



**Land at Upper
Cosmeston
Farm,
Lavernock
Road, Penarth**

**Technical
Appendix 8.8:
Update
Baseline
Ecology Report**

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On behalf of:
Welsh Government

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Section 1

Introduction, Purpose and Context

- 1.1 This Update Baseline Ecology Report has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of Welsh Government (hereafter referred to as 'the Applicant'), in relation to Land at Upper Cosmeston Farm, Lavernock Road, Penarth (hereafter referred to as 'the Application Site').
- 1.2 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 master planning. Details of the practice can be obtained at our website www.edp-uk.co.uk.

Site Context

- 1.3 The Application Site is situated at approximate Ordnance Survey Grid Reference (OSGR) ST 17964 68945 within the Local Planning Authority (LPA) of Vale of Glamorgan Council (VoGC). The Application Site encompasses an area of circa 25.2 hectares (ha), comprising a mixture of grazing pasture, farm buildings of Lower Cosmeston Farm and the woodland associated with the dismantled railway route between Penarth and Sully, which dissects the Application Site at its centre from north to south. Field parcels within the Application Site are defined by a mixture of hedgerow boundaries and tree belts. Also passing through the Application Site is an agricultural-character track which connects the B4267 to the former Penarth Royal Observer Corps (ROC) Post, located adjacent to the Application Site's south-eastern corner.
- 1.4 In terms of its wider context, the Application Site is bordered to the north by existing built form of Cosmeston. To the west the Application Site is bordered by the course of the B4267 (Lavernock Road) which connects Cosmeston to the nearby settlement of Sully to the south-west and divides the Application Site from Cosmeston Lakes Country Park which is situated beyond to the north-west.
- 1.5 To the south of the Application Site the landscape is predominantly made up of arable land, with the village of Lavernock and its associated 'Holiday Village' located beyond the minor route of Fort Road. Directly to the east of the Application Site runs the course of the Wales Coastal Path, along the length of the Application Site's eastern boundary, before the land falls away as cliffs down to the Bristol Channel at Roundbush Rocks and Ranny Bay.

Background and Scope of Ecological Baseline

- 1.6 Detailed ecological assessments of the Application Site were previously undertaken by Wardell Armstrong in 2016 and 2017 to inform an outline planning application for

residential-led mixed use development. Surveys comprised a desk study and Extended Phase 1 Habitat survey followed by detailed surveys for protected species, including great crested newt, breeding bird, dormouse and bats.

- 1.7 Further surveys with respect to roosting bats were carried out and detailed in an Ecology Update Technote by EDP in 2019 to determine any additional potential ecological constraints to proposed development of the Application Site.
- 1.8 Given the time that has elapsed since the Application Site was initially assessed and based on consultation with the VoGC Ecologist, there is a requirement to update the ecological baseline data to inform determination of the planning application through an addendum to the Environment Statement (ES).
- 1.9 To inform the ES Addendum an update ecological assessment of the Application Site has been undertaken to determine whether any material changes have arisen during the interim period, with respect to the distribution and management of habitats on-site and their potential to support protected species. This Update Baseline Ecology Report, therefore, details the available findings of update investigations completed during 2021 and 2022 by EDP and assesses the current ecological status of the Application Site necessary to determine any additional potential ecological constraints to its proposed development, which will require consideration within the ES addendum. Based on the seasonal constraints for a number of protected species and habitats, a number of the surveys are still underway, and the results will be provided in an update report on completion of all surveys.
- 1.10 The remainder of this report is structured as follows:
 - **Section 2** summarises the methodology employed in determining the update baseline ecological conditions within and around the Application Site (with further details provided within annexes and on plans where appropriate);
 - **Section 3** summarises the results of the update baseline ecological surveys (with further details also provided within annexes and on plans where appropriate) and identifies and evaluates any pertinent ecological features/receptors; and
 - **Section 4** summarises the results of the update baseline report and provides the overall conclusions.

Section 2 Methodology (Baseline Investigations)

2.1 This section summarises the methodologies employed in determining the update baseline ecological conditions within the Application Site. The baseline surveys have 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 Application Site. Full details of the techniques and process adopted are, where appropriate, provided within annexes and on plans to the rear of this report.

Desk Study

2.2 The desk study is an important element of establishing the ecological baseline of a site proposed for development, enabling the initial collation and review of contextual information, such as designated sites, together with known records of protected and priority species¹.

2.3 An update desk study was undertaken by EDP during January 2022 and involved collating biodiversity information from the following sources:

- South East Wales Biodiversity Records Centre (SEWBRc); and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website².

2.4 The desk study involved obtaining the following information:

- International statutory designations (10km radius around the Application Site);
- National statutory designations (2km radius);
- Non-statutory local sites (2km radius);
- Annex II bat species³ records (6km radius);
- All other protected/notable species records (2km radius); and
- All other notable habitats records (500m).

¹ 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.

² www.magic.gov.uk.

³ Bat species listed in Annex II of the EC Habitats Directive, namely greater horseshoe, lesser horseshoe, barbastelle and Bechstein's bats.

- 2.5 The above listed search areas are considered sufficient to cover the potential zones of influence⁴ of the proposed development in relation to designated sites, habitats and species.
- 2.6 Any pertinent information received as a result of the desk study has been specifically referenced within **Section 3**.

Update Extended Phase 1 Survey

- 2.7 The survey technique adopted for the update habitat assessment was at a level intermediate between a standard Phase 1 survey technique⁵, based on habitat mapping and description, and a Phase 2 survey, based on detailed habitat and species surveys. The survey technique is commonly known as an Extended Phase 1 survey. This level of survey does not aim to compile a complete floral and faunal inventory for the Application Site.
- 2.8 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 Importance⁶ are identified and scoped. A Phase 1 Habitat Plan for the Application Site is provided at **Plan EDP 3**.
- 2.9 The Update Extended Phase 1 survey was undertaken by a suitably experienced surveyor on 07 October 2021, with additional information collected on 22 February 2022. The weather during the surveys was cool, with intermittent light rain and moderate winds.
- 2.10 The field season for Phase 1 Survey is considered to start in late March/early April and ends in Mid-October, with the collation of species lists carried out within the appropriate window, and supplementary information gathered in an additional visit to the Application Site in February. The optimum time of year for carrying out a Phase 1 survey is in spring or early summer, when the species composition of most habitats encountered will be most apparent, however a comprehensive species list was still able to be obtained during the survey visit.
- 2.11 The surveys are, therefore, not considered to have been constrained by seasonal or climatic conditions. Further details of the Extended Phase 1 survey, habitat descriptions and site photographs are provided in full at **Annex EDP 1** and shown on **Plan EDP 3**.

⁴ Zone of Influence - the areas and resources that may be affected by the proposed development.

⁵ 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).

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.

Detailed (Phase 2) Surveys

- 2.12 In addition to an extended Phase 1 survey, further detailed assessments were undertaken to further update the baseline with respect to these species. The scope of Phase 2 surveys undertaken at the Application Site was defined based on the original baseline survey scope and following the update desk study and Extended Phase 1 survey. The surveys 'scoped in' are summarised in turn below and a brief explanation of those potential surveys 'scoped out' is provided thereafter.



Bat Surveys

- 2.15 The previous baseline surveys identified six farm buildings within the Upper Cosmeston Farm complex, and two railway bridges associated with the dismantled railway, as having the potential to support roosting bats. The habitats within the Application Site were also identified as having the potential to support a foraging and commuting assemblage of bats, while trees within the woodland and hedgerows were assessed for their potential to support roosting bats. The following surveys for bats were therefore proposed to update the existing baseline information during the active bat season in 2022, with reference to national best practice guidelines⁷: external and internal Bat Roost Assessment of buildings, preliminary ground level roost assessments of all mature trees for bat roosting suitability; dusk emergence and dawn re-entry surveys for buildings; manual transect surveys; and automated detector surveys.
- 2.16 Full details of the bat surveys are provided in **Annex EDP 3**.

Bat Roosting – Buildings

- 2.17 Upper Cosmeston Farm comprises a complex of six buildings, including an occupied farmhouse and a number of agricultural barns (B1 and B3 - B7). The Application Site also supports two old railway bridges (B2 and B8) located along the former railway line which crosses through the centre of the Application Site, north to south. pipistrelle roosts, while B1 and B6 had moderate suitability and B5 had low suitability to support roosting bats. To update the existing ecological baseline an external visual inspection of onsite buildings/structures was undertaken by an NRW bat licenced ecologist from EDP for

⁷ Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London

any evidence of, or potential to support roosting bats, with reference to best practice guidelines⁸. The visual assessment was undertaken on 24 March 2022.

- 2.18 An additional emergence/re-entry survey for buildings identified as confirmed roosts or with bat roost potential will be carried out by EDP during May and June 2022, with reference to best practice guidelines. Detailed results will be provided in an update report on completion of the surveys.

Bat Roosting - Trees

- 2.19 A preliminary ground level roost assessment of all onsite trees was undertaken to determine the presence of, or potential to support, roosting bats. The survey was undertaken on 24 March 2022 by a suitably qualified and Natural Resources Wales (NRW) licensed ecologist and in accordance with best practice guidelines⁹. The trees were searched as thoroughly as possible from ground level.

Bat Foraging/Commuting

- 2.20 Features such as trees, hedgerows, scrub and rough grassland within the Application Site were identified as having low suitability for foraging and commuting bats. Therefore, bat activity surveys will be updated through a combination of manual transect surveys and automated detector surveys to be carried out in May, June and July 2022. Detailed results will be provided in an addendum report on completion of the surveys.

Breeding Bird Survey

- 2.21 The Application Site is due to be surveyed on three occasions between May and June 2022, for the presence of breeding birds. The surveys will be undertaken with reference to the CBC approach. Full details of the breeding bird surveys will be provided in an addendum report on completion of these update surveys.

Dormouse Survey

- 2.22 The dormouse surveys undertaken by Wardall Armstrong in 2017 identified the presence of the species within the Application Site. The Application Site still supports suitable habitat for the species in the form of hedgerows, scrub and woodland, and as such, 160 nest tubes were deployed across the Application Site on the 11 April 2022, which will be subject to monthly visits between April and September 2022. Full details of these surveys will be provided in an addendum report on completion of these update surveys.

