussed in turn below.

Statutory Designations

3.4 Statutory designations represent the most significant ecological receptors. Internationally important statutory designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites (including potential SPAs, possible SACs and proposed Ramsars). These designations are protected under the *Conservation of Habitats and Species Regulations* 2017 (as amended) (the *Habitats Regulations*).

3.5 Nationally important statutory designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). NNRs are also SSSIs, both of which are protected under the *Wildlife and Countryside Act* 1981 (as amended) (WCA).

3.6 The legal protection of SACs, SPAs, Ramsar Sites and SSSIs is also reflected in policies included within *Planning Policy Wales 11* (PPW) and within T*echnical Advice Note 5: Nature Conservation and Planning* (TAN5), which are a material consideration during the planning application process.

3.7 Local level statutory designations include Local Nature Reserves (LNRs) and are generally considered to be of importance at the County level or lower. LNRs are designated under the *National Parks and Access to the Countryside Act* 1949, however protection of LNRs is given via local planning policies and/or by-laws.

3.8 Statutory designations are also recognised as key natural assets within the adopted Vale of Glamorgan Local Development Plan (LDP). Specifically, Policy SP10 (Built and Natural Environment) requires proposals to preserve and, where appropriate, enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including sites designated for their local, national and European nature conservation importance.

3.9 Of further consideration Policy MG19 (Sites and Species of European Importance) states, in part:

"Development proposals likely to have a significant effect on a European site, when considered alone or in combination with other projects or plans will only be permitted where:

- *The proposal is directly connected with or necessary for the protection, enhancement and positive management of the site for conservation purpose; or*
- *The proposal will not adversely affect the integrity of the site;*
- *There is no alternative solution;*
- *There are reasons of overriding public interest; and*
- *Appropriate compensatory measures are secured."*

3.10 Meanwhile, Policy MG20 (Nationally Protected Sites and Species) states, in part:

"Development likely to have an adverse effect either directly or indirectly on the conservation value of a site of special scientific interest will only be permitted where it is demonstrated that:

- *There is no suitable alternative to the proposed development; and*
- *It can be demonstrated that the benefits from the development clearly outweigh the special interest of the site; and*
- *Appropriate compensatory measures are secured; or*
- *The proposal contributes to the protection, enhancement or positive management of the site."*

3.11 No part of the Site is covered by any statutory designations. However, there are two Internationally important designations within 10km of the Site, two Nationally important designations within 2km of the Site, and one County important designation within 2km of the Site. These sites are summarised below in **Table EDP 3.1** and illustrated on **Plan EDP 3**.

Table EDP 3.1: Statutory Designations within the Site's potential ZoI

Designation	Approximate Distance from Site	Interest Feature(s)
Internationally Important Statutory Designated Sites (within 10km of the Site)		
Severn Estuary Ramsar Site and SPA	8.9km south-east	The boundaries of these designations within 10km of the Site cover a small area associated with Sully Island. Ramsar: The estuary has the second highest tidal range in the world, resulting in an extensive intertidal zone. The invertebrate community provides an important food source for passage and wintering waders. The site is of particular importance for staging nationally important numbers of several species of waterbirds and supports internationally important numbers of various species of wintering waterbirds. SPA: The Severn Estuary is particularly important for migratory birds, with its tidal flats and associated wetlands regularly supporting over 20,000 wintering waterfowl. Internationally important populations of five species of waterfowl are regularly supported by the estuary. These include European white-fronted goose (*Anser albifrons albifrons*), shelduck (*Tadorna tadorna*), gadwall (*Anas strepera*), dunlin (*Calidris alpina*) and redshank (*Tringa totanus*).
Nationally Important Statutory Designated Sites (within 2km of the Site)		
Barry Woodlands SSSI	708m north-east	The site comprises a series of 14 separate semi-natural broadleaved woodland blocks. The ground flora of these woodlands is of particular interest as it is especially rich, even in areas replanted with non-native trees.
Cliff Wood – Golden Stairs SSSI	1.5km south-east	The best example of a mixed woodland in South Glamorgan, which has a canopy of pedunculate oak (*Quercus robur*), ash (*Fraxinus excelsior*), maple (*Acer* spp.) and yew (*Taxus baccata*). The interesting, ungrazed ground flora and wooded cliff areas include purple gromwell (*Lithospermum purpurocaeruleum*), which is restricted to a very small number of sites in the county.

Designation	Approximate Distance from Site	Interest Feature(s)
County Important Statutory Designated Sites (within 2km of the Site)		
Cliff Wood – Golden Stairs LNR	1.5km south-east	The best example of a mixed woodland in South Glamorgan.

Non-statutory Designations

3.12 Non-statutory designations are also commonly referred to in planning policies as 'local sites', although such designations are typically considered to be of importance at a County level. In the Vale of Glamorgan, such designations are termed Sites of Importance for Nature Conservation (SINCs). Additional sites such as non-designated nature reserves (e.g., Wildlife Trust nature reserves) and Ancient Semi-natural Woodland (ASNW) are considered here when not covered by other designations. The importance of SINCs is recognised in PPW and in the VoG LDP, specifically Policy MG21 (Sites of Importance for Nature Conservation, Regionally Important Geological Geomorphological Sites and Priority Haitats and Species) which states:

"Development proposals likely to have an adverse impact on sites of importance for nature conservation or priority habitats and species will only be permitted where it can be demonstrated that:

- *The need for the development clearly outweighs the nature conservation value of the site;*
- *Adverse impacts on nature conservation and geological features can be avoided;*
- *Appropriate and proportionate mitigation and compensation measures can be provided; and*
- *The development conserves and where possible enhances biodiversity interests."*

3.13 No part of the Site is covered by any non-statutory designations. There are 19 SINCs located within 2km of the Site, as summarised in **Table EDP 3.2** and shown on **Plan EDP 4**.

Table EDP 3.2: Non-Statutory Designations within 2km of the Site

Designation	Approximate Distance from Site	Interest Feature(s)
North West Bullhouse Brook, SINC	336m south-east	A small semi-natural woodland, also designated as ASNW, occupying a small dry valley feature on a south-facing slope. The wood is fenced on all sides and has good structure.
North Bullhouse Brook, SINC	558m south-east	An area of native woodland also designated as ASNW.

Designation	Approximate Distance from Site	Interest Feature(s)
West of Old Rectory, SINC	887m south-east	A small *"L-shaped"* woodland situated on steep west and south-west facing slopes, just north of the Porthkerry viaduct. The northern quarter of the wood is grazed by cattle, has a very poor understorey but a rich ground flora in areas inaccessible to cattle trampling. The remainder of the wood is fenced all around and has a dense understorey with much bramble.
South-west of Church Farm SINC	957m south-east	A small cattle-grazed pasture, part of a larger ranched unit. The upper (north-facing) slopes of this field support an unimproved neutral grassland sward (MG5).
Porthkerry, SINC	1.0km south-east	A small area of deciduous woodland on a steep north-facing slope; the railway line marks the south-eastern boundary. There is much sycamore (*Acer pseudoplatanus*) in the canopy, and ivy (*Hedera helix*) and dog's mercury (*Mercurialis perennis*) are the dominant field layer species. Pedunculate oak is frequent on the upper slopes along with much hazel (*Corylus avellana*). Bramble (*Rubus fructinosus* agg.) can be locally dominant and pendulous sedge (*Carex pendula*) very common on lower lopes.
Land North of Blackton Farm SINC	1.0km north-east	Three small fields on the Weycock floodplain that support a tall swamp community, where greater (*Carex riparia*) and lesser pond sedge (*Carex acutiflorus*) are dominant and meadowsweet (*Filipendula ulmaria*) and hard rush (*Juncus inflexus*) abundant. A tall, thick hedgerow separates the southernmost field from the others. Several small streams/ditches meander across the site to flow into the River Waycock, which forms the northern boundary.
Church Hill Wood SINC	1.06km north, north-west	A linear semi-natural woodland running 2.5km east to west along the steep southern (north-facing) side of the River Waycock valley. Part of the western section of the wood is open to cattle grazing and is severely poached. The eastern end (Mill Wood) is also open to cattle but here there is a very attractive wood pasture with many veteran English oaks. The rest of the wood is fenced and has good structure. The River Waycock forms the northern boundary for much of the 2.5km length.

Designation	Approximate Distance from Site	Interest Feature(s)
Knock Man Down Wood SINC	1.25km south-east	A linear woodland situated between the railway line and the amenity grassland of Porthkerry Country Park, this semi-natural community has a steep southerly aspect. There are groves of planted beech (*Fagus sylvatica*) where understorey and field layer are notably poor. Other areas are more species-rich but the understorey is rarely dense. Free draining throughout.
North-east of Knock Man Down Wood SINC	1.3km east	A large area of semi-natural broadleaved woodland occupying much of the steeply sloping valley sides in the north of the Porthkerry Country Park. There is very good structure throughout this extensive woodland. Where the woods abut farmland, the boundaries are fenced; elsewhere they are diffuse. The northern part of this site adjoins a small stream on its eastern side, which is heavily shaded and poorly vegetated. There are blocks of dense, tall herb vegetation in places.
Curnix Farm SINC	1.4km north-west	Limited information available. Comprises c.6ha. of unimproved grassland.
Land South of Curnix Farm, SINC	1.4km north-west	Encompasses six fields which lie in the narrow flood plain of the River Waycock; they are horse-grazed and support grassy, tall, herb fen vegetation. The River Waycock forms the southern boundary.
Land South-west of Curnix Farm, SINC	1.5km north-west	A species-rich horse-grazed pasture on the lower slopes of a south-facing valley side; there is also a large block of scrub here. A hedgerow separates this field from six very small pastures, divided by ditches filled with emergent vegetation.
Land South of Penmark, SINC	1.6km north-west	*Pers comm* from VoGC Council Ecologist has noted this SINC has suffered a lot of damage. A small site, presumably once a minerals extraction site, most recently horse-grazed, now abandoned. Dense scrub is present around the boundaries and there is also much dense bramble within the site. Large areas of skeletal soils support a diverse range of herbs and grasses. The site would appear to offer excellent invertebrate and reptile habitat.
South of Cwm Ciddy Farm, SINC	1.65km east	No information available.

Designation	Approximate Distance from Site	Interest Feature(s)
Rhoose Point, SINC	1.7km south, south-west	A very large site, an abandoned quarry with cliff faces, large vegetated and bare pools, areas of rush-dominated grassland, dense and scattered scrub, a small area of reedbed, large area of unmanaged calcareous grassland, skeletal floras of perennial and ephemeral species and coastal cliffs. Several notable plant species have been found here, as well as populations of adder (*Vipera berus*), smooth newt (*Lissotriton vulgaris*) and palmate newt (*Lissotriton helveticus*).
North Cwm Barri, SINC	1.8km west	Not considered exceptional but has a good range of typical native woodland species; its exclusion from the wider SSSI/SINC network in the Porthkerry area would be anomalous.
Land North of Penmark, SINC	1.85km north-west	Two small contiguous fields divided by a ditch. These fields are a tall swamp community dominated by pond sedges. There is some common reed (*Phragmites australis*) in the hedge that forms the northern boundary to the site. Adjacent flood plain pastures had recently been mown prior to this survey. The River Waycock forms the southern boundary.
Land to North-east of Penmark, SINC	1.9km north-west	A small, semi-natural broadleaved woodland on the south-facing slope of the Waycock Valley. It is fenced all round and has a fairly good structure. A belt of dense but species-poor woodland/scrub is present on its western side. Free draining with a small and steep dry valley in the east. Scattered mature larch (*Larix* sp.) are present.
Readers Way Pond, SINC	1.95km south-west	Two connected man-made ponds located on the edge of a housing estate in Rhoose. supporting an important population of breeding great crested newt (*Triturus cristatus*). The ponds appear to be fed by rainwater, and the smaller pond has an inlet pipe which takes run-off from the airport runway to the north.

3.14 Of further pertinence, several parcels of Restored Ancient Woodland (RAW) and ASNW were identified within 2km of the Site, the closest overlapping with North West Bullhouse Brook SINC, c.336m south-east of the Site.

HABITATS

3.15 There are several mechanisms by which habitats that lie outside of statutory and non-statutory designations are protected, or by which their importance is recognised at a national level. This includes the following:

- 'Important' hedgerows are protected from removal (outwith the planning process) by the *Hedgerows Regulations* 1997;
- Certain habitats comprise priority habitats, which public authorities in Wales must seek to maintain and enhance (to promote ecosystem resilience) as part of policy or decision-making under Section 6 of the *Environment (Wales) Act* 2016;
- PPW includes a presumption against development which results in significant harm to biodiversity and ecosystem functioning, or results in the loss of irreplaceable habitat[14]. PPW also sets out how planning authorities should fulfil their 'Biodiversity and Resilience of Ecosystems Duty' as required the *Environment (Wales) Act*; and
- The importance of protecting habitats, and networks of habitats, is reflected in the Vale of Glamorgan local Development Plan, specifically Policy MG21.

3.16 The distribution of different habitat types within and adjacent to the Site is illustrated on **Plan EDP 1.** The habitats are further described in **Appendix EDP 2** alongside illustrative photographs. A summary and qualitative assessment of these habitats is provided in **Table EDP 3.3**. **Plan EDP 1** also shows the field/hedgerow numbers referred to below.

Table EDP 3.3: Summary of Habitats within the Site

Habitat Type	Distribution	Intrinsic Ecological Importance*
Arable	Fields **F1** and **F2**, both fallow and re-vegetated with grassland/herb species typical of agriculturally improved land.	Negligible
Poor Semi-improved Grassland	Field **F3**.	Negligible
Amenity Grassland	Occupying an earth bund along the southern boundary of the Site.	Negligible
Dense Scrub	In association with field boundaries and dominant across field **F3**.	Negligible
Native Hedgerows	Delineating internal field boundaries (**H1**-**H5**).	Local (priority habitat)
Broadleaved Semi-natural Woodland	Along part of eastern boundary of the Site and predominantly comprises unmanaged, mature shrub species.	Local (priority habitat)

[14] Irreplaceable habitats are technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed. Habitats noted as irreplaceable within PPW are ancient woodland, semi-natural woodland, and ancient, veteran and heritage trees.

Habitat Type	Distribution	Intrinsic Ecological Importance*
Scattered Trees	Scattered throughout field **F3** and in association with Site/internal field boundaries.	Site

*Importance irrespective of any protected, priority or other notable species which may be present

3.17 As noted within **Table EDP 3.3**, the majority of the Site is made up of habitats which are of less than Local, or Negligible, intrinsic importance. However, hedgerows and woodland are judged to be of Local level importance and comprise priority habitats for Wales. Furthermore, a number of these habitats, including those which are of limited intrinsic importance, also require consideration in relation to their importance in maintaining populations of protected, priority or other notable species. This is discussed further below.

PROTECTED, PRIORITY OR OTHER NOTABLE SPECIES

3.18 Certain species receive legal protection in the UK and are commonly known as 'protected species.' In reality, the level of protection for different species varies considerably, from protection solely against 'killing and injury' to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below.

