Fferm Solar Larnog

Environmental Statement

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1. Executive Summary

1.1.1. WSP UK Limited was commissioned by Trydan Gwyrdd Cymru to undertake an updated Preliminary Ecological Appraisal (PEA) of land south of Cosmeston, centred at British National Grid Reference ST 17739 68268, hereafter referred to as the 'Site'. The PEA supports the proposed Larnog Solar Farm, hereafter referred to as the 'Proposed Development', and updates the ecological baseline established during the 2025 PEA.

1.1.2. Three international statutory designations associated with the Severn Estuary were identified within 2 km of the Site. Six statutory designated sites of national or local importance and 14 non-statutory nature conservation sites were also identified within 2 km. Lavernock Point East Site of Importance for Nature Conservation (SINC) and the B-Lines network were recorded within the Site Boundary, and Ty-r-Orsaf SINC and Lavernock Point Wildlife Trust Reserve were identified bordering the Site. No Ancient Woodland Inventory (AWI) parcels were identified within 2 km of the Site.

1.1.3. The Site is predominantly arable land, with areas of semi-natural broadleaved and mixed woodland, dense and scattered scrub, semi-improved neutral grassland, bracken, tall ruderal vegetation, scattered trees, native hedgerows and dry ditches. The woodland parcels qualify as lowland mixed deciduous woodland Priority Habitat, while the native hedgerows also qualify as Priority Habitat. No AWI parcels were identified within 2 km of the Site.

1.1.4. The desk study and field surveys identified confirmed or potential ecological constraints associated with bats, hazel dormouse *Muscardinus avellanarius*, badger *Meles meles*, hedgehog *Erinaceus europaeus*, birds, common and widespread amphibians, reptiles, invertebrates, invasive non-native species and notable plants. Two slow-worms and a common toad were recorded during the 2026 survey. Habitats of value to invertebrates were identified along field margins, hedgerows and in other localised areas, while butcher's-broom and round-leaved fluellen were recorded through the 2026 habitat and threatened arable plant surveys. The Site was considered unsuitable for otter and water vole, while the likelihood of great-crested newt occurring within the Site was assessed as low because the waterbodies were ephemeral and there were barriers to movement from surrounding habitat.

1.1.5. Additional ecological work undertaken since the 2025 PEA includes bat roost surveys, bat activity surveys, wintering bird surveys, an assessment of potential skylark territories and threatened arable plant surveys. These surveys are reported separately within the appendices to **Chapter 7: Biodiversity** of the Environmental Statement (ES). A breeding bird survey and dormouse surveys were scoped out because the September 2026 design avoids direct impacts on the woodland, hedgerow and scrub habitats suitable for these species.

1.1.6. The Proposed Development layout has been refined in accordance with the stepwise approach. The indicative site layout avoids direct loss of woodland, trees, structures and other habitat features identified as potentially important to protected species. Impacts on native hedgerows are limited principally to the widening of existing openings. Known locations of notable plants and field margins identified as having greater potential to support notable plants are also avoided.

1.1.7. The potential effects of the Proposed Development on ecological receptors are assessed in **Chapter 7: Biodiversity** of the ES. A report to inform the Habitats Regulations Screening Assessment has also been prepared separately and is provided as **Appendix 7B: Habitats Regulations Assessment**.

1.1.8. Subject to the detailed measures contained within the ES, the following measures are required:

- Retention and protection of woodland, trees, scrub, hedgerows, designated sites and other ecologically valuable habitats in accordance with the Proposed Development design;
- A pre-construction badger survey undertaken no more than two weeks before relevant works commence;
- Pre-construction checks of affected habitats for nesting birds, hedgehog, reptiles, common and widespread amphibians and invasive non-native species, as appropriate;
- Completion of vegetation clearance under an appropriate Precautionary Method of Works and ecological supervision where required;
- Avoidance of vegetation clearance during the breeding bird season where practicable, or a pre-clearance nesting bird check where seasonal avoidance is not possible;
- Implementation of environmental protection measures through a Construction Environmental Management Plan (CEMP), including controls for lighting, pollution, dust, noise, vibration, excavations and protection of retained trees and habitats; and
- Delivery of ecological enhancement and habitat-management measures supporting Net Benefit for Biodiversity and ecosystem resilience, including species-rich grassland, native and pollinator-friendly planting, sensitive hedgerow and grassland management, and additional nesting and refuge opportunities for wildlife.

2. Introduction

2.1. Background

2.1.1. WSP UK Limited (hereafter referred to as 'WSP') was commissioned by Trydan Gwyrdd Cymru to undertake an updated Preliminary Ecological Appraisal (PEA) to support construction of a solar farm development (the 'Proposed Development'). The Proposed Development is located to the south of Cosmeston (British National Grid (BNG) reference: ST 17739 68268[1]), hereafter referred to as 'the Site'.

2.1.2. The 2026 PEA covers only the Site and an adjacent area to the east, together referred to as the 'Survey Area'. **Figure 1: Site Location Plan** shows the Site and Survey Area.

2.1.3. The land within the Survey Area is predominantly composed of arable fields separated by hedgerows and lines of trees, with parcels of woodland throughout. The Site is directly north of the Severn Estuary and is bound to the north by a road (B4267). A disused railway track runs from east to west across the Site. Cosmeston Lakes, freshwater lakes which are flooded limestone quarries, are located to the north of the Site.

Re-surveys

2.1.4. In February 2025, WSP completed a PEA for the Survey Area. The Phase 1 habitat survey associated with the PEA was undertaken outside the optimal survey season for habitat classification, limiting the ability to accurately identify and classify certain habitat types and increasing the level of uncertainty associated with the habitat assessment.

2.1.5. This PEA has been updated with the results of the following completed field surveys:

- Phase 1 habitat survey; and,
- A protected and notable species habitat assessment.

Reviewed Data

2.1.6. All Section 7 Priority Habitats/Species statuses identified both field and desk study data sets have been reviewed in light of the recent publication of a revised list of Section 7 Priority Habitats/Species[2].

[1] In 2025, the BNG reference point was centrally located within the Site and was used as the central point for desk study data searches. Following the changes to the Site Boundary described in Paragraph 2.1.3, the reference point is now situated towards the eastern extent of the Site, while remaining central within the Land Ownership Boundary. This minor change in the Site Boundary is not considered to have any material implications for the desk study undertaken in 2025.
[2] The Welsh Government published a revised Section 7 list of Habitats and Species of Principal Importance in Wales on 20 March 2026

Additional Survey

2.1.7. In addition to the updated Phase 1 survey, habitats on-site and within the wider area around the Site have been assessed for the suitability to support notable invertebrate species, based on the plant assemblages recorded.

Unchanged Survey Data

2.1.8. The original 2025 PEA included a Daytime Bat Walkover (DBW), the data for which is still considered valid, as such, has not been updated.

2.1.9. All methods are described in **Section 3**.

2.2. Scope of this PEA

2.2.1. Trydan Gwyrdd Cymru commissioned WSP to complete a PEA of the Site in June 2026. The brief was:

- To provide baseline ecological information of the Survey Area with a particular reference to whether legally protected and/or notable sites, species or habitats are present or likely to be present;
- To provide recommendations to enable compliance with relevant nature conservation legislation and planning policy; and
- If necessary, to identify the need for avoidance, mitigation, compensation or enhancement measures and/or further ecological surveys.

2.3. Relevant Legislation and Policy

2.3.1. The appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in Wales. The context and applicability of each item is explained as appropriate in the relevant sections of the report and additional details are presented in **Annex A**.

Legislation

- The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- Countryside Rights of Way Act 2000;
- The Town and Countryside (Environmental Impact Assessment) (Wales) Regulations 2017;
- The Protection of Badgers Act 1992;
- The Wild Mammals (Protection) Act 1996;
- The Hedgerow Regulations 1997;

- Environment (Wales) Act 2016; and
- The Wellbeing of Future Generations (Wales) Act 2015.

Policy

- The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012);
- UK Biodiversity Action Plan (UKBAP)[3];
- Planning Policy Wales (PPW) (Edition 12) 2024;
- Technical Advice Note 5; Nature Conservation and Planning 2009;
- Vale of Glamorgan Local Development Plan (LDP); and
- Vale of Glamorgan Biodiversity Action Plan (BAP).

[3] The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

3. Methods

3.1. Overview

3.1.1. This appraisal has been prepared with reference to current good practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2017a, 2017b and 2018), and Joint Nature Conservation Committee (JNCC, 2016); and guidance contained in the British Standard - Code of Practice for Biodiversity and Development BS42020:2013 (British Standards Institution, 2013).

3.1.2. This PEA is based on the following data sources:

- An ecological desk study;
- A habitat survey;
- A protected/notable species assessment;
- DBW (completed in 2025); and
- A habitat suitability assessment for protected and notable invertebrates.

3.2. Ecological Desk Study

3.2.1. The desk study undertaken in February 2025 included a review of existing ecological baseline information available in the public domain and information held by relevant third parties. For the purpose of the desk study exercise, records were collated within various radii around the Site, as detailed below. This approach is consistent with current good practice guidance published by the CIEEM (2017a and 2017b). To provide the baseline data for the ecological desk study, the following information was requested from the South East Wales Biodiversity Records Centre (SEWBReC):

- Records of legally protected and notable species within 3 km of a central point within the Site[4];
- Records of non-statutory designated sites within 2 km of the Site; and
- Records of other protected habitats (including Ancient Woodland Inventory (AWI)) within 2 km of the Site.

[4] In 2025, a 3 km search radius was selected for protected and/or notable species records because the Site measured approximately 1 km across. The larger search radius was therefore applied to ensure that records within at least 2 km of the Site boundary were captured. In 2026, the Site remains just under 1 km across and, consequently, this minor boundary change does not warrant excluding records located between 2 km and 3 km from the Site. Retaining these records also ensures adequate coverage to the west of the Site, accounting for the change in the position of the original BNG reference point relative to the current Site boundary. Records immediately adjacent to the eastern extent of the 2025 site boundary have been revised and approximate distances updated.

3.2.2. Freely downloadable datasets available from Natural Resources Wales (NRW) were consulted for information regarding the presence of statutory designated[5] within 2 km of the Site, and those with bats as a qualifying feature within 10 km of the Site.

3.2.3. Open source 1:25,000 Ordnance Survey mapping was used to identify any mapped water bodies and watercourses within 0.5 km of the Site.

3.2.4. The findings of the desk study for the Site undertaken in February 2025 have been incorporated within **Section 4** and **Annex B** of this report.

3.2.5. The ecological desk study was carried out by a suitably qualified ecologist, supported by an ecologist who has experience undertaking desk studies and is a qualified full member of the CIEEM.

3.2.6. All Section 7 Priority Habitats/Species statuses have been reviewed within the desk study data.

3.3. Habitat Survey

3.3.1. An updated Phase 1 habitat survey of the Survey Area was carried out over two days over the 2 – 3 June 2026. The survey covered the entire Survey Area including boundary features. The Phase 1 habitat survey was carried out by qualified and professional ecologists, with experience completing PEAs of sites comprising similar habitats to those found within the Survey Area.

3.3.2. Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2016). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species were recorded, and habitats were classified according to their vegetation types. Where appropriate, consideration was given to whether habitats qualify, or could qualify, as a Priority Habitat under the provision of the Environment (Wales) Act 2016.

3.3.3. A list of plant species was updated (**Annex C**), with relative plant species abundance estimated using the DAFOR scale[6]. The scientific names for plant species follow those in the New Flora of the British Isles (Stace, 2019) and are also listed in **Annex C**.

3.3.4. Habitats were marked on a mobile mapping computer and were subsequently digitised using a Geographical Information System (GIS).

3.3.5. Target notes were made to provide information on specific features of ecological interest (e.g. a badger sett) or habitat features too small to be mapped. These are

[5] Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR).
[6] The DAFOR scale has been used to estimate the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover, Abundant (A) – 51-75% cover, Frequent (F) – 26-50% cover, Occasional (O) – 11-25% cover, Rare (R) – 1-10% cover., The term 'Locally' (L) is also used where the frequency and distribution of a species are patchy and 'Edge' (E) is also used where a species only occurs on the edge of a habitat type.

included in **Annex D** and shown on Figure 7**: Target notes and trees with suitability to support roosting bats**.

3.3.6. Any invasive non-native plant species (INNS) listed on Schedule 9 of the WCA 1981 (as amended) which were evident during the Phase 1 habitat survey were also target noted. Detailed mapping of such species; or a full survey of the Site for all INNS is beyond the scope of this commission.

3.4. Protected Species Assessment

3.4.1. The potential for the Site to support legally protected and notable species was assessed using the desk study results and combined with field observations during the habitat survey. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement. This was supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups including: Great crested newt (GCN) Triturus cristatus (Gent and Gibson, 2003 and English Nature, 2001); reptiles (Froglife, 1999 and Gent and Gibson, 2003); bats (Collins, 2023 and Mitchell-Jones, 2004); badger (Harris et al, 1991, Roper, 2010, CIEEM 2026 and NRW 2023); hazel dormouse (English Nature, 2006); otter *Lutra lutra* (Chanin, 2003, CIEEM, 2024); water vole *Arvicola amphibius* (Dean et al, 2016) and invertebrates (Drake et al, 2007 and Kirby, 2001).

3.5. Protected and Notable Invertebrate Assessment

3.5.1. As agreed with the Vale of Glamorgan County Ecologist in March 2026, the Site is potentially suitable to support protected and notable invertebrate species, and these should be considered and surveyed appropriately. Consultation is detailed in full in **Chapter 7: Biodiversity** of the ES.

3.5.2. Field margins and associated hedgerows were assessed for their potential to support notable invertebrate assemblages, with consideration given to habitat structure, vegetation composition and the availability of potential invertebrate resources. These areas were targeted as they were subject to comparatively less intensive management than the open fields and supported a greater diversity of habitat features potentially suitable for foraging, breeding and sheltering invertebrates. This habitat-led approach to identifying areas of potential invertebrate interest and targeting survey effort is consistent with the pragmatic framework for invertebrate survey and conservation evaluation described by Drake et al. (2007).

3.5.3. The presence of the following plant species of value to invertebrate assemblages were used to determine habitat suitability for invertebrates:

- Trefoils *Lotus* sp.;
- Clovers *Trifolium* spp.;

- Vetches *Vicia* spp.;
- Hawthorn Crataegus monogyna;
- Blackthorn Prunus spinosa;
- Crab apple Malus sylvestris sens. str.;
- Rose *Rosa* sp.;
- Dyer's greenweed *Genista tinctoria*; and
- Scabious *Scabiosa* sp.

3.5.4. Collectively, these plants provide or indicate a range of resources including nectar and pollen from flowering vegetation and potential foodplants for phytophagous invertebrates, with flowering trees and shrubs also contributing seasonal resources within hedgerows.

3.6. Daytime Bat Walkover (2025) [7]

3.6.1. A DBW of trees, buildings and structures within the Survey Area and the wider area to the southwest (previously part of the Survey Area) was undertaken alongside the 2025 Phase 1 habitat survey. The methods, results and discussion below reflect the relevance of the 2025 DBW to the Site defined in this 2026 PEA.

3.6.2. The DBW was intended to assess the suitability of the habitats present within the Survey Area to support roosting, commuting and foraging bats. This would allow for the appropriate recommendations of further surveys.

3.6.3. The potential suitability of the Site to support foraging and commuting bats was assessed, based on the presence of habitat features within the landscape, in accordance with best practice guidelines (Collins, 2023). The Site was thus assigned a potential suitability (None, Negligible, Low, Moderate or High), based on the presence, suitability and expanse of potential flight-paths and foraging habitats.