⁸ Collins, J. (ed.) (2016). *Bat Surveys: for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London

⁹ Bat Conservation Trust (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* 3rd edition. Bat Conservation Trust, London

Great Crested Newt Survey

- 2.23 There are no ponds present within the Application Site itself, however, the previous assessment identified 26 waterbodies within 500m of the Application Site boundary in 2018 (illustrated as P1 to P25 on **Plan EDP 2**). Due to a variation in the red line boundary from the previous assessment, P5, P8 and P25 are no longer within the study area. Of the 23 ponds within 500m of the current Application Site boundary, 11 were identified as dry at the time of survey, however, given the time that has passed since the previous survey, all ponds will be reassessed for their potential to support great crested newt (*Triturus cristatus*).
- 2.24 Water sampling for environmental DNA (eDNA) is due to be carried out in April 2022. Once the results of the eDNA surveys of these ponds were returned, the requirement for further presence/absence surveys of these ponds will be determined and the results provided in an addendum report.

Reptile Survey

- 2.25 During the update Extended Phase 1 survey, the hedgerow margins, unmanaged grassland and tall ruderal vegetation were considered suitable to support common and widespread reptile species. Therefore, artificial refugia were deployed throughout the Application Site on the 08 April 2022, and checks are to be carried out for reptiles on seven occasions between April and September 2022. Full details of these surveys will be provided in an addendum report on completion of the update baseline surveys.

Detailed Botanical Survey

- 2.26 During consultation with the Vale of Glamorgan's County Ecologist on 17 June 2021, the requirement for a detailed botanical survey for the adjacent Ty'r Orsaf Site of Importance for Nature Conservations (SINC) was highlighted. This will involve a detailed botanical assessment to National Vegetation Classification¹⁰ (NVC) level to determine the potential impact of additional recreational pressure. This survey is scheduled to be carried out in June 2022. Full details of these surveys will be provided in an addendum report on completion of the update baseline surveys.

¹⁰ <https://jncc.gov.uk/our-work/nvc/?msckid=1ff8d974bb1511ec8b21b35a7d6a8973>

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Section 3

Results (Baseline Conditions)

- 3.1 This section summarises the update baseline ecological conditions determined through the course of the desk- and field-based investigations described in **Section 2**. In particular, it identifies and evaluates those Important Ecological Features (IEFs) that lie within the Application Site's potential zone of influence, and which are pertinent in the context of the proposed development.
- 3.2 The evaluation of potential IEFs has been undertaken in accordance with the latest Chartered Institute of Ecology and Environmental Management (CIEEM) guidance¹¹ with professional judgement and available guidance used to assign a value to IEFs at a geographical scale. Further technical details are, where appropriate, provided within annexes and on plans to the rear of this report.

Designated Sites

- 3.3 Information regarding designated sites was obtained during the desk study from the MAGIC website and TVERC. Statutory designations (those receiving legal 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, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites (including potential SPAs and possible SACs and proposed Ramsars). National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs).
- 3.5 No part of the Application Site is covered by any statutory designations. However, there are a number of such designations within the Application Site's potential zone of influence, as summarised in **Table EDP 3.1**, and illustrated in **Plan EDP 1**.

¹¹ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

Table EDP 3.1: Statutory Designations within the Development Site's Potential Zone of Influence

Designation	Distance from Site	Interest Feature(s)
International Designations within 10km		
Severn Estuary Ramsar Site	Adjacent to eastern boundary of Application Site	The Severn Estuary is designated a Ramsar Site for: its immense tidal range; presence of unusual estuarine communities, reduced diversity and high productivity; populations of migratory fish; bird assemblages of international importance; and fish species associated with the whole estuarine and river system.
Severn Estuary SPA	Adjacent to eastern boundary of Application Site	This SPA is designated for supporting populations of European importance, overwintering Bewick's swan (<i>Cygnus columbianus bewickii</i>) and migratory curlew (<i>Numenius arquata</i>), dunlin (<i>Calidris alpina</i>), pintail (<i>Anas acuta</i>), redshank (<i>Tringa tetanus</i>) and shelduck (<i>Tadorna tadorna</i>). The Application Site also supports a population of European importance of passage ringed plover (<i>Charadrius hiaticula</i>) and is a wetland of international importance.
Severn Estuary SAC	Adjacent to eastern boundary of Application Site	This SAC is designated for its assemblage of Annex I habitats including: estuaries; mudflats and sandflats not covered by seawater at low tide; and Atlantic salt meadow. Also, a qualifying feature are its populations of twaite shad (<i>Allosa fallax</i>), sea lamprey (<i>Petromyzon marinus</i>) and river lamprey (<i>Lampetra fluviatilis</i>).
National Designations within 2km		
Severn Estuary SSSI	Adjacent to eastern boundary of Application Site	As above, the SSSI is of importance for its habitats, winter assemblage, fish and invertebrate populations.
Penarth Coast SSSI	Adjacent to eastern boundary of Application Site	The Application Site is principally designated for geological features. Included in the designation are species rich calcareous grassland and cliff-top scrub which support several plant species of limited occurrence and distribution in the area. The Application Site contains Lavernock Point which is well known point for observing migratory birds.
Cosmeston Lakes SSSI	100m east of Application Site	This SSSI comprises two lakes, created from flooded limestone quarries and support a range of submerged plants. The western lake is of special interest as the only known site in Wales for the presence of starry stonewort (<i>Nitellopsis obtusa</i>).

Designation	Distance from Site	Interest Feature(s)
Cog Moors SSSI	1.74km north-west of Application Site	Cog moors comprises a series of fields adjacent to Sully Brook and is of special interest for its large area of damp neutral semi-natural grassland. Of additional interest, Cog Moors supports populations of the nationally scarce bulbous foxtail (<i>Alopecurus bulbosus</i>) and pepper saxifrage (<i>Silaum silaus</i>). The site also supports species which are uncommon in Glamorgan including the brown sedge, adder's-tongue (<i>Ophioglossum vulgatum</i>) and green winged orchid (<i>Anacamptis morio</i>).
Sully Island SSSI	2km south-west of Application Site	The Application Site provides the main roost site for waders feeding in winter in the Taff/Ely estuary. The roost holds up to 100% of the dunlin, grey plover and ringed plover of the Taff/Ely and over 50% of the redshank and knot.
Local Nature Reserves (LNRs) within 2km		
Cosmeston Lakes Country Park LNR	Adjacent to western boundary of Application Site	Cosmeston Lakes Country Park is a 110-hectare urban fringe country park that has been created from a derelict quarry site, formerly used for the extraction of limestone and more latterly as rubbish tips. The park consists of open lakes, woodland, grassland, and visitor centre.

Non-statutory Designations

- 3.6 Non-statutory designations are also commonly referred to in planning policies as 'local sites', although in fact these designations are typically considered to be of importance at a county level. In the Vale of Glamorgan (VoG), such designations are named SINCs. Additional sites which should be considered at this level include non-designated nature reserves (e.g. Wildlife Trust nature reserves) Ancient Semi Natural Woodland (ASNW), where these are not covered by other designations.
- 3.7 No non-statutory sites lie within the Application Site boundary. There are seven non-statutory designations within the Application Site's potential zone of influence, including Ty'r Orsaf SINC, which lies directly adjacent to the south-west corner. These are described in **Table EDP 3.2**, with locations illustrated at **Plan EDP 1**.

Table EDP 3.2: Non-statutory Designations within the Application Site's Potential Zone of Influence.

Site Reference/Name	Approximate Distance from Site	Interest Feature(s)
Site of Importance for Nature Conservation (SINC) within 2km		
Ty'r Orsaf SINC	Adjacent to south-west corner of Application Site	The Application Site consists of a disused railway line that supports areas of species-rich neutral and calcareous grassland. The SINC was designated for the presence of Lowland Meadows, Lowland Calcareous Grassland and Mosaic Habitats.

Site Reference/Name	Approximate Distance from Site	Interest Feature(s)
Cosmeston Lakes SINC	200m west of Application Site	Extensive country park supporting mosaic of habitats including species-rich calcareous and neutral grasslands, scrub, hedgerows, woodland, streams and ponds which all support a wide assemblage of species including many Section 7 Listed priority species.
Downs Wood SINC	500m north of Application Site	Ancient and semi-natural woodland.
Lavernock Point East SINC	500m south of Application Site	The Application Site supports a mosaic of coastal species moderate to rich limestone grassland with scrub and is contiguous with Penarth SSSI.
Lavernock Point Wildlife Trust Reserve	600m south of Application Site	Made up of a number of habitats including limestone grassland, scrub and oak coppice woodland supporting purple hairstreak butterfly (<i>Neozephyrus quercus</i>).
Cogan Pond SINC	1.2km north-west of Application Site	Large pond supporting reedbed.
Cog Moors SINC	1.5km north-west of Application Site	Series of species-rich rush pastures with neutral grassland and associated wet ditches.

3.8 There are no designated ancient woodland units within the boundaries of the Application Site. Areas of Ancient Semi-natural Woodland lie ~475m north-west, ~1880m north and ~1990m north of the Application Site and an area of Restored Ancient Woodland lies ~1800m north-west.

Habitats

3.9 Information on Priority habitats within and around the Application Site was obtained during the desk study and all habitats on the Application Site during the Phase 1 survey undertaken on 07 October 2021. The distribution of different habitat types within and adjacent to the Application Site is illustrated at **Plan EDP 3** and further described below. Illustrative photographs are provided at **Annex EDP 1**.