3.19 In addition to protected species there are other species/species-groups that do not receive legal protection, but which are notable owing to their conservation status. This includes Priority Species, which public authorities in Wales must seek to maintain and enhance as part of policy or decision-making under Section 6 of the *Environment (Wales) Act* 2016. PPW recognises species as an important component of biodiversity, as does the VoGC LDP. Specifically, Policy MG19 (Site and Species of European Importance) states:

"Development proposals likely to have an adverse effect on a European protected species will only be permitted where:

- *There are reasons of overriding public interest;*
- *There is no satisfactory alternative; and*
- *The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."*

3.20 Of further consideration is Policy MG20 (Nationally Protected Sites and Species):

"Development proposals likely to affect protected species will only be permitted where it is demonstrated that:

- *The population range and distribution of the species will not be adversely impacted;*
- *There is no suitable alternative to the proposed development;*

- *The benefits of the development clearly outweigh the adverse impacts on the protected species; and*

- *Appropriate avoidance, mitigation and compensation measures are provided."*

3.21 Consideration of Priority Species is also given within Policy MG21 (Sites of Importance for Nature Conservation, Regionally Important Geological Geomorphological Sites and Priority Haitats and Species).

3.22 The likelihood of presence, or confirmed presence, of protected, priority or other notable wildlife species within the Site is summarised below with reference to desk study records, habitat suitability and detailed surveys where relevant. Further details are made available within the Appendices and Plans where referenced.

Breeding Birds

3.23 All wild birds, their nests and eggs are protected under the WCA. This makes it an offence to:

- Intentionally kill, injure or take any wild bird;

- Take, damage or destroy the nest of any wild bird while it is in use or being built;

- Take, damage or destroy the egg of any wild bird; or

- To have in one's possession or control any wild bird (dead or alive) or egg, or any part of a wild bird or egg.

3.24 In addition, further protection is afforded to those wild bird species listed on Schedule 1 of the WCA, prohibiting any intentional or reckless disturbance to these species while they are nest building, or at a nest containing eggs or young, or to recklessly disturb the dependent young of such a bird. A number of species are also included as Priority Species.

3.25 A large number of records of bird species were retrieved during the desk study, including 47 records of WCA Schedule 1 species, 106 records of Priority Species, and a further 159 records of species included on the latest Red and Amber lists of Birds of Conservation Concern in Wales[15]. The vast majority of records received relate to species that would not normally breed in habitats found within the Site.

3.26 Records of the species with suitable breeding and/or foraging habitat on-site include redwing (*Turdus iliacus*), fieldfare (*Turdus pilaris*), brambling (*Fringilla montifringilla*) and firecrest, (*Regulus ignicapillus*), all WCA Schedule 1 species.

3.27 Records of red listed species include common linnet (*Carduelis cannabina*), yellowhammer (*Emberiza citrinella*), kestrel (*Falco tinnunculus*), greenfinch (*Carduelis chloris*), willow warbler (*Phylloscopus trochilus*) and meadow pipit (*Anthus pratensis*).

[15] Johnstone, I.G., Hughes, J., Balmer, D.E., Brenchley, A., Facey, R.J., Lindley, P.J., Noble, D.G. & Taylor, R.C. 2022. *Birds of Conservation Concern Wales 4: the population status of birds in Wales*. Milvus 2:1.

3.28 Records of amber listed species include lesser redpoll (*Carduelis cabaret*), house sparrow (*Passer domesticus*), dunnock (*Prunella modularis*), bullfinch (*Pyrrhula pyrrhula*), and short-eared Owl (*Asio flammeus*).

3.29 Dense scrub, hedgerows, woodland and scattered trees on-site provide suitable nesting habitat for breeding birds, whilst arable land and poor semi-improved grassland is likely to provide a foraging resource, albeit limited given their small extent and poor diversity. Particularly given the relatively small size of the Site and location adjacent to Cardiff Airport, the presence of significant populations of notable species is considered unlikely, with habitats present more likely to support assemblages of common and widespread bird species. Incidental sightings of the following BoCC listed/Priority Species were, however, recorded during the Extended Phase 1 Habitat survey: herring gull (*Larus argentatus*), magpie (*Pica pica*), carrion crow (*Corvus corone*), bullfinch, dunnock, whitethroat (*Sylvia communis*) and skylark (*Alauda arvensis*), with other garden variety species also recorded.

3.30 Although a single skylark was recorded during the Extended Phase 1 Habitat survey, no evidence of breeding behaviour nor presence of nests were recorded. The Site is considered unlikely to be of value to a notable populations of ground nesting birds, such as skylark, given the relatively small size of the fields and nature of the field boundaries and surrounding landscape, which would deter a breeding population from establishing.

3.31 The assemblage of breeding birds likely supported by the Site is thus considered to be of no more than Site level importance, with a wintering bird assemblage considered to be of negligible importance given the limited foraging resource available over winter.

Bats

3.32 All species of British bat are listed as European Protected Species (EPS) on Schedule 2 of the *Habitats Regulations*. This affords strict protection to bats and their roosts, and makes it an offence to:

- Deliberately capture, injure or kill a wild animal of an EPS;
- Deliberately disturb wild animals of an EPS wherever they are occurring, in particular, any disturbance which is likely to impair their ability to survive, to breed or reproduce, to significantly affect the local distribution or abundance of the species to which they belong, or in the case of hibernating or migratory species, to hibernate or migrate; or
- Damage or destroy a breeding site or resting place of a wild animal of an EPS.

3.33 Additional protection for bats is also afforded under the WCA, making it an offence to intentionally or recklessly disturb bats whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place. In addition, soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), greater horseshoe bat (*Rhinolophus ferrumequinum*), barbastelle bat (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), and lesser horseshoe bat (*Rhinolophus hipposideros*) are also listed as Priority Species.

3.34 The desk-study returned 20 records for bats within a 2km search radius around the Site. These records relate to at least eight different species, with the closest record of confirmed bat roosting being for soprano pipistrelle located approximately 1.3km from the Site. Other species recorded include serotine (*Eptesicus serotinus*), noctule, *Myotis* sp. common pipistrelle (*Pipistrellus pipistrellus*), Leisler's (*Nyctalus leisleri*), brown long-eared (*Plecotus auritus*), whiskered (*Myotis mystacinus*), Daubenton's (*Myotis daubentonii*), natterer's (*Myotis natteri*).

3.35 Four records of Annex II species were returned within 6km of the Site. These records were of lesser horseshoe bat, including a maternity roost of approximately 400 bats, located approximately 2.8km to the west of the Site, recorded in 2013.

Bat Roosting

Trees

3.36 The bat roost inspection survey identified one tree within the Site (**T1**) and one tree adjacent to the Site (**T2**) with suitable features for bat roosting. Of these, **T2** was found to be of high suitability to support roosting bats and **T1** was considered to be of low suitability. All other trees were found to be of negligible suitability for roosting bats and have not been mapped/described. Full details are provided within **Appendix EDP 3**, with tree locations shown on **Plan EDP 1**.

Bat Foraging/Commuting Activity

3.37 Overall, the habitats present within the Site were assessed as being of low suitability for foraging and commuting bats, given the proximity of Cardiff Airport with the presence of main roads, isolating the Site to some extent from larger areas of continuous habitat.

3.38 The findings of the manual transect and automated detector surveys are provided in detail within **Appendix EDP 3** and the approximate distribution and diversity of bat species recorded during the transect surveys are illustrated on **Plans EDP 5**-**7**. Automated detector locations are shown on **Plan EDP 8**.

3.39 In summary, a total of seven bat species/species groups (*Myotis* and long-eared bat species were not identified to species level), were confirmed to be present foraging and/or commuting within the Site during the transect and/or automated detector surveys. With reference to the automated detector data tables, the vast majority of recorded bat calls were of common pipistrelle (average 44% of registrations) whilst soprano pipistrelle accounted for c.35% of registrations. *Myotis* sp. and noctule were occasionally recorded, accounting for c.11% and 7% respectively, whilst serotine accounted for c.2% and lesser horseshoe less than 1%.

3.40 Four species of bat were confirmed to be foraging and/or commuting within the Site during the course of manual transect surveys undertaken on three occasions, between May and September 2023. Relatively low levels of activity were recorded during May and September 2023. In May 2023, only a single common pipistrelle and *Myotis* bat was recorded. Seven calls were recorded during September 2023, dominated by soprano pipistrelle, with a single registration for serotine and two registrations of common pipistrelle. Slightly greater activity was recorded during July 2023, with common pipistrelle and soprano pipistrelle co-dominant. A single *Myotis* bat was also recorded. During July 2023; activity was greatest along the eastern boundary of the Site with Port Road.

3.41 Similar trends in bat activity were recorded during the automated detector surveys, with lowest activity levels recorded during May 2023 and slightly greater activity in September 2023. Bat activity at the Site was greatest during July 2023 but remained low-moderate.

3.42 Overall, arable land comprising fields **F1** and **F2** of the Site is considered of negligible importance to a bat assemblage. Dense scrub and poor semi-improved grassland are of comparatively greater value, albeit of limited importance due to their small extent within the Site combined with poor structural and botanical diversity, which would limit a diverse prey population. In addition, hedgerow boundaries and woodland provide linear features for the dispersal of a bat assemblage across the Site and adjacent habitats. Direct connectivity to suitable habitat in the wider landscape is, however, interrupted by the presence of main roads and existing development including Port Road to the east, the A4226 to the north and Cardiff Airport to the south and south-west, which are also likely to preclude presence of a notable bat assemblage due to elevated light and noise associated with these features.

3.43 Taking into account the diversity of bat species found utilising the Site during manual transect and automated detector surveys, and limited roosting opportunities, the overall bat assemblage using the Site is judged to be of Local level importance.

Dormouse

3.44 Hazel dormouse is an EPS receiving strict protection under the *Habitats Regulations* as summarised above in respect of bats. Additional protection is also afforded to this species under the WCA as summarised above in respect of bats. This species is also listed as a Priority Species.

3.45 No records for dormouse were returned within 2km of the Site's boundaries during the desk study.

3.46 Woodland, hedgerow boundaries and dense scrub provide suitable habitat for dormouse and opportunities for foraging, breeding and hibernation. However, the Site and adjacent fields are isolated from suitable habitat in the wider landscape by Port Road to the east, the A4226 carriageway to the north and Cardiff Airport to the south and south-west; all considered significant barriers to the dispersal of dormouse between the Site and wider landscape. This species is thus presumed absent from the Site.

Otter and Water Vole

3.47 Otter is an EPS receiving strict protection under the *Habitats Regulations* as summarised above in respect of bats. Additional protection is also afforded to this species under the WCA as summarised above in respect of bats. This species is also listed as a Priority Species.

3.48 Water vole and their burrows receive protection under Schedule 5 of the WCA. This makes it an offence to:

- Intentionally kill, injure or take (capture) a water vole;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a water vole uses for shelter or protection;

- Intentionally or recklessly disturb water voles while they are in a place of shelter or protection; and

- Water vole is also listed as a Priority Species.

3.49 Three records of otter were returned within 2km of the Site, the closest record being 1.2km from the Site. No records of water vole were returned within 2km of the Site. There is no suitable habitat for otter and water vole within or adjacent to the Site, such that both species are presumed absent.

[redacted]

Other Mammal Species

3.54 Records of the following priority mammal species were returned within 2km of the Site:

- Polecat (*Mustela putorius*) – one record returned within 2km of Site in 2015 (782m north of the Site);

- European hedgehog (*Erinaceus europaeus*)[16] – 12 records returned within 2km of Site, the closest of which is 792m to the south-east; and

- Brown hare (*Lepus europaeus*) – five records returned within 2km of Site, the closest of which is 257m to the east.

3.55 Dense scrub, hedgerows, woodland and poor semi-improved grassland provide suitable foraging and breeding habitats for polecat and European hedgehog, whilst arable land is also of some value to brown hare; particularly given their widespread distribution, there is a reasonable likelihood that these species are present on-site. The populations of polecat, European hedgehog and brown hare potentially occurring on-site are considered to be of Site level importance.

Great Crested Newt and other Amphibian Species

3.56 Great crested newt is an EPS receiving strict protection under the *Habitats Regulations* as summarised above in respect of bats. Additional protection is also afforded to this species under the WCA as summarised above in respect of bats. This species is also listed as a Priority Species.

3.57 Other legally protected amphibians are rare and have a very restricted distribution[17], however common toad (*Bufo bufo*) is a widespread species which is listed as a Priority Species.

3.58 No records of great crested newt were returned within 2km of the Site. However, a total of 38 records of other legally protected amphibians were found within 2km of the Site. These include 18 common toad (*Bufo bufo*) records, 10 common frog (*Rana temporaria*) records, seven palmate newt and three smooth newt records.

3.59 A review of OS mapping and aerial imagery identified three waterbodies within 500m of the Site. Of these, one waterbody is located c.300m north-east of the Site on the other side of Port Road, which is considered a significant barrier to the dispersal of great crested newt between this waterbody and the Site. A second waterbody, c.201m to the north, is located beyond Blackton Lane, which again is considered a partial barrier to dispersal of this species. The third pond is located 500m north-west of the Site and is considered sufficiently distant from the Site so as to not be considered a constraint to development, particularly given the dominance of arable land on-site and in the immediate surrounding landscape.

3.60 Arable land across fields **F1** and **F2** is considered of negligible suitability for a great crested newt population. Dense scrub and poor semi-improved grassland provide some suitable foraging habitat and hibernation opportunities but is considered sub-optimal, given its poor structural and botanical diversity. Hedgerow and woodland habitat, by contrast, are considered more optimal for a great crested newt population, providing more diverse opportunities for refuge whilst also aiding the dispersal of this species across the Site.

[16] Hedgehogs are also protected from capture or killing by specific methods under Schedule 6 of the WCA

[17] Natterjack toad (*Epidalea calamita*) and Northern pool frog (*Pelophylax lessonae*) are EPS, protected under the WCA and Priority Species

3.61 The Site is, however, isolated from suitable habitat in the wider landscape by Port Road to the east, the A4226 carriageway to the north and Cardiff Airport to the south and west, all considered significant barriers to the dispersal of great crested newt, such that this species is presumed absent from the Site.

Reptiles

3.62 All species of common reptile, namely common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix helvetica*) and adder (*Vipera berus*) receive at least limited protection from harm under the WCA, making it an offence to cause intentional killing and injuring of these species. In addition, these species are also listed as Priority Species.

3.63 Thirty-five reptile records were returned within 2km of the Site, including six records relating to grass snake and 29 records relating to slow-worm.

3.64 Arable land across fields **F1** and **F2** is considered of negligible suitability for common reptiles. Dense scrub and poor semi-improved grassland provide some suitable foraging habitat and hibernation opportunities but are considered sub-optimal for a population, given the poor structural and botanical diversity. Hedgerow and woodland habitat are, in contrast, considered more optimal for a common reptile population, providing more diverse opportunities for refuge whilst also aiding the dispersal of this species across the Site.

3.65 The Site is, however, isolated from suitable habitat in the wider landscape by Port Road to the east, the A4226 carriageway to the north and Cardiff Airport to the south and west, all considered significant barriers to the dispersal of reptiles. Indeed, no reptiles were recorded during detailed refugia surveys of the Site between June and October 2023, indicating their absence from the Site or else they are only present in such small numbers as to be undetectable. The survey findings are summarised in **Table EDP 3.4**.

Table EDP 3.4: Reptile Survey Results

Survey Date	Common Lizard		Slow Worm		Grass Snake	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
27.06.23	0	0	0	0	0	0
17.07.23	0	0	0	0	0	0
30.08.23	0	0	0	0	0	0
13.09.23	0	0	0	0	0	0
21.09.23	0	0	0	0	0	0
26.09.23	0	0	0	0	0	0
04.10.23	0	0	0	0	0	0
Peak Adult Count	**0**		**0**		**0**	

Invertebrates

3.66 A desk study returned multiple records for notable invertebrate species, predominantly associated with Rhoose Point SINC and Porthkerry Country Park. Records of Priority Species returned include white ermine (*Spilosoma lubricipeda*), latticed heath (*Chiasmia clathrate*), large nutmeg (*Apamea anceps*), lackey (*Malacosoma neustria*), knot grass (*Acronicta rumicis*), August thorn (*Ennomos quercinaria*), bloodvein (*Timandra comae*), buffer ermine (*Spilosoma lutea*), chalk carpet (*Scotopteryx bipunctaria cretata*), centre-barred sallow (*Atethmia centrago*), dot moth (*Melanchra persicariae*), dusky thorn (*Ennomos fuscantaria*) small square spot (*Diarsia rubi*), shoulder-striped wainscot (*Leucania comma*), shaded broad bar (*Scotopteryx chenopodiata*), brindled beauty (*Lycia hirtaria*), garden tiger (*Arctia caja*) and several bee species amongst others, with these species potentially occurring within habitats/feeding upon particular plant species present on-site.