3.6.4. The DBW involved external inspections of structures within the Site using binoculars and high-powered artificial light. These inspections aimed to search for evidence of any features suitable for supporting roosting bats.

3.6.5. Following the surveys, buildings and structures were classified as having either none, negligible, low, moderate or high suitability to support roosting bats (as per Collins, 2023). These classifications are described below in Table 3.1. Trees were classified as either having ‘none’ (no Potential Roost Features (PRFs) in the tree), ‘FAR’ (further assessment required to establish the presence of PRFs in the tree) or ‘PRF’ (at least one PRF present within the tree).

[7] DBW methods and results have been included within this PEA for reference however this survey was completed in 2025 and subsequent surveys have been carried out in 2026.

3.6.6. Trees, buildings and structures were considered as requiring further surveys if they were assessed as having suitability to support roosting bats, within the construction footprint or a distance where they may be likely to suffer disturbance from lighting, vibration or noise, or likely to support a roost of high conservation status that may be impacted by the severing of commuting routes from the roost, and lighting, noise, vibration impacts.

Table 3.1 - Bat roosting suitability classification

Potential Suitability	Description - Roosting Habitat in Structures
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e., a complete absence of crevices/suitable shelter at all ground/underground levels).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A building or structure with one or more PRF that could be used by individual bats opportunistically at any time of the year. However, these PRFs do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).
Moderate	A building or structure with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).
High	A building or structure with one or more PRFs that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g., maternity or classic cool/stable hibernation site.

3.7. Notes and Limitations

3.7.1. Every effort has been made to provide a comprehensive description of the Site; however, the following specific limitations apply to this assessment:

- Ecological survey data is typically valid for up to two years unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management (CIEEM, 2019);
- Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not

demonstrate the absence of species, it may simply indicate a gap in recording coverage; and

- The desk study did not return citations for the Sites of Interest for Nature Conservation (SINCs), and therefore it has not been possible to determine the reason for designation.

3.7.2. Botanical surveys are subject to seasonal limitations, as the detectability of individual plant species varies throughout the year, particularly in relation to flowering periods. However, the updated Phase 1 habitat survey was undertaken in June 2026, within the optimal survey period for habitat and botanical survey (April to September inclusive). It is therefore considered that sufficient information was collected to accurately characterise the habitats present and assess their potential to support protected and notable species. Botanical records from the February 2025 PEA were retained where appropriate, with the June 2026 survey providing additional botanical information and an improved understanding of the Site's habitats and ecological baseline.

3.7.3. The 2026 update field surveys were undertaken over a period of two days and the 2025 field surveys were undertaken over a period of five days, as such only a selection of all species that occur within the Site will have been recorded. However, through use of desk study information to supplement Site survey data, it is considered that an accurate assessment of the potential for the Site to support protected species or those of conservation concern was possible.

3.7.4. The extended Phase 1 habitat map (Figure 6**: Phase 1 Habitat Survey Map**) has been reproduced from field notes and plans. Whilst this provides a sufficient level of detail to fulfil the requirements of a PEA, the maps are not intended to provide exact locations of key habitats.

4. Results

4.1. Designated Sites

Statutory Sites

4.1.1. A total of three international statutory designated sites were identified within 2 km of the Site, all three of which lie approximately 160 m east of the Site Boundary. A description of these sites are detailed in **Table 4.1** below and their locations are shown in Figure 2**: International Statutory Designated Sites within 2 km of the Site**.

Table 4.1 - International statutory designated sites within 2 km of the Site

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Site	Description
Severn Estuary (Wales)	SAC	73714.1	160 m east	The Severn Estuary is designated as a SAC due to the presence of the following Annex I habitats: • Estuaries; • Mudflats and sandflats not covered by seawater at low tide; and • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*); The Severn Estuary is designated as a SAC due to the presence of the following Annex II species: • Sea lamprey *Petromyzon marinus*; • River lamprey *Lampetra fluviatilis*; and • Twaite shad *Alosa fallax*. The following Annex I habitats are present as a qualifying feature, but not a primary reason, for selection of this site: • Sandbanks which are slightly covered by sea water all the time; and • Reefs.
Severn Estuary (Wales)	SPA	24487.9	160 m east	The Severn Estuary SPA supports the following qualifying features: • an internationally important wintering population of Bewick's swan *Cygnus columbianus bewickii*; • over 20,000 waterfowl in winter, including international important numbers of European white-fronted goose *Anser albifrons albifrons*,

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Site	Description
				shelduck *Tadorna tadorna*, gadwall Anas strepera, dunlin *Calidris alpina*, and redshank *Tringa totanus*. It also supports nationally important wintering populations of a further ten species, nationally important passage populations of four species, and a nationally important breeding population of one species.
Severn Estuary (Wales)	Ramsar	24663.0	160 m east	Ramsar criteria present: • Unusual estuarine communities, reduced diversity and high productivity; • The run of migratory fish between sea and river via estuary, including salmon *Salmo salar*, sea trout *Salmo trutta*, sea lamprey, river lamprey, allis shad *Alosa alosa*, twaite shad and eel *Anguilla anguilla*; • Migratory birds during spring and autumn; • High fish diversity, with over 110 species recorded. The species listed in bullet point two use the Severn Estuary as a key migration route to their spawning grounds. It is also an important feeding and nursery ground, particularly for allis shad and twaite shad; • Waterfowl with peak counts in winter, and thus an assemblage of international importance; • Peak counts of tundra swan *Cygnus columbianus bewickii,* greater white-fronted goose, common shelduck, gadwall, dunlin, and common redshank; • Supporting of lesser black-backed gull *Larus fuscus graellsii* during the breeding season; • Supporting ringed plover *Charadrius hiaticula,* which has peak counts in spring/autumn; and • Supporting Eurasian teal *Anas crecca*, and Northern pintail *Anas acuta*, both with peak counts in winter.

4.1.2. The desk study identified six statutory designated sites of national or local importance within 2 km of the Site. A description of these sites is provided in **Table 4.2** below and shown in Figure 3**: National Statutory Designated Sites within 2 km of the Site**.

Table 4.2 - Statutory designated sites of national or local importance within 2 km of the Site

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Site	Description
Penarth Coast	SSSI	92.7	Adjacent to the Site, South	Species-rich calcareous grassland and cliff-top scrub supporting plant

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Site	Description
				species of limited occurrence, including Dyer's greenweed *Genista tinctoria*, butterfly orchid *Platanthera chlorantha*, bee orchid *Ophrys apifera* and adder's-tongue *Ophioglossum vulgatum*. Lavernock Point is also noted for migratory birds.
Severn Estuary	SSSI	15950.0	160 m east	The Severn Estuary SSSI forms part of a larger area which includes the Upper Severn Estuary SSSI and Bridgwater Bay SSSI. The larger area of the Severn Estuary is designated as a Special Protection Area under the 'EEC Wild Birds Directive' and a Wetland of International Importance under the Ramsar Convention. The estuarine fauna includes internationally important populations of waterfowl, invertebrate populations of considerable interest, and large populations of migratory fish, including the nationally rare allis shad.
Cosmeston Lakes Country Park	Local Nature Reserve (LNR)	104.8	13 m north	Cosmeston Lakes Country Park LNR includes the following habitats: coastal grassland, reedbeds, meadows, lakes and ponds, woodland, rocky shores, dunes, cliffs, farmland and commons.
Llynnoedd Cosmeston/Cosmeston Lakes	SSSI	25.6	142 m north	Llynnoedd Cosmeston/Cosmeston Lakes is situated 2 km south of Penarth. It includes two lakes, created from flooded limestone quarries, which are connected by a narrow channel. One of the lakes is of special interest as the only known site in Wales for the presence of starry stonewort *Nitellopsis obtusa*.
Sully Island	SSSI	11.5	1 km southwest	Provides the main roost site for feeding winter waders in the Teff/Ely Estuary, supporting up to 100% of the dunlin, grey plover *Pluvialis squatarola* and ringed plover, and over 50% of the redshank and knot *Calidris canutus* populations within this area.

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Site	Description
Cog Moors	SSSI	12.9	1.3 km northwest	Cog Moors is situated approximately 2 km east of Barry and consists of a series of fields adjacent to Sully Brook. This site is of special interest for its large continuous area of damp esotrophic (neutral) seminatural grassland, which is associated with several stands of tall sedges, and for populations of two uncommon plant species, bulbous foxtail *Alopecurus bulbosus* and pepper-saxifrage *Silaum silaus*.

Non-Statutory Sites

4.1.3. The desk study identified 14 non-statutory nature conservation sites within 2 km of the Site. Of these, two are located within the Site and two are immediately adjacent to the Site. Lavernock Point East SINC sits within the eastern extent of the Site and B-lines cover the entire Site; Ty-r-Orsaf SINC sits on the northeast border of the Site and Lavernock Point Wildlife Trust Reserve (WTR) borders the southeastern extent of the Site.

4.1.4. Regionally Important Geodiversity Sites (RIGS) have been excluded from this PEA report, as they are not considered relevant to biodiversity and are therefore not discussed further.

4.1.5. All non-statutory sites are shown in **Table 4.3** and Figure 4**: Non-Statutory Designated Sites within 2 km of the Site**.

Table 4.3 - Non-statutory designated sites within 2 km of the Site

Site Name	Designation	Size (ha)	Distance and orientation from Site	Description
B-Lines	B-Lines - Buglife	N/A	Within Site	The B-Lines are a series of 'insect pathways' which have been established by Buglife. They run throughout the British countryside and towns, and act as a restorative series of wildflower-rich habitat stepping stones. They link existing wildlife areas together, creating a network which provides large areas of brand-new

Site Name	Designation	Size (ha)	Distance and orientation from Site	Description
				habitat benefiting bees and butterflies.
Lavernock Point East	SINC	3.09	Adjacent to Site	No information available
Lavernock Point	WTR	9.67	Adjacent to Site	Lavernock is made up of multiple habitats, principally coastal Jurassic limestone grassland and scrub, along with ash wood and meadow. It hosts species including the purple hairstreak butterfly *Favonius quercus* and adder's tongue fern *Ophioglossum vulgatum*.
Ty-r-Orsaf	SINC	1.48	20 m northeast	No information available
Cosmeston Lakes	SINC	64.33	155 m northwest	Llynnoedd Cosmeston/Cosmeston Lakes is situated 2 km south of Penarth. It includes two lakes, created from flooded limestone quarries, which are connected by a narrow channel. One of the lakes is of special interest as the only known site in Wales for the presence of starry stonewort *Nitellopsis obtusa*.
Downs Wood	SINC	2.32	797 m north	No information available
Cog Moors	SINC	8.03	1 km northwest	Cog Moors is situated approximately 2 km east of Barry and consists of a series of fields adjacent to Sully Brook.
Cogan Pond	SINC	0.75	1.1 km northwest	No information available
North of Cog Moors	SINC	0.49	1.7 km northwest	No information available
Pop Hill	SINC	1.12	1.7 km northwest	No information available

Other Habitats of Conservation Importance

4.1.6. The desk study identified no AWI parcels within 2 km of the Site.

4.1.7. In 2025, a search for waterbodies within 500 m of the Site returned seven waterbodies. This included three waterbodies within the Site (P1, P6 and P7) and four waterbodies to the north of the Site (P2 to P5).

4.1.8. During surveys undertaken in 2025, P1 and P6 were found to be dry, whereas P7 contained water. During the 2026 survey, P1, P6 and P7 were all found to be dry. Following changes to the Site Boundary since 2025, P1 is now located outside the Site, with only and P6 and P7 remaining within the Site. These are shown with the Site Boundary on Figure 5**: Habitats of Conservation Importance (Desk Study Results)**.

4.2. Habitat Survey

Overview

4.2.1. The following account summarises the findings of the Phase 1 habitat survey.

4.2.2. A total of 11 Phase 1 habitat types were identified in the Survey Area; nine of these have been identified in the Site and all eleven were present in the Survey Area outside of the Site. They are mapped on Figure 6**: Phase 1 Habitat Survey Map** and are listed in **Table 4.4** along with areas in hectares (or length for linear features).

4.2.3. A description of the dominant and notable species, the composition and management of each habitat is provided below, and an indicative species list is provided in **Annex C**. Target notes are provided in **Annex D** and photographs in **Annex E**. Alpha-numeric codes used in this section cross-refer to the JNCC Phase 1 habitat survey classification (JNCC, 2016). The order of the habitat descriptions below reflects their ordering in the Phase 1 habitat survey manual and does not reflect habitat importance.

Table 4.4 - Phase 1 habitat areas

Phase 1 Habitat	Area (ha)	Length (m)	% of Site Area
Site			
A1.1.1 – Broadleaved woodland – Semi-natural	0.87	-	1.83
A1.3.1 – Mixed woodland – Semi-natural	0.13	-	0.28
A2.1 – Scrub – Dense/Continuous	0.83	-	1.76
B2.2 – Neutral grassland – Semi-improved	0.59	-	1.25
C3.1 – Tall ruderal	0.07	-	0.15
J1.1 – Arable	44.87	-	94.72
A3.1 – Parkland and scattered trees-broad-leaved	-	513.95	-
J2.3.2 – Hedge and trees – Native species – Poor	-	2,469.21	-

Phase 1 Habitat	Area (ha)	Length (m)	% of Site Area
J2.6 – Dry ditch	-	140.02	-
Site Total	**47.37**[8]	**3,123.29**	**100**
Survey Area - Site			
A1.1.1: Broadleaved woodland - semi-natural	4.25	-	13
A1.3.1: Mixed woodland - semi-natural	1.15	-	4
A2.1: Scrub- Dense/Continous	2.02	-	6
B2.2: Neutral grassland - semi-improved	0.05	-	0 <
C3.1: Tall ruderal	0.72	-	2
J1.1: Arable	24.61	-	75
A3.1: Parkland and scattered trees- broad-leaved	-	324	-
J2.1.2: Intact hedge native species poor	-	175	-
J2.2.2: Defunct hedge native species poor	-	87	-
J2.3.2: Hedge and trees native species poor	-	1041	-
J2.6: Dry ditch	-	232	-
Survey Area - Site Total	**32.81**	**1859**	**100**
Survey Area Total	**80.68**	**4,982.29**	**-**

A1.1.1 – Broadleaved Woodland – Semi-Natural

4.2.4. Nine parcels of semi-natural broadleaved woodland were identified during the Phase 1 habitat survey, as mapped on Figure 6**: Phase 1 Habitat Survey Map**.

4.2.5. Five parcels of semi-natural broadleaved woodland were identified within Site. The parcels were mostly undisturbed and not accessible to the public. Dead trees were left *in situ* in all of these parcels.

4.2.6. The western-most parcel had a dense canopy consisting of semi-mature ash *Fraxinus excelsior*, elder *Sambucus nigra* and hawthorn. The understorey included dense ivy *Hedera helix* and bramble *Rubus fruticosus* agg.

4.2.7. Another parcel in the western section of the Site was identified. It was dominated by ash and displayed varied age range of trees. Willow *Salix* sp., birch *Betula* sp., elder, oak *Quercus* sp. and hazel *Corylus avellana* were also present in the overstorey. The

[8] The difference between the total mapped habitat area and the defined Site area (46.54 ha) reflects minor cumulative discrepancies associated with habitat mapping; mapped areas are indicative of habitat extent rather than precise Site measurements

understorey was dense in places and included hawthorn, wild madder *Rubia peregrina*, lesser celandine *Ficaria verna* and bramble.

4.2.8. Three parcels dominated by ash and semi-mature oak were identified in the eastern section of the Site. Field maple *Acer campestre* was present in one of these parcels. The understorey and bramble which was up to 1 m in height. Hart's-tongue fern *Asplenium* scolopendrium, lords-and-ladies *Arum maculatum* were observed in the understorey.