Table EDP 3.2: Summary of Habitats Within the Application Site

Habitat or Feature	Distribution within Site	Level of Intrinsic Ecological Importance
Improved grassland	Covers the majority of the Application Site.	Site only , owing to low distinctiveness
Poor semi-improved grassland	The fields in the south-west of the Application Site.	Site only , owing to low distinctiveness
Amenity grassland	The garden associated with the farmhouse.	Negligible

Habitat or Feature	Distribution within Site	Level of Intrinsic Ecological Importance
Native hedgerows	Intersecting the fields and bordering the Application Site.	Local , as hedgerow are a Habitat of Principle Importance (HoPI) in Wales, owing to the quality and diversity of species, although low distinctiveness and only H16 is species-rich and has the potential to be considered important.
Broad-leaved semi-natural woodland	Linear areas of semi-natural woodland associated with the dismantled railway on Application Site.	Local as broadleaved woodland is listed as a HoPI and comprises suitable habitat for a diverse range of protected species
Tall ruderal vegetation	Present in field margins and associated with the dismantled railway.	Site , owing to low distinctiveness and regularly disturbed nature of colonised areas.
Dry ditch	A dry ditch present intersecting the fields in the southwest of the Application Site.	Negligible.
Bare ground	Bare ground present in the form of a sand based riding arena.	Negligible.
Hardstanding	Areas of hardstanding associated with the farm and dismantled railway line.	Negligible.
Buildings	Complex of six buildings within the farmyard.	Site , with importance relating to roosting bats considered further below in relation to species IEFs

3.10 As noted within **Table EDP 3.2**, the majority of habitats within the Application Site are of Site-level or Negligible ecological importance. However, the broad-leaved woodland and hedgerows are considered to be of Local-level importance. Furthermore, a number of the habitats or other features, which are of negligible intrinsic ecological importance may require consideration in relation to their importance in maintaining populations of protected and/or notable species. This is discussed further below.

Protected and/or Notable Species

3.11 The likelihood of presence, or confirmed presence, of protected/and or notable wildlife species within the Application Site is summarised below with reference to desk study records, habitat suitability and detailed surveys where relevant. Further details are made available within annexes and plans where referenced.

3.12 Where a particular species or taxonomic group has been confirmed to be present, or presence is inferred based on habitat suitability, the ecological importance or significance of the population or assemblage is assessed on a geographical scale.

Bats

- 3.16 With respect to Annex II species, the desk study returned records for lesser horseshoe (*Rhinolophus hipposideros*) bat roosts within a 6km radius of the Application Site, with the closest relating to a night roost approximately 3.5km north-west. In relation to other bat species, there are no records of roosts within 2km of the Application Site.
- 3.17 With respect to foraging/commuting bats, the desk study returned records for common pipistrelle (*Pipistrellus pipistrellus*), Nathusius' pipistrelle (*Pipistrellus nathusii*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), lesser horseshoe and whiskered bat (*Myotis mystacinus*) within 2km of the Application Site.

Bat Roost Assessment - Buildings

- 3.18 Six buildings are present within the Application Site all of which were subject to an external inspection to identify their suitability to support roosting bats.
- 3.19 The on-site buildings are all associated with the farm complex, including large, corrugated barn used for agricultural purposes, stone stable blocks and a residential farmhouse. There are also two bridges present along the dismantled railway line that intersects the Application Site from north to south. Internal and external inspections and emergence/re-entry surveys were carried out in July 2019 by EDP for the buildings. During these surveys summer day roosts for low numbers of common pipistrelle were confirmed in building B3, B7 and B8, while B4 was confirmed to support an occasional day roost for Pipistrelle sp. bats. Buildings B1 and B6 were categorised as having moderate suitability, while B2 and B5 were categorised as having low suitability to support roosting bats. References to building numbers can be found in **Plan EDP 3**.
- 3.20 In the update survey, B1 was considered to have high suitability for roosting bats. B7 was downgraded to low suitability due a degradation in the building's integrity due to storm damage. All other buildings were considered to be largely unchanged.

- 3.21 A full description and photographs of buildings surveyed, along with details of any bat signs and potential roost features identified, are provided within **Annex EDP 3**, and the location of the buildings is shown on **Plan EDP 3**.
- 3.22 Emergence/re-entry surveys are being undertaken in the 2022 survey season.

Bat Roost Assessment - Trees

- 3.23 The daytime assessment of trees within the Application Site reassessed 42 trees previously identified potential to support roosting bats. No bats or evidence of bats were found during the ground level tree assessment. Four of the trees from the previous assessment were unable to be located, likely due to management. 12 trees were assessed as having low bat roost potential, nine were assessed as having moderate bat roost potential and 17 were assessed as having high bat roosting potential.
- 3.24 Full details of the bat roost assessment of trees within the Application Site are provided in **Annex EDP 3** and shown in **Plan EDP 4**.

Bat Activity

- 3.25 The update Extended Phase 1 survey confirmed that habitats within the Application Site boundary continue to provide suitability for foraging, commuting and roosting bats, with additional foraging habitat recorded in the form of the tall, rank, improved grassland that was previously arable and enhanced foraging opportunities where many of the habitats have been left un-managed.
- 3.26 Bat activity transect surveys and automated detector surveys are being undertaken in the 2022 survey season.

Breeding Birds

- 3.27 SEWBRc returned numerous records of birds within a 2km radius of the Application Site, including several records relating to Cosmeston Lakes and Lavernock Point. No records were returned from within the Application Site boundary for Schedule 1 listed species, but the habitats on-site have the potential to support breeding for the following recorded within 2km: Barn owl (*Tyto alba*), Hobby (*Falco subbuteo*), red kite (*Milvus milvus*) and Cetti's warbler (*Cettia cetti*).
- 3.28 More generally, SEWBRc returned numerous records for priority species both red and amber listed Wales Birds of Conservation Concern¹² within a 2km radius of the Application Site. Records for red listed species of conservation concern include: linnet (*Linaria cannabina*), whitethroat (*Curruca communis*), kestrel (*Falco tinnunculus*), willow warbler (*Phylloscopus trochilus*), bullfinch (*Pyrrhula pyrrhula*), spotted flycatcher (*Muscicapa striata*), starling (*Sturnus vulgaris*), whinchat (*Saxicola rubetra*), yellow wagtail (*Motacilla flava flavissima*), marsh tit (*Poecile palustris*), cuckoo (*Cuculus*

¹² Bladwell, S., Noble, D.G., Taylor, R., Cryer, J., Galliford, H., Hayhow, D.B., Kirby, W., Smith, D., Vanstine, A. & Wotton, S.R. 2018. The state of birds in Wales 2018. The RSPB, BTO, NRW and WOS. RSPB Cymru, Cardiff

canorus) pied flycatcher (*Ficedula hypoleuca*), grasshopper warbler (*Locustella naevia*), and lapwing (*Vanellus vanellus*).

- 3.29 Records for amber listed species include skylark (*Alauda arvensis*), meadow pipit (*Anthus pratensis*), goldcrest (*Regulus regulus*), greenfinch (*Chloris chloris*), lesser redpoll (*Acanthis cabaret*), green woodpecker (*Picus viridis*), long-tailed tit (*Aegithalos caudatus*), house sparrow (*Passer domesticus*), mistle thrush (*Turdus viscivorus*), song thrush (*Turdus philomelos*), reed bunting (*Emberiza schoeniclus*), redstart (*Phoenicurus phoenicurus*), swift (*Apus apus*) and grey wagtail (*Motacilla cinerea*).
- 3.30 The update Phase 1 Habitat survey identified no significant changes in the ecological baseline with respect to breeding birds. The woodland, scrub and hedgerow habitats within the Application Site are likely able to support a similar generalist breeding assemblage to that identified in 2017, with the on-site buildings also offering suitability for nesting birds and opportunities for ground nesting birds in the previously arable or grazed un-managed grasslands.
- 3.31 Breeding bird surveys are currently being undertaken in the 2022 season.

Dormouse

- 3.32 The update desk study returned four records of dormouse, three of which represent the survey results from the 2017 surveys carried out in relation to the Application Site. An additional record was also returned from 2017 and lies ~1600m north-west.
- 3.33 The update Phase 1 survey confirmed that the habitat within the Application Site still provides optimal habitat to support dormouse. The linear woodland associated with the dismantled railway provides opportunities for foraging, commuting, hibernating, nesting and breeding for the species and the hedgerows provide further commuting and dispersal opportunities to the wider landscape. The majority of the hedgerows lack regular management and are 'leggy' and don't provide dense arboreal corridors and therefore have limited value for breeding and hibernation. The habitats within the Application Site are well connected to suitable habitat in the wider landscape. The on-site linear woodland and hedgerows are connected to a network of hedgerows and blocks of broadleaved woodland bordering parcels of arable land south-west of the Application Site. Lavernock Road is immediately west of the Application Site, and although a major road, this is bordered by suitable woodland, scrub and hedgerow habitat which could facilitate the commuting and dispersal of the species into suitable habitat west of the Application Site.
- 3.34 Dormouse surveys are being undertaken in the 2022 survey season.

Otter and Water Vole

- 3.35 SEWBRc returned no records of otter (*Lutra lutra*) within 2km of the Application Site from the last 10 years. The record identified in the previous desk study was from 2010

and is no longer considered relevant given the time that has passed since the record was made.

- 3.36 Where previously no records of water vole (*Arvicola amphibius*) were returned in the data search, the update desk study has identified seven records of 10 individual water vole within 2km of the Application Site. The most recent record is from 2021, and the closest record is ~110m north-west recorded in a pond associated with Cosmeston Lakes Country Park, which is likely to be related to the reintroductions within the area that were identified in the previous assessment.
- 3.37 No suitable habitat is present within the Application Site boundary for otter or water vole. A review of aerial and OS imagery suggests that a wet ditch is present immediately west of Lavernock Road that appears to be lined with dense scrub and is connected to Cosmeston Lake and its associated waterbodies. This has the potential to support commuting and resting otter and given the foraging opportunities that the lake and ponds provide there is the potential to support holt creation, though this is likely to be low given the proximity to the busy road and is not considered suitable to support a natal holt.
- 3.38 In the absence of suitable habitat for either species onsite or immediately adjacent, both species are presumed absent. As such, the Application site is considered to be of negligible importance to otter and water vole.

Great Crested Newt

- 3.39 SEWBRc returned three records of great crested newt within 2km of the Application Site, comprising 17 individuals and eggs. The closest record is 1.7km west associated with a development at Swanbridge Road, and the most recent record is from 2018. Additionally, the Vale of Glamorgan County (VoGC) Ecologist has reported presence of great crested newt within Cosmeston Lakes, located ~300m north-west of the Application Site.
- 3.40 The unmanaged grassland habitat, broadleaved woodland and scrub habitat identified during the update Extended Phase 1 survey, represents suitable terrestrial habitat for great crested newt hibernation, commuting and foraging. However, the majority of the suitable breeding habitat is west of the Application Site, which is separated by Lavernock Road, which may act as a barrier to dispersal, but there is still the potential for the species to utilise habitats on-site.
- 3.41 Updated great crested newt surveys are being undertaken in the 2022 season.