3.67 Other records of notable species within 2km of the study area include white-letter hairstreak (*Satyrium w-album*) and stag beetle (*Lucanus cervus*), listed on Schedule 5 of the WCA, as well as records for several red data book species including: grayling (*Hipparchia semele*), wall (*Lasiommata megera*) and small heath (*Coenonympha pamphilus*).

3.68 Agricultural land present on-site is considered likely to support a limited assemblage of common and widespread invertebrate species only, particularly given its poor botanical diversity and homogenous nature. Woodland and hedgerows are likely to support a more diverse assemblage, albeit likely dominated by relatively common and widespread species given those habitats are similarly common and widespread in the wider landscape. As such, an invertebrate assemblage is not considered a constraint to future development of the Site and is of negligible importance in the context of proposed development.

Rare/Scarce Plant Species

3.69 A desk study returned several records for bluebell (*Hyacinthoides non-scripta*) within 2km of the Site, with select hedgerows and woodland on-site likely to support populations of this species. This is in addition to a number of records for red data book and locally important species, typically associated with the wider SINC network. The majority of these species are not typically found in association with the agriculturally improved habitats present on-site. No notable plant species were identified during the Extended Phase 1 Habitat survey.

3.70 A desk study also returned records of several invasive species listed under Schedule 9 of the WCA. These included records for Japanese knotweed (*Fallopia japonica*), three cornered garlic (*Allium triquetum*), wall cotoneaster (*Contoneaster horizontalis*), Himalayan balsam (*Impatiens glandulifera*), and entire-leaved cotoneaster (*Cotoneaster integrifolius*), No invasive species were identified within the study area during the Extended Phase 1 Habitat survey undertaken in 2023.

3.71 Overall, a scarce/rare plant community is considered to be of negligible importance in the context of the proposed development.

SUMMARY OF KEY SURVEY FINDINGS

3.72 The key ecological features/receptors pertinent to the development proposals, based on the survey findings described above, are set out in **Table EDP 3.5** and include those features which are of at least Local level importance and/or require further consideration due to their legal protection.

Table EDP 3.5: Summary of Ecological Features

Feature	Key Attributes	Ecological Importance
Statutory Designated Sites		
Severn Estuary Ramsar Site and SPA	8.9km south-east. The estuary has the second highest tidal range in the world resulting in an extensive intertidal zone, important for invertebrates and wintering waders and waterbirds.	International/European
Barry Woodlands SSSI	708m north-east. Semi-natural broadleaved woodland.	National
Cliff Wood – Golden Stairs SSSI and LNR	1.5km south-east. Mixed woodland.	National
Non-statutory Designated Sites		
North West Bullhouse Brook, SINC	336m south-east. ASNW.	County
North Bullhouse Brook, SINC	558m south-east. ASNW.	County
West of Old Rectory, SINC	887m south-east. ASNW.	County
South-west of Church Farm SINC	957m south-east. Unimproved neutral grassland.	County
Porthkerry, SINC	1.0km south-east, Deciduous woodland.	Couty.
Land North of Blackton Farm SINC	1.0km north-east. Of value for its tall swamp communities in the floodplain of the River Waycock.	County
Church Hill Wood SINC	1.06km north, north-west. Semi-natural woodland with River Waycock adjacent.	County
Land South of Curnix Farm, SINC	1.4km north-west. Grassland and fen communities in the floodplain of the River Waycock.	County
Habitats		
Native Hedgerows	Delineating internal field boundaries.	Local (priority habitat)
Broad-leaved semi-natural woodland	Along part of eastern boundary of the Site and predominantly comprises unmanaged, mature shrub species.	Local (priority habitat)

Feature	Key Attributes	Ecological Importance
Species		
Breeding Birds	Habitats likely to support an assemblage of common and widespread species.	Site
Roosting/Commuting/ Foraging Bats	On-site habitats provide a limited foraging resource and hedgerow/woodland boundaries of value for dispersal of an assemblage across the Site. One on-site tree considered to be of low suitability to support roosting bats.	Local
[redacted]	[redacted]	[redacted]
Common Reptiles/Amphibians	Habitats suitable for common reptiles/amphibians, although no reptiles were identified during detailed survey effort, indicating they are absent from the Site or present in such low numbers as to be undetectable.	Site
Notable mammals (European hedgehog, polecat, brown hare)	Habitats suitable for these species.	Site

Section 4
Impact Assessment

4.1 This section of the Ecological Appraisal first considers any avoidance/mitigation which is embedded within the development design, as represented by the Landscape Illustrative Masterplan provided as **Appendix EDP 1**. It then considers the likely impacts of the development proposals on the pertinent ecological features identified in **Section 3**, in the absence of additional mitigation. In brief, the proposed development comprises a new educational campus for Cardiff and Vale College including landscaping, related infrastructure and engineering works.

4.2 The Landscape Illustrative Masterplan has been influenced by initial consultation, specifically with Cardiff Airport adjacent to the Site. With respect to ecological matters, this included a request to consider "*the potential for the development/solar farm to become an attractant for birds, whether it be roosting, feeding, bathing, bodies of water or any other activity that might draw birds to the area. This will also need to consider any landscaping or replanting to ensure any plants don't attract birds or other animals that birds might feed upon,*" given the potential for large flocks of birds to poses a collision risk to planes.

EMBEDDED MITIGATION

4.3 The development layout, reflects some important measures to avoid, mitigate or compensate for ecological impacts, as well as other measures designed to provide long-term ecological enhancements. This embedded mitigation comprises the following:

- The retention of c.0.06ha/72% of woodland habitat/mature tree planting along the eastern boundary of the Site;
- Retention of trees **T1**–**T6** as numbered within the Arboriculture Impact Assessment, to be submitted with a planning application;
- Inclusion of sustainable drainage features including a swale and rain gardens, to manage surface water run-off from new development; and
- Inclusion of new green infrastructure features including shrub, tree and grassland planting as illustrated at **Appendix EDP 1**.

IMPACTS ON DESIGNATED SITES

Statutory Designations

4.4 As described in **Section 3**, there are five statutory designations within the potential ZoI of the Site. The potential impacts on these designations, in the absence of additional mitigation, are discussed below.

International Designations

4.5 The Severn Estuary Ramsar Site and SPA lie within 8.9km of the Site, encompassing a small area associated with Sully Island. Together this statutory site is designated for significant populations of overwintering waterfowl, and coastal, intertidal and subtidal habitats.

4.6 In accordance with Part 6 of the *Habitats Regulations*, a Habitats Regulations Assessment (HRA) is required where a plan or project may give rise to significant effects upon any European site designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes SACs designated for their habitats and/or species of European importance, and SPAs classified for rare, vulnerable and regularly occurring migratory bird species. Such requirements also apply to those sites going through the formal designation process, including candidate SACs (cSACs) and Sites of Community Importance (SCIs). Additionally, Government policy also affords the same level of protection to internationally important wetlands (Ramsar sites), potential SPAs (pSPAs), possible SACs (pSACs) and proposed Ramsar Sites, requiring such sites to also be treated as European sites for planning purposes.

4.7 VoG's Adopted Local Development Plan was subject to a Habitat Regulation Assessment (HRA) in 2013[18] which considered the likely significant effects to arise through policies inherent within the LDP, including Policy MG9 (Employment Allocations) on European sites within the ZoI. Such designations include, by virtue of their proximity and connectivity to the Site, the Severn Estuary Ramsar Site and SPA.

4.8 In particular, screening of employment allocations (which includes development of the Site) identified four main areas of impact arising that may have potential for significant effects on the integrity of designated sites within the Site's ZoI. These four main areas are:

- Water Resources – resulting from increased demand for water consumption arising from new residential and employment developments;
- Water Quality – Resulting from increased discharge requirements arising from new residential and employment developments and the potential for increased point source pollution, changes to surface water/run-off;
- Atmospheric Pollution – arising from a growth in airborne and surface transport as well as general development (emissions from construction/building stock); and
- Disturbance – predominantly as a result increased recreational activity arising from new residential and employment developments.

[18] Vale of Glamorgan Council (2013). Deposit Local Development Plan Habitat Regulations Assessment (Appropriate Assessment) Report. Available at https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/LDP/Examination-Documents-2015/SD11%20-%20Habitats%20Regulations%20Assessment%20-%20Appropriate%20Assessment%20Report%20of%20Deposit%20LDP%20(September%202013).pdf [Accessed on 15 November 2023]

4.9 Subsequently an Appropriate Assessment (AA) was undertaken to determine if there is the potential for the LDP to have adverse in combination effects on the integrity of the identified European sites.

4.10 The screening found that for the majority of site allocations, including Policies MG9, SP2 and SP5 relevant to the Site, there were no pathways for development to have direct impacts on European sites, given the distance of the allocations from designated habitats and species, and the lack of connectivity between the development and the potential receptors, whilst indirect effects could be either avoided or mitigated through LDP Policies.

4.11 At the Site level, no direct impacts upon the Severn Estuary Ramsar Site/SPA are anticipated given the distance and spatial separation of the Site from these designations. Whilst there are no surface waterbodies on-site, there does remain the potential for some level of surface/ground hydrological connection between the Site and the Severn Estuary. As such and in the absence of mitigation, there is the potential for more frequent use of the Site, and change in use from greenfield to development, to increase the level of contaminated surface water run-off to land drains, with subsequent negative effects the water quality of the Severn Estuary Ramsar site/SPA. Inherent within development proposals, however, is the inclusion of sensitive drainage features including a swale and rain gardens, to manage surface water run-off from the Site during the operational phase of proposed development. Such features can be designed to accommodate new planting including native shrubs and species-rich grassland, which would provide a new foraging resource for breeding birds, bats and invertebrates.

4.12 There does, however, remain the potential for impacts associated with increased contaminated surface water run-off during the construction phase of development, which could be transferred further downstream to the Severn Estuary. Pollution incidents could also arise as a result of leaks and spills from construction activities, resulting in the introduction of hydrocarbons and other contaminants from demolition activities, Site plant or of sediment loads arising from dust deposition or spoil movement.

National Designations

4.13 Barry Woodland SSSI, designated for its woodland habitat, lies 708m north-east of the Site whilst Cliff Woodland-Golden Stairs SSSI and LNR lies 1.5km south-east. Given the distance and spatial separation of these statutory designations from the Site, no effects upon qualifying habitat/species are anticipated to arise during the construction and operational phases of development. With respect to Barry Woodlands SSSI, however, there is the potential for indirect associated effects to arise during the construction and operational phases of development, following an increase in traffic levels and harmful emissions (NOx and NH3) to the atmosphere.

4.14 Such impacts are only likely where a main road passes within 200m[19] of the designation. In this instance, the A4226 lies directly adjacent to the boundary of this SSSI, affecting a c.2ha area. With respect to the Site, the A4226 travels east to west, c.240m to its north. Potential air quality impacts could therefore arise, albeit limited to a relatively small area accounting for 2.9% of the total SSSI area. Of further consideration, air quality data for the SSSI is available via APIS[20]

[19] Natural England (2018). *Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations*. NE Internal Guidance, V1.4 Final, June 2018

[20] Air Information Pollution System (2016). Available at https://www.apis.ac.uk/. [Accessed on 04 April 2023]

which indicates NOx and total Nitrogen levels are below the maximum critical load that is typical for woodland habitats.

Non-statutory Designations

4.15 As described in **Section 3**, there are 19 statutory designations within the potential ZoI of the Site. For the majority, non-statutory designated sites are considered sufficiently distant from the Site such that no direct impacts are anticipated. Whilst North West Bullhouse Brook SINC and North Bullhouse Brook SINC, designated for ASNW habitat, are located within 336m and 558m of the Site respectively, no direct nor indirect impacts (the latter associated with habitat degradation from recreation and deteriorations in air quality) are anticipated given their spatial separation, lack of public access rights and distance from main roads (in excess of 200m). These designations are thus scoped out of an assessment and will not be considered further.

4.16 There is, however, the potential for indirect effects to arise upon Land North of Blackton Farm SINC (designated for its wetland habitat) situated c.1km from the Site. Such impacts include the potential for an increase in contaminated surface water run-off form the Site during the construction and operation phase of development, given its potential hydrological connectivity to the Site via land drains located within 400m of the Site's western boundary. Similarly, Church Hill Wood SINC and Land South of Curnix Farm SINC lie adjacent to the River Waycock, downstream of the Site, such that water quality impacts may arise here also.

4.17 Further consideration has been given to the potential for localised, indirect effects upon West of Old Rectory SINC, South-west of Church Farm SINC and Porthkerry SINC, associated with degradation/trampling of sensitive woodland arising from increased recreational pressure. Given the nature of development, however, comprising an educational facility with no proposed residential accommodation, such effects are not considered significant, whilst inherent in the Landscape Illustrative Masterplan is the inclusion of social spaces and formal open green space to provide benefits to visual amenity and recreation on-site.

IMPACTS ON HABITATS

4.18 Habitats within the Site have been assessed through an Extended Phase 1 survey. The Site is, however, dominated by habitats of negligible ecological importance including arable land, poor semi-improved grassland, dense scrub and amenity grassland. The loss of such habitat features is not considered significant on ecological grounds.

4.19 However, loss of hedgerows present within the boundaries of the Site is proposed to accommodate new development, including **H1**, **H2**, **H3** and **H5**, with such losses amounting to c.405m. This is in addition to the erosion of woodland habitat along the eastern boundary of the Site, amounting to 0.025ha, with removal of scattered trees, predominantly across field **F3**. In the absence of mitigation, such losses are considered significant at a Local level.

4.20 In respect of retained habitat features, including 0.06ha of woodland and trees **T1**-**T6** as numbered within the Arboriculture Impact Assessment prepared by ArbTech, there is the potential for physical damage and/or indirect degradation of these features to occur during construction, given the proximity of built development and/or proposed landscaping works. Retained trees may be further subject to indirect impacts, such as soil compaction, erosion and

pollution (including air pollution). In the absence of mitigation such impacts are likely to be relatively minor, owing to such habitat being restricted to the Site boundaries.

4.21 Indirect effects associated with increased levels of disturbance will likely occur during the construction phase though the use of lighting and increased levels of vehicular traffic, machinery use and plant movement. Given that the majority of the works will be undertaken during daylight hours, the usage of artificial lighting will likely be limited to the early morning and early evening hours, with greater requirements for artificial lighting during the winter months. This could potentially impact upon retained trees and the species using it (see below). In the absence of additional mitigation, impacts associated with disturbance and lighting may persist during the operational phase following occupation of the Site.

IMPACTS ON PROTECTED, PRIORITY OR OTHER NOTABLE SPECIES

Breeding and Wintering Birds

4.22 Land take associated with the proposed development will result in the permanent loss of c.3.5ha of semi-natural habitat, of potential importance to a common and widespread bird assemblage for foraging and breeding during both the summer and winter months, albeit the potential for significant assemblages to be present is limited by the size of the Site and proximity of Cardiff Airport.