4.2.9. A further four parcels of semi-natural broadleaved woodland were identified in the wider Survey Area. These comprised the same species and general condition as those identified on Site.

4.2.10. The broadleaved woodland habitats were considered to qualify as the Priority Habitat 'lowland mixed deciduous woodland.'

A1.3.1 – Mixed Woodland – Semi-Natural

4.2.11. Three parcels of semi-natural mixed woodland were identified across the Site, and two were identified in the Survey area as mapped on Figure 6**: Phase 1 Habitat Survey Map**. Mature and semi-mature trees were present, but saplings were absent or rare across the parcels. Approximately 20 percent of the trees were conifers, all of which were Scots pine *Pinus sylvestris*. All of these parcels had dense scrub understorey with presence of ivy and bramble. There was no evidence of management, and these parcels were not accessible to the public.

4.2.12. The mixed woodland habitats were considered to qualify as the Priority Habitat 'lowland mixed deciduous woodland.'

A2.1 – Scrub – Dense/Continuous

4.2.13. Four parcels of dense/continuous scrub were identified on Site and four were identified within the Survey Area, as mapped on Figure 6**: Phase 1 Habitat Survey Map**. The majority of parcels formed boundary features or field margins providing connectivity between areas of woodlands and were dominated by bramble scrub.

4.2.14. A parcel in the western section was identified with dense bramble and ivy. It was dominated by immature holm oak *Quercus ilex* on the north side. The trees were scattered within the scrub and did not form a canopy. The trees included ash, oak and rarely conifers.

B2.2 – Neutral Grassland – Semi-Improved

4.2.15. Two parcels of semi-improved neutral grassland were identified across the Survey area, one within the Site, as mapped on **Figure 6: Phase 1 Habitat Survey Map**.

4.2.16. Both parcels were ungrazed at the time of the survey, with a sward height of 15 – 30 cm. They were dominated by Yorkshire fog *Holcus lanatus* with occasional knapweed

Centaurea nigra, meadowsweet *Filipendula ulmaria*, false oat-grass *Arrhenatherum elatius*, glaucous sedge *Carex flacca*, curled dock *Rumex crispus*, perennial rye-grass *Lolium perenne*, creeping buttercup, broadleaved dock *Rumex obtusifolius*, common fleabane *Pulicaria dysenterica*, tormentil *Potentilla erecta* and tufted hair-grass *Deschampsia cespitosa*. Rare presence of bush vetch *Vicia sepium*, lesser celandine, common sorrel *Rumex acetosa*, creeping buttercup *Ranunculus repens*, dove's-foot crane's-bill *Geranium molle* and ribwort plantain *Plantago lanceolata* were observed.

4.2.17. The northern-most parcel of semi-improved neutral grassland had the most varied sward height and had additional species indicative of lowland meadow habitats, including glaucous sedge, common spotted orchid *Dactylorhiza maculata* and ox-eye daisy *Leucanthemum vulgare*. Dandelion *Taraxacum officinale agg.*, ribwort plantain, dove's-foot crane's-bill, cock's-foot *Dactylus glomerata* and soft rush *Juncus effusus* were present throughout although rarely.

4.2.18. The second parcel towards the north of the western section of the Survey area had a localised wet area. There were occasional hard rush *Juncus inflexus*, common spotted orchid, sheep's fescue *Festuca ovina* and cock's-foot. Ribwort plantain, ox-eye daisy, yarrow *Achillea millefolium*, perforate St. John's-wort *Hypericum perforatum* and self-heal *Prunella vulgaris* were present within the habitat although rarely. Encroaching scrub was observed towards the parcel edge, and it was considered likely to scrub over in a few years if without management.

C3.1 – Tall Ruderal

4.2.19. Tall ruderal habitat was identified along the eastern boundary of the western section of the Site and within the southeastern corner of the wider Survey Area to the east of the Site. The vegetation was approximately 1.5 m tall and very dense. There was abundant presence of common fleabane and Yorkshire fog with frequent rosebay willowherb *Chamaenerion angustifolium*. Goat willow *Salix caprea*, hard rush, nettle, bramble, common hogweed *Heracleum sphondylium*, wood dock *Rumex sanguineus* and sheep's fescue were observed rarely throughout.

J1.1 – Arable

4.2.20. The majority of the Site and Survey Area comprised arable land, predominantly cultivated with wheat Triticum *aestivum*.

4.2.21. Field margins were generally narrow and supported a mixture of grasses and common ruderal and herbaceous species. Rough meadow-grass *Poa trivialis* was frequent, with occasional false oat-grass, soft brome *Bromus hordeaceus*, bush vetch, upright hedge-parsley *Torilis japonica*, cut-leaved crane's-bill *Geranium dissectum*, ground-ivy *Glechoma hederacea* and common nettle *Urtica dioica*. Other species occurring at lower frequencies included white clover *Trifolium repens*, creeping thistle *Cirsium*

arvense, common sorrel, common poppy *Papaver rhoeas*, hedge bedstraw *Galium mollugo* and creeping cinquefoil *Potentilla reptans*.

A3.1 – Parkland and Scattered Trees

4.2.22. Broadleaved and coniferous Scattered mature and semi-mature trees were identified along the boundaries of the Survey area and adjacent to the Site Boundary.

J2.1.2 – Intact Hedge – Native Species – Poor

4.2.23. Intact native species poor hedge was identified within the Survey Area off Site. The average hight of these was 2 m and showed sympathetic management, with each side of hedge being cut on a rotational basis, the remaining hedge were managed less frequently and were becoming overgrown. The species composition was hawthorn, bramble, dog rose *Rosa canina* and ivy. Elder, hazel and ash were present in the hedges towards the centre and towards the north adjacent to the woodland.

4.2.24. Hedges within the Survey Area were assessed as qualifying as the Priority Habitat 'native hedgerows.'

J2.2.2 – Defunct Hedge – Native Species – Poor

4.2.25. A defunct hedge, approximately 2 m high and 1 m wide was recorded along the eastern verge of the Survey Area. It was dominated by blackthorn and hawthorn and had alexanders *Smyrnium olusatrum* and ivy at its base.

4.2.26. Hedges within the Survey Area were assessed as qualifying as the Priority Habitat 'native hedgerows.'

J2.3.2 Hedge and Trees – Native Species-Poor

4.2.27. Species poor hedges and trees were identified on Site. These were dominated by hawthorn, with ivy abundant throughout, bramble and nettle were also recorded. In addition, rose Rosa spp., cleavers *Galium aparine*, lords-and-ladies and blackthorn observed rarely. The trees included elder and sycamore *Acer pseudoplatanus*.

4.2.28. Hedges within the Site were assessed as qualifying as the Priority Habitat 'native hedgerows.'

J2.6 – Dry Ditch

4.2.29. One dry ditch was identified along the northern boundary of the Site and another was identified within the northeastern corner of the Survey Area. These were considered likely to be dry the majority of the year, with no species present that were indicative of wet conditions.

4.3. Protected And Notable Species Assessment

4.3.1. The potential for the Site to support legally protected species and notable species has been assessed using the results of the desk study and observations made during the survey of habitats within and immediately surrounding the Site. A summary of desk study information is included within **Annex B**. Desk study records have only been considered below if they are recent (from the last 10 years, from attainment in 2025) and/or if they relate to species that may be supported by habitats at the Site. Habitats present within the Site are suitable for the following species; further consideration is given below to the likelihood for these species to be present within the Site:

- Bats;
- Hazel dormouse;
- Badger;
- Hedgehog;
- Otter;
- Water vole;
- Birds;
- Amphibians;
- Reptiles;
- Invertebrates;
- INNS; and
- Notable plants.

4.3.2. The Site does not provide suitable habitat for other protected or notable species and other species, beyond those listed above, will not be considered further in this PEA.

Bats

4.3.3. A total of 15 records of at least four different bat species were returned during the desk study. These were Nathusius' pipistrelle *Pipistrellus nathusii*, soprano pipistrelle *Pipistrellus pygmaeus*, common pipistrelle *Pipistrellus pipistrellus* and unknown pipistrelle species and an unknown bat species. The closest bat records were field records for soprano pipistrelle and common pipistrelle with both records located at a distance of 789 m from the Site. No bat roost record was returned in the data.

4.3.4. During the 2025 Surveys a DBW was carried out, which aimed to identify trees, buildings and structures within the Site with suitability to support roosting bats. A total of 32 trees were identified during the DBW with the potential to support roosting bats. These trees were ash, oak, blackthorn and elder with all being either mature or semi-mature.

4.3.5. The revised 2026 layout places most of these trees within the Survey Area or within near proximity to the boundary of the Survey Area.

4.3.6. Sixteen of these trees remain on the Site or on the Site Boundary, 10 trees on Site originally identified during the 2025 DBW as BT6 - BT9, BT10, BT12 BT23, BT29 BT31, BT32 and five along the Site Boundary BT13, BT17, BT24 and BT26

4.3.7. Nine trees now sit outside of the 2026 Survey Area, eight to the southwest; these were labelled BT14- BT16 and BT18 - BT22 and another to the northwest, BT11. Five sit within the Survey Area outside of the Site BT1-BT3, BT27, BT28 and three sit on the Survey Area boundary, BT,4, BT5 and BT25.

4.3.8. One structure (S1), a stone arch bridge with brick arch, adjacent to the old railway was identified to have low suitability to support roosting bats, all features identified during the 2025 DBW are shown in Figure 7**: Target notes and trees with suitability to support roosting bats**.

4.3.9. It was determined in 2025 that the Survey Area provided suitable habitat for foraging bats in the forms of woodland, scrub and semi-improved grassland. Hedgerows connect to suitable foraging habitat outside of the Survey Area, particularly around Cosmeston Lakes to the north of the Site.

4.3.10. Overall, owing to the continuous potential commuting and foraging habitat within the Site, through the presence of hedgerows and blocks of woodland, which connects to the wider landscape, the Survey Area was considered to have moderate suitability to support foraging and commuting bats.

4.3.11. Surveys have been carried out since the 2025 DBW to further determine the level of bat activity in the Survey Area and the suitability of PRFs identified within trees across the Survey Area. These surveys have been reported separately and can be read in full in under **Appendix 7D: Bat Roost Report** and **Appendix 7E: Bat Activity Report** of **Chapter 7: Biodiversity** of the ES

4.3.12. No further survey for PRFs or assessment of the Site's suitability for bat activity was undertaken during the 2026 PEA, as conditions on Site had not changed since the previous surveys. The previous survey findings were therefore considered to remain representative of current Site conditions, and further survey, in addition to the existing survey cycle was not considered necessary.

Dormouse

4.3.13. Three records of dormouse within 2 km of the Site were returned from the desk study. The nearest dormouse record was 782 m from the Site.

4.3.14. Woodland and dense scrub habitat considered suitable to support dormouse was recorded within the Site which also offered connectivity to the wider habitats, although there was a small road to the north of the Site (B4267) that presents a physical barrier to any dormouse that may move south into the Site.

4.3.15. The majority of scrub habitat was dominated by bramble which may provide some suitable habitat for foraging dormouse. Oak, hazel, ash and field maple recorded in the woodland parcels or as scattered trees in the Site, may further increase the variety of food items for dormouse.

Badger

4.3.16. The desk study returned with no records of badger in the last 10 years within 2 km of the Site.

4.3.17. The Survey Area provided suitable habitat for sett-building badgers in the form of woodlands and hedgerows, and suitable habitat for foraging badgers within the arable fields.

4.3.18. No signs of badger were identified in 2026. During the 2025 surveys, badger footprints were recorded outside of the Site, but within the Survey Area.

Hedgehog

4.3.19. A total of 17 records of hedgehog within 2 km of the Site were returned from the desk study in last 10 years. The nearest hedgehog record was 483 m from the Site.

4.3.20. Although no evidence of hedgehog was observed during the survey, habitats within the Site and Survey Area remain considered suitable to support hedgehogs included grasslands, scattered trees and broadleaved woodland. The Site is considered suitable for foraging and commuting hedgehogs, in addition to suitable habitat for resting locations and nesting sites (e.g., TN5).

Otter

4.3.21. One record of otter within 2 km of the Site was returned from the desk study in the last 10 years. It was located at 1.12 km from the Site.

4.3.22. The Survey Area does not support any habitat such as streams, rivers or large bodies of water that would provide suitable foraging habitat for otter.

4.3.23. There were no opportunities for otter resting places recorded within the Site. The Site is considered unsuitable for otter and otter are not considered further in the report.

Water Vole

4.3.24. A total of 21 records of water vole within 2 km of the Site were returned from the desk study in last 10 years. The nearest record was located at a distance of 695 m from the Site.

4.3.25. The Survey Area was not considered to provide suitable habitat for water vole as the waterbodies identified within the Site were considered likely to dry.

4.3.26. Water voles are therefore not considered further in this report.

Birds

4.3.27. The desk study returned 937 records of 62 protected and/or notable bird species within 2 km of the Site.

4.3.28. A total of 13 of these 62 protected species were listed on Schedule 1 of the WCA.

4.3.29. A total of 38 species out of the 62 protected species were listed as priority species in accordance with Section 7 of the Environment (Wales) Act 2016. These included curlew *Numenius arquata*, lapwing *Vanellus vanellus*, yellowhammer *Emberiza citrinella* etc.

4.3.30. A total of 45 out of the 62 protected species were listed on the Wales Amber and Red lists (BoCC, 2022). Of the 45 species, 21 species were on the Amber list. The Amber species with the closest records to the Site were song thrush *Turdus philomelos*, swallow *Hirundo rustica*, house sparrow *Passer domesticus* and red kite *Milvus milvus*.

4.3.31. During the 2025 survey, Cetti's warbler *Cettia cetti*, a species listed on Schedule 1 of WCA was heard in woodland edge habitat bordering a semi-improved grassland field along the north boundary of the Site.

4.3.32. In 2025, the habitats were considered suitable foraging and nesting habitats for common and widespread breeding birds, especially within areas of scrub, woodland and hedgerow, which would provide suitable nesting opportunity. It was also considered that some species listed on Schedule 1 of WCA, such as red kite, skylark, barn owl *Tyto alba* and bittern may also nest in these suitable habitats.

Amphibians

4.3.33. The desk study returned 15 records of common frog *Rana temporaria*, 17 records of common toad *Bufo bufo*, three records of GCN, two records of palmate newt *Lissotriton helveticus*, and one record of smooth newt *Lissotriton vulgaris* within 2 km of the Site.

4.3.34. The closest record of GCN was 1.37 km north of the Site. A search for waterbodies within 500 m of the Site returned seven waterbodies, shown on Figure 5**: Habitats of Conservation Importance (Desk Study Results)**, with a further waterbody recorded during the Phase 1 habitat survey in 2025 that was dried up in 2026.

4.3.35. Waterbodies within the Site were considered to be ephemeral offering limited suitability to support GCN during their aquatic (breeding) life phases. The road to the north of the Site (B4267), Sully Brook to the north-east of the Site, and a commercial premises north of the Site provide additional barriers to movement. Therefore, it is considered unlikely that GCN will be encountered within the Site.

4.3.36. A common toad was identified on Site, found beneath a flat stone during the survey (TN2 on Figure 7**: Target notes and trees with suitability to support roosting bats**). The

Site provides suitable terrestrial habitat in form of scrub, grassland and woodland for common and widespread amphibians (excluding GCN). Brash and piles of stone identified in the centre of the Site could be a potential refugia for amphibians.

Reptiles

4.3.37. The desk study returned 14 records of slow worm *Anguis fragilis* and one record of pond terrapin *Trachemys scripta* within 2 km of the Site in the last 10 years. The nearest slow worm record was located at a distance of 530 m from the Site.