Reptiles

- 3.42 Records of reptiles returned by SEWBRc within 2km of the Application Site were limited to slow worm, with 13 records from within the last 10 years. The closest record is ~270m south-west of the Application Site and the most recent record is from 2020.

- 3.43 The Application Site is considered to provide suitable habitat for common and widespread reptile species. The change in management of the previously arable fields and grasslands has improved these areas for reptiles, though these habitats are still representative of a very uniform-species poor sward that offers limited variety in relation to habitat for potential prey species. As well as the grasslands, the railway embankments, woodland edge, tall ruderal and scrub which provide basking, commuting, foraging and hibernating opportunities.
- 3.44 Updated reptile surveys are being undertaken in the 2022 season.

Other Protected and Priority Species

- 3.45 The data search returned several records of common toad (*Bufo bufo*), with the closest record ~100m, and European hedgehog (*Erinaceus europaeus*), with the closest record ~40m north of the Application Site. The un-managed grassland, woodland and scrub provide suitable terrestrial habitat for both species. These species are listed as 'Species of Principal Importance' on the Section 7 List of the Environment (Wales) Act 2016.
- 3.46 Whilst suitable habitats exist onsite for these species, such habitats also predominate the wider landscape beyond. These species are therefore not considered to be significant beyond a Site context.

Notable Plants

- 3.47 The data search returned no records of notable plant species within the Application Site, and none were recorded during the update Extended Phase 1 survey.
- 3.48 The invasive Japanese Knotweed (*Fallopia japonica*) was previously recorded along the northern boundary of the Application Site but was not located during the update survey. Additionally, the update Extended Phase 1 survey recorded a stand of the species on the southern boundary along the dismantled railway. The species is a non- native invasive species, listed under Schedule 9 of the Wildlife and Countryside Act (1981, as amended).

Section 4 Summary of Findings

4.1 Based on the investigations described above, the IEFs pertinent to the EIA (i.e. those of Local-level ecological importance or greater, or those receiving legal protection) of the proposed development, are listed in **Table EDP 4.1**.

Table EDP 4.1: Summary of Ecological Features.

Important Ecological Feature	Key Attributes	Level of Ecological Importance
Designated Sites		
Severn Estuary Ramsar/SAC/SPA/SSSI	Designated for its immense tidal range; presence of unusual estuarine communities, reduced diversity and high productivity; populations of migratory fish; bird assemblages of international importance; and fish species associated with the whole estuarine and river system.	Off-site International
Cosmeston Lakes SSSI/LNR	Two lakes, created from flooded limestone quarries and support a range of submerged plants.	Off-site National
Penarth Coast SSSI	Designated for geological features, as well as species rich calcareous grassland and cliff-top scrub.	Off-site National
Cog Moors SSSI	Designated for its large area of damp neutral semi-natural grassland.	Off-site National
Sully Island SSSI	Designated for providing the main roost site for waders feeding in winter in the Taff/Ely estuary.	Off-site National
Ty'r Orsaf SINC	A disused railway line that supports areas of species-rich neutral and calcareous grassland.	Off-site County
Cogan Pond SINC	Large pond supporting reedbed.	Off-site County
Cog Moors SINC	Series of species-rich rush pastures with neutral grassland and associated wet ditches.	Off-site County
Cosmeston Lakes SINC	Extensive country park supporting mosaic of habitats including species-rich calcareous and neutral grasslands, scrub, hedgerows, woodland, streams and ponds.	Off-site County
Downs Woods SINC	Ancient and semi-natural woodland.	Off-site County
Lavernock Point East SINC & Lavernock Point Wildlife Trust Reserve	Site supports a mosaic of coastal species moderate to rich limestone grassland & a number of habitats including limestone grassland, scrub and oak coppice woodland.	Off-site County

Important Ecological Feature	Key Attributes	Level of Ecological Importance
Habitats		
Semi-natural Broad-leaved Woodland	Linear blocks of semi-natural broadleaved woodland associated with the dismantled railway line within the Application Site.	Local
Native Hedgerows	Intersecting and bordering the fields within the Application Site.	Local
Species		
Breeding Birds	The assemblage of birds within the Application Site represents widespread and common species, although the hedgerows, scrub and woodland offer suitable nesting habitat.	Previously assessed as County
Bats	The abundance and diversity of bats recorded onsite is typical of an urban edge farmland site in Wales.	Previously assessed as Local
Dormouse	Dormouse populations are considered to be scattered in the Vale of Glamorgan, existing at only low densities. Woodland habitat delineating the disused railway line provides suitable habitat.	Previously assessed as Local
Reptiles	Common reptiles are considered to be widespread in the UK and in Wales, and only a low numbers of slow-worm have been encountered on the Application Site.	Previously assessed as Local

Annex EDP 1 Habitat Descriptions and Site Photographs

A1.1 The Application Site comprises predominantly improved grassland fields separated and bordered by unmanaged native hedgerows, with areas of poor semi-improved grassland, semi-natural woodland, tall ruderal vegetation, scrub, amenity grassland, bare ground, buildings and hardstanding. The habitats within the Application Site are described further below, with illustrative photographs provided where appropriate. The following should be read in conjunction with **Plan EDP 3**.

Improved Grassland

- A1.2 The three fields in the north-east of the Application Site were previously described as being sown with arable crop, now comprise tall, rank and unmanaged improved grassland with scattered tall ruderal species, as shown in **Image EDP A1.1**. This area is assumed to have been recently re-seeded, Grass species recorded include cock's foot (*Dactylis glomerata*), perennial rye-grass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), false oat-grass (*Arrhenatherum elatius*), timothy (*Phleum pratense*), Common bent (*Agrostis capillaris*), and crested dog's-tail (*Cynosurus cristatus*). Forb species include groundsel (*Senecio vulgaris*), creeping buttercup (*Ranunculus repens*) and creeping thistle (*Cirsium arvense*).
- A1.3 The central field in the north of the Application Site remains largely as described in previous assessments. However, where previously the field has been used for horse grazing with dominant perennial rye grass, the area has since been left as a tall, rank, unmanaged grassland with cock's foot and false oat-grass becoming more abundant. The field still has a similar composition of forbs (sorrel species (*Rumex* sp.), dandelion (*Taraxacum officinalis*), white clover (*Trifolium repens*), creeping buttercup (*Ranunculus repens*), thistle species and dock species occur occasionally.



Image EDP A1.1: Previously arable, improved grassland field in northeast of Application Site.

Poor Semi-improved Grassland

- A1.4 The fields surrounding the farm buildings in the south-west of the Application Site comprise poor semi-improved grassland used for grazing horses, as shown in **Image EDP A1.2**. Previously the fields south-east of the buildings had been grazed, however, now the majority of these areas are tall, rank, unmanaged grassland, except for a small area west of the broadleaved woodland that has been fenced for grazing horses. Additionally, there is an area of poor semi-improved grassland immediately east of the dismantled railway on the southern boundary of the Application Site. Species composition of these areas is largely as described previously: Timothy, Yorkshire fog, perennial ryegrass, red clover (*Trifolium pratense*), and common fleabane (*Pulicaria dysenterica*). Common bent, sharp flowered rush (*Juncus acutiflorus*), crested dog's tail, cock's-foot, ribwort plantain (*Plantago lanceolatum*) dandelion, creeping cinquefoil (*Potentilla reptans*) and broadleaved dock (*Rumex obtusifolius*) also occur occasionally.
- A1.5 The poor semi-improved grassland described in the initial assessment, west of the farm buildings is no longer included within the Application Site boundary and has therefore been omitted from the update surveys.



Image EDP A1.2: Semi-improved grassland adjacent to farm complex.

Amenity Grassland

- A1.6 The small area of amenity grassland present within the Application Site continues to be maintained as a residential garden, however access was not permitted at the time of survey to confirm the species present. Given the continued management it is not considered likely that the species composition will have changed.

Semi-natural Broadleaved Woodland

- A1.7 There are two linear strips of semi-natural broadleaved woodland that intersect the Application Site which are joined in the south-west, and form part of the dismantled railway corridor that extends off-site. The species recorded remain broadly similar to those found in the previous surveys and include field maple (*Acer campestre*), sycamore (*Acer pseudoplatanus*), and ash (*Fraxinus excelsior*), with hawthorn (*Crataegus monogyna*) elder (*Sambucus nigra*) and birch (*Betula* sp.) with a few individual hazel (*Corylus avellana*) trees recorded. In addition, honeysuckle (*Lonicera periclymenum*) and clematis (*Clematis vitalba*) were recorded throughout the woodland. The ground flora comprised areas of dense ivy (*Hedera helix*), common nettle (*Urtica dioica*), cleaver (*Galium aparine*), Bramble (*Rubus fruticosus* agg.), with more open areas colonised by rosebay willowherb (*Chamerion angustifolium*).



Image EDP A1.3: Broadleaved semi-natural woodland along dismantled railway line.

Native Hedgerows

- A1.8 The previous assessment described the Application Site as supporting a predominantly mature and intact, hedgerow network. The update survey identified that the majority of the hedgerows within the Application Site, with the exception of those that border roads or residential areas, are unmanaged, with some now resembling treelines.

- A1.9 The hedgerows present on the western boundary that border Lavernock Road and the lane to access the farmyard (H1, H4, H5 and H6) were recently managed, as shown in **Image EDP A1.4**. H1 and H5 are species-poor and predominantly comprise blackthorn and elder, with dense ivy present in the ground flora. H6 is an ornamental privet hedge associated with the residential garden. H4 is species-rich, with hawthorn, elder, dogwood, blackthorn, ash and field maple recorded.



Image EDP A1.4: Recently managed hedgerows H4 and H5.

- A1.10 The hedgerows present along the south-west boundary (H3), within the centre (H10, H12 and H13) and in the north-east portion (H14) of the Application Site have been left unmanaged for an extended period of time, which has resulted in these features closer to resembling treelines with a very 'leggy' structure and no longer stock-proof, as shown in **Image EDP A1.5**. This includes a defunct double hedgerow, H12 and H13, which runs along a well-trodden path which is defunct. The above hedgerows are species-poor, hawthorn dominant with ash, sycamore and elder present, with the ground flora predominantly ivy and bramble, and tall ruderal species noted in the improved grassland. A section of the central hedgerow is defunct where it connects to the dense scrub habitat.