4.23 Circa 0.06ha of woodland habitat and **T1**–**T6** will, however, be retained although impacts associated with the degradation of such habitats may arise.

4.24 In the absence of mitigation, disturbance of nesting and foraging habitat for the bird assemblage through light spill, noise, visual and human disturbance during construction and operation, could potentially occur. Birds' sensitive to such disturbance could abandon nests and breeding territories and become displaced from other populations, whilst repeated disturbance during foraging behaviours may result in a decline in fitness.

4.25 Of further pertinence, is the potential for clearance of vegetation to result in direct harm/injury to nesting birds if present. However, the legal protection afforded to birds and their nests (their eggs and young) and the requirement to avoid commencement of such works during the breeding bird season, is considered inherent mitigation to ensure no effects relating to direct harm/injury arise in respect of the breeding bird assemblage. Therefore, negligible impact is predicted.

Bats

4.26 Development will also result in the loss of several trees present across the Site; however, the majority of trees on-site are considered to have negligible potential to support roosting bats, such that no impacts to roosting bats associated with direct loss of potential tree roosts are anticipated. **T1** (as illustrated at **Plan EDP 1**) is located on-site, with low suitability to support roosting bats, and **T2**, located off-site and considered to be of high suitability to support roosting bats, will be retained. However due to location within/proximity to the development, there is potential for impacts associated with increased noise and lighting during the construction and operation phase of development.

4.27 With respect to a foraging/commuting bat assemblage, manual transect and automated bat activity surveys have confirmed that the Site supports low levels of foraging and commuting activity dominated by common and widespread bat species, with the assemblage considered to be of Local level importance.

4.28 Arable land, poor semi-improved grassland and dense scrub are considered of limited value to a commuting/foraging assemblage, such that impacts associated with their loss are considered negligible. In contrast, woodland habitat and hedgerows are of greater value for foraging and further aid the dispersal of a bat assemblage between the Site and immediate landscape. Circa 405m of hedgerow habitat will be removed to facilitate development, combined with the erosion of woodland habitat with a subsequent reduction in the available foraging resource, combined with fragmentation of dispersal corridors. With respect to those habitat features to be retained, degradation through damage and disturbance during the construction phase could result in the further loss of roosting and breeding sites, in addition to habitat important for foraging, dispersal and migration.

4.29 Indirect disturbance (particularly light spill) upon roosting/commuting/foraging habitat may also arise during construction. However, given that the majority of the works will be undertaken during daylight hours, the usage of artificial lighting will likely be limited to the early morning and early evening hours, with greater requirements for artificial lighting during the winter months. There further remains the potential for an increase in disturbance upon a bat assemblage during the occupational phase of development, due to an increase in disturbance arising from increased human presence, vehicular use, noise and light originating from new buildings. The usage of artificial lighting across the Site could also result in detrimental effects upon bat species, due to light spill upon adjacent habitats in use as foraging and commuting corridors. However, suitable bat habitat is already subject to some level of disturbance given the location of the Site, adjacent to Cardiff Airport and main roads, such that impacts are considered reduced.

[redacted]

4.30 With respect to [redacted] arable land, poor semi-improved grassland and dense scrub are considered of value as a foraging resource for this species and construction of built development may limit the dispersal of this species across the Site. Whilst construction will result in adverse effects to [redacted] valued at the Site level, this species remains common and widespread within the county and the United Kingdom, so that any such effects upon its conservation status are not considered to be significant and are only considered here owing to its legal protection.

4.31 No active [redacted] were identified on-site, such that no impacts to [redacted] associated with loss of/damage to a place of rest are likely. However, given the potential for [redacted] to excavate setts in a short space of time there is potential for [redacted] to occupy suitable habitat in future. Future development may therefore result in loss of/damage to an active sett, in addition to potential harm/injury to this species arising from increase in the movement of construction traffic and entrapment within open excavations.

Reptiles, Amphibians and other Mammals

4.32 Semi-natural habitat present on-site is considered of value as a foraging resource for notable mammal species such as European hedgehog and provides limited foraging and hibernation opportunities for common reptiles/amphibians. Given the relatively small size of the Site combined with the common and widespread distribution of these species, however, impacts associated with habitat loss are not considered significant. In the absence of additional mitigation there is also the potential for damage/degradation of retained habitats of limited value to reptiles, amphibians and mammals, combined with the killing and injury of such species during vegetation clearance and following increased levels of traffic movements by vehicles, machinery and plant throughout the construction and operational phases of development.

Section 5
Mitigation and Enhancement Strategy

5.1 This section of the Ecological Appraisal considers the impacts set out in **Section 4** and puts forward additional measures to firstly avoid any ecological impact, and if this is not possible then to minimise the likely impacts of the proposed development to insignificant levels, to comply with relevant planning policy and avoid any infringement of relevant legislation.

5.2 This section also sets out proposed ecological enhancements for the Site, in line with the wording within PPW and local planning policy, requiring developments to contribute to and enhance the natural and local environment, whilst providing a net biodiversity benefit.

DESIGNATED SITES

Statutory Designations

5.3 To protect the water quality of the Severn Estuary Ramsar Site/SPA, appropriate pollution control measures will be employed in accordance with the relevant *Pollution Prevention Guidelines* (PPGs) published by the Environment Agency, namely PPG1 'General Guide to the Prevention of Pollution', PPG5 'Works and Maintenance in or Near Water', PPG6 'Pollution Prevention Guidance for Working at Construction and Demolition Sites', and PPG21 'Pollution Incident Response Planning', to ensure that detrimental effects on any nearby watercourses as a result of surface run-off, spillage and pollution arising throughout the construction phases are avoided.

5.4 This will be combined with the adoption of dust control measures to minimise potential impacts upon air quality including restrictions on traffic movement and/or speed, appropriate storage of materials and/or use of screens and fencing as necessary. Such general environmental protection measures are to be detailed within the appointed contractor's Construction Environmental Management Plan (CEMP).

5.5 Subject to the implementation of the measures summarised above and inherent mitigation previously discussed in **Section 4**, impacts on statutory designations will be avoided or reduced to insignificant levels, such that the development can be delivered in accordance with relevant legislation and planning policy.

Non-statutory Designations

5.6 As described in **Section 3**, there are 19 non-statutory designations within the potential ZoI of the Site of which there is potential for impacts to arise upon the Land North of Blackton Farm SINC, Churchill Wood SINC and Land South of Curnix Farm SINC. However, subject to the implementation of a sustainable drainage strategy combined with adoption of pollution prevention measures during construction, impacts on non-statutory designations will be avoided or reduced to insignificant levels, such that the development can be delivered in accordance with relevant planning policy.

HABITATS

5.7 With respect to retained vegetation including the majority of the eastern boundary woodland and trees **T1**–**T6**, protective fencing will be erected as recommended within BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction* to physically protect retained habitats on-site with the establishment of Ecological Protection Zones (EPZs). Protective fencing will incorporate the full Root Protection Area (RPA) of the feature to be retained and will be protected and maintained throughout the duration of all Site enabling and pre-construction activities.

5.8 No works (other than planting), including the storage of materials, plant and machinery, will be carried out within or immediately adjacent to all areas of protective fencing/areas marked for protection as described above, so as to ensure no detrimental impacts to sensitive features arising from physical damage and/or pollution. The digging of trenches and pits for new tree and scrub planting adjacent to areas of protective fencing, where this lies inside RPAs, will be carried out by hand only, in accordance with best practice guidance as stipulated within BS 5837:2012.

5.9 In addition, construction will be limited to daylight hours as far as possible to mitigate effects of increased visual and noise disturbance, with the use of temporary, artificial lighting avoided during the hours between dusk and dawn, with directional and low-level lighting used away from retained habitat corridors to mitigate effects relating to increased use of artificial lighting.

5.10 This will be combined with the provision of new tree, hedgerow and shrub planting to compensate for loss of habitats, particularly woodland habitat and hedgerows of Local importance. New habitat features will include:

- Provision of c.444m of new hedgerow planting in association with the northern boundary of the Site and western boundary with proposed car parking and Multi Use Games Area (MUGA), as well as around the sprinkler tank system;
- The planting of hedgerows to the frontage of the new building and formal open space. Although ornamental and managed for visual amenity, hedgerows remain of potential value as a foraging resource and cover for protected/notable species;
- The provision of new tree planting along the southern boundary of the Site with specimen tree planting also provided throughout the built development, delivering biodiversity and visual amenity benefits;
- The provision of sustainable drainage features including a swale along the north-eastern boundary of the Site combined with provision of rain gardens within the main development footprint. Such features offer opportunities for new planting and grassland creation. It is recommended the swale is enhanced through planting of native marginal/aquatic species, providing a foraging resource to protected/notable species including a bird and bat assemblage, [redacted] reptiles/amphibians, common reptiles and European hedgehog. In addition, planting of rain gardens with native and ornamental flowering species will provide a pollen/nectar resource to an invertebrate assemblage;
- The inclusion of grassland habitat around the edges of the new building, car parking and social areas. It is recommended that these areas are seeded with a species-rich lawn mix

(such as Germinal WFG 20 comprising eight grassland species and 20 herb species or similar), with such areas also providing opportunities for additional native shrub planting, utilising species of value as a foraging/nectar resource to birds and invertebrates;

- The inclusion of species-rich grassland habitat within the north-eastern corner of the Site to be managed for wildflower, with a grassland sward subject to summer hay cuts aimed at promoting botanical and structural diversity;

- The inclusion of ecotone planting along the retained woodland edge with new development, compensating for habitat loss whilst strengthening this boundary and reducing edge effects. Such features will include dense whip planting in addition to provision of smaller shrub species, promoting structural diversity within this habitat; and

- The enhancement of the north-west corner of the Site to provide a mix of species-rich grassland and shrub/tree planting to compensate for losses and provide benefits to visual amenity in consideration of the proposed footpath link here.

5.11 Such planting will seek to compensate for habitat losses anticipated. This may be combined with the further enhancement of retained habitats, namely the eastern boundary woodland, through its sensitive management over the long-term. Management measures aimed at promoting structural and botanical diversity and enhancing the resilience of this habitat to climatic changes include:

- The implementation of a programme of coppicing works across areas of dense vegetation;

- New planting of a diverse species mix to promote the development of succession trees;

- The diversification and enhancement of ground flora through the creation of clearings to allow light to reach the woodland floor;

- The selective removal of scrub around establishing young trees to facilitate natural regeneration across retained habitats; and

- The provision of log piles and deadwood utilising arisings from tree works undertaken on-site, so as to maximise habitat structure and foraging availability for protected and notable species.

5.12 This will be in addition to the sensitive management of newly created habitats and features to increase their resilience and mitigate long-term disturbance effects.

5.13 In addition, the scheme should implement a sensitive lighting strategy to ensure no/limited light spill occurs within close vicinity to retained features and/or off-site habitats, particularly along the north-eastern boundary and retained eastern boundary woodland. Where lighting is required along road/pedestrian routes adjacent, lighting columns should be sited within the development footprint itself and directed away from habitat edges to minimise disturbance and light spill. Lighting should include directional, timed and/or low-lux lighting, utilising shields and/or hoods where required. Particularly, in respect of the MUGA, lighting should be directional and orientated to avoid/minimise light spill on the western boundary hedgerow and proposed wildflower meadow. Any floodlighting should remain switched off when not in use.

5.14 The proposed measures described above would ensure that the loss of valued habitats (namely the woodland and hedgerows) to facilitate development is adequately compensated, whilst delivering net benefits to biodiversity through creation of species-rich shrub, hedgerow and grassland habitat, combined with their sensitive management to promote structural and botanical diversity.

PROTECTED, PRIORITY OR OTHER NOTABLE SPECIES

Breeding Birds

5.15 The habitat protection measures described above will avoid harm/disturbance to breeding birds present with retained habitats. However, removal of hedgerow/tree/woodland planting which are capable of supporting nesting birds, will be required to facilitate the development.

5.16 Given the protection afforded to all breeding birds, their nests, eggs and young, sensitive vegetation clearance (and building demolition) required during the pre-construction and construction phases of development should be timed to avoid the main bird breeding season (i.e., March to August inclusive). Should this seasonal constraint prove impracticable (for example, due to conflicts with requirements for other protected species and the construction programme), then vegetation clearance/building demolition outside of this period should only commence following the advice of, and under supervision of, a suitably qualified ecologist. Pre-commencement checks for active nests will be required prior to any vegetation clearance occurring during the main bird breeding season, with appropriate buffers marked out around active nests or nests under construction, until all eggs have hatched, and chicks fledged.

5.17 Those habitat creation measures previously detailed above in relation to habitats will mitigate for proposed loss of bird nesting habitats. It is further recommended that a planting schedule include native fruiting species of value as a foraging resource to a bird assemblage.

5.18 Further enhancement of bird nesting opportunities is also proposed through installation of bird boxes on retained trees and/or on new buildings. A variety of new nest boxes are suggested to accommodate different bird species and include:

- Schwegler 1B nest boxes, with 26mm holes for blue tit and coal tit, to be installed on retained trees along the eastern and southern boundaries of the Site;
- 1SP Schwegler Sparrow Terrace (or similar) to be installed on the northern and eastern elevations of the proposed building; and
- Schwegler 17A Swift boxes (or similar) to be installed on the northern and eastern elevations of the proposed building.

5.19 In each instance, boxes should be hung at a height of 3m or higher above ground level with the entrance facing away from prevailing winds and sources of light, and within or immediately adjacent to good tree or shrub cover, to increase the shelter and food source available to nestlings. When installed, birds should have a clear flight path to the nest with no clutter directly in front of the entrance.

5.20 Such habitat creation and enhancement measures are considered sufficient to adequately mitigate for impacts associated for habitat loss whilst further enhancements are not considered appropriate in this instance, as established during consultation with Cardiff Airport, due to potential risks to aircraft in the event of significant assemblages of birds establishing on-site post-development.

Bats

Roosting Bats

5.21 Prior to clearance, all mature trees will be subject to an update ground-level inspection by a suitably qualified ecologist to determine their current potential to support roosting bats. Where trees are identified as having moderate or greater potential at the time of the update survey, then such trees will be subject to a further detailed aerial inspection, whereby all suitable roosting features will be checked at height for the presence of bats. Aerial surveys will be undertaken by a suitably qualified and NRW bat licensed ecologist, arboricultural contractor with a NRW bat survey licence or with experience of working with bats and under the supervision of a NRW bat survey licence holder.

5.22 If any bats are discovered during the aerial inspection, owing to the strict legal protection afforded to bats and their roosts, works are likely to require a Development Licence from NRW before works can continue.

5.23 If no evidence of roosting bats is uncovered during the aerial inspection, works may proceed without a Development Licence from NRW. However, regarding those trees identified as having potential to support roosting bats, a 'soft felling' technique involving the sectional dismantling of the tree will be adopted, including the following:

- Tree felling will avoid cutting through any cracks, cavities, limb/knot holes or any other potential roosting features – i.e., by cutting above and below the feature when removing sections with suitable features;
- Any sections to be cut supporting suitable roosting features are to be suitably harnessed and supported before cutting, using industry-standard rigging equipment, and gently lowered to the ground once cut, to avoid violent shaking of potential roosting features; and
- Any cut sections with potential roosting features are to be retained on-site by one of the following methods:
    - Strapping to existing, retained mature trees and appropriately secured in position;
    - Retained on-site at ground level within an area of retained woodland; or
    - Retained on-site for minimum 48 hours, with potential entrances not blocked i.e., facing away from ground, before they are removed or chipped.