4.3.38. Two slow worms were recorded on Site, found beneath a large stone slab during the survey (TN3 on Figure 7). The habitats within the Survey Area were considered suitable to reptile species, most notably within the semi-improved grassland fields that were degrading into scrub habitat, as well as along field boundaries and woodland edges. An area with a large amount of hay arisings (approximately 4x20x10 m[9]) (TN4 on Figure 7**: Target notes and trees with suitability to support roosting bats**) was identified as a suitable grass snake *Natrix helvetica* egg-laying site. Refugia sites with potential as reptile hibernacula were identified across the Site, including TN5.

Invertebrates

4.3.39. Records of 13 invertebrate species, which are listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016, were returned during the desk study within 2 km of the Site. The closest record was for marsh fritillary *Euphydryas aurinia* and brown-banded carder bee *Bombus humilis* located at a distance of 58 m from the Site.

4.3.40. A total of 23 records of invertebrate species considered to be invasive were returned from the desk study.

4.3.41. Habitat suitable for invertebrates was identified across the Survey Area, including along field margins and hedgerows. These habitats include locations highlighted in Figure 7**: Target notes and trees with suitability to support roosting bats** as TN8 – TN13. Additional suitable habitat areas outside of the field margins and hedgerows were also identified; highlighted in Figure 7**: Target notes and trees with suitability to support roosting bats** as TN6 – TN7.

4.3.42. Habitats assessed as suitable for invertebrates contained pant assemblages comprising

- Greater birds foot trefoil;
- Lesser trefoil;
- White clover;
- Bush vetch;
- Tufted vetch

[9] Approximate dimensions; Height x Width x Depth

- Meadow vetchling
- Hawthorn;
- Blackthorn;
- Crab apple; and,
- Rose species.

4.3.43. No examples of dyer's greenweed or scabious species was recorded.

INNS

4.3.44. Ten records of INNS were returned during the desk study within 2 km of the Site, although there were no records returned from within the Site including Japanese knotweed *Reynoutria japonica* which is listed on Schedule 9 of the WCA. It is an offence to plant or otherwise cause these species to grow in the wild.

4.3.45. Records included other non-Schedule 9 INNS species within 2 km: three-cornered garlic *Allium triquetrum*, butterfly-bush *Buddleja davidii*, cherry laurel *Prunus laurocerasus*, greater periwinkle *Vinca major*, and Spanish bluebell *Hyacinthoides hispanica*. These species have a detrimental effect on native ecology and should be controlled to safeguard biodiversity.

4.3.46. No INNS were recorded although all habitats within the Survey Area were considered suitable to support INNS.

Notable Plants

4.3.47. One record of bluebell Hyacinthoides non-scripta from last 10 years was returned from the desk study within 2 km. This species is listed in Schedule 8 of the WCA.

4.3.48. Butcher's-broom *Ruscus aculeatus*, a Priority Species was identified during the 2026 PEA within a hedgerow along the eastern extend of the Site.

4.3.49. No notable plant species listed from Schedule 8 of the WCA or were identified during the field survey. Both 2025 and 2026 Phase 1 surveys were carried out at a sub-optimal time of year for detecting, bluebell may be present but went undetected.

4.3.50. The Survey Area has potential to support threatened arable plants and survey for threatened arable plants was carried out alongside the 2026 PEA in June and again separately in August 2026. The results of the threatened arable plants survey is detailed in **Appendix 7F: Threatened Arable Plants** of the ES.

5. Discussion And Recommendations

5.1. Overview

5.1.1. This section considers the potential for effects on designated sites, legally protected species, notable species and notable habitats as a consequence of the Proposed Development. Where further surveys or detailed assessment of potential effects are required in order to inform planning and mitigation.

5.2. Statutory Designated Sites

5.2.1. The Habitats Regulations 2017 (as amended) strictly protect internationally important sites by requiring plans and projects to be screened for likely significant effects on the conservation objectives of SPAs, SACs and candidate SACs (cSACs). Guidance requires the same assessment for potential SPAs (pSPAs) and Ramsar sites.

5.2.2. The Site is located 160 m west from to the Severn Estuary (Wales) which is designated as a SPA, SAC and a Ramsar site. There is not anticipated to be any land take or impact to functionally linked land of these international designated sites as a result of the Proposed Development. However, the Proposed Development may lead to noise and pollution during the construction phase, which may impact bird species for which the designated sites qualify. Further, the international sites are designated partially for the presence of breeding, migrating and wintering birds, which may use the Site as a feeding or roosting ground. Therefore, the Proposed Development may impact on the qualifying features of these international designated sites.

5.2.3. In 2025, it was recommended a Habitats Regulations Screening Assessment (HRSA) is undertaken once details of the Proposed Development are more established, to determine the potential for likely significant effects on all SPAs, SACs, cSACs, pSPA and Ramsar sites with identified impact pathways.

5.2.4. A HRSA has been developed separately and can be found within **Appendix 7B: Habitats Regulations Assessment**.

5.2.5. SSSIs are subject to strict protection under the WCA. This requires landowners to maintain these sites in favourable condition and works within these sites are manage by the appropriate national statutory body via consent process. Certain operations within SSSIs require consent; these are specific to each SSSI.

5.2.6. Five SSSIs and one LNR were recorded within 2 km of the Site. Penarth Coast SSSI is located adjacent to the Site Boundary. Severn Estuary SSSI is 160 m to the east of the Site and Cosmeston Lakes SSSI is 142 m north of the Site. Although the Proposed Development will not lead to any land take of these national designated sites, the

Proposed Development may lead to increased noise and pollution during the construction phase. During the operational phase, the Proposed Development may impact on bird species, for which the Severn Estuary SSSI and Cosmeston Lakes SSSI are partially designated. Consent may be required due to the proximity of these SSSIs to the Site. SSSI assent may be required to mitigate impacts on SSSI identified to contain sensitive features that may be affected by the prosed development.

5.2.7. Cosmeston Lakes Country Park LNR is also located adjacent to the Site. It is, therefore, recommended that environmental best practice is followed (as detailed in **Section 5.6**). This environmental best practice should be laid out in a Construction Environmental Management Plan (CEMP).

5.2.8. In 2025, recommendations identified the requirement for an Ecological Impact Assessment (EcIA) to assess the likely effects of the Proposed Development on ecological features and identify appropriate mitigation. The Proposed Development is now subject to Environmental Impact Assessment (EIA), with the EcIA presented within **Chapter 7: Biodiversity** of the ES.

5.3. Non-Statutory Designated Sites

5.3.1. The Proposed Development should seek to avoid any direct or indirect effects to all Wildlife Sites/SINCs (adopted), WTRs and B-lines that lie within the Site and the vicinity of the Site. Lavernock Point WTR, Lavernock Point East SINC and B-Lines lie within the Site (described in **Table 4.2**). Avoidance of direct and indirect effects should be done through, firstly, the implementation of good practice construction measures (detailed in **Section 5.6**).

5.3.2. Consultation with the local authority has taken place in respect to these sites as they are within the Site Boundary, full details are within **Chapter 7: Biodiversity** of the ES.

5.3.3. Other non-statutory designated sites identified within 2 km of the Site are not considered likely to be impacted by the Proposed Development owing to the distance between the Site and the designated sites, the lack of hydrological or other functional pathways, the relative isolation of the Site due to the presence of the road to the north, and the unlikelihood of additional recreational pressures during the operational phase of the Proposed Development.

5.4. Habitats

5.4.1. The broadleaved woodland, mixed woodland and hedges throughout the Site qualify as the Priority Habitats ‘lowland mixed deciduous woodland’ and ‘native hedgerow’. Under Section 7 of this legislation, all public bodies (including local planning authorities) must ‘take all reasonable steps to maintain and enhance the living organisms and types

of habitat included in any list published under this section and encourage others to take such steps.'

5.4.2. To comply with national planning policy (PPW 12), the Proposed Development would need to demonstrate that there would be no significant loss of these Priority Habitats as a result of the works. The Proposed Development should seek to avoid loss of these habitats through sensitive scheme design. If this is not feasible, consultation with the authority should be completed as part of design development. In accordance with the requirement for a Net Benefit for Biodiversity (NBB) in Wales, for any loss of Priority Habitat, replacement habitat commensurate with that lost should be provided within the design. This could include, for example, restoring habitats that are considered to be low quality Priority Habitats.

5.4.3. In 2025, it was recommended that, due to their suitability to support protected and/or notable species, the woodland and scrub habitats should be retained where possible. The revised design layout avoids any direct impacts and losses of a trees and Priority Habitats such as lowland mixed deciduous woodland only minimal widening of existing gaps in native hedgerows identified on Site.

5.5. Protected And Notable Species

5.5.1. The results of the desk study, Phase 1 habitat Survey and protected species assessment highlighted the potential presence of several protected species or species of conservation concern within the Site, or within the immediate surroundings of the Site. These include bats, badger, dormouse, otter, mammals, birds, common and widespread amphibians, common and widespread reptiles, invertebrates, INNS and notable plants. The legal protection afforded to these species is outlined below and, where appropriate, the requirement for further survey and/or mitigation measures is identified.

Bats

5.5.2. All species of bats recorded within the UK are protected from killing, injury and disturbance[10] and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

5.5.3. Certain species of bats, including the Bechstein's bat *Myotis bechsteinii*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus*

[10] Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

hipposideros, noctule *Nyctalus noctula*, brown long-eared bat *Plecotus auritus* and soprano pipistrelle bat, serotine *Eptesicus serotinus*, Leisler's bat *Nyctalus leisleri*, common pipistrelle, Nathusius' pipistrelle and barbastelle *Barbastella barbastellus* are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance habitats for these species when carrying out their statutory functions.

5.5.4. Suitable habitats were recorded during the DBW for foraging, roosting and commuting bats within the Site. The Site was assessed as having moderate habitat suitability for bats as per Collins (2023) due to the mosaic of woodland and grassland habitats present within the Site. The Site is also connected to suitable habitats in the wider landscape which offers additional commuting and foraging habitat.

5.5.5. The impact of solar farms on bats is not well understood, although it is generally accepted that solar farms can have a negative effect on bat activity, particularly species such as Myotis species (Barré et al, 2024; Szabadi et al, 2023).

5.5.6. A total of 32 trees and one structure were identified as having potential to support roosting bats (assessed as PRF) during the 2025 DBW. The current design avoids direct impacts to trees, including those identified as having bat roost potential. Additional bat survey work has subsequently been undertaken to determine of bat roost are present or likely absent, the level and nature of bat activity on the Site and the surrounding area and to inform the assessment of potential effects on bats presented within **Chapter 7: Biodiversity** of the ES.

5.5.7. Further survey work has been completed following the 2025 DBW which are reported separately and compiled under the **Chapter 7: Biodiversity** of the ES under **Appendix 7D: Bat Roost Survey Report** and **Appendix 7E: Bat Activity Report**.

Badger

5.5.8. The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any badger, or attempt to do so. It also makes it an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a badger sett. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

5.5.9. The Site has suitable habitats for badgers for commuting, foraging and sett building activities. In 2025, it was determined that should suitable habitat be impacted, the Proposed Development presents the risk of damage/disturbance to a sett or a badger using a sett during vegetation clearance activities, particularly over woodland habitat.

5.5.10. The Site layout avoids any direct impacts and losses of habitat features identified as potentially suitable for badger such as woodlands, woodland edges and hedgerows.

5.5.11. Therefore, it is recommended a pre-works walkover to be undertaken no more than two weeks prior to the commencement of construction should be undertaken. Ecological avoidance, mitigation and compensation requirements to minimise effects on badgers are described in **Section 5.6**.

Hedgehog

5.5.12. Hedgehogs are listed in Schedule 6 of the WCA. This protects these species from certain methods of killing or taking. Hedgehogs are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

5.5.13. The Site has suitable habitats for foraging, commuting, resting and nesting hedgehogs including grassland, woodland and arable land. Should suitable habitat be impacted, the Proposed Development presents the risk of the killing/injury of mammals through vegetation clearance/other intrusive works and removal of their habitats.

5.5.14. It was recommended that vegetation clearance is undertaken in accordance with details set out in a Precautionary Method of Works (PMoW). It is also recommended that an Ecological Clerk of Works (ECoW) is present on Site prior to works commencing to deliver a toolbox talk to all Site personnel to advise on the possibility of small mammals such as hedgehog being present during the works and what to do should they be identified.

Dormice

5.5.15. Dormice are protected from killing, injury and disturbance[11] and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations 2017 (as amended). Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

5.5.16. The Site provides suitable habitats for hazel dormice. There is some connectivity to wider habitats although there is a road to the north of the Site that acts as a barrier to movement between these adjacent habitats.

5.5.17. In 2025, due to the possibility of dormice being present within the Site, it was recommended that further surveys in relation to dormice are undertaken. The Site layout avoids any direct impacts and losses of habitat features identified as potentially suitable for dormouse, thereby removing the risk of impact on the species or habitats

[11] Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

suitable for the species. See **Chapter 7: Biodiversity** for full description of scoping process. As such, it was not considered necessary to undertake further surveys.

Birds

5.5.18. Under the Wildlife and Countryside Act all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young. This includes the Cetti's warbler heard during the 2025 Phase 1 habitat survey.

5.5.19. Various bird species are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016, several of which were identified with 2 km of the Site from the desk study.

5.5.20. The Site contained a range of habitats with suitability to support common and widespread breeding birds. The Site was also suitable to support foraging and roosting waders, which are qualifying features of the Severn Estuary SPA/Ramsar.

5.5.21. In 2025, it was recommended that both a breeding and a wintering bird survey is conducted to determine how the Site is used by birds. The Site layout avoids any direct impacts and losses of habitat features identified as potentially suitable for breeding birds, therefore further survey for breeding birds have not been completed. See **Chapter 7: Biodiversity** for full description of scoping process.

5.5.22. The Site has been determined to be suitable for lapwing breeding, and in agreement through consultation with the LPA ecologist wintering bird surveys for the Site and an assessment of potential Lapwing territories has been carried out.

5.5.23. Wintering bird surveys and assessment of lapwing territories have been completed and are reported separately in **Appendix 7C: Wintering Birds Survey**.

5.5.24. Vegetation clearance should be avoided during the breeding bird season in the first instance. If works cannot avoid the breeding bird season, then all vegetation and suitable nesting habitats, including rubble piles within the Site, must be hand-searched by a suitably qualified ecologist immediately prior to removal.

Reptiles

5.5.25. Native widespread reptile species (common lizard, adder *Vipera berus*, grass snake and slow worm) are partially protected under Schedule 5 of the WCA. This includes protection from killing and injury.

5.5.26. All reptile species are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance habitats for this species when carrying out their statutory functions.

5.5.27. The Site has suitability for reptiles due to the habitats present (woodland edges, areas of scrub and unmanaged grassland). Suitable hibernacula and refugia were also identified throughout the Site (e.g., TN5) and a possible egg laying site for grass snake was identified (TN4). Should suitable habitat be impacted, the Proposed Development presents the risk of killing/injury of reptiles through vegetation clearance/other intrusive works.

5.5.28. Where possible suitable habitat should be retained. In the case of the Proposed Development, it is not considered that a full reptile survey is required due to the limited habitat suitable to support reptiles, with most of the Site being poor due to the expanse of arable fields, and the scarcity of wide and structurally diverse field margins. If vegetation clearance is required, it is recommended that an ECoW is present on Site prior to works commencing to deliver a toolbox talk to all site personnel to advise on the possibility of reptiles being present during the works and what to do should they be identified. Works should be conducted under a PMoW.