Image EDP A1.5: Unmanaged hedgerow, H10.

- A1.11 A species-rich hedgerow is present on the south-east boundary (H16), shown in **Image EDP A1.6**. The hedgerow has noticeably had more recent management, though not within the last year, and is stock-proof. This was hawthorn dominant with blackthorn (*Prunus spinosa*) and dogwood (*Cornus sanguinea*), elder, hazel, field maple with nettle, ivy and false oat-grass in the ground flora.



Image EDP A1.6: Species-rich hedgerow H16.

- A1.12 From the previous surveys, H7, H8, H9, H11, H15 and H15a are no longer categorised as hedgerows, and are considered to be integrated into the woodland and scrub habitat within those areas. H2 no longer falls within the redline boundary.

Scrub

- A1.13 Dense continuous scrub is present in the north-east of the Application Site, where through a lack of management the western section of H14 has graded into a block of scrub. In the south-west corner where H8 was previously recorded, this now resembles scattered scrub adjoining the linear woodland associated with the dismantled railways. The species recorded within the scrub habitat include: hawthorn, blackthorn, elder, bramble, buddleia (*Buddleja davidii*), and rose (*Rosa* sp.), with an example of the habitat shown in **Image EDP A1.7**.



Image EDP A1.7: Scrub adjoining H14.

- A1.14 A margin of bramble scrub is present on the field boundary along H10, around the disturbed ground on the south-west boundary and adjacent to the horse training arena adjacent to the farm buildings.
- A1.15 As described in previous reports, the garden around the residential property comprises a garden fencing with ornamental planting and a small area of bramble and blackthorn scrub at the western end. This area of scrub is bordered by a line of semi-mature trees including sycamore and ash.

Tall Ruderal Vegetation

- A1.16 As previously recorded, patches of tall ruderal vegetation are found throughout the Application Site, as shown in **Image EDP A1.8**. The tall ruderal areas are found predominantly on field boundaries and along the dismantled railway corridor, with a linear patch present in the north-west of the Application Site. Tall ruderal species are also found scattered throughout the areas of rank grassland previously recorded as arable. The species composition is largely similar and typical of this habitat type including: teasel (*Dipsacus fullonum*), hemp agrimony (*Eupatorium cannabinum*), rosebay willowherb (*Chamerion angustifolium*), creeping thistle, red clover, broad-leaved dock, ribwort plantain, wild carrot (*Daucus carota*), knapweed sp. (*Centaurea* sp.), perforate St John's-wort (*Hypericum perforatum*), common nettle, cock's foot and false-oat grass.



Image EDP A1.8: Tall ruderal along dismantled railway.

Dry Ditch

- A1.17 The presence of a dry ditch was recorded intersecting the fields in the south-west of the Application Site, **Image EDP A1.9**, which adjoins the off-site dry ditch previously recorded. Characteristics of this feature are contiguous with the adjoining ditch at approximately 1m deep and 0.5m wide. The ditch is sparsely vegetated supporting a similar species composition to that identified within the semi-improved grassland, suggesting this feature remains dry throughout most of the year, if not all year round.



Image EDP A1.9: Dry ditch in southwest of Application Site.

Bare Ground

- A1.18 A horse-riding arena is south-east of Lower Cosmeston Farm buildings, which is bedded with sand. Vegetation cover is limited here.

Hardstanding

- A1.19 Several areas of hardstanding are present, with a track joining the farmyard to the dismantled railway, with an area on the southern boundary currently used for highways equipment storage (**Image EDP A1.10**), which is bordered by bramble scrub and has some vegetative cover in the form of moss, perennial rye grass, teasel and other bare ground colonising species.

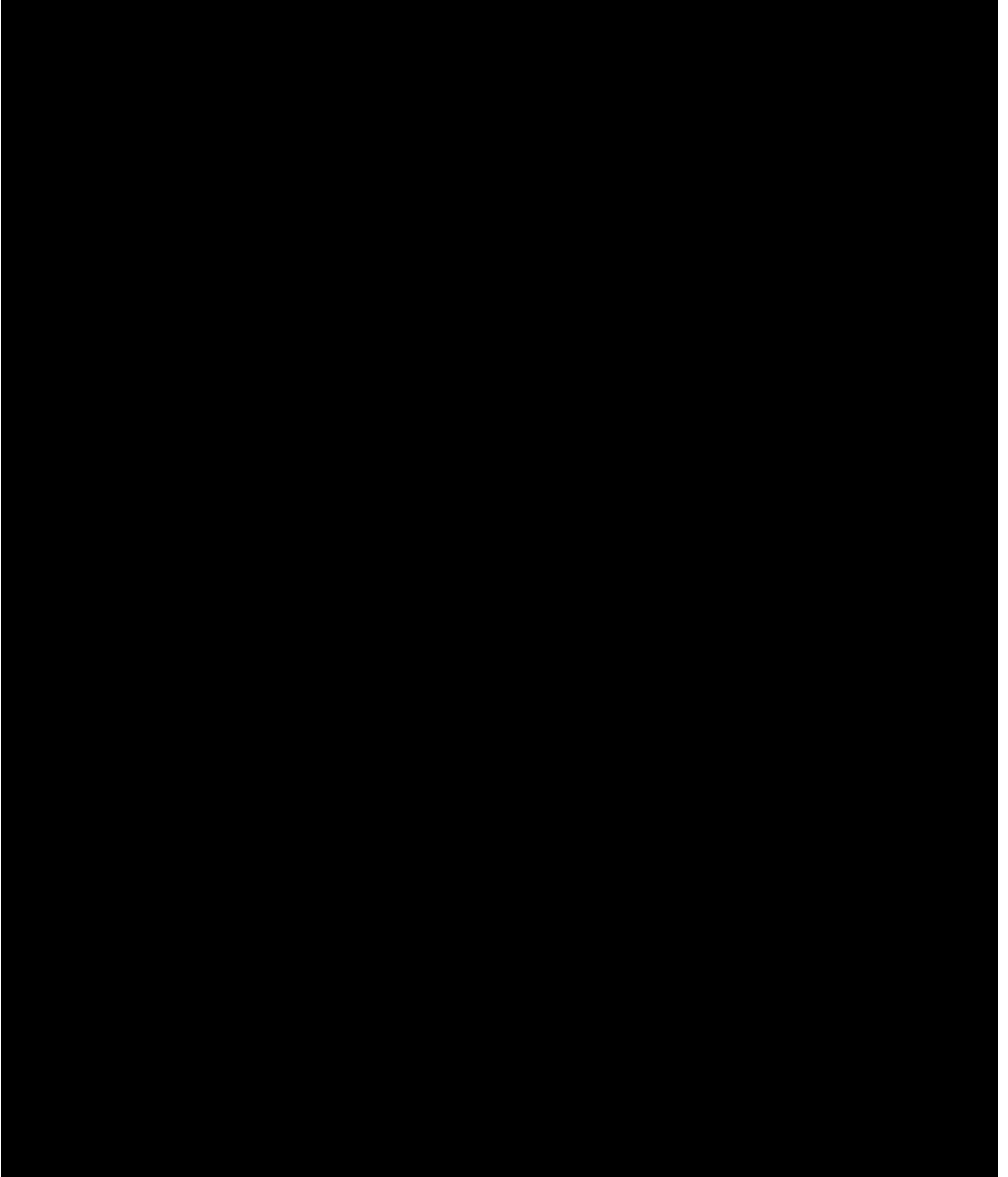


Image EDP A1.10: Highways storage on hardstanding track adjoining dismantled railway.

Buildings

- A1.20 Six buildings are present within the Application Site boundary, which comprise a farmhouse, farm buildings and stables associated with Lower Cosmeston Farm (B1 and B3-7). During the update survey in February 2022, the larger barn complex (B7) had been significantly damaged by recent strong winds associate with Storm Eunice, where the front wall panels had collapsed, leaving the barn completely open. Additionally, there are two bridges associated with the dismantled railway line running through the centre of the Application Site (B2 and B8). The third bridge identified in the previous surveys (B9) is no longer within the Application Site boundary.

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Annex EDP 3 Bat Surveys

Methodology

A3.1 Due to the presence of suitable habitats for roosting within the Application Site, daytime inspections of building for bat roosting potential were undertaken in 2022, with reference to national best practice guidelines¹³.

Bat Roost Assessment of Buildings

External and Internal Bat Roost Assessment of Buildings

A3.2 To update the existing ecological baseline an external visual inspection of onsite buildings/structures was undertaken by an NRW bat licenced ecologist from EDP for any evidence of, or potential to support roosting bats, with reference to best practice guidelines¹⁴. The visual assessment was undertaken on 24 March 2022. The buildings were searched from ground level, using a high-powered Clulite, and binoculars where necessary, with all elevations covered where accessibility allowed.

A3.3 Suitable features for roosting bats include:

- Large, uncluttered roof spaces (preferably free of cobwebs), particularly when lined and insulated;
- Gaps in mortar of brickwork;
- Gaps under cracked/lifted/slipped roof/ridge/hanging tiles;
- Crevices between sheets of roofing felt or other materials;
- Gaps around window frames and door lintels;
- Access points in the apex, under the eaves or beneath/between tiles; and
- Ridge beam/main rafters with timber joists and free of cobwebs.

A3.4 Signs of roosting bats include:

- Bat/s roosting *in-situ* (live, dead or parts of);

¹³ Collins, J. (ed.) (2016). *Bat Surveys: for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London.

¹⁴ Collins, J. (ed.) (2016). *Bat Surveys: for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London

- Bat droppings within or beneath a feature/access point;
- Feeding remains (e.g. insect wings and beetle wing cases);
- Oily marks (staining) around roost access points/features;
- Audible squeaking/chattering from the roost (particularly on hot summer days); and
- Large/regularly used roosts or regularly used sites may produce an odour.

A3.5 Based upon the results of the building assessments and the features/evidence identified (as above), each was assigned with a bat roost suitability category, as shown in **Table EDP A3.1**.

Table EDP A3.1: Bat Roost Suitability Categories for Buildings.