5.24 Should any bats be discovered during the felling of these or any other trees, then works will necessarily cease and a suitably qualified and NRW bat licensed ecologist contacted for further advice. It may be necessary to obtain a development licence from NRW before works can continue.

5.25 Given the potential for trees to degrade/decay over time such that their potential to support roosting bats may increase, should the felling of trees with bat potential occur more than 12 months since the previous bat roost assessment, then such trees should be subject to an update tree roost assessment by a suitably qualified and NRW bat licensed ecologist, with appropriate mitigation/precautionary measures followed.

5.26 With respect to a foraging/commuting bat assemblage, those habitat creation measures detailed above in relation to habitats and breeding birds will provide adequate compensation for losses arising across the Site.

5.27 To avoid disturbance of a foraging/commuting bat assemblage during construction however, working at night and the use of night lighting should be avoided. Where this is not possible (i.e., for security reasons), lighting should be kept to the lowest permissible level through the use of sensitive lighting design, as detailed above in respect to habitats, and directed away from retained trees lines. This should be combined with implementation of a sensitive lighting strategy during the operational phase of development to ensure that retained habitats adjacent to the Site (namely the eastern boundary tree line and off-site arable land adjacent to the north-eastern boundary) used by light-sensitive species such as bats will not be adversely lit. Although operational floodlighting is anticipated for the MUGA, impacts are likely to be reduced given the MUGA's location within the development, offset from the north-eastern boundary of the Site with arable land. Nevertheless, a sensitive lighting strategy should have regard to minimising light spill across newly created habitat features, including the proposed wildflower meadow to the north of the MUGA.

5.28 Bat roost features (such as bat tubes/bricks) should also be incorporated into the exterior of the new building where possible, with bat boxes provided on suitable retained trees, to enhance roosting provision across the Site. In general, the following provisions are recommended:

- Schwegler 2F Schwegler 2FN bat boxes (or similar) to be installed on semi-mature/mature retained trees along the eastern and southern boundary of the Site; and
- Schwegler 1F bat tubes to be installed within the fabric of the new building.

5.29 In each instance, boxes will be erected with a south-east/south-west facing aspect where possible and away from sources of artificial lighting.

5.30 Additional planting of native species attractive to invertebrates within the development, to further enhance the prey resource for bats, is also recommended for inclusion within the planting scheme. This will include night-scented plants such as honeysuckle, as well as a mixture of flowering and fruiting plants chosen to extend the flowering and fruiting seasons.

5.31 Subject to the implementation of those key mitigation measures detailed above with respect to bats and previously with respect to habitats, no significant detrimental impacts upon the foraging/commuting bat assemblage utilising the Site are likely to arise.

[redacted]

5.32 Due to the mobility and widespread nature of [redacted] and ability of this species to excavate in addition to the presence of suitable foraging habitat comprising arable land, poor

semi-improved grassland and dense scrub, an update survey of the Site by a suitably qualified ecologist is recommended prior to the commencement of construction or Site clearance works to determine whether any [redacted] have established during the interim period. Any clearance necessary to provide access for a thorough search will be undertaken under the supervision and advice of the attending ecologist.

5.33 In the unlikely event an active sett is identified, and owing to the strict legislation protecting active setts, a licence from NRW will be required to exclude [redacted] (restricted to the period between July and November inclusive), with a mitigation strategy based on the following principles:

- Exclusion of [redacted] using one-way gates where confirmed active at the time;
- Sett monitoring of closed [redacted] to ensure [redacted] have not regained access to any [redacted] and
- Excavation of the [redacted] with all tunnels dug back to end.

5.34 In addition to the above and in respect of the presence of [redacted] more generally, the following measures will apply throughout the construction phase of the development to prevent harm/injury during the construction phase:

- All machinery will be operated by trained personnel only;
- There will be no working at night as far as possible; and
- All trenches/excavations will be covered up overnight and a means of escape provided to avoid wildlife becoming trapped.

5.35 A sensitive lighting scheme should also be adopted throughout the construction and operational phase of development, in accordance with those recommendations detailed above.

5.36 Otherwise, those habitat creation measures discussed above in relation to habitats, combined with proposed enhancement of retained habitats, will continue to provide suitable foraging habitat for this species as well as maintain a corridor for continued dispersal of [redacted] and other wildlife across the north-eastern and eastern boundaries of the Site.

5.37 It is therefore considered that no detrimental impacts upon [redacted] will arise as a result of any future development of the Site, should appropriate habitat retention and enhancement measures be implemented, with opportunities for required mitigation measures to be accommodated should this species be confirmed utilising the Site in the future.

Reptiles, Amphibians and Other Mammals

5.38 Given the limited potential of the Site to support low numbers of common reptiles, common amphibians and other mammals such as European hedgehog, a precautionary approach to habitat clearance is recommended to ensure no harm to these species. Clearance of any suitable vegetation should be undertaken in accordance with the following precautionary methods of working:

- Vegetation clearance should be undertaken during the late spring, summer and early autumn months so as to avoid the main hibernation period of hedgehog and common reptiles/amphibians (typically considered to be between October and March). As such, works will coincide with the bird breeding season (typically March to August inclusive). A pre-commencement check for active bird nests will be undertaken by a suitably qualified ecologist immediately prior to the commencement of works. Where an active bird nest is identified, a suitable buffer will be established around the active nest, with no clearance works permitted within this buffer until all young have fledged and the nest confirmed inactive by the ecologist;

- During clearance, a first cut should aim to reduce vegetation height to no less than 200mm and should be undertaken through the use of a hand-held strimmer or brush cutter. The second cut should be undertaken thereafter and within 24 hours of the initial cut, during which the vegetation should be reduced to ground level;

- Both cuts should be undertaken in a direction towards retained habitats, i.e., towards the coniferous tree line or adjacent semi-natural habitat off-site, so as to allow for any wildlife present to disperse safely towards this resource;

- Any suitable refugia identified during clearance works will be subject to a finger-tip search by a suitably experienced ecologist, with any species identified re-located to areas of retained vegetation. Thereafter, refugia will be dismantled by hand and relocated to areas of retained vegetation to ensure suitable refuge/hibernation opportunities are retained;

- In the event any reptiles, amphibians or European hedgehog are identified during Site clearance, these will be captured by hand and immediately released into retained habitat located immediately adjacent to the construction footprint; and

- Should the above seasonal constraint be considered impracticable, then clearance works between late October and March inclusive may require additional pre-commencement checks and/or supervision by a suitably qualified ecologist to ensure no disruption to potential hibernacula, with the adoption of additional precautionary measures as appropriate.

5.39 More generally, however, and particularly in respect of hedgehog, the following precautionary measures will be adhered to during the construction phase:

- All machinery will be operated by trained personnel only;

- There will be no working at night;

- All trenches/excavations will be covered up overnight and/or a means of escape provided (such as mammal ramps) to avoid wildlife becoming trapped; and

- Any open pipework with an outside diameter of greater 120mm must be covered at the end of each working day to prevent animals entering/becoming trapped.

5.40 To facilitate the dispersal of European hedgehog across the Site during operational phases of development, any proposed close board fencing marking the boundaries between

development, formal landscaping features or semi-natural habitat off-site, should have a 13cm x 13cm gap in the bottom to allow hedgehogs to pass through.

Section 6
Summary and Conclusions

6.1 **Table EDP 6.1** provides an overview of the Mitigation and Enhancement Strategy described in **Section 5**.

Table EDP 6.1: Summary of Proposed Mitigation and Enhancement

Mitigation Type	Key Principles	Mechanism(s) to Secure Delivery
Avoid by Design	Retention of habitats with appropriate development buffers: • Circa 0.06ha of the eastern boundary woodland; • Trees **T1**–**T6 (**as numbered as numbered within the Arboriculture Impact Assessment prepared by Arbtech); • Retention of dense scrub along western boundary; and • Implementation of a sustainable drainage strategy (SuDS).	Habitat retention embedded in the Landscape Illustrative Masterplan provided at **Appendix EDP 1** which will be an 'approved plan' to which future detailed designs must align.
Avoid or Minimise Construction Impacts	Sensitive methods of operation during enabling and construction works: • Control of working hours; • Minimise noise and vibration; • Air quality measures/dust suppression; • Surface water management; • Storage of fuels/chemicals; and • Sensitive lighting.	To be provided within the appointed contractor's CEMP.
	Protection of retained habitats: • Fencing and signage to create development exclusion zones; and • Translocation of hedgerows where possible from construction footprint.	To be provided in accordance with the recommendations of the appointed arboriculturist and further embedded within the appointed contractor's CEMP.

Mitigation Type	Key Principles	Mechanism(s) to Secure Delivery
	Methods to avoid harming individuals or interfering with breeding of protected species prior to/during habitat destruction: • Pre-commencement checks/surveys; • Avoidance of trapping animals in excavations; • Timings to avoid sensitive periods/breeding seasons; • Phased/supervised vegetation clearance; • Maintenance of dispersal routes; • Supervised destructive searches; and • Appointment of an Ecological Clerk of Works (ECoW).	To be provided within the appointed contractor's CEMP.
Mitigate or Compensate for Habitat Loss and Deliver Net Biodiversity Benefits	Habitat enhancement: • Enhancement of c.0.06ha of retained woodland habitat. Habitat creation: • Provision of SuDS including rain gardens and swale, to be seeded/planted with species-rich grassland and marginal/aquatic species; • Tree and shrub planting along the boundaries of the Site and built development; • Circa 444m of native hedgerow planting along the north-eastern and part of the western boundary; • Creation of wildflower meadow in the north-east corner of the Site; • Ecotone planting along retained woodland edge on-site and along southern boundary; and • Provision of amenity grassland areas seeded with a species-rich seed mix, with further opportunities for native shrub planting.	Space for new habitat embedded in Illustrative Landscape Masterplan, which will be an 'approved plan' to which detailed designs must align.

Mitigation Type	Key Principles	Mechanism(s) to Secure Delivery
	Habitat features to be provided in suitable locations: • Bat boxes/tubes; • Bird boxes; and • Invertebrate hibernacula.	Design measures embedded within this Ecological Appraisal report which will be an 'approved document' to guide implementation of ecological mitigation/enhancement.
	Measures to maintain or enhance habitat connectivity: • Retention/management of retained sections of the eastern boundary woodland; and • New tree/hedgerow planting along the north-eastern and southern boundaries of the Site.	Design measures embedded within this Ecological Appraisal report which will be an 'approved document' to guide implementation of ecological mitigation/enhancement.
	Lighting strategy to avoid disturbance of nocturnal species, in particular foraging/commuting bats.	Design measures embedded within this Ecological Appraisal report which will be an 'approved document' to guide implementation of ecological mitigation/enhancement.
Maintenance, Monitoring and Management Post-construction	Habitat-specific, namely measures to: • Enhance retained habitat, and to ensure new habitat becomes established, to achieve target condition; and • Monitor and maintain habitats in good ecological condition once enhanced/established.	Design measures embedded within this Ecological Appraisal report which will be an 'approved document' to guide implementation of ecological mitigation/enhancement.
	Species-specific, namely measures to: • Maintain habitat features (boxes etc.) in good condition or replace as necessary.	Design measures embedded within this Ecological Appraisal report which will be an 'approved document' to guide implementation of ecological mitigation/enhancement.

6.2 EDP's desk- and field-based baseline investigations have demonstrated that those habitats and species present within and around the Site do not pose a significant ecological constraint to the proposed development that is the subject of this Appraisal, given the limited extent of sensitive ecological features present, with the dominance of arable land/poor semi-improved grassland and dense scrub of limited botanical and structural diversity.

6.3 However, EDP's surveys have identified some habitat features of Local level importance which also have the potential to support protected species. Hedgerows and woodland provide suitable habitat for breeding birds, common reptiles, amphibians, European hedgehog and a local bat assemblage.

6.4 As such, EDP has provided specific proposals for the avoidance, mitigation and compensation of any predicted impacts. These measures include those already embedded within the development proposals; measures recommended for incorporation at the construction stage; and those which have been recommended for inclusion within the landscaping scheme.

6.5 EDP concludes that, in light of the embedded mitigation and subject to the full implementation of the additional measures summarised above, the proposed development is capable of compliance with relevant planning policy and legislation and can deliver net benefits for wildlife and biodiversity through implementation of a diverse planting scheme, combined with sensitive management in the long term, to promote structurally and botanically diverse habitats of value to wildlife.

Appendix EDP 1
Landscape Illustrative Masterplan
(Ares Landscape Architects, VG0101-ALA-00-XX-DR-L-00001 Rev P08 15 June 2022)

Note

1. Do not scale from this drawing
2. To be read in conjunction with Project Risk Register REF: XXX
3. To be read in conjunction with all other Landscape Architect's drawings

KEY

- (A) Entrance Plaza to Building
- (B) Social Space
- (C) Car Park
  - 294 standard parking spaces (inc. 32no. as EVCPs and 14 Accessible Parking Spaces)
- (D) Service area for workshop students
- (E) 2 Court MUGA
- (F) Meadow Planting and Habitat Area
- (G) Sprinkler Tank System
- (H) Air Source Heat Plump
- (I) Bin Store
- (J) Swale with Hedgerow and tree planting
- (K) Cycle Parking (Double Stacked)
  - Total 284 long stay bicycle spaces
- (L) Pick up / Drop off / Delivery bay
- (M) Access through car park to MUGA
- (N) Retaining Wall
- (O) Access controlled vehicular entrance
- (P) External HV Unit
- (Q) Motorcycle parking
  10 spaces
- (R) Motor Vehicle Workshop parking spaces
  8 spaces
- (S) New native buffer planting
- (T) External digging area
- (U) Cherry Tree Walk
  Pedestrian access route
- (V) Dust extractor
- (W) External Battery
- (X) External Gas Bottle Stores
- (Y) External Storage Containers
- (Z) Mini-Bus Parking

D	RISK	MITIGATION	DATE MITIGATED

RESIDUAL PROJECT RISKS

DATE	REV	DESCRIPTION OF REVISION	DRAWN BY	APPROVED BY
02/04/2024	P08	Issued for Planning	MDS	MH

REVISIONS

STATUS
A2 - *Authorised and Accepted as Planning Application Submission*

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PROJECT TITLE :
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DRAWING TITLE :
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Appendix EDP 2
Habitat Descriptions and Illustrative Photographs

METHODOLOGY

A2.1 The survey technique adopted for the Extended Phase 1 Habitat survey was at a level intermediate between a standard Phase 1 survey technique[21], involving habitat mapping and description, and a Phase 2 survey, based on detailed habitat and species surveys. The level of survey involves identifying and mapping the principal habitat types and identifying the dominant plant species present in each principal habitat type. In addition, any actual or potential protected species or species of principal importance[22] are identified and scoped.

A2.2 The Extended Phase 1 Habitat survey was undertaken by a suitably experienced surveyor on 16 May 2023, during which the weather was dry with light wind and 75% cloud clover.

Limitations

A2.3 May is within the optimum period for undertaking an Extended Phase 1 Habitat survey, such that seasonal and climatic factors are not considered a constraint to survey effort.

A2.4 Surveys were limited to recording plant species present in both vegetative and floristic forms at the time of survey; the lack of any species record from this report does not automatically imply the species' absence from the Site.

A2.5 There was limited access to the southern field comprising the Site due to the paucity of dense scrub, such that some species may have been missed. This is not considered a significant constraint to the assessment however, with sufficient information collected to inform the type and ecological importance of habitats present therein.

RESULTS

A2.6 The principal habitats within the Site, together with their dominant/characteristic plant species identified during the surveys, are discussed in turn below. The type, distribution and species composition of the habitats present is discussed below. The following should be read in conjunction with **Plan EDP 1** and the illustrative photographs provided where appropriate.