Amphibians

5.5.29. Common frog and common toad are listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to have regard for these species when carrying out their functions.

5.5.30. GCN are protected from killing, injury and disturbance and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance[12] of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

5.5.31. GCN and common toad are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.

5.5.32. The Site has suitability for common and widespread amphibians (excluding GCN). These habitats include broadleaved woodland, scrub, grassland. Adjacent land contain waterbodies which may provide suitable amphibian breeding/aquatic habitat, the ephemeral waterbodies within the Site offer limited opportunities for spawning

[12] Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

amphibians. Suitable hibernacula and refugia were also identified throughout the Site (e.g., TN5) and a common toad was identified on Site (TN2).

5.5.33. Suitable habitat should be retained in the first instance. Where this is not possible, it is recommended that an ECoW is present on Site prior to works commencing to deliver a toolbox talk to all site personnel to advise on the possibility of amphibians being present during the works and what to do should they be identified. Works should be conducted under a PMoW, to include sensitive vegetation clearance measures and ecological supervision.

INNS

5.5.34. Certain plant species are listed on Schedule 9 of the WCA. It is an offence to plant or otherwise cause these species to grow in the wild.

5.5.35. No INNS were recorded during the Phase 1 habitat survey. It is recommended that a pre-works check prior to construction is undertaken by a suitably qualified ecologist to assess for the presence of INNS within the Site as if present on adjacent land encroachment can be reasonably fast.

Notable Plants

5.5.36. Butcher's broom was recorded during the 2026 Phase 1 habitat survey, and round-leaved fluellen *Kickxia spuria* was identified on Site during a threatened arable plant survey of the Site in August 2026 (reported separately see **Appendix 7F: Threatened Arable Plants** for full details).

5.5.37. The Site layout avoids any direct impacts and losses of field margin habitat identified holding greater potential to support notable plants and avoids the known records of notable plants identified on Site.

5.5.38. Further surveys are therefore not required at this stage, instead it is recommended that enhancements to these retained habitats are provided, see **Paragraph 5.7.4**.

Further Survey Requirements

5.5.39. Recommendations for further ecological surveys are proposed in **Table 5.1**, to support legal and planning policy compliance.

Table 5.1 - Further Survey Requirements

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Bats	In 2025, the following potential constraints were outlined: Risk of disturbance to bats	In 2025, the following recommendations were outlined; in the event habitats suitable to support foraging or commuting bats are to be impacted (dense scrub, semi-	In 2025, the following seasonal contains were outlined: Three NBW survey visits should be undertaken, one each in spring (April/May), summer (June to August) and autumn (September/October)

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
	roosting in suitable trees or structures. Risk of loss of suitable commuting and foraging habitat. 2026 update: The Site layout avoids any direct impacts and losses to features identified as potentially important to bats, such as trees, structures and linear habitats such as woodland edges and hedgerows. See **Chapter 7: Biodiversity** for full assessment.	natural broadleaved woodland, hedgerows, scattered trees and tree lines): Bat activity surveys – To include observation and manual and static bat detector surveys to establish the species assemblage and a measure of bat activity. This is likely to include a Nighttime Bat Walkover (NBW) and automated static bat detector surveys. PRF inspection surveys – To allow for a more detailed assessment of the likely suitability of the buildings and trees for bats, and to look for more conclusive evidence of bats, in accordance with Collins (2023). Depending on the results of these surveys, further surveys may be required, which may comprise dusk emergence surveys (or the structure or trees) and aerial inspection surveys of trees, which are seasonally constrained. 2026 update: These surveys have been completed and have been reported in **Chapter 7: Biodiversity** of the ES under **Appendix 7D: Bat Roost Report** and **Appendix 7E: Bat Activity Report.**	Automated/static bat detector surveys should collect a minimum of five consecutive nights of data per month in appropriate weather conditions. PRF inspection surveys can be carried out at any time of year. However, in the event that PRF-M (PRFs suitable to support maternity roosts) are identified within trees, these would require three visits between May and September, with at least two between May and August. Therefore, it is recommended that the PRF inspection survey is carried out between May and July. 2026 update: These surveys have since been completed.
Badger	In 2025, the following potential constraints were outlined: Risk of damage or disturbance to a sett or a badger using its sett during vegetation clearance activities, particularly over woodland habitat. 2026 update: The Site layout avoids any direct impacts and losses of	In 2025, the following survey requirements were outlined; In the event that habitats suitable to support sett-building badger (woodland, hedgerows, scrub and all field boundaries, including habitats within a 30 m buffer) are to be impacted: A full badger survey should be conducted of these areas, including all habitats within the 30 m buffer, to determine the use of the Site by badger and if there are any setts present. Avoidance of potential setts by setting up exclusion zones. If disturbance to/destruction of setts cannot be avoided, then	In 2025, the following seasonal constraints were outlined: Badgers can build setts at any time of year. A badger survey can be carried out at any time of year, but September/October and February to April are considered to be the optimal time period, due to badger activity levels, and reduced vegetation cover increasing the likelihood of finding evidence of badger if present. Licences to exclude and close setts are typically only issued for use between 1 July and 30 November. 2026 update: Further survey is not required at this stage although a pre-works check should be carried out

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
	habitat features identified as potentially suitable for badger such as woodlands, woodland edges and hedgerows.	they must be excluded and closed under licence. In this instance further surveys would be required to characterise the setts on Site and where access is possible, in the wider area. In the event that habitats suitable to support foraging badger only (arable fields and semi-improved grassland, more than 30 m away from suitable sett-building habitat including all field boundaries) are to be impacted: 2026 update: Given the revised Site layout which avoids the main potential badger habitats, a pre-works check for badger is recommended due to the ability of badger to create new setts in a short space of time (a minimum of two weeks in advance of works). This is due to the limited suitability of the majority of the Site to support sett-building badger, with most of the Site suitable to support foraging badger only.	within two weeks of works within 30 m of habitat suitable for badger.
Dormouse	In 2025, the following potential constraints were outlined: Risk of disturbance/killing of dormice or damage of habitats. 2026 update: The September 2026 revised design layout avoids any direct impacts and losses of habitat features identified as potentially suitable for dormouse, thereby removing the risk of impact on the species or habitats suitable for the species. See **Chapter 7: Biodiversity** for full	In 2025, the following recommended surveys were outlined: In the event the woodland, treelines, hedgerow or scrub are to be impacted: It is recommended that further surveys (tube and box surveys) for dormice are carried out within woodland and scrub habitats within the Site. 2026 update: Given the revised Site layout which retains all habitats suitable for dormouse, these surveys are not required.	In 2025, the following seasonal constraints were outlined: Tube and box surveys must be undertaken between April and November in accordance with the Dormouse Conservation Handbook (Bright et al., 2006). Following 2026 update: These surveys were not considered necessary.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
	description of scoping process.		
Breeding birds	In 2025, the following potential constraints were outlined: Loss of potential breeding, commuting and foraging bird habitat. Destruction of active nests through vegetation clearance. Disturbance to schedule 1 species including Cetti's warbler and barn owl. 2026 update: The Site layout avoids any direct impacts and losses of habitat features identified as potentially suitable for breeding birds, therefore further survey for breeding birds have not been completed.	In 2025, the following survey requirements were outlined: Ornithological baseline surveys – to provide current baseline data regarding bird community within the Site and identify the impacts of the Proposed Development on such species. 2026 update: Given the revised Site layout which avoids impacting the majority of the vegetation habitats suitable for breeding birds, these surveys were not considered necessary.	Following 2026 update: These surveys were not considered necessary, on grounds that habitat retention would not necessitate these surveys and in agreement with the LPA ecologist.
Wintering birds	In 2025, it was identified that: The Site contained a range of habitats suitable to support foraging and roosting waders, which are qualifying features of the Severn Estuary SPA/Ramsar.	Wintering bird surveys were recommended in 2025 and have been completed. These surveys are reported in full in **Appendix 7C: Wintering Bird Survey**.	In 2025, the following seasonal constraints were outlined: Wintering bird surveys should be carried out between November-March. One visit per month should be undertaken, and a transect should be followed as for the breeding bird surveys.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Skylark territory survey	In 2026, pre-planning application consultation with the local authority highlighted the Site as suitable for breeding territories of skylark	Following pre-application consultation with the LPA ecologist, an assessment was carried out of the Site to determine the potential worst-case scenario for numbers of skylark territories present on Site (and the within the wider Land area was recommended to be carried out alongside the wintering bird surveys.	No seasonal constraint direction was provided for skylark breeding territories assessment. The main breeding season for skylark is April to August. During the combined wintering bird surveys and skylark territorial mapping skylark territories identified were identified in February and March to represent potential breeding territories based principally on territorial song-flight activity. These methods were based on research identifying early territorial behavior indicative of territoriality[13]. These surveys are reported in full in **Appendix 7C: Wintering Bird Survey**.
Threatened arable plant survey	During the pre-application consultation with the Vale of Glamorgan ecologist, a threatened arable plant survey was recommended. At the time, the final design was not known therefore it was perceived that marginal habitats that potentially support notable plants and specifically threatened arable plants could be impacted.	A threatened arable plant survey.	The optimum time for botanical surveys varies with the target species as plants develop at different rates, although the generally accepted season for sufficient availability of identification features for most species is between April to September inclusive. The threatened arable plant survey was completed in part alongside this PEA in June and in part separately in August and has been reported in full in **Appendix 7F: Threatened Arable Plants**.

5.6. Preliminary Avoidance, Mitigation and Compensation Measures

5.6.1. To enable compliance with relevant legislation and planning policy, as described above within **Sections 5.1-5.4**, the following avoidance, mitigation and compensation measures should be designed into the Proposed Development. Since 2025, the Proposed Development layout has been refined; The revised Site layout minimises

[13] Browne, S., Vickery, J.A. and Chamberlain, D.E. (2000)

direct impacts and losses of habitat features along the margins of the arable land only minimal widening of the existing gaps within the hedgerows on Site.

- A pre-works check for badger within two weeks of work commencing due to the ability of badger to create new setts in a short space of time;
- Areas of habitat to be cleared should be checked in advance by a suitably qualified ecologist to minimise the risk of disturbance and injury/killing to hedgehog, birds (if vegetation clearance is to be conducted during the breeding bird season (March to August inclusive), common and widespread amphibians (excluding GCN) and reptiles;
- Works to be carried out under a PMoW, to detail sensitive vegetation clearance methodologies;
- Works should be carried out as per environmental best practice (**Section 5.6.2**) to avoid indirect impacts to designated sites and Priority Habitats (hedgerows and woodland habitats within the Site);
- Avoidance of vegetation clearance within Priority Habitats, where practicable. The extent of hedgerow gap widening to facilitate access must be monitored by an ecologist to ensure additional habitat is not lost;
- Where this is not possible, provision of replacement habitat, over and above that which is lost, would be required; and
- Avoidance of working in areas where INNS are present, if these are identified within the Site during the walkover. If this is not possible, INNS should be removed safely and under licence.

Environmental Best Practice

5.6.2. In addition, general environmental protection measures must be implemented during the construction phase of the Proposed Development. Such measures include best environmental practice guidance outlined in the Environment Agency's Pollution Prevention Advice and Guidance (see NetRegs.org.uk[14]) and those outlined by the Construction Industry Research and Information Association guidance (CIRIA, 2015). The following minimum standards must be adhered to prevent ecological impacts beyond the Site Boundary:

- Measures must be taken to prevent dust and other emissions from construction affecting land beyond the Site;
- Chemicals and fuels must be stored in secure containers located away from watercourses or water bodies. Spill kits must be available;

[14] http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/

- Excavations must be covered or securely fenced (with no potential access points beneath fencing) when the Site is closed (e.g. overnight) to prevent entrapment of animals;
- Retained trees must be protected in accordance with BS5837;
- Noise and vibration must be controlled and kept to the minimum necessary; and
- Lighting used for construction and security lighting must be switched-off when not in use and positioned so as not to spill on to adjacent land or retained vegetation within the Site.

5.7. Ecological Enhancement Opportunities

5.7.1. PPW (Edition 12, 2024) states:

5.7.2. "*A Resilient Wales can be supported by protecting and providing sufficient scale, extent, diversity and connectivity within, and between, landscapes and habitats to maintain and enhance biodiversity and the resilience of ecosystems. This support will enable them to withstand the pressures of change, to tackle pollution, to protect and enhance water resources, to protect soils and to enable flood mitigation, the creation of carbon sinks (especially in urban areas), and to promote opportunities for social and economic activity based on valuing and enabling access to the natural, historic and built environment".*

5.7.3. NBB in association with development is encouraged by PPW (2024) and required under Section 6 of Part 1 of the Environment (Wales) Act. The below recommendations aim to comply with a NBB approach, in the way of delivering an overall improvement in biodiversity with the absence of a metric. By engaging with these recommendations in the early stages of the Proposed Works, it is hoped that ecosystem resilience and wider ecosystem benefits can be achieved. This approach will support local authorities in achieving their Section 6 duty to "promote the resilience of ecosystems" when determining planning applications.

5.7.4. Planning policy promotes the inclusion of ecological enhancement accordingly it is recommended that consideration is given to the following enhancement measures:

- Sensitive/low UV lighting during construction and operation to be outlined in a Lighting Strategy, so as to keep visual disturbance of bats to a minimum;
- Planting of a variety of native species as part of landscaping to encourage invertebrates. This should contribute to the aims of B-Lines;
- Replacement of trees at a ratio of 3:1 as per PPW 12;
- Installation of bird and bat boxes in trees and integral within new structures to provide additional refuge sites and nesting opportunities for these species' groups;
- Create of species-rich grasslands by the incorporation of wildflower seed of local provenance;

- Management of existing parcels of semi-improved grassland with a sensitive mowing regime, to include one cut in August/September;
- Utilisation of a sensitive cutting strategy for the hedgerows present within the Site. This could include, for example, rotational cutting, whereby different parts of the hedgerow are cut on rotation throughout a three to five year cycle;
- Invertebrate hotels and habitat piles to provide refuge for reptiles, amphibians and hedgehog;
- Good horticultural practice should be utilised, including the use of peat-free composts, mulches and soil conditioners and favouring native plants of local provenance in landscaping;
- Semi-improved grassland, notably those with a higher species diversity, should be managed with a late cut once per year (in August or September), to continue to promote species diversity, and to stop the habitat parcels from being overtaken by scrub; and
- Ecological enhancements to include planting of pollinator friendly species for any habitat lost which is suitable for invertebrates (see further possibilities in Section 5.8).

6. Conclusions

6.1.1. The updated PEA identified ecological constraints associated with designated sites, Priority Habitats and protected and notable species. The Site layout has been refined to avoid the principal ecological features within the Site, including woodland, trees, structures and Priority Habitats, with impacts to hedgerows limited principally to the widening of existing gaps. Any changes to the design that impacts these features may require additional assessment to determine appropriate mitigation.

6.1.2. Additional surveys for bats, wintering birds, skylark territories and threatened arable plants have been completed and are reported separately within **Chapter 7: Biodiversity** of the ES. Dormouse and breeding bird surveys were scoped out based on the revised design and avoidance of suitable habitat.

6.1.3. Remaining construction risks should be managed through pre-construction checks, appropriate PMoW, ecological supervision where required, and environmental measures secured through the CEMP. Ecological enhancement measures should also be incorporated to contribute towards NBB and ecosystem resilience as described in **Appendix 7G: Net Benefit for Biodiversity**.