Bat Roost Potential	Description
Confirmed Roost	Evidence of bats found.
High Suitability	A structure or building with one or more potential roost sites 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	A structure or building with one or more potential roost sites that could be used by bats but are unlikely to support a roost of high conservation status (with respect to roost type only).
Low Suitability	A structure or building with one or more potential roost sites that could be used by individual bats opportunistically.
Negligible Suitability	Negligible features within the structure or building likely to be used by roosting bats.

Limitations

- A3.6 Visual assessments of buildings for roosting bats can be undertaken at any time of year and this assessment was therefore not limited by seasonal or climatic factors.
- A3.7 There was no internal access to the buildings due to a lack of update asbestos information, and as such signs of roosting bats may have been missed. This is not, however, considered to be a limitation to the assessment given historic data and further survey effort, comprising a dusk emergence and dawn re-entry surveys to be undertaken to confirm presence/infer absence of a bat roost.

Visual (Ground-level) Assessment of Trees

- A3.8 A visual assessment of suitable trees within, or on the boundary of, the Application Site for the presence of, or potential to support roosting bats, was undertaken 24 March 2022 by a suitably qualified and Natural Resources Wales (NRW) licensed ecologist and

in accordance with best practice guidelines¹⁵. The trees were searched as thoroughly as possible from ground level, with all elevations covered where accessibility allowed.

A3.9 Suitable features for roosting bats sought for during the assessment included:

- Loss/peeling/fissured bark;
- Natural holes e.g. rot holes and holes from fallen limbs;
- Woodpecker holes;
- Cracks/splits or hollow tree trunks/limbs; and
- Thick-stemmed ivy.

A3.10 Signs of roosting bats sought for included:

- Bat/s roosting in-situ (live, dead or parts of);
- Bat droppings within or beneath a feature/access point;
- Feeding remains (e.g. insect wings and beetle wing cases)
- Oily marks (staining) around roost access points/feature;
- Audible squeaking from the roost; and
- Large/regularly used roosts or regularly used sites may produce an odour.

A3.11 Based upon the results of the visual assessment and features/evidence identified, the following ratings for trees were used during the assessment:

- **Known or confirmed roost** – European Protected Species (EPS) licence required for works to tree to be completed lawfully;
- **High suitability** – Tree supports one or more features 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** – Tree supports one or more features that could be used by bats, but are unlikely to support a roost type of high conservation status;

¹⁵ Bat Conservation Trust (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition*. Bat Conservation Trust, London

- **Low suitability** – Tree supports one or more features that could be used by individual bats opportunistically, or is of sufficient size and age to contain such features; and
- **Negligible suitability** – Negligible features likely to support roosting bats.

Limitations



- A3.12 A visual assessment of trees for roosting bats was undertaken early in the year when trees were not in full leaf which may otherwise obscure potential roosting features. This assessment was, therefore, not limited by seasonal or climatic factors.
- A3.13 Bats are mobile animals and will move between a series of different roost sites, frequently establishing and occupying new roost sites depending on seasonal requirements and resources available locally. This survey, therefore, only provides a snapshot of the conditions present at the Application Site at the time of survey.

Results



Bat Roost Assessment of Buildings



- A3.14 Upper Cosmeston Farm comprises a complex of six buildings, including an occupied farmhouse (B1) and a number of agricultural barns (**B3 - B7**). The Application Site also supports two old railway bridges (**B2** and **B8**) located along the former railway line which crosses through the centre of the Application Site, north to south. Internal and external inspections and emergence/re-entry surveys were carried out in July 2019 by EDP confirmed that buildings **B3, B4, B7** and **B8** are common pipistrelle roosts, while **B1** and **B6** had moderate suitability and **B2** and **B5** had low suitability to support roosting bats, but no evidence of roosting bats was identified. References to building numbers can be found in **Plan EDP 3**.
- A3.15 In the update survey, **B1** was considered to have high suitability for roosting bats due to the further degradation of the tiled roof providing more entry points and roosting opportunities. Due to storm damage, **B7** was downgraded to low suitability due a degradation in the building's integrity due to storm damage. All other buildings were considered to be of the same suitability.
- A3.16 A full description and photographs of buildings surveyed, along with details of any bat signs and potential roost features identified, are provided within **Table EDP A3.3** below.

Table EDP A3.3: Bat Roost Inspection Survey Results and Assessment undertaken by EDP in March 2022

Photograph and Building Reference Number	Description of Features	Bat Roost Potential
<p>B1: Farmhouse Building</p> 	<p>Two-storey main farmhouse building with natural slate tiles and clay ridge tiles. Building located along the northern edge of the Lower Cosmeston Farm. A number of roof slates and clay ridge tiles are raised or slipped providing numerous gaps, especially on the southern aspect, providing potential access points for bats. The walls are made of partly rendered brick and stone in good condition. The eaves are closed with a timber plate. There is a narrow gap running along the western gable end where the eave plates join the external wall render. The chimney which is well preserved with tightly fitted lead flashing. The roof valley is also fitted with lead with gaps between the lead and adjacent slate tiles.</p>	<p>High summer roosting suitability and low hibernation suitability.</p>
<p>B2: Bridge</p> 	<p>The bridge is generally in good condition. Four small crevices were recorded within the north-west wing of the stone bridge. Some mature ivy on spandrel.</p>	<p>Low summer roosting suitability and hibernation suitability.</p>

Photograph and Building Reference Number	Description of Features	Bat Roost Potential
<p>B3: Stone Barn</p> 	<p>The barn is made entirely from stone bricks. Mortar is in good condition apart from a few gaps (up to 4) visible internally. The roof is made of corrugated metal sheeting with access over the stone wall tops stone access opportunities underneath. The windows and doors of the barn are open providing internal access. The timber lintels of the windows have gaps, which could be utilised by roosting bats.</p> <p>The barn has an open-sided stone extension on its south-eastern elevation with a pitched corrugated metal sheet roof and open window to the south.</p> <p>A sparrow colony were recorded nesting all along the ridge beam between the beam and the roof. One feral pigeon nest was recorded on top of the wall plate.</p>	<p>Low summer roosting suitability and hibernation suitability.</p> <p>Confirmed summer day roost during 2017 and 2019.</p>
<p>B4: Stone Barn</p> 	<p>The barn is made of stone brick with a corrugated metal roof. Red brick surrounds the window and door frame. There is a gap running along the eaves of south-western elevation enabling internal access. The windows and doors along the south-western elevation are closed or blocked, although access at apex of the circular window and behind the boards. The north-western gable end of the barn has a number of (up to 10) natural slate tiles installed along the bargeboard area which are slightly raised and providing access underneath. Damage to stone wall and quoin, with crevices leading deep within the fabric of the wall.</p> <p>The north-eastern elevation of the barn has a small single-story flat roof extension made of concrete and breezeblock. No access points recorded.</p> <p>Sparrow colony nesting in roof.</p>	<p>Moderate summer roosting suitability and low hibernation suitability.</p> <p>Confirmed summer day roost during 2017 and 2019.</p>

Photograph and Building Reference Number	Description of Features	Bat Roost Potential
<p>B5: Stables</p> 	<p>The small stable block is made in style with the rest of the buildings. The walls are made of stone with the roof covered with corrugated composite sheeting. The roof is supported by timber beams. The windows and doors are open providing free access into the building.</p> <p>The internal walls of the barn are relatively intact, with several crevices where the mortar has failed.</p> <p>Three swallow nests recorded.</p>	<p>Low summer roosting suitability and low hibernation suitability.</p>
<p>B6: Stone Barn</p> 	<p>The 1.5 storey stone barn with a pitched roof of metal sheeting which are overlapping the gable-end walls and creating crevices and potential internal access. The roof area is partly insulated with timber boards, which can provide a roosting space between the corrugated metal sheets and timber surface. The roof is supported with timber rafters which are in good condition. The main ridge rafter is double and therefore creating roosting opportunities in connection with the roof.</p> <p>There is a metal lean-to constructed along the northern elevation of the barn. There is an open access leading internally providing opportunistic feeding and perching areas along the timber rafters supporting the roof. However, the stone and metal wall on the northern elevation has some crevices, there is a dense covering of ivy and scrub.</p> <p>There is a pitched extension on the northern elevation, of stone construction with metal roof.</p> <p>Six swallow nests were recorded throughout.</p>	<p>Moderate summer roosting suitability and low hibernation suitability.</p>

Photograph and Building Reference Number	Description of Features	Bat Roost Potential
<p>B7: Metal Barn</p> 	<p>The barn is made of three separate compartments. The walls are made of corrugated metal sheeting; however, the ceiling is made of corrugated asbestos. The ceiling is supported by metal rafters. However, the front of the central compartment has sustained storm damage with the sheeting suspended by electrical wires, and the roof of the southern compartment has several small burn holes.</p>	<p>Low summer roosting and negligible hibernation suitability.</p> <p>Confirmed summer day roost during 2019.</p>
<p>B8: Bridge</p> 	<p>The bridge is made of brick which is in good condition. However, dense and mature ivy is overgrowing the bridge on both sides and providing some limited opportunities for roosting bats.</p> <p>Several small gaps in mortar were recorded in the arch, however, these were inspected and likely too small to provide shelter for a bat.</p>	<p>Low summer roosting suitability and negligible hibernation suitability.</p> <p>Confirmed roost during 2017 and 2019.</p>

Visual (Ground-level) Roost Assessment of Trees

A3.17 The daytime assessment of trees within the Application Site reassessed 42 trees previously identified potential to support roosting bats. No bats or evidence of bats were found during the ground level tree assessment. Four of the trees from the previous assessment were unable to be located, likely due to management. 12 trees were assessed as having low bat roost potential, nine were assessed as having moderate bat roost suitability and 17 were assessed as having high bat roosting suitability.

A3.18 Details of these trees are set out in **Table EDP A3.4**, and their location can be seen on **Plan EDP 4**.

Table EDP A3.4: Bat Tree Roost Assessment Results.