Arable

A2.7 **F1** and **F2** comprising the Site are arable fields, extending beyond the boundaries of the Site. Both fields were fallow at the time of survey with large areas becoming re-vegetated with grassland and tall ruderal species, typical of agriculturally improved habitats. Creeping buttercup (*Ranunculus repens*) and Yorkshire fog (*Holcus lunatus*) are abundant, whilst dock (*Rumex* sp.) is frequent and common nettle (*Urticia dioecia*), meadow buttercup

[21] Joint Nature Conservation Council (2004). *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (reprinted with minor corrections for original Nature Conservancy Council publication)

[22] Species considered of key significance to sustain and improve biodiversity in Wales, as defined under Section 7 of Part 1 of the *Environment (Wales) Act* 2016

(*Ranunculus acris*), white clover (*Trifolium repens*) and hogweed (*Heracleum sphondylium*) are present occasionally. Other species rarely recorded and predominantly associated with the field margins include creeping thistle (*Cirsium arvense*), creeping cinquefoil (*Potentilla repens*), common ivy, ground ivy (*Glechoma hederacea*), cut-leaved cranesbill (*Geranium dissectum*), bristley oxtongue (*Helminthotheca echioides*), common vetch (*Viccia cracca*) and great willowherb (*Epilobium hirsutum*).

Image EDP A2.1: Field **F1** looking east.

Image EDP A2.2: Field **F2**.

A2.8 Arable land is considered of negligible ecological importance, given its poor botanical and structural diversity and low distinctiveness.

Species-poor Semi-improved Grassland

A2.9 Field **F3** is representative of an unmanaged, poor semi-improved grassland sward. Much of this field has succumbed to encroaching scrub with only a small area of open grassland still present and accessible. Cock's-foot (*Dactylis glomerata*) is dominant within the sward whilst false oat-grass (*Arrhenatherum elatius*) is abundant. Other grassland species recorded included Yorkshire fog and rough meadow-grass (*Poa trivalis*), whilst herb species include ribwort plantain (*Plantago lanceolata*), common vetch, yarrow (*Achillea millefolium*) and meadow

buttercup. Tall ruderal species were also recorded occasionally and include cow parsley (*Anthriscus sylvestris*), hogweed, common nettle, great willowherb and teasel (*Dipsacus fulllonum*).

Image EDP A2.3: Poor Semi-improved grassland across field **F3**.

A2.10 Given the poor structural and botanical diversity, combined with its limited extent, poor semi-improved grassland is considered to be of negligible importance.

Amenity Grassland

A2.11 Amenity grassland has vegetated over an earth bund which delineates the southern boundary of the Site. The grassland community here is frequently mown and thus representative of a sward (0.1m high). False oat-grass, Yorkshire fog, meadow buttercup and annual meadow-grass (*Poa annua*) are present within the sward.

Image EDP A2.4: Amenity grassland across southern boundary of the Site.

A2.12 Amenity grassland is considered to be of negligible ecological importance by virtue of its limited extent, unsympathetic management regime and poor botanical/structural diversity.

Dense Scrub

A2.13 Much of field **F3** is subject to significant scrub encroachment from internal field boundaries. Bramble is dominant, although hawthorn (*Crataegus monogynea*) and blackthorn (*Prunus spinosa*) also occur on occasion with localised patches of meadowsweet and great willowherb. Given the absence of any diverse structure and over-dominance by one species, this habitat is considered to be of negligible ecological importance, albeit with potential to support protected/notable species such as breeding birds.

Image EDP A2.5: Dense scrub habitat across field **F3**.

Native Hedgerows

A2.14 Internal field boundaries are marked by outgrown and unmanaged hedgerows, typically c.6-8m in height (**H1–H5**). The hedgerow network is largely dominated by hawthorn and blackthorn, with some dog-rose (*Rosa canina*) and holly (*Ilex aquilinum*). Semi-mature ash (*Fraxinus excelsior*) and oak were recorded in association with hedgerow boundaries on occasion. A ground flora community, where visible, is characterised by common cleavers (*Galium aparine*), dock, hogweed and common nettle.

Image EDP A2.6: Hedgerow **H2**.

A2.15 All hedgerows within the Site are considered to be priority habitats as they predominantly (80% or more) consist of at least one woody UK native species. The hedgerows on-site have inherent ecological value and also have value because they support, or are likely to support, a range of protected and notable species and thus are considered to be of Local level importance, particularly given hedgerows of this nature are very common within the wider landscape.

Broadleaved Woodland

A2.16 The eastern boundary of the Site is delineated by an unmanaged semi-mature/mature tree line which is contiguous with a c.16m wide block of woodland at its southern extent. The term woodland is, however, applied loosely and it is dominated by shrubby species which have likely self-seeded from field boundaries following a lack of management over the years. Hazel is present here in addition to field maple, dog rose, blackthorn, privet and mature ash.

Image EDP A2.7: Hazel coppice associated with woodland along the eastern boundary.

A2.17 Whether historically this boundary was characterised by woodland or a boundary hedgerow (now outgrown), this habitat remains of Local level importance.

Scattered Trees

A scattered line of silver birch (*Betula pendula*) occupies the earth bund that forms the southern boundary of the Site. Additionally, groups of semi-mature ash are present across field **F3** alongside small shrub species. Mature/semi-mature trees are of value to protected/notable species, namely roosting bats and nesting birds, and provide a range of ecosystem services.

Appendix EDP 3
Bat Surveys

METHODOLOGY

A3.1 During the Extended Phase 1 Habitat survey, six trees present within, or immediately adjacent to the Site, were identified as having potential to support roosting bats. In addition, a number of habitats present within the Site, including scrub, hedgerow and rough grassland, were identified as being of low/moderate suitability to support foraging and commuting bats. The following surveys for bats were therefore undertaken, with reference to best practice guidelines[23], current at the time of survey.

Bat Roost Inspection Surveys - Trees

- Preliminary ground-level roost assessment of trees for bat roosting suitability, undertaken on 16 May 2023.

Bat Activity Surveys

- Manual transect surveys conducted seasonally in May, July and September 2023; and
- Automated detector surveys conducted seasonally in May, July and September 2023.

Bat Roost Inspection Surveys - Trees

A3.2 Owing to the presence of suitably mature trees within or adjacent to the Site, a preliminary ground level roost assessment of these trees was undertaken to record any external evidence of roosting bats or any features capable of supporting roosting bats.

A3.3 The survey was completed during the Extended Phase 1 Habitat survey on 16 May 2023 by a suitably experienced ecologist, in accordance with best practice guidelines referred to above. The trees were searched as thoroughly as possible from ground level, with all elevations covered where these could be accessed.

A3.4 Suitable features for roosting bats recorded (where present) include the following:

- Loss/peeling/fissured bark;
- Natural holes e.g., rot hole, cavities and wounds from fallen limbs;
- Woodpecker holes;
- Cracks/splits or hollow tree trunks/limbs;
- Bat, bird or dormouse boxes; and

[23] Collins, J. (ed.) (2016). *Bat Surveys: for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London

- Crevices formed by thick-stemmed ivy.

A3.5 Signs of roosting bat presence recorded (where present) include the following:

- Bat/s roosting *in situ*;
- Bat droppings within, around or beneath a potential roost feature;
- Staining around or beneath a feature;
- Audible squeaking from the roost at dusk during warm weather; and
- Large/regularly used roosts may produce a distinctive odour.

A3.6 Based upon the evidence/features identified, each tree was assigned to one of the following categories:

- Known or confirmed roost - European Protected Species (EPS) licence likely to be required for works to tree to be completed lawfully;
- High suitability - One or more potential roost features present that are obviously suitable for use by larger numbers of bats on a more regular basis, and potentially for longer periods of time;
- Moderate suitability - One or more potential roost features present that could be used by bats but are unlikely to support a roost type of high conservation status (with respect to roost type only);
- Low suitability - A tree of sufficient size and age to contain potential roost features but with none seen from the ground, or features seen but with only very limited roosting potential; and
- Negligible suitability - No potential to support roosting bats.

Limitations

A3.7 As with any ground level assessments of trees, certain features may not be visible or fully visible from the ground. However, assessment of trees can be undertaken at any time of year but is best undertaken in winter/early spring when visibility into the crown of the tree is improved due to the absence of leaves. As such, the assessment of **T1**, **T3**, **T4** and **T6** was limited by poor visibility due to vegetation obscuring the full view of the tree and any potential features. Additionally, the assessment of **T5** was limited by the presence of dense scrub.

A3.8 Bats are mobile animals and will move between a series of different tree roost sites, frequently establishing and occupying different potential roost features, depending on seasonal requirements and resources available locally. Furthermore, existing potential roost features on trees can be transient and new features form regularly. This survey, therefore, only provides a snapshot of the conditions present at the Site at the time of survey.

A3.9 It should be noted that this type of assessment is based on features visible from ground level and is not considered to be a definitive bat roosting survey.

Bat Activity Surveys

A3.10 During the Extended Phase 1 Habitat survey, an initial assessment was undertaken of suitability of the habitats within and immediately adjacent to the Site for foraging and commuting bats. In accordance with the best practice guidelines referred to above, the Site was assigned to one of the following categories:

- High suitability – Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats, such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats, such as broadleaved woodland, tree lined watercourses and grazed parkland. Site is close to and connected to known roosts;

- Moderate suitability – Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of 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;

- Low suitability – Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats, such as a lone tree (not in a parkland situation) or a patch of scrub; and

- Negligible suitability – Negligible habitat features on-site likely to be used by commuting or foraging bats.

A3.11 Having determined that the overall suitability of the Site is Low, given the proximity of Cardiff Airport with presence of main roads isolating the Site to some extent from larger areas of continuous habitat, a proportionate level of survey effort was expended in terms of the number and frequency of manual transect surveys and automated detector surveys. These are described in further detail below.

Manual Transect Surveys

A3.12 Manual transect surveys were undertaken across the Site with the objective of identifying important foraging areas and/or commuting routes used by bats. A total of three dusk surveys were undertaken, over the course of the active bat season in 2023.

A3.13 Details of the survey type, date, timing, and weather conditions during each of the transect surveys are given below in **Table EDP A3.1**.

Table EDP A3.1: Date, Timing and Weather Conditions during Transect Surveys

Survey Date	Sunset/ Sunrise Time	Start - Finish Time	Weather Conditions			
			Temp (°c)	Cloud Cover (%)	Wind (Beaufort Scale)	Precipitation
30.05.2023	21:16	21:16 – 23:16	13-18	20-70	3-6	0
05.07.2023	21:31	21:31 – 23:31	14-15	25-60	2-6	0
26.09.2023	19:03	19:03 – 21:03	16-18	20-60	2-3	0

A3.14 During each survey the transect route was walked by two surveyors, with the route designed to provide coverage of the most suitable foraging or commuting habitats on the Site; namely hedgerows, woodland, scrub and grassland. The transect routes are illustrated on **Plans EDP 5** to **EDP 7**. The transect routes were walked by experienced bat surveyors and an assistant, at a slow and steady pace for two hours after sunset. All bats were recorded, and their behaviour marked on survey maps to characterise the value of the Site and its component habitats for foraging and commuting bats.

A3.15 The transect surveys were conducted using Elekon Batlogger M bat detectors. Observations of the time, location, and activity of all bats seen or heard were noted. Bats were identified on the basis of their characteristic echolocation calls, which were recorded and analysed using computer sonogram analysis (BatExplorer) to confirm species identification. Species of *Myotis* bat and long-eared bat are difficult to tell apart solely from their echolocation calls and were therefore grouped as such.

Limitations

A3.16 All visits were completed in weather conditions that were generally suitable and during the main bat activity season, such that there are no seasonal or climatic constraints to survey effort.

Automated Detector Surveys

A3.17 To supplement the bat transect survey data, bat activity within the Site was also sampled using Anabat Express detectors (hereafter referred to as 'automated detectors'), which are deployed in fixed locations to automatically trigger and record bat echolocation calls over multiple nights at a time. In this case, automated detectors were deployed at two locations within the Site during each survey, as shown on **Plan EDP 8**, which were judged to be representative of the habitats within the Site. The automated detectors were fixed in secure locations, with an external microphone attached c.1-2m above-ground, where possible, and directed away from the tree/branch to maximise detection sensitivity. In total, three surveys were completed over the course of the active bat season in 2023, each comprising sampling by automated detectors for five consecutive nights. Details of dates, sampling locations and weather conditions during each of the surveys are given below in **Table EDP A3.2**.

Table EDP A3.2: Automated Detector Survey Details

Sampling Period Dates	Location (Reference Number and OS Grid Reference)	Microphone		Weather (max, min temp/rainfall/max, min wind speed)
		Height	Direction	
May and June				
30.05.2023	1 ST 07408 67639	1.7	NW	Max 22°C, min 9°C/no rainfall/max 20mph, min 7mph wind speed.
05.06.223	2 ST 07403 67750	1.6	SE	Max 22°C, min 9°C/no rainfall/max 20mph, min 7mph wind speed.
July				
05.07.2023	1 ST 07408 67639	1.75	E	Max 25°C, min 14°C/mainly dry, some light rainfall/max 22mph, min 1mph wind speed.
11.07.2023	2 ST 07403 67750	1.75	W	Max 25°C, min 14°C/mainly dry, some light rainfall/max 22mph, min 1mph wind speed.
September				
26.09.2023	1 ST 07408 67639	1.0	E	Max 21°C, min 12°C/mainly dry, some light rainfall/max 19mph, min 5mph wind speed.
01.10.2023	2 ST 07403 67750	1.3	NE	Max 21°C, min 12°C/mainly dry, some light rainfall/max 19mph, min 5mph wind speed.

A3.18 The sound files recorded by the automated detectors were filtered for each of the UK's bat species/species groups using Analook software's filter function. The parameters for the species filters are based on those proposed by Chris Corben and Kim Livengood[24] and have been fine-tuned using known call parameters for each of the species contained within the BatClassify UK Auto ID plugin feature. All files passing the various filters, plus files that did not pass any species filters (noise files), were checked manually using sonogram analysis in accordance with published guides to confirm the species identification of each bat call.

Limitations

A3.19 The identification of calls and species using Analook software is dependent upon the quality of the recording made. This can be influenced by the following factors, which may limit levels of activity and species recorded:

[24] Taken from Analook W training course and workshop, September 2013

- Weather conditions - rainfall and wind;
- Distance of bat from the detector's microphone;
- Presence of obstructions through which the noise must pass i.e. trees/leaves; and
- Proximity of other noise sources such as roads.

RESULTS

Bat Roost Surveys

Preliminary Roost Assessment of Trees

A3.20 The preliminary ground-level roost assessment of trees identified one tree within the Site (**T1**) and one tree adjacent to the Site (**T2**) with suitable features for bat roosting. Of these, **T2** was found to be of high suitability to support roosting bats and **T1** was considered to be of low suitability. Further details on each of these trees are provided in **Table EDP A3.3** below and their locations shown on **Plan EDP 1**.

A3.21 All other trees were found to be of negligible suitability for roosting bats and have not been mapped/described.

Table EDP A3.3: Details of Trees with Bat Roost Suitability

Tree/Group Ref. No.	Photograph	Tree Species	Potential Bat Features	Roosting Suitability
T1		Ash	Ivy cover.	Low

Tree/Group Ref. No.	Photograph	Tree Species	Potential Bat Features	Roosting Suitability
T2		Oak	Fissures, dropped limb, cavity rot, hole at base.	High

Bat Activity Surveys

A3.22 The results of the transect surveys are illustrated on **Plans EDP 5**-**7** and results of the automated detector surveys are provided, in detailed and summary form, within **Tables EDP A3.4** to **A3.7** below. These results are also described below for the assemblage as whole and on a species-by-species basis. The species accounts also draw upon information collated during the desk study and published data on national conservation status[25].