7. References

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Figures

Figure 1 - Site Location Plan

Figure 2 - International Statutory Designated Sites within 2 km of the Site

Figure 3 - National Statutory Designated Sites within 2 km of the Site

Figure 4 - Non-Statutory Designated Sites within 2 km of the Site

Figure 5 - Habitats of Conservation Importance (Desk Study Results)

Figure 6 - Phase 1 Habitat Survey Map

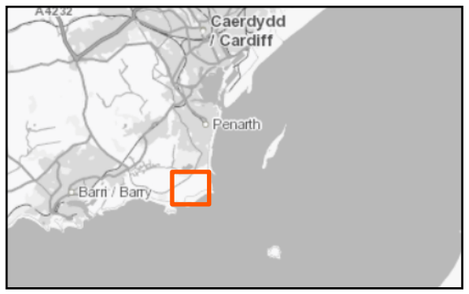
Figure 7 - Target notes and trees with suitability to support roosting bats



Key

Site

Survey Area



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Project:

Fferm Solar Larnog

Drawing Title:

Site Boundary and Survey Area

Trydan Gwyrdd Cymru

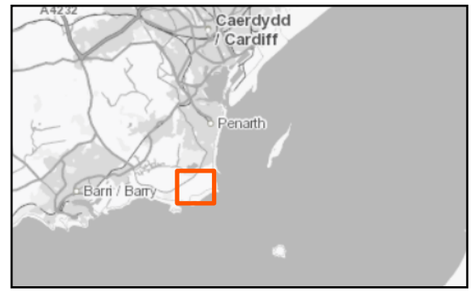
Drawing No.

Figure 1



Key

- Site boundary
- 2km buffer
- RAMSAR Site
- Special Area of Conservation (SAC)
- Special Protection Areas (SPA)



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International Statutory Sites
Within 2 km of the Site

Trydan Gwyrdd Cymru

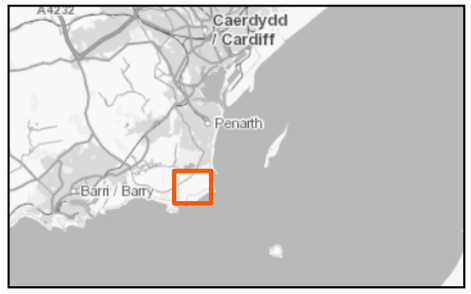
Drawing No.

Figure 2



Key

- Site boundary
- 2km buffer
- Local Nature Reserve (LNR)
- Site of Special Scientific Interest (SSSI)



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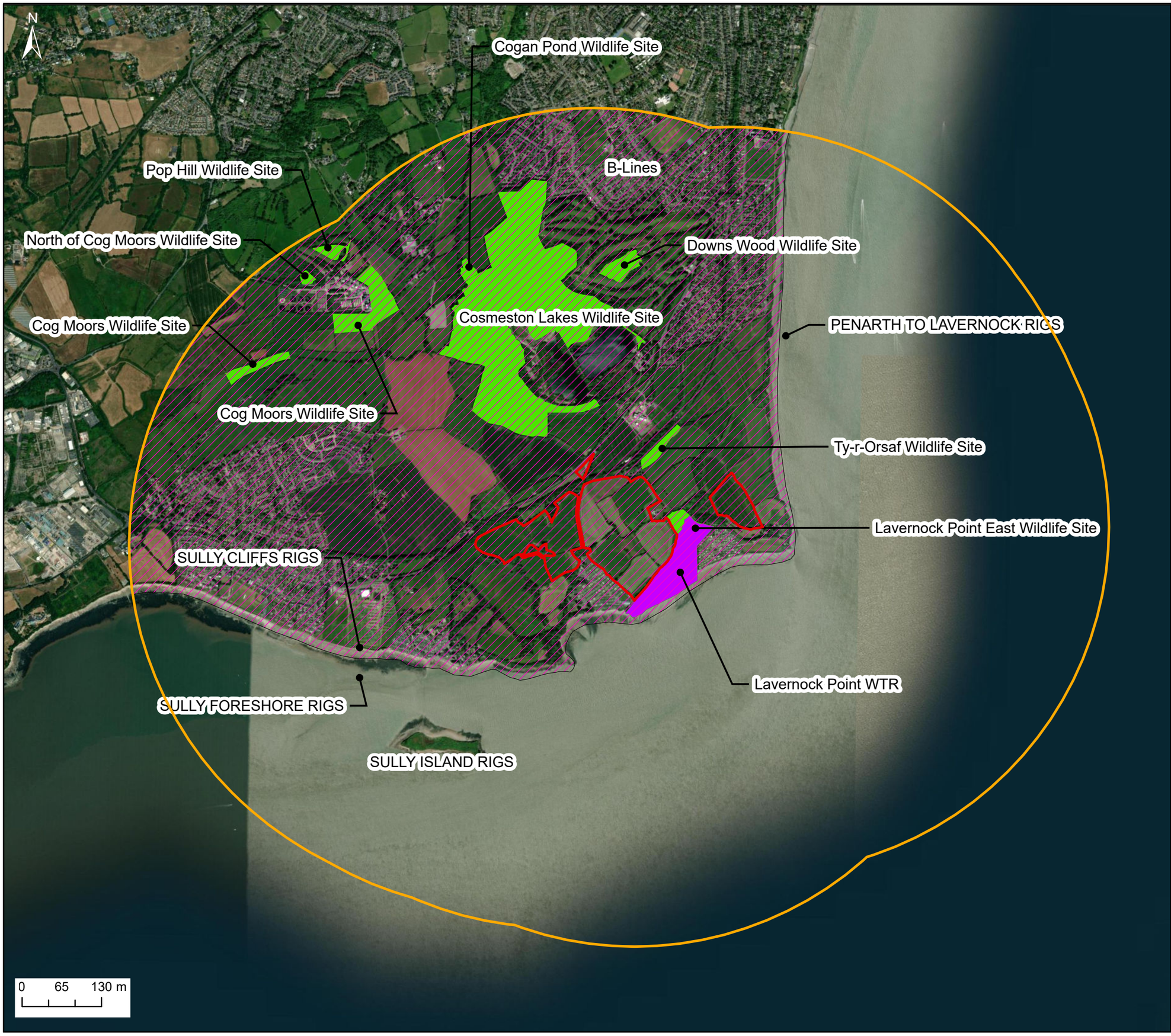
Drawing Title:

National Statutory Sites Within 2 km of the Site

Trydan Gwyrdd Cymru

Drawing No.

Figure 3



Key

- Site Boundary
- 2km Buffer
- Wildlife Site / SINC (Adopted)
- Wildlife Trust Reserve
- B-Lines



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Non-Statutory Sites Within 2 km of the Site

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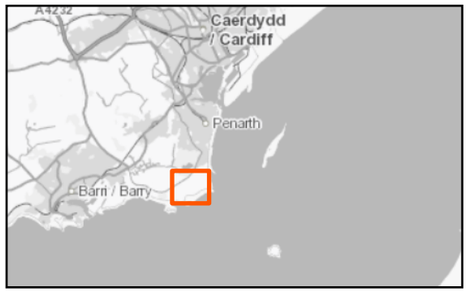
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Figure 4



Key

- Site boundary
- Survey Area
- Ponds
- 2km Buffer area
- 500m Buffer area



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Drawing Title:

Ponds Identified During the Desk Study

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Drawing No.

Figure 5



Key

- Site
- Survey Area

Phase 1 - Point

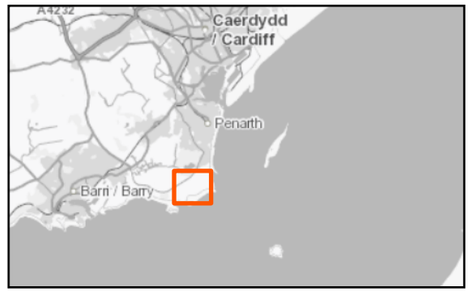
- Broadleaved parkland/scattered trees
- Coniferous parkland/scattered trees

Phase 1 - Line

- Broadleaved parkland/scattered trees
- Intact hedge - species-poor
- Defunct hedge - species-poor
- Hedge with trees - species-poor
- Dry ditch

Phase 1 - Polygon

- Broadleaved woodland - semi-natural
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Neutral grassland - semi-improved
- Other tall herb and fern - ruderal
- Standing water
- Cultivated/disturbed land - arable



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Drawing Title:

Phase 1 Habitat Classification of the Site

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Drawing No.

Figure 6

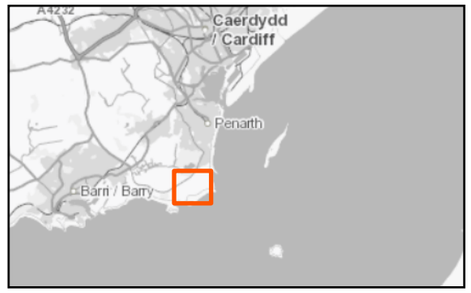
N

0 65 130 m

Key

- Survey Area
- Site
- Target Note
- Trees

BT12
TN11
BT8
BT7
BT9
BT6
TN7
BT32
BT31
TN7
TN15
TN8
BT10
TN13
TN14
BT23
TN5
BT29



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Drawing Title:

Target Notes and Bat Survey Results Figure

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Drawing No.

Figure 7



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Drawing Title:

Target Notes and Bat Survey Results Figure

Trydan Gwyrdd Cymru

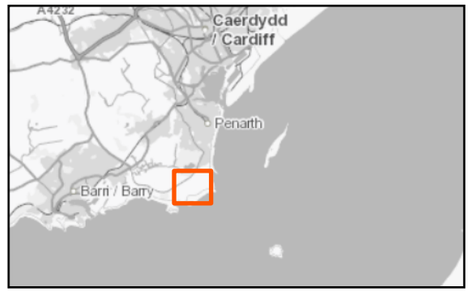
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Figure 7



Key

- Survey Area
- Site
- Target Note
- Trees



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Project:

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Drawing Title:

Target Notes and Bat Survey Results Figure

Trydan Gwyrdd Cymru

Drawing No.

Figure 7

Annex A - Relevant Legislation And Planning Policy

England & Wales Legislation and Policy Context

This report has been compiled with reference to relevant wildlife legislation, planning policy and the UK Biodiversity Framework. An overview and context of relevant legislation is provided, with the relevant protection each species groups or species receives summarised in **Table 3.1**.

The Wildlife and Countryside Act 1981, (as amended) (WCA)

Protected birds, animals and plants are listed under Schedules 1, 5, 8 respectively of the WCA, while Schedule 9 lists non-native and/or invasive species the spread of which in the wild is prohibited by the WCA. A description of these Schedules and their meaning is provided below.

Under the WCA (England and Wales) all birds, their nests and eggs (with exception of species listed under Schedule 2) are protected by the WCA. It is an offence to:

- Intentionally kill, injure, or take any wild bird,
- Take or destroy an egg of any wild bird.
- Damage or destroy the nest of any wild bird (whilst being built, or in use). Under the WCA the clearance of vegetation within the survey area boundary, or immediately adjacent to the survey area during the bird nesting season could result in an offence occurring by the disruption or destruction of nest sites. The bird breeding season can be taken to occur between March - August inclusive, although is subject to variations based on species, geographical and seasonal factors.

Schedule 1

Birds listed under Schedule 1 of the WCA[15] are afforded additional protection with regard to intentional or reckless disturbance whilst nest-building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Schedule 5

Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally:

- Part 1: kill, injure or take;
- Part 2: possess or control (live or dead animal, part or derivative);
- Part 4 (a): damage or destruct any structure used for shelter or protection;
- Part 4 (b): disturb them in a place of shelter or protection;
- Part 4 (c): obstruct access to place of shelter or protection;

[15] To view the current list of Schedule 1 listed birds visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/1 [Accessed 28/02/25].

- Part 5 (a): sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative);
- Part 5 (b): advertise for buying or selling.

Schedule 8

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

Schedule 9

Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or "causing to grow" in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

Countryside Rights of Way Act 2000 (CRoW Act)

The CRoW Act has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word 'reckless' to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

Natural Environment and Rural Communities (NERC) Act 2006

Species and Habitats of Principal Importance in England and Wales are listed under Section 41 and Section 42 respectively of the NERC Act. The Section 41 and 42 lists detail species that are of principal importance for the conservation of biodiversity in England and Wales and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

The Environment (Wales) Act 2016

The Environment (Wales) Act 2016 (http://www.legislation.gov.uk/anaw/2016/3/contents/enacted) puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and cohesive way. Section 7 replaces the duty in Section 42 of the NERC Act 2006 and it places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitats which they consider are of key significance to sustain and improve biodiversity in Wales. The species and habitat lists are identical to those in Section 42 but it should be noted it is currently under review (23.03.2017).

The Protection of Badgers Act (1992)

It is an offence to wilfully take, kill, injure, possess or ill-treat a badger. Under the Act their setts are protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the sett, or disturbance of a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England (NE) takes this definition to include seasonally used setts that are not occupied but that show sign of recent use by badgers (Natural England, 2009[16]).

If impacts to badgers or their setts are unavoidable then authorised sett disturbance requires a licence.

The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)

This Framework lists the UK's most threatened species and habitats and sets out targets and objectives for their management and recovery. The UK Biodiversity Action Plan (BAP) process is delivered nationally, regionally and locally and should be used as a guide for decision-makers to have regards for the targets set by the framework and the goals they aim to achieve. The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant (UK Post-2010 Biodiversity Biodiversity Framework, 2012[17])

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations came into force on 30 November 2017, and extend to England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters). In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats &c.) Regulations 1994. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

[16] Natural England, June 2009, Protection of Badgers Act 1992 (as amended), Guidance on 'Current Use' in the definition of a Badger Sett WMLG17, Natural England, Peterborough.

[17] JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), July 2012, UK Post-2010 Biodiversity Framework, Available from: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf [Accessed 28/02/25].

All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations it is unlawful to:

- Deliberately kill, capture or disturb;
- Deliberately take or destroy the eggs of; and
- Damage or destroy the breeding site/resting place of any species protected under this legislation.

If the Ecologist determines that impacts to an EPS are unavoidable then the works may need to be carried out under a site specific mitigation licence from Natural England (NE) or NRW. Low Impact Class licences are also available in both England and Wales for bats and great crested newts. This enables Registered Low Impact Consultants to undertake certain low impact activities reducing the EPS application paperwork and process length.

Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation. This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA).

The Birds Directive seeks to maintain populations of all wild bird species across their natural range (Article 2). All bird species listed under Annex I[18] of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs), these are also designated under all regularly occurring migratory species, with regard to the protection of wetlands of international importance (Article 4). This means these bird species and communities are a relevant consideration in HRA.