Ecology Tree Number	Species	Potential Roost Features	Ground Level Assessment
G1	Group of hawthorn and ash	Dense ivy coverage, mature. Some limb holes and torn branches	Low

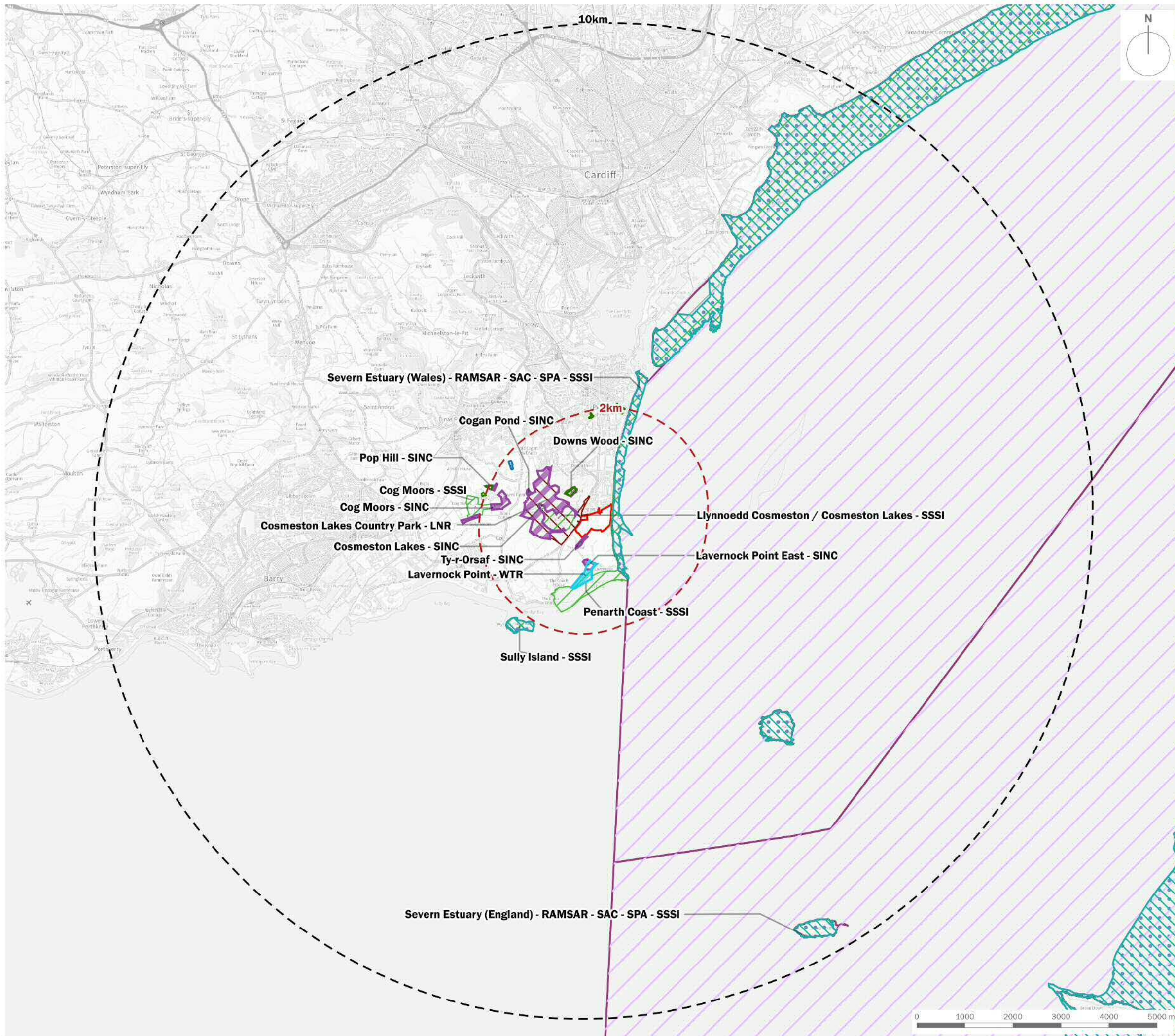
Ecology Tree Number	Species	Potential Roost Features	Ground Level Assessment
5	Ash	Multiple (5+) limb holes with a 2m lateral split, mature.	High
7	Ash	Several limb holes (3+) with flaking bark, mature.	High
8	Field Maple	Multiple (5+) limb holes, mature.	High
9	Field Maple	Rot hole present near cut branch, mature.	High
10	Field Maple	Several (2+) rot holes present, mature.	High
11	Field Maple	Woodpecker hole, several (3+) limb holes, rot hole and flaking bark present, mature.	High
12	Hawthorn	Three shallow limb holes with limited flaking bark, mature.	Moderate
13	Field maple	Several (3+) deep limb holes, tear-out and flaking bark, mature.	High
14	Field maple	Several (3+) deep limb holes, rot hole and flaking bark, mature.	High
15 - 19	Field maple	Multiple (5+) deep limb holes, mature.	High
20	Hawthorn	Overlapping limbs, mature.	Low
21	Hawthorn	Dense ivy, mature.	Moderate
22	Elder	Single limb hole with some ivy, mature.	Moderate
23	Field maple	Several (2+) limb holes, 2+ tear-outs, single lateral split, mature.	High
24	Hawthorn	Limb hole, ~1.5m high with dense ivy, mature.	Moderate
25	Field maple		No longer present
26	Hawthorn	Overlapping limbs and some ivy cover.	Low
G2	Group of 10+ trees, consisting of mature hawthorn and field maple	Limb holes, tear-outs, hollow trunk and overlapping limbs noted.	High
G3	Group of hawthorn	Dense structured group with dense ivy cover.	Low
29	Sycamore	Damaged limbs with multiple (4+) limb holes.	Moderate
30	Ash	Tear out present with dense ivy.	Moderate
31	Ash	Dense ivy.	Low
32	Field maple	Multiple (5+) splits.	High
33	Hawthorn	Dense ivy.	Moderate
34	Hawthorn	Overlapping limbs.	Moderate
35	Hawthorn	Dense ivy.	Low
36	Hawthorn	Dense ivy.	Low
37	Hawthorn		No longer present
38	Elder		No longer present
39	Hawthorn		No longer present


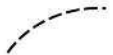










Ecology Tree Number	Species	Potential Roost Features	Ground Level Assessment
G4	A group of elder	Several small holes, splits and overlapping limbs.	Low
41	Field maple	Single limb hole and overlapping limbs.	Moderate
G5	Group of elder	Several (3+) limb holes.	Low

Plans

- Plan EDP 1** Designated Sites
(edp5187_d039 22 April 2022 VMS/CN)
- Plan EDP 2** Protected Species Plan
(edp5187_d038 21 April 2022 VMS/CN)
- Plan EDP 3** Update Phase 1 Habitat Plan
(edp5187_d035 31 March 2022 DJ/CN)
- Plan EDP 4** Assessment of Bat Roosting Potential – Trees
(edp5187_d018b 19 April 2022 GY/CN)

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-  Site Boundary
-  10km Search Area
-  2km Search Area
-  Ancient Semi Natural Woodland
-  Restored Ancient Woodland Site
-  Local Nature Reserve (LNR)
-  Wetland of International Importance (RAMSAR)
-  Special Area of Conservation (SAC)
-  Special Protection Area (SPA)
-  Site of Special Scientific Interest (SSSI)
-  Wildlife Trust Reserve (WTR)
-  Wildlife Site / SINC (Adopted)

client
Welsh Government

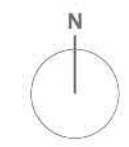
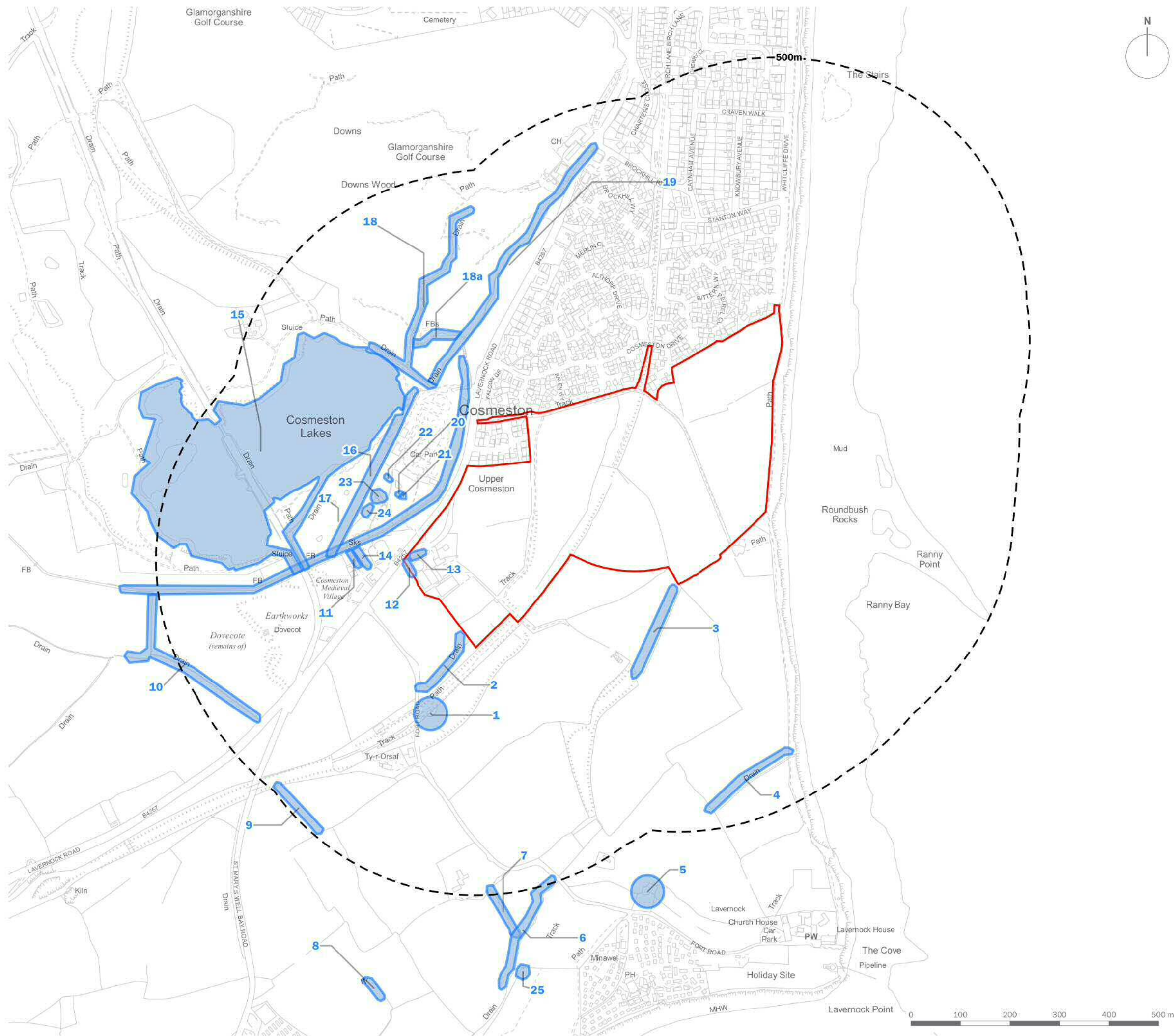
project title
**Land at Upper Cosmeston Farm,
Lavernock Road, Penarth**

drawing title
Plan EDP 1: Designated Sites

date	22 APRIL 2022	drawn by	VMS
drawing number	edp5187_d039	checked	CN
scale	1:77,500 @ A3	QA	JTF