Overall Diversity, Abundance and Distribution

A3.23 A total of seven bat species/species groups (*Myotis* and long-eared bat species were not identified to species level), were confirmed to be present foraging and/or commuting within the Site during the transect and/or automated detector surveys. With reference to the automated detector data tables, the vast majority of recorded bat calls were of common pipistrelle (average 44% of registration) whilst soprano pipistrelle accounted for c.35% of registrations. *Myotis* sp. and noctule were occasionally recorded accounting for c.11% and 7% respectively, whilst serotine accounted for c.2% and lesser horseshoe less than 1%.

A3.24 Four species of bat were confirmed to be foraging and/or commuting within the Site during the course of manual transect surveys, undertaken on three occasions between May and September 2023. Relatively low levels of activity were recorded during May and September 2023. In May 2023 only a single common pipistrelle and *Myotis* bat was recorded whilst seven calls were recorded during September 2023, dominated by soprano pipistrelle, with a single registration for serotine and two recordings of common pipistrelle. Slightly greater activity was recorded during July 2023, with common pipistrelle and soprano pipistrelle co-dominant. A single *Myotis* bat was also recorded. During July 2023, activity was greatest along the eastern boundary of the Site with Port Road.

A3.25 Similar trends in bat activity were recorded during the automated detector surveys, with lowest activity recorded during May 2023 and slightly greater activity in September 2023. Bat activity at the Site was greatest during July 2023 but remained low-moderate.

Species/Species Groups Recorded

Common Pipistrelle and Soprano Pipistrelle

A3.26 Common pipistrelle and soprano pipistrelle are common and widespread across the UK, representing the most, and second most, abundant bat species in the UK respectively. Whilst having suffered significant historic declines, national population monitoring indicates that common pipistrelle and soprano pipistrelle bats are increasing nationally.

A3.27 Common pipistrelle recordings were the most frequent across the Site during the automated detector surveys, with soprano pipistrelle the dominant species recorded during the manual transect surveys. During July 2023, activity was greatest along the eastern boundary of the Site with Port Road, with localised activity also recorded within the south-west corner of field **F2**.

[25] Bat Conservation Trust, 2023. *The National Bat Monitoring Programme Annual Report 2022.* Bat Conservation Trust, London. Available at www.bats.org.uk/our-work/national-bat-monitoringprogramme/reports/nbmp-annual-report

A3.28 Common pipistrelle and soprano pipistrelle using the Site are considered to be of Site importance.

Myotid Bat Species

A3.29 *Myotid* (*Myotis* spp.) bat species occur throughout most of the UK, their populations considered to be either stable or increasing, with the exception of Bechstein's bat, which is listed in Annex II of the European Commission (EC) *Habitats Directive* and is considerably rarer. *Myotid* bat was recorded on only two occasions during the manual transect survey, once during May 2023 adjacent to the western boundary of the Site and once in July 2023 adjacent to the eastern boundary. *Myotid* bats were occasionally recorded during automated detector surveys. The use of the Site by *Myotid* bat species is considered to be of Site importance.

Long-eared

A3.30 Brown long-eared bat is found throughout the UK, its populations considered to remain stable nationally. In contrast, the grey long-eared bat (*Plecotus austriacus*) is considerably rarer and its population appears to be declining. This species is primarily confined to the extreme south of the British Isles, from Sussex to Devon. Long-eared bat was recorded during automated detector surveys in September only and is considered to be brown long-eared, given its more common and widespread distribution within the UK. Brown long-eared bats using the Site are considered to be of Site importance.

Lesser Horseshoe

A3.31 Lesser horseshoe is a rare and endangered species in the UK, being predominantly confined to the west/south-west of England and South Wales, though its population status is understood to have increased since 1999. However, usage of the Site by this species was notably limited, with this species recorded on one occasion during automated detectors surveys in May 2023 and two occasions in July 2023. Nonetheless its rarity warrants these species to be considered of Local importance.

Noctule

A3.32 Uncommon, but considered to be widespread in the UK, noctule bats are listed as a species of principal importance for conservation in Wales. Only low levels of this species were recorded during the automated detector surveys. Noctule bats using the Site are therefore considered to be of Site importance.

Serotine

A3.33 Serotine bats are rarely recorded in Wales, to the extent that there is insufficient data available to understand their current population trend (albeit with populations considered to remain stable in England). Whilst only infrequently encountered on-site, given their rarity, serotine bats using the Site are considered to be of Local importance.

Automated Detector Data Tables

Table EDP A3.4: Automated Detector Survey Results May/June

Location	Bat Species	Number of Bat Passes Recorded per Night					Total (and percentage)
		31 May	01 Jun	02 Jun	03 Jun	04 Jun	
1	Common pipistrelle	1	0	1	1	2	5 (41.5)
	Soprano pipistrelle	1	1	0	1	0	3 (25)
	Noctule	0	0	1	2	0	3 (25)
	Lesser horseshoe	0	0	0	0	1	1 (8.5)
	Total	**2**	**1**	**2**	**4**	**3**	**12 (100)**
2	Common pipistrelle	1	1	1	0	2	5 (56)
	Soprano pipistrelle	0	0	0	0	1	1(11)
	Myotis sp.	0	0	0	0	1	1(11)
	Noctule	0	0	0	1	1	2 (22)
	Total	**1**	**1**	**1**	**1**	**5**	**9 (100)**

Table EDP A3.5: Automated Detector Survey Results July

Location	Bat Species	Number of Bat Passes Recorded per Night					Total (and percentage)
		06 Jul	07 Jul	08 Jul	09 Jul	19 Jul	
1	Common pipistrelle	36	15	22	9	4	86 (56.5)
	Soprano pipistrelle	8	4	8	7	7	34 (22.5)
	Long-eared	0	0	0	0	2	2(1)
	Myotis sp.	2	0	3	11	2	18 (12)
	Noctule	3	0	0	1	1	5 (3)
	Serotine	1	4	0	0	1	6 (4)
	Lesser horseshoe	0	1	0	1	0	2 (1)
	Total	**50**	**24**	**33**	**29**	**17**	**153 (100)**
2	Common pipistrelle	6	10	8	11	2	37 (61)
	Soprano pipistrelle	0	5	4	4	0	13(21)
	Myotis sp.	0	1	1	0	0	2 (3)
	Noctule	2	4	0	0	2	8 (13)
	Long-eared	0	0	1	0	0	1(2)
	Total	**8**	**20**	**14**	**15**	**4**	**61 (100)**

Table EDP A3.6: Automated Detector Survey Results September

Location	Bat Species	Number of Bat Passes Recorded per Night					Total (and percentage)
		26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	
1	Common pipistrelle	1	0	0	1	0	2 (28.5)
	Soprano pipistrelle	1	1	0	3	0	5 (71.5)
	Total	**2**	**1**	**0**	**4**	**0**	**7 (100)**
2	Common pipistrelle	1	0	0	1	32	34 (23)
	Soprano pipistrelle	6	1	7	8	57	79 (55)
	Myotis sp.	6	2	1	2	8	19 (13)
	Noctule	2	2	0	6	2	12 (8)
	Serotine	0	0	0	1	0	1 (<1)
	Total	**15**	**5**	**8**	**18**	**99**	**145 (100)**

Table EDP A3.7: Monthly Summary of Automated Detector Surveys

Survey Month	Species	Number of Passes	% of Month Total
May/June	Common pipistrelle	10	47.5
	Soprano pipistrelle	4	19
	Myotis sp.	5	23.5
	Noctule	1	5
	Lesser horseshoe	1	5
	Total	**21**	
July	Common pipistrelle	123	57.5
	Soprano pipistrelle	47	22
	Long-eared	3	1.5
	Lesser horseshoe	2	1
	Myotis sp.	20	9
	Noctule	13	6
	Serotine	6	3
	Total	**214**	
September	Common pipistrelle	36	23
	Soprano pipistrelle	84	55.5
	Myotis sp.	19	12.5
	Noctule	12	8
	Serotine	1	1
	Total	**152**	

Evaluation of Overall Bat Assemblage

A3.34 Overall, arable land comprising fields **F1** and **F2** of the Site is considered of negligible importance as a foraging resource. Dense scrub and poor semi-improved grassland are of comparatively greater value, albeit of limited importance due to their small extent within the Site, combined with poor structural and botanical diversity, which would limit diverse prey populations. The hedgerow boundaries and woodland do, however, provide linear features for the dispersal of a bat assemblage across the Site and wider landscape. The presence of a notable assemblage is, however, likely to be limited due to elevated noise and lighting associated with Cardiff Airport and main roads adjacent to the Site.

A3.35 Taking into account the diversity of bat species utilising the Site and the extent of their roosting, foraging and commuting activity, the overall bat assemblage using the Site is judged to be of Local importance.

Plans

Plan EDP 1: Phase 1 Habitat Survey
(edp8160_d001a 22 November 2023 GYo/KJk)

Plan EDP 2: Reptile Mat Locations
(edp8160_d004a 22 November 2023 MCa/KJk)

Plan EDP 3: Statutory Sites
(edp8160_d002a 22 November 2023 GYo/KJk)

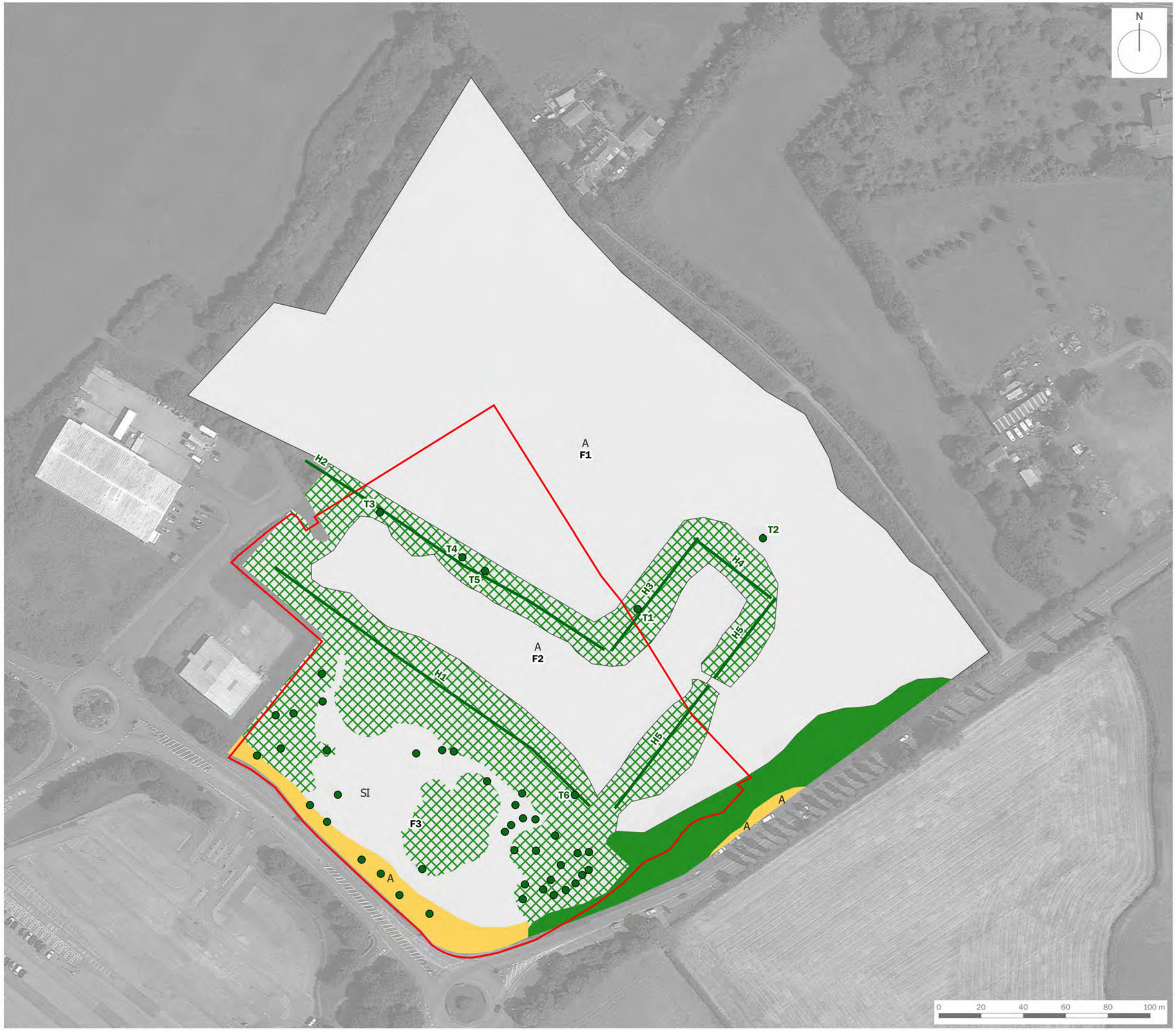
Plan EDP 4: Non-statutory Sites
(edp8160_d003a 22 November 2023 GYo/KJk)

Plan EDP 5: Manual Bat Transect Survey - May 2023
(edp8160_d006a 22 November 2023 MCa/KJk)

Plan EDP 6: Manual Bat Transect Survey - July 2023
(edp8160_d007a 22 November 2023 MCa/KJk)

Plan EDP 7: Manual Bat Transect Survey - September 2023
(edp8160_d008a 22 November 2023 MCa/KJk)

Plan EDP 8: Bat Transect Route and Static Detector Locations
(edp8160_d005a 22 November 2023 MCa/KJk)



Site Boundary

Broadleaved Semi-natural Woodland

Dense Continuous Scrub

A — Arable

A — Amenity Grassland

SI — Poor Semi-improved Grassland

Hardstanding

Species-poor Outgrown Hedgerow

Scattered Trees (Broadleaved)