[18] To view birds listed under Annex I visit: http://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm [accessed 28/02/25]

Table A1 - Key Species and National Wildlife Legislation, Policy and Biodiversity Framework Applicable in England & Wales

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of/Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006/The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Badger							✓	
Bats		✓ [19](part)			✓[20]	✓[21]		✓[22]
Hazel Dormouse		✓5(part)			✓	✓		✓
Otter		✓5(part)			✓	✓		✓
Water vole		✓[23](full)				✓		✓
Birds	✓			✓[24]		✓[25]		✓[26]
Reptiles		✓[27](part)		✓[9]	✓[28]	✓[29]		✓[30]
Amphibians		✓[31](part)		✓[32]	✓[33],[34]	✓[35]		

[19] These species are partially protected under section 9(4)(b), (4)(c) and (5).
[20] Only Barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) are listed on Annex II of the Habitats Directive.
[21] Greater horseshoe bat, lesser horseshoe bat, Bechstein's bat, noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*) and barbastelle are listed as Species of Principal Importance in England with the addition of common pipistrelle (*Pipistrellus pipistrellus*) in Wales listed under Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.
[22] Barbastelle bat, Bechstein's bat, noctule, soprano pipistrelle, brown long-eared bat, greater horseshoe bat, lesser horseshoe bat are listed as UK BAP species of bat.
[23] Class Licences are available to Registered Consultants to intentionally disturb, damage or destroy water vole burrows or to displace water voles from their burrows in relation to a development proposal where the licensed action provides a conservation benefit for water voles. Certain displacement operations may be carried out under a Class licence by a registered person in England, however in Wales all displacement operations must be carried out under a site specific licence.
[24] To view plants and animals listed on Schedule 9 Part 1 visit http://www.legislation.gov.uk/ukpga/1981/69/schedule/9 [accessed 28/02/25]
[25] There are 49 species of birds listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and 51 species in Wales under Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.
[26] To view the current list of UK BAP priority birds visit: http://jncc.defra.gov.uk/page-5163 [Accessed 28/02/25].
[27] The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix helvetica*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).
[28] Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*) are the only reptiles to be designated as European Protected Species.
[29] All 6 reptile species are listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 5 species, excluding smooth snake, listed under Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.
[30] To view the current list of UK BAP priority herptile species visit: http://jncc.defra.gov.uk/page-5166 [Accessed 28/02/25].
[31] The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix helvetica*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).
[32] Common frog (*Rana temporaria*), Common toad (*Bufo bufo*), Smooth newt (*Lissotriton vulgaris*) and Palmate newt (*Lissotriton helveticus*) are offered partial protection under section 9(5). Great crested newt (*Triturus cristatus*) and Natterjack toad (*Epidalea calamita*) are offered partial protection under section 9(4)(b) and (c) and (5). Pool frog (*Pelophylax lessonae*) is offered partial protection under section 9(4)(b) and (c)(1) only and with respect to England only.
[33] Great crested newt, Natterjack toad and Pool frog are the only amphibians to be designated European Protected Species.
[34] Great crested newt is the only amphibian listed on Annex II of the Habitats Directive.
[35] Great crested newt, Natterjack toad and Common toad are listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and under Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.

Species	Legislation, Planning Policy and UK Biodiversity Framework							
White-clawed Crayfish		✓[36](partial)			✓[37]	✓		✓
Invertebrates		✓[38](full/part)		✓	✓[39,40]	✓[41]		✓[42]
Fish		✓[43](full/part)		✓[9]	✓[44,45]	✓[46]		✓[47]
Plants			✓[48]	✓[9]	✓[49,50]	✓[51]		✓[52]

[36] Under the Wildlife and Countryside Act it is illegal to take or sell white clawed crayfish under the WCA. A licence is required to survey (hand net or trap) for the species. To undertake work within WCC inhabited rivers a Class Licence maybe issued by the relevant authority to move WCC away from harm prior to works. Although WCC are not protected from killing or injury Natural England state in their Class licence that due to declining numbers all efforts should be made to conserve the species.
37 White clawed crayfish are listed under Annex II and V of the Habitats Directive.
[38] To view the current list of invertebrates that are protected under this Act either in part or full visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/5 [Accessed 28/02/25].
[39] The Large blue butterfly (*Maculinea arion*), Fisher's estuarine moth (*Gortyna borelii lunata*) and Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) are the only invertebrates to be designated European Protected Species.
[40] There are currently twelve invertebrates listed in Annex II of the Habitats Directive; White-clawed crayfish (*Austropotamobius pallipes*), Southern damselfly (*Coenagrion mercuriale*), Marsh fritillary butterfly (*Euphydryas aurinia*), Violet click beetle (*Limoniscus violaceus*), Stag beetle (*Lucanus cervus*), Freshwater pearl mussel (*Margaritifera margaritifera*), Narrow-mouthed whorl snail (*Vertigo angustior*), Round-mouthed whorl snail (*Vertigo genesii*), Geyer's whorl snail (*Vertigo geyeri*), Desmoulin's whorl snail (*Vertigo moulinsiana*), Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) and Fisher's estuarine moth (*Gortyna borelii lunata*).
[41] There are currently 379 invertebrate species (not including marine species) listed as Species of Principal Importance in England http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0ahUKEwivvu7J9trSAhXiCsAKHX4TBGcQFggvMAM&url=http%3A%2F%2Fpublications.naturalengland.org.uk%2Ffile%2F6518755878240256&usg=AFQjCNEpiUWYuOqhVcfSDvi_3iK2TJytfQ and 188 species in Wales http://www.eryri-npa.gov.uk/__data/assets/pdf_file/0003/486156/SpeciesList.pdf listed under Section 41 of the NERC Act 2006 and listed under Section 7 of the of the Environment (Wales) Act 2016. [Accessed 28/02/25].
[42] To view the current list of UK BAP priority invertebrates visit: http://jncc.defra.gov.uk/page-5169 [Accessed 28/02/25].
[43] To view the current list of fish either part or fully protected under the Act visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/5 [Accessed 28/02/25].
[44] Sturgeon (*Acipenser sturio*) is the only fish to be designated a European Protected Species.
[45] There are eight fish species listed on Annex II of the Habitats Directive. To view the current list visit: http://jncc.defra.gov.uk/page-1523 [Accessed 28/02/25].
[46] There are 35 species of fish listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 10 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.
[47] To view the current list of UK BAP priority fish visit: http://jncc.defra.gov.uk/page-5164 [Accessed 28/02/25].
[48] To view the current list of Schedule 8 listed plants visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/8 [Accessed 28/02/25].
[49] There are nine plant species designated as European Protected Species. To view the current list visit: http://www.legislation.gov.uk/uksi/2010/490/schedule/5/made [Accessed 28/02/25].
[50] To view the current list of plant species on Annex II of the Habitats Directive visit: http://jncc.defra.gov.uk/page-1523 [Accessed 28/02/25].
[51] There are currently 152 vascular plants listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 77 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.[31] To view the current list of UK BAP priority plants visit: http://jncc.defra.gov.uk/page-5171 and http://jncc.defra.gov.uk/page-5168 [Accessed 28/02/25].
[52] To view the current list of UK BAP priority plants visit: http://jncc.defra.gov.uk/page-5171 and http://jncc.defra.gov.uk/page-5168 [Accessed 28/02/25].

Annex B – Summary of Ecological Desk Study

Table B1: Protected and/or notable species for which records have been identified within 3 km of the Site

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Bats (Chiroptera)				
Bat (unknown)	Chiroptera	1	847 m	EPS, WCA 5
Common pipistrelle	*Pipistrellus pipistrellus*	8	918 m	EPS, HDir, WCA5, S7, Bern, RDB2(UK)
Grey squirrel	*Sciurus carolinensis*	16	670 m	WCA9, INNS
Hazel dormouse	*Muscardinus avellanarius*	3	782 m	EPS, HDir, WCA5, S7, Bern, RDB2(UK)
Hedgehog	*Erinaceus europaeus*	17	483 m	S7, Bern
Nathusius Pipistrelle	*Pipistrellus nathusii*	2	789 m	EPS, HDir, WCA5, S7, Bern, RDB2(UK)
Otter	*Lutra lutra*	1	1124 m	EPS, HDir, WCA5, S7, Bern, CITES, RDB2(UK
Pipistrelle bat species (unknown)	*Pipistrellus spp.*	1	827 m	EPS, WCA5
Soprano pipistrelle	*Pipistrellus pygmaeus*	3	789 m	EPS, HDir, WCA5, S7, Bern, RDB2(UK)
Water vole	*Arvicola amphibius*	21	695 m	WCA5, S7
Reptiles				
Slow-worm	*Anguis fragilis*	14	530 m	WCA5, S7, Bern
Pond Terrapin	*Trachemys scripta*	1	800 m	INNS
Amphibians				
Common frog	*Rana temporaria*	15	248 m	HDir, WCA5, Bern
Common toad	*Bufo bufo*	17	287 m	WCA5, S7, Bern
Great crested Newt	*Triturus cristatus*	3	1374 m	EPS, HDir, WCA5, S7, Bern, RDB2(UK)
Palmate newt	*Lissotriton helveticus*	2	670 m	WCA5, Bern
Smooth newt	*Lissotriton vulgaris*	1	1263 m	WCA5, Bern, LI(BIS)
Birds				
Balearic shearwater	*Puffinus mauretanicus*	1	585 m	S7, RDB1(UK) - CR, WBR(RSPB), UKBR(RSPB)
Bar-headed goose	*Anser indicus*	1	1263 m	WCA9, INNS

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Barn owl	*Tyto alba*	2	1144 m	WCA1, WCA9, Bern, CITES, LI(VC43)
Barnacle goose	*Branta leucopsis*	1	1784 m	BDir1, WCA9, Bern, UKBAm(RSPB), INNS
Bar-tailed godwit	*Limosa lapponica*	8	624 m	BDir1, BDir22, S7, WBR(RSPB), UKBAm(RSPB)
Bittern	*Botaurus stellaris*	4	1011 m	BDir1, WCA1, S7, Bern, WBAm(RSPB), UKBAm(RSPB),
Black redstart	*Phoenicurus ochruros*	6	624 m	WCA1, S7, Bern, WBAm(RSPB), UKBR(RSPB)
Black swan	*Cygnus atratus*	1	1144 m	WCA9, INNS
Black-headed Gull	*Chroicocephalus ridibundus*	41	382 m	BDir22, S7, WBR(RSPB), UKBAm(RSPB)
Bullfinch	*Pyrrhula pyrrhula*	31	375 m	S7, WBR(RSPB), UKBAm(RSPB)
Canada goose	*Branta canadensis*	25	452 m	BDir21, WCA9, INNS
Cetti^s warbler	*Cettia cetti*	16	452 m	WCA1
Common scoter	*Melanitta nigra*	10	624 m	BDir22, WCA1, S7, WBAm(RSPB), UKBR(RSPB)
Cuckoo	*Cuculus canorus*	10	624 m	S7, WBR(RSPB), UKBR(RSPB)
Curlew	*Numenius arquata*	31	557 m	BDir22, S7, WBR(RSPB), UKBR(RSPB)
Dark-bellied brent Goose	*Branta bernicla bernicla*	1	1784 m	S7, WBAm(RSPB)
Dartford warbler	*Curruca undata*	1	877 m	BDir1, WCA1, S7, WBAm(RSPB), UKBAm(RSPB)
Dunnock	*Prunella modularis*	34	382 m	S7, Bern, UKBAm(RSPB)
Fulmar	*Fulmarus glacialis*	13	624 m	S7, Bern, WBAm(RSPB), UKBAm(RSPB)
Golden plover	*Pluvialis apricaria*	4	624 m	BDir1, BDir22, S7, WBR(RSPB), LI(VC43)
Goshawk	*Accipiter gentilis*	5	624 m	WCA1, WCA9, S7, CITES
Grasshopper warbler	*Locustella naevia*	7	624 m	S7, WBR(RSPB), UKBR(RSPB)
Green sandpiper	*Tringa ochropus*	5	624 m	WCA1, S7, Bern, WBAm(RSPB), UKBAm(RSPB)
Hawfinch	*Coccothraustes coccothraustes*	20	624 m	S7, Bern, WBAm(RSPB), UKBR(RSPB)
Hen harrier	*Circus cyaneus*	2	624 m	BDir1, WCA1, S7, CITES, WBR(RSPB), LI(VC43)

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Herring gull	*Larus argentatus*	41	248 m	BDir22, S7, WBR(RSPB), UKBR(RSPB)
Hobby	*Falco subbuteo*	12	382 m	WCA1, Bern, CITES, LI(VC43)
House martin	*Delichon urbicum*	23	248 m	S7, Bern, UKBAm(RSPB)
House sparrow	*Passer domesticus*	24	346 m	S7, WBAm(RSPB), UKBR(RSPB)
Kestrel	*Falco tinnunculus*	43	151 m	S7, Bern, CITES, WBR(RSPB), UKBAm(RSPB), LI(VC43)
Lapwing	*Vanellus vanellus*	9	448 m	BDir22, S7, WBR(RSPB), UKBR(RSPB), LI(VC43)
Lesser redpoll	*Acanthis cabaret*	9	382 m	S7, WBAm(RSPB), UKBR(RSPB)
Linnet	*Linaria cannabina*	36	79 m	S7, Bern, WBR(RSPB), UKBR(RSPB)
Marsh tit	*Poecile palustris*	27	452 m	S7, Bern, WBR(RSPB), UKBR(RSPB)
Night-heron	*Nycticorax nycticorax*	5	452 m	BDir1, WCA9, Bern, INNS
Peregrine	*Falco peregrinus*	23	246 m	BDir1, WCA1, Bern, CITES, LI(VC43)
Pied flycatcher	*Ficedula hypoleuca*	9	624 m	S7, WBR(RSPB), UKBR(RSPB)
Red klite	*Milvus milvus*	12	351 m	BDir1, WCA1, WCA9, CITES, WBAm(RSPB)
Red-crested Pochard	*Netta rufina*	4	875 m	BDir22, WCA9, INNS
Reed bunting	*Emberiza schoeniclus*	48	452 m	Bern, WBAm(RSPB), UKBAm(RSPB)
Ring quzel	*Turdus torquatus*	9	351 m	S7, Bern, WBR(RSPB), UKBR(RSPB), LI(VC43)
Ringed plover	*Charadrius hiaticula*	5	758 m	S7, Bern, WBR(RSPB), UKBR(RSPB)
Ring-necked Parakeet	*Psittacula krameri*	2	624 m	WCA9, CITES, INNS
Roseate Tern	*Sterna dougallii*	2	758 m	BDir1, WCA1, S7, Bern, WBR(RSPB), UKBR(RSPB)
Ruddy Duck	*Oxyura jamaicensis*	2	1144 m	WCA9, INNS
Sand Martin	*Riparia riparia*	20	351 m	Bern, WBAm(RSPB)
Shelduck	*Tadorna tadorna*	24	476 m	S7, Bern, WBAm(RSPB), UKBAm(RSPB)
Skylark	*Alauda arvensis*	25	382 m	BDir22, S7, WBAm(RSPB), UKBR(RSPB)
Song thrush	*Turdus philomelos*	31	245 m	BDir22, Bern, WBAm(RSPB), UKBR(RSPB)

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Spotted flycatcher	*Muscicapa striata*	61	227 m	S7, Bern, WBR(RSPB), UKBR(RSPB)
Starling	*Sturnus vulgaris*	27	429 m	BDir22, S7, Bern, WBR(RSPB), UKBR(RSPB)
Swallow	*Hirundo rustica*	32	287 m	Bern, WBAm(RSPB)
Swift	*Apus apus*	21	429 m	S7, WBAm(RSPB), UKBAm(RSPB)
Tree pipit	*Anthus trivialis*	24	624 m	S7, Bern, WBAm(RSPB), UKBR(RSPB)
Tufted duck	*Aythya fuligula*	21	452 m	BDir21, WBAm(RSPB)
Turtle dove	*Streptopelia turtur*	1	624 m	BDir22, S7, CITES, WBR(RSPB), UKBR(RSPB)
Willow tit	*Poecile montanus*	1	624 m	S7, Bern, WBR(RSPB), UKBR(RSPB), LI(VC43)
Wood warbler	*Phylloscopus sibilatrix*	1	1263 m	S7, WBR(RSPB), UKBR(RSPB)
Woodlark	*Lullula arborea*	7	287 m	BDir1, WCA1, S7
Yellow wagtail	*Motacilla flava*	15	624 m	S7, Bern, WBR(RSPB), UKBR(RSPB), LI(VC43)
Yellowhammer	*Emberiza citrinella*	1	624 m	S7, Bern, WBR(RSPB), UKBR(RSPB)
Invertebrates				
Banded demoiselle	*Calopteryx splendens*	1	1263 m	LI(BIS), LI(SEWBReC)
Beautiful demoiselle	*Calopteryx virgo*	10	738 m	LI(BIS), LI(SEWBReC)
Black darter	*Sympetrum danae*	1	1707 m	LI(BIS), LI(SEWBReC)
Black-tailed skimmer	*Orthetrum cancellatum*	52	533 m	LI(BIS), LI(SEWBReC)
Brown-banded carder bee	*Bombus humilis*	6	58 m	S7
Dark green fritillary	*Speyeria aglaja*	4	287 m	LI(SEWBReC), LI(VC43)
Dark-barred Twin-spot carpet	*Xanthorhoe ferrugata*	1	287 m	S7
Dingy skipper	*Erynnis tages*	58	249 m	S7, RDB1(UK) - VU, LI(SEWBReC)
Emerald damselfly	*Lestes sponsa*	1	1374 m	LI(SEWBReC), LI(VC42), LI(VC43), LI(VC47), LI(VC50)
Grayling	*Hipparchia semele*	1	624 m	S7, RDB1(UK) – VU, LI(SEWBReC), LI(VC43)