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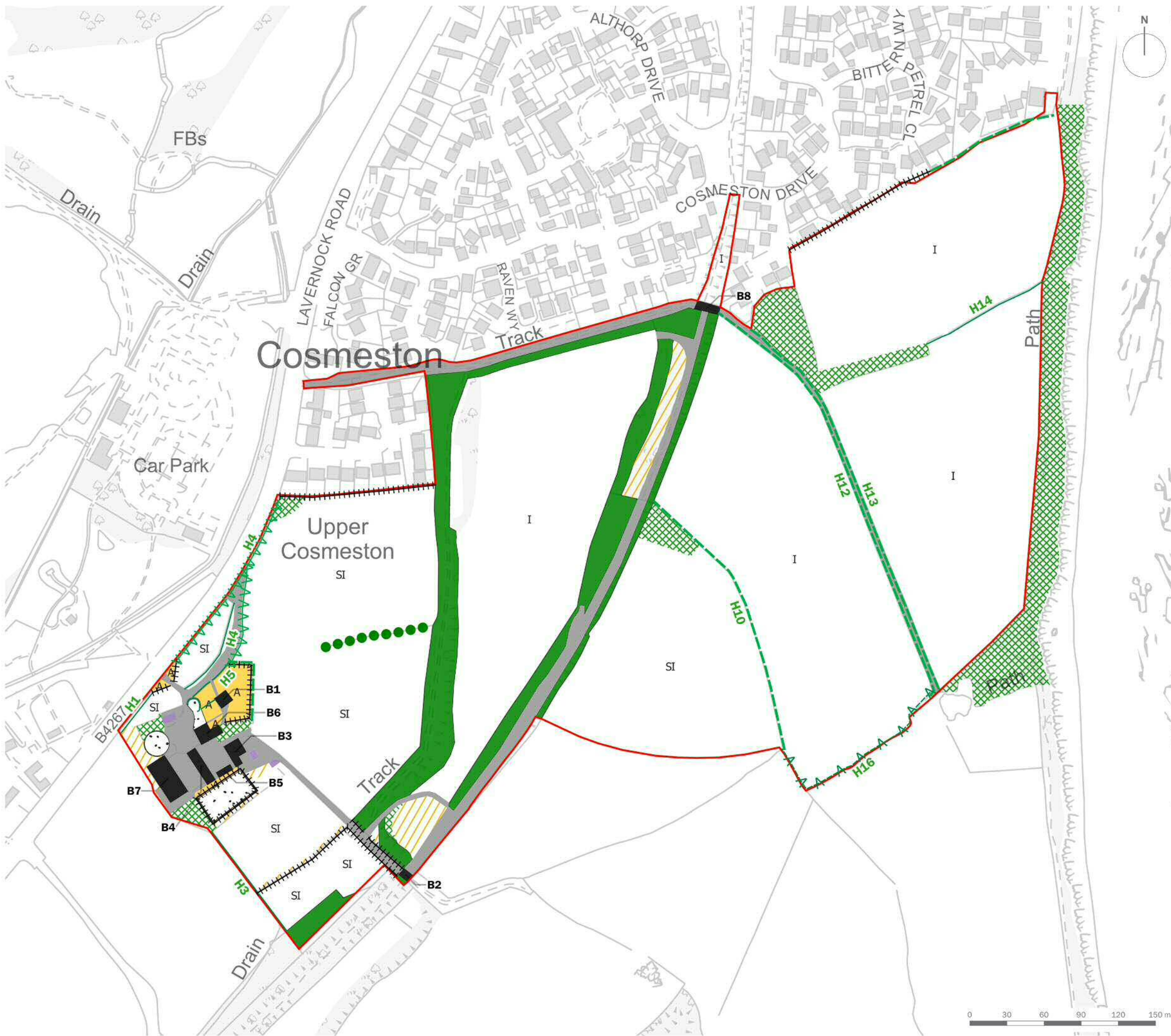


- Site Boundary
- 500m Detailed Study Area
- Pond

client		
Welsh Government		
project title		
Land at Upper Cosmeston Farm, Lavernock Road, Penarth		
drawing title		
Plan EDP 2: Protected Species Plan		
date	21 APRIL 2022	drawn by VMS
drawing number	edp5187_d038	checked CN
scale	1:7,500 @ A3	QA JTF



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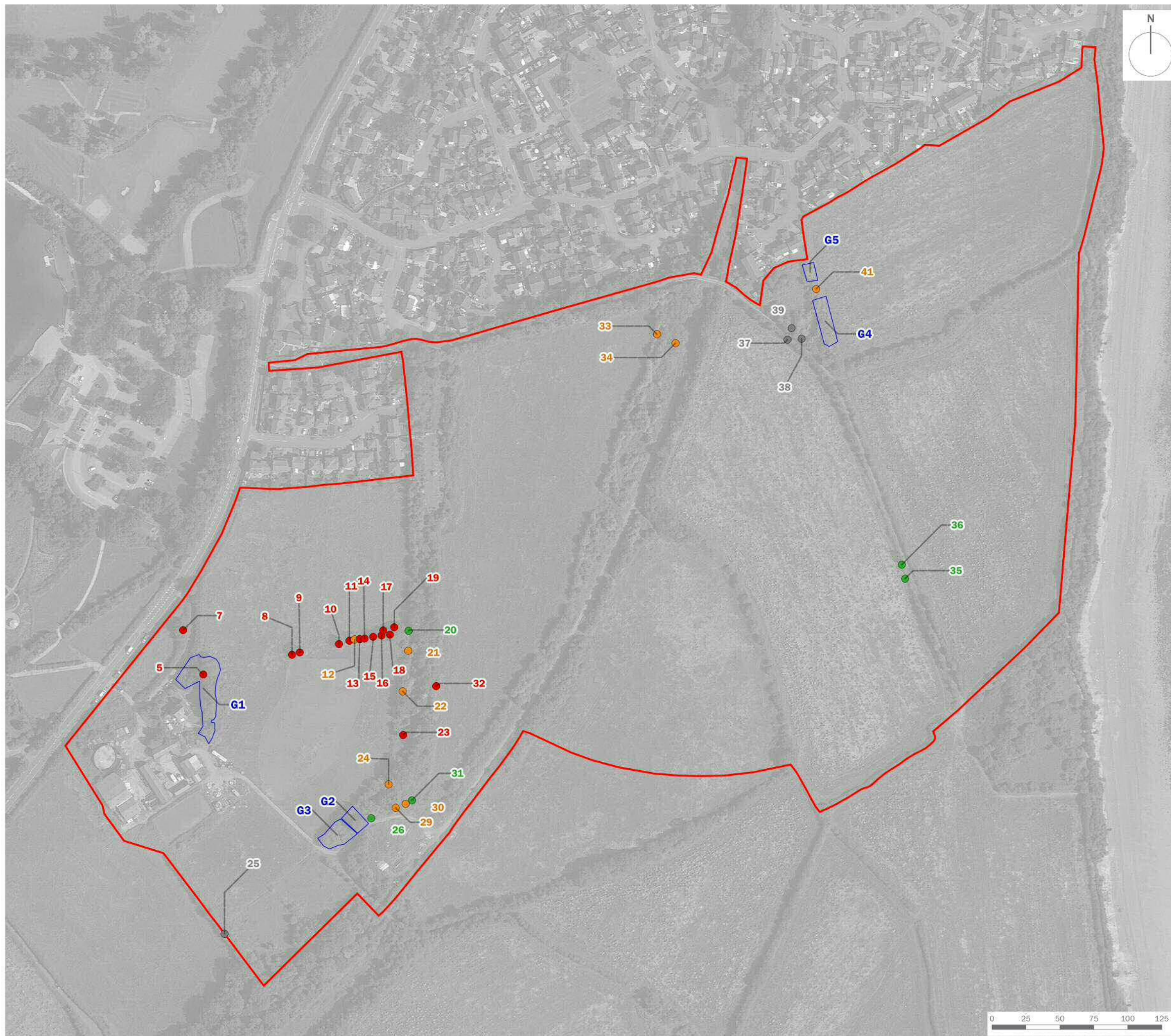
- Site Boundary
- Broadleaved Semi-natural Woodland
- Tall Ruderal
- Dense Continuous Scrub
- A Amenity Grassland
- I Improved Grassland
- SI Poor Semi-improved Grassland
- Building
- Hardstanding
- Bare Ground
- Temporary Building
- Intact Species-rich Hedgerow
- Intact Species-poor Hedgerow
- Defunct Species-poor Hedgerow
- Defunct Species-rich Hedgerow
- Scattered Trees/Parkland (Broadleaved)
- Fence

client
Welsh Government

project title
Land at Upper Cosmeston Farm, Lavernock Road, Penarth

drawing title
Plan EDP 3: Update Phase 1 Habitat Plan

date	31 MARCH 2022	drawn by	DJ
drawing number	edp5187_d035	checked	CN
scale	1:3,000 @ A3	QA	JTF



Site Boundary
 Tree Group

Tree Roost Potential

- High
- Moderate
- Low
- No Longer Present

client
Welsh Government

project title
**Land at Upper Cosmeston Farm,
Lavernock Road, Penarth**

drawing title
**Plan EDP 4: Assessment of Bat Roosting
Potential - Trees**

date	19 APRIL 2022	drawn by	GY
drawing number	edp5187_d018b	checked	ZH
scale	1:2,750 @ A3	QA	JTF



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