T1 — Tree Number

F1 — Field Number

client

Cardiff and Vale College

project title

Advanced Technology Campus

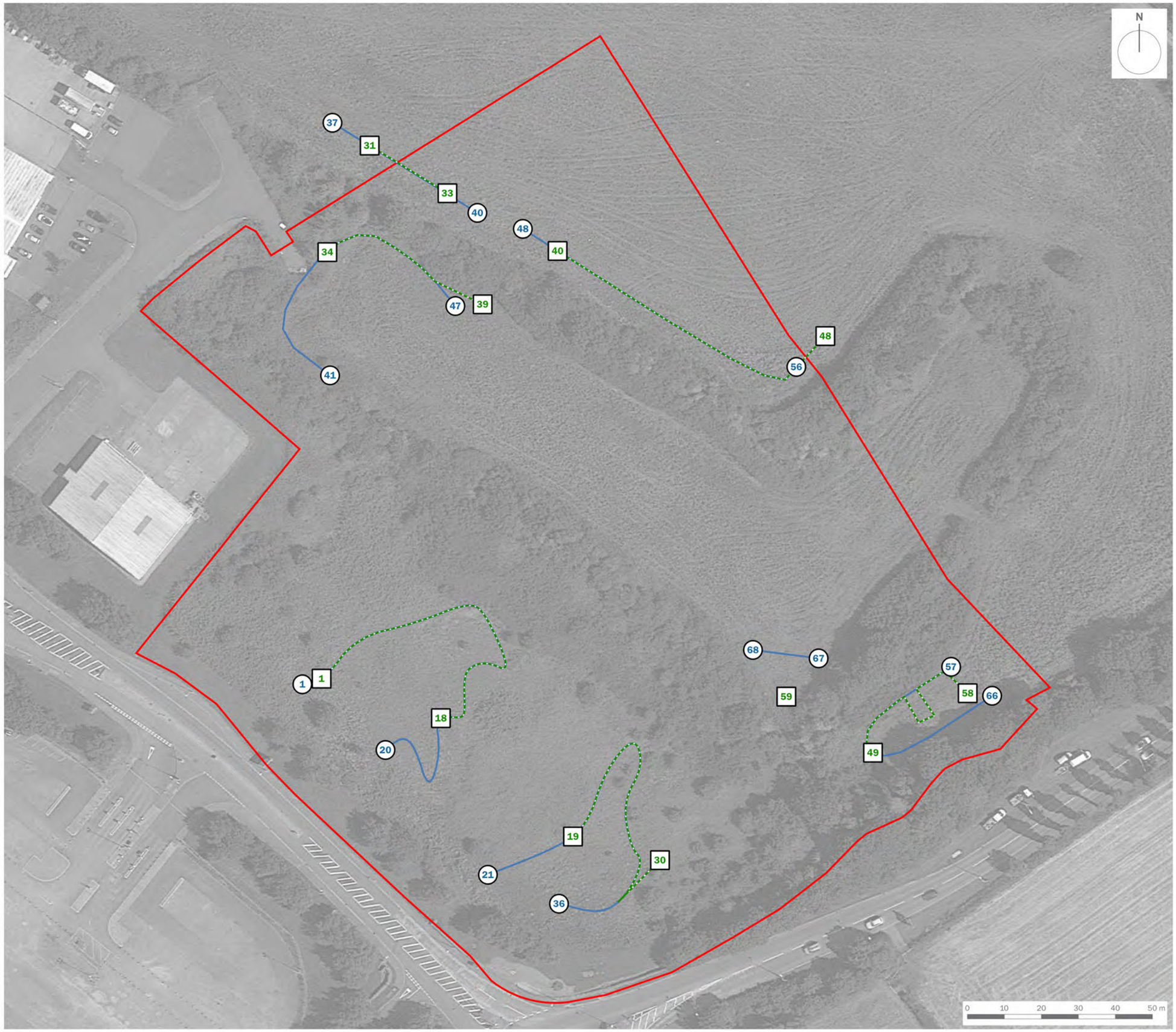
drawing title

Phase 1 Habitat Survey

date	**22 NOVEMBER 2023**	drawn by	**GYo**
drawing number	**edp8160_d001a**	checked	**KJk**
scale	**1:1,750 @ A3**	QA	**DJo**

the environmental dimension partnership

Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk



Site Boundary

1 2 Reptile Mat Location

1 2 Relocated Mats

client

Cardiff and Vale College

project title

Advanced Technology Campus

drawing title

Reptile Mat Locations

date	**22 NOVEMBER 2023**	drawn by	**MCa**
drawing number	**edp8160_d004a**	checked	**KJk**
scale	**1:1,000 @ A3**	QA	**DJo**

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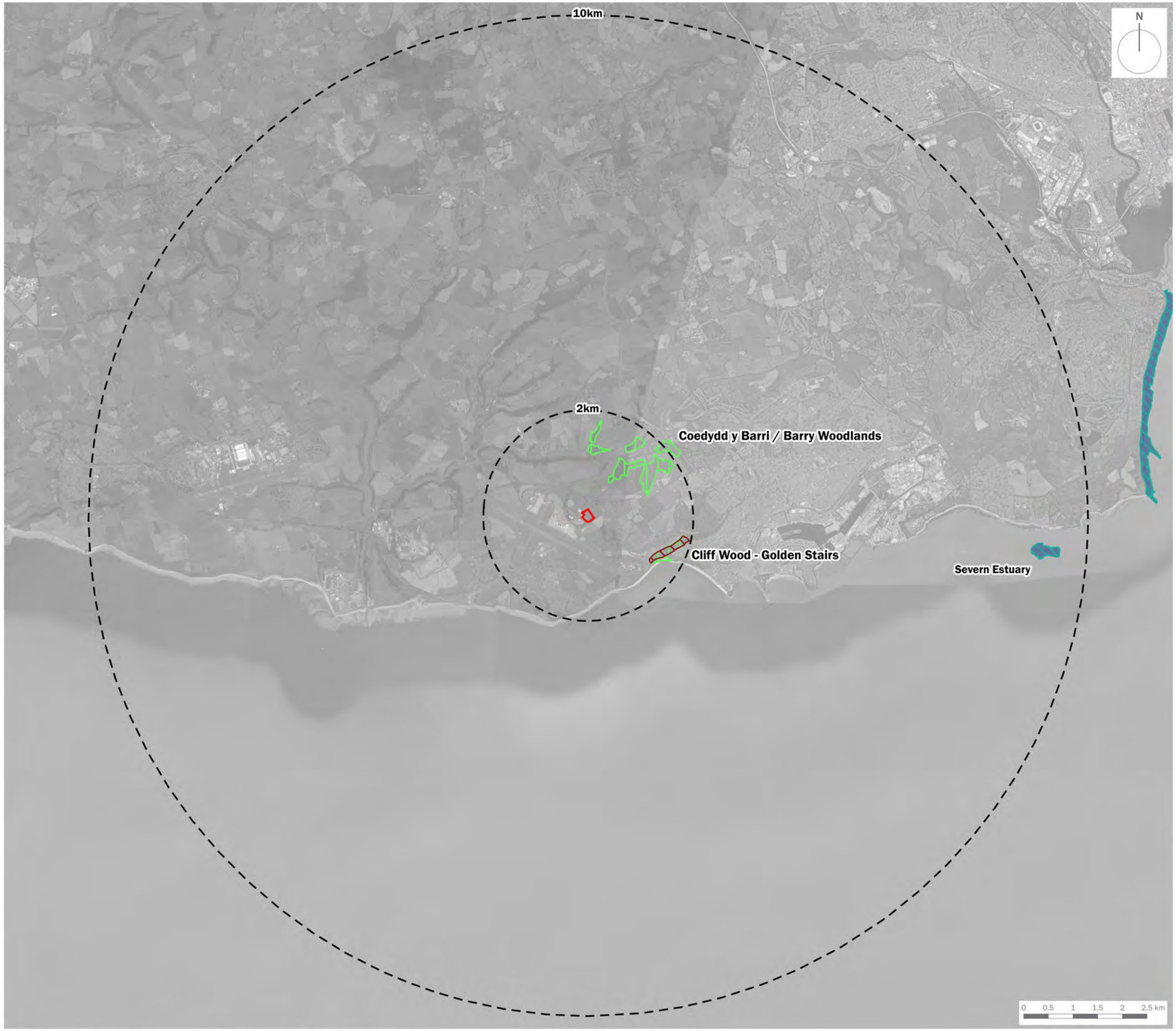

Site Boundary

Range Rings (at 2km and 10km)

Ramsar Site

Special Protection Area (SPA)

Site of Special Scientific Interest (SSSI)

Local Nature Reserve (LNR)

client

Cardiff and Vale College

project title

Advanced Technology Campus

drawing title

Statutory Sites

date	**22 NOVEMBER 2023**	drawn by	**GYo**
drawing number	**edp8160_d002a**	checked	**KJk**
scale	**1:75,000 @ A3**	QA	**DJo**

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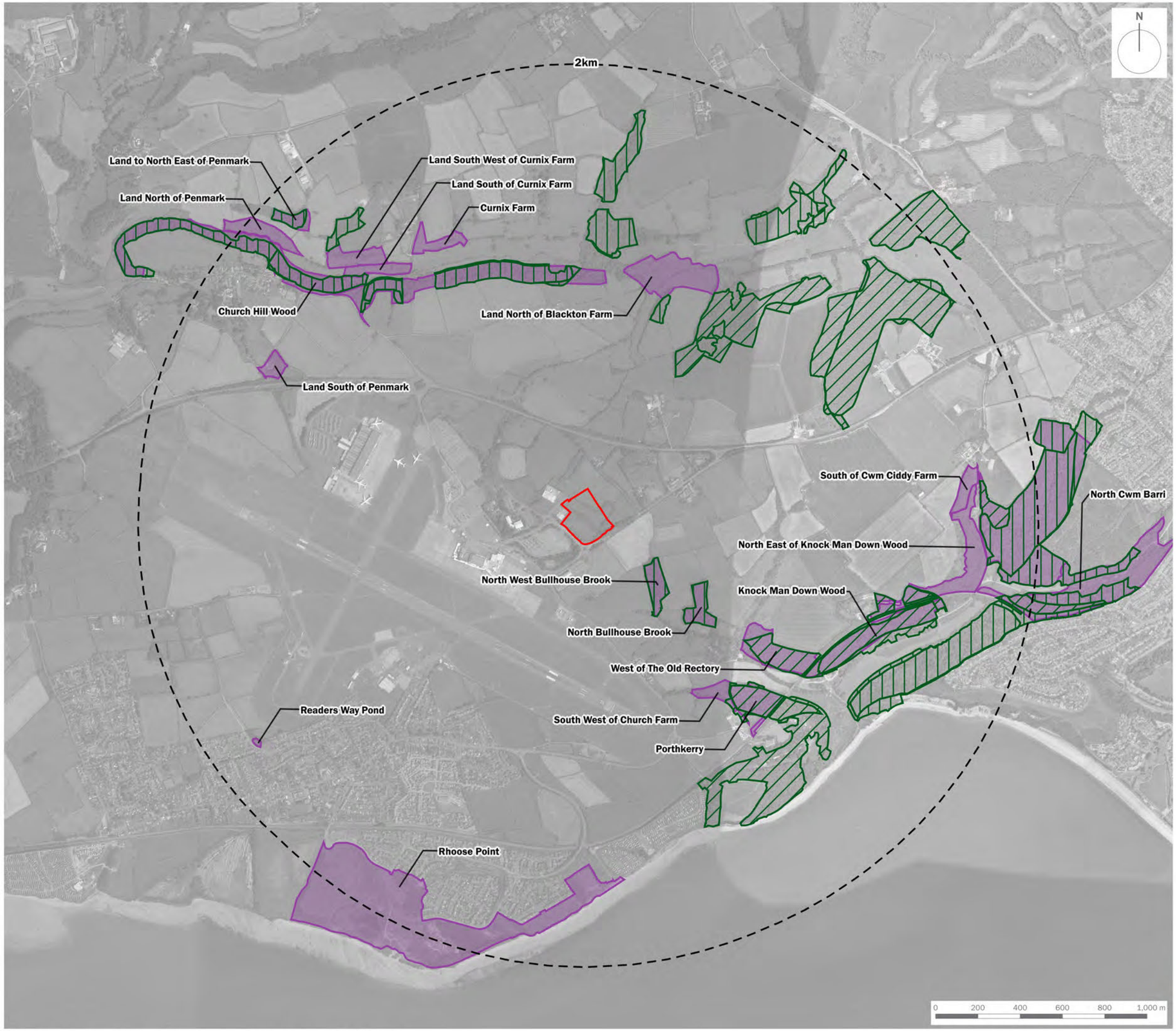

Site Boundary

2km Range Ring

Wildlife Site/SINC

Ancient Semi-natural Woodland

Restored Ancient Woodland Site

client

Cardiff and Vale College

project title

Advanced Technology Campus

drawing title

Non-statutory Sites

date	**22 NOVEMBER 2023**	drawn by	**GYo**
drawing number	**edp8160_d003a**	checked	**KJk**
scale	**1:17,500 @ A3**	QA	**DJo**

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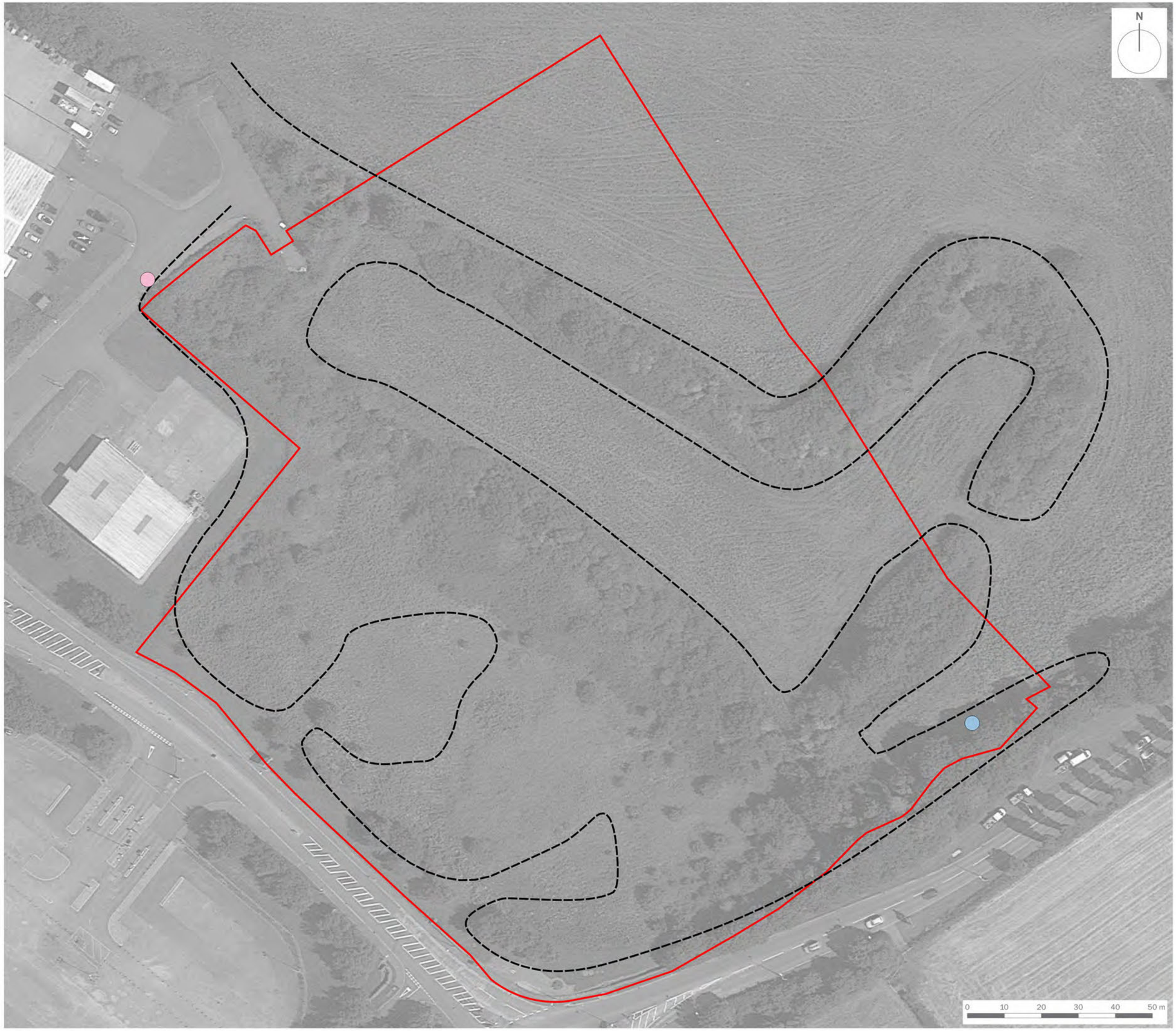

Site Boundary

Bat Survey Route

Common Pipistrelle

Myotis spp.

client

Cardiff and Vale College

project title

Advanced Technology Campus

drawing title

Manual Bat Transect Survey - May 2023

date	**22 NOVEMBER 2023**	drawn by	**MCa**
drawing number	**edp8160_d006a**	checked	**KJk**
scale	**1:1,000 @ A3**	QA	**DJo**

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