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Greenweed flat-body moth	*Agonopterix atomella*	17	275 m	S7
Hairy dragonfly	*Brachytron pratense*	4	1242 m	LI(BIS), LI(SEWBReC)
Harlequin ladybird	*Harmonia axyridis*	11	262 m	INNS
Jenkins' spire snail	*Potamopyrgus antipodarum*	2	884 m	INNS
Large wainscot	*Rhizedra lutosa*	2	847 m	S7
Long-winged cone-head	*Conocephalus fuscus*	13	265 m	LI(SEWBReC)
Marbled white	*Melanargia galathea*	2	1327 m	LI(BIS)
Marsh fritillary	*Euphydryas aurinia*	18	58 m	HDir, WCA5, S7, Bern, RDB1(UK) – VU, LI(SEWBReC)
Moss carder bee	*Bombus muscorum*	1	624 m	S7
Narrow-bordered bee hawk-moth	*Hemaris tityus*	1	288 m	S7
Pacific oyster	*Magallana gigas*	2	856 m	INNS
Pretty chalk carpet	*Melanthia procellata*	1	624 m	LI(BIS)
Ruddy darter	*Sympetrum sanguineum*	2	258 m	LI(SEWBReC), LI(VC42), LI(VC43), LI(VC47), LI(VC50)
Sallow	*Cirrhia icteritia*	1	624 m	S7
Short-winged cone-head	*Conocephalus dorsalis*	1	491 m	LI(SEWBReC)
Silver-washed fritillary	*Argynnis paphia*	3	624 m	LI(SEWBReC), LI(VC43)
Small blue	*Cupido minimus*	1	1124 m	WCA5, S7, RDB1(UK) – NT, LI(SEWBReC)
Small Heath	*Coenonympha pamphilus*	1	382 m	S7, RDB1(UK) - NT
Small pearl-bordered fritillary	*Boloria selene*	1	351 m	S7, RDB1(UK) – NT, LI(SEWBReC), LI(VC43)
Speckled bush-cricket	*Leptophyes punctatissima*	11	58 m	LI(SEWBReC)
Western conifer Seed bug	*Leptoglossus occidentalis*	1	1909 m	INNS

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Zebra mussel	*Dreissena polymorpha*	4	793 m	INNS
Tadpole snail	*Physella acuta*	3	762 m	INNS
Plants				
Autumn lady's-tresses	*Spiranthes spiralis*	5	1220 m	RDB1(UK) – NT, LI(SEWBReC), LI(VC47), LI(VC48, LS), LI(VC49, LS), LI(VC50, LR), LI(VC51, LS), LI(VC52, LS)
Bee orchid	*Ophrys apifera*	23	382 m	CITES, LI(SEWBReC), LI(VC47), LI(VC48, LR), LI(VC49, LS)
Bird cherry	*Prunus padus*	1	1204 m	LI(SEWBReC), LI(VC47), LI(VC49, LS)
Black horehound	*Ballota nigra*	1	1621 m	LI(SEWBReC)
Bluebell	*Hyacinthoides non-scripta*	1	1627 m	WCA8
Butcher's-broom	*Ruscus aculeatus*	1	624 m	HDir, S7, RDB1(Wales) - VU, LI(SEWBReC)
Butterfly-bush	*Buddleja davidii*	2	758 m	INNS
Chalk comb-moss	*Ctenidium molluscum*	2	999 m	RDB1(Wales) – DD, LI(WWBIC), LI(VC41, LR), LI(VC44, LR), LI(VC46, LR), LI(VC47, LR), LI(VC48, LR)
Cherry laurel	*Prunus laurocerasus*	1	902 m	INNS
Common rock-rose	*Helianthemum nummularium*	2	1724 m	LI(SEWBReC), LI(VC43), LI(VC47), LI(VC48, LR), LI(VC49, LS)
Common sea-lavender	*Limonium vulgare*	1	1621 m	LI(SEWBReC), LI(VC48, LS), LI(VC49, LR), LI(VC50, LR), LI(VC52, LS)
Dwarf spurge	*Euphorbia exigua*	1	1296 m	S7, RDB1(Wales) - NT, LI(SEWBReC), LI(VC49, LR), LI(VC50, LR), LI(VC51, LS), LI(VC52, LR)
Dwarf thistle	*Cirsium acaule*	2	920 m	LI(SEWBReC), LI(VC47), LI(VC50, LR), LI(VC51, LR)
Greater butterfly-orchid	*Platanthera chlorantha*	1	1567 m	RDB1(UK) – NT, LI(SEWBReC), LI(VC43), LI(VC49, LS), LI(VC50, LS), LI(VC51, LS), LI(VC52, LR)
Greater knapweed	*Centaurea scabiosa*	2	624 m	LI(SEWBReC), LI(VC47), LI(VC48, LR), LI(VC49, LR), LI(VC50, LS)

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Greater periwinkle	*Vinca major*	1	902 m	INNS
Hairy St John's-wort	*Hypericum hirsutum*	4	445 m	LI(SEWBReC), LI(VC48, LR), LI(VC49, LR)
Hairy Violet	*Viola hirta*	4	1263 m	LI(SEWBReC), LI(VC43), LI(VC47), LI(VC49, LS), LI(VC50, LS), LI(VC52, LS)
Harpoon weed	*Asparagopsis armata*	1	843 m	WCA9, INNS
Heath star moss	*Campylopus introflexus*	2	458 m	RDB1(Wales) - NA, INNS
Ivy broomrape	*Orobanche hederae*	3	986 m	LI(SEWBReC), LI(VC48, LR), LI(VC50, LS), LI(VC52, LS)
Japanese knotweed	*Fallopia japonica*	3	772 m	WCA9, INNS
Maidenhair fern	*Adiantum capillus-veneris*	2	1714 m	RDB2 (UK) – S, LI(SEWBReC)
Meadow barley	*Hordeum secalinum*	2	287 m	LI(SEWBReC), LI(VC43), LI(VC49, LS)
Pale flax	*Linum bienne*	6	445 m	LI(SEWBReC), LI(VC49, LR), LI(VC50, LR), LI(VC51, LS), LI(VC52, LS)
Pepper-saxifrage	*Silaum silaus*	4	331 m	LI(SEWBReC), LI(VC47), LI(VC50, LS)
Purple gromwell	*Lithospermum purpureocaeruleum*	1	472 m	S7, RDB1(Wales) - EN, RDB2(UK) – R, LI(VC50, LR)
Pyramidal orchid	*Anacamptis pyramidalis*	8	1250 m	LI(SEWBReC), LI(VC47), LI(VC48, LS)
Rigid hornwort	*Ceratophyllum demersum*	1	1263 m	LI(SEWBReC), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR), LI(VC52, LS)
Service-tree	*Sorbus domestica*	3	557 m	S7, RDB1(Wales) - EN, RDB2(UK) - R
Small leaved elm	*Ulmus minor*	1	624 m	LI(SEWBReC)
Smooth brome	*Bromus racemosus*	1	1065 m	LI(SEWBReC), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR), LI(VC52, LR)
Spanish bluebell	*Hyacinthoides hispanica*	1	1847 m	INNS
Spotted medick	*Medicago arabica*	2	902 m	LI(SEWBReC), LI(VC49, LS), LI(VC50, LR), LI(VC51, LR), LI(VC52, LR)

Species Common Name	Species Latin Name	No. of records	Distance from Site	Legal/Conservation Status
Spurge-laurel	*Daphne laureola*	2	429 m	LI(SEWBReC), LI(VC47), LI(VC49, LS), LI(VC52, LS)
Stinking iris	*Iris foetidissima*	7	429 m	LI(SEWBReC), LI(VC51, LS)
Three-cornered garlic	*Allium triquetrum*	1	350 m	WCA9, INNS
Upright brome	*Bromopsis erecta*	1	1848 m	LI(SEWBReC), LI(VC43), LI(VC47), LI(VC49, LR), LI(VC50, LS), LI(VC51, LS), LI(VC52, LR)
Viper's-bugloss	*Echium vulgare*	1	1913 m	LI(SEWBReC), LI(VC47), LI(VC48, LS), LI(VC49, LS), LI(VC50, LS), LI(VC51, LS), LI(VC52, LS)
Wayfaring-tree	*Viburnum lantana*	2	918 m	LI(SEWBReC), LI(VC51, LS)
White water-lily	*Nymphaea alba*	1	359 m	LI(SEWBReC), LI(VC49, LS)
Wild madder	*Rubia peregrina*	4	351 m	LI(SEWBReC), LI(VC48, LR), LI(VC50, LS), LI(VC51, LR), LI(VC52, LS)
Woolly thistle	*Cirsium eriophorum*	2	456 m	LI(SEWBReC), LI(VC43)
Yellow horned-poppy	*Glaucium flavum*	2	1621 m	LI(SEWBReC), LI(VC48, LS), LI(VC50, LR), LI(VC51, LR), LI(VC52, LS)
Yellow-wort	*Blackstonia perfoliata*	8	902 m	LI(SEWBReC), LI(VC47), LI(VC48, LR), LI(VC49, LS), LI(VC52, LS)

Annex C – Plant Species Recorded

Common Name	Latin Name	DAFOR Scale
Alexanders	*Smyrnium olusatrum*	R
Annual meadow-grass	*Poa annua*	R
An apple species	*Malus* sp.	R
Ash	*Fraxinus excelsior*	F
Barren brome	*Anisantha sterilis*	R
Birch	*Betula sp.*	R
Black bryony	*Dioscorea communis*	R
Bracken	*Pteridium aquilinum*	D
Bramble	*Rubus fruticosus agg.*	D
Bristly oxtongue	*Helminthotheca echioides*	R
Broadleaved dock	*Rumex obtusifolius*	R
Butterfly-bush	*Buddleja davidii*	R
Bush vetch	*Vicia sepium*	R
Butcher's-broom	*Ruscus aculeatus*	R
Charlock	*Sinapis arvensis*	R
Cleavers	*Galium aparine*	R
Cock's-foot	*Dactylus glomerata*	A
Common chickweed	*Stellaria media*	R
Common hogweed	*Heracleum sphondylium*	R
Common Poppy	*Papaver rhoeas*	R
Common sorrel	*Rumex acetosa*	R
Common spotted orchid	*Dactylorhiza maculata*	R
Common vetch	*Vicia sativa*	R
Creeping buttercup	*Ranunculus repens*	O
Creeping cinquefoil	*Potentilla reptans*	R
Creeping thistle	*Cirsium arvense*	R
Curled dock	*Rumex crispus*	O
Cut-leaved Crane's-bill	*Geranium dissectum*	O
Dandelion	*Taraxacum officinaleagg.*	R
Dog rose	*Rosa canina*	R
Dogwood	*Cornus sanguinea*	O
Dove's-foot crane's-bill	*Geranium molle*	O
Downy oat grass	*Avenula pubescens*	R

Common Name	Latin Name	DAFOR Scale
Elder	*Sambucus nigra*	R
False oat-grass	*Arrhenatherum elatius*	R
False-brome	*Brachypodium sylvaticum*	R
Fat hen	*Chenopodium album*	R
Field bindweed	*Convolvulus arvensis*	O
Field Forget-me-not	*Myosotis arvensis*	R
Field maple	*Acer campestre*	R
Fleabane	*Pulicaria dysenterica*	D
Fool's water-cress	*Apium nodiflorum*	F
Glaucous sedge	*Carex flacca*	R
Goat willow	*Salix caprea*	F
Gorse	*Ulex europaeus*	F
Greater Burdock	*Arctium lappa*	R
Greater plantain	*Plantago major*	R
Greater willowherb	*Epilobium hirsutum*	F
Ground-ivy	*Glechoma hederacea*	O
Hard rush	*Juncus inflexus*	F
Hart's-tongue fern	*Asplenium scolopendrium*	O
Hawthorn	*Crataegus monogyna*	A
Hazel	*Corylus avellana*	F
Hairy sedge	*Carex hirta*	R
Hedge bedstraw	*Galium mollugo*	R
Hedge woundwort	*Stachys sylvatica*	R
Hemlock water dropwort	*Oenanthe crocata*	O
Hemp agrimony	*Eupatorium cannabinum*	F
Horse chestnut	*Aesculus hippocastanum*	R
Holly	*Ilex aquifolium*	O
Holm oak	*Quercus ilex*	D
Honeysuckle	*Lonicera periclymenum*	R
Ivy	*Hedera helix*	A
Knapweed	*Centaurea nigra*	R
Lesser celandine	*Ficaria verna*	F
Lesser trefoil	*Trifolium dubium*	R
A Lime species	*Tilia* sp.	R
Lords and ladies	*Arum maculatum*	R
Meadowsweet	*Filipendula ulmaria*	R

Common Name	Latin Name	DAFOR Scale
A mint sp.	*Mentha sp.*	F
Nettle	*Urtica dioica*	R
An oak sp.	*Quercus sp.*	F
Osier	*Salix viminalis*	R
Ox-eye daisy	*Leucanthemum vulgare*	O
Perennial rye-grass	*Lolium perenne*	O
Perforate St. John's wort	*Hypericum perforatum*	R
Ragwort	*Jacobaea vulgaris*	R
Redshank	*Persicaria maculosa*	R
Reed mace	*Typha latifoli*	F
Ribwort plantain	*Plantago lanceolata*	R
Rosebay willowherb	*Chamaenerion angustifolium*	R
Round-leaved fluellen	*Kickxia spuria*	R
Rough meadow-grass	*Poa trivialis*	O
Scarlet pimpernel	*Lysimachia arvensis*	R
Scots pine	*Pinus sylvestris*	O
Self-heal	*Prunella vulgaris*	O
Sheep's fescue	*Festuca ovina*	O
Silverweed	*Argentina anserina*	R
Smooth sow thistle	*Sonchus oleraceus*	**R**
Soft brome	*Bromus hordeaceus*	**O**
Soft rush	*Juncus effusus*	**R**
Spear-leaved orache	*Atriplex prostrata*	**R**
Square stalked willowherb	*Epilobium tetragonum*	R
Common water-starwort	*Callitriche stagnalis*	LA
Stinking iris	*Iris foetidissima*	R
Sycamore	*Acer pseudoplatanus*	F
Tall fescue	*Festuca arundinacea*	LD
Tomothy	*Phleum pratense*	R
Tormentil	*Potentilla erecta*	O
Traveller's joy	*Clematis vitalba*	O
Tufted hair grass	*Deschampsia cespitosa*	O
Tufted vetch	*Vicia cracca*	R
Upright hedge parley	*Torilis japonica*	O
Wall barley	*Hordeum murinum*	LD
Wild madder	*Rubia peregrina*	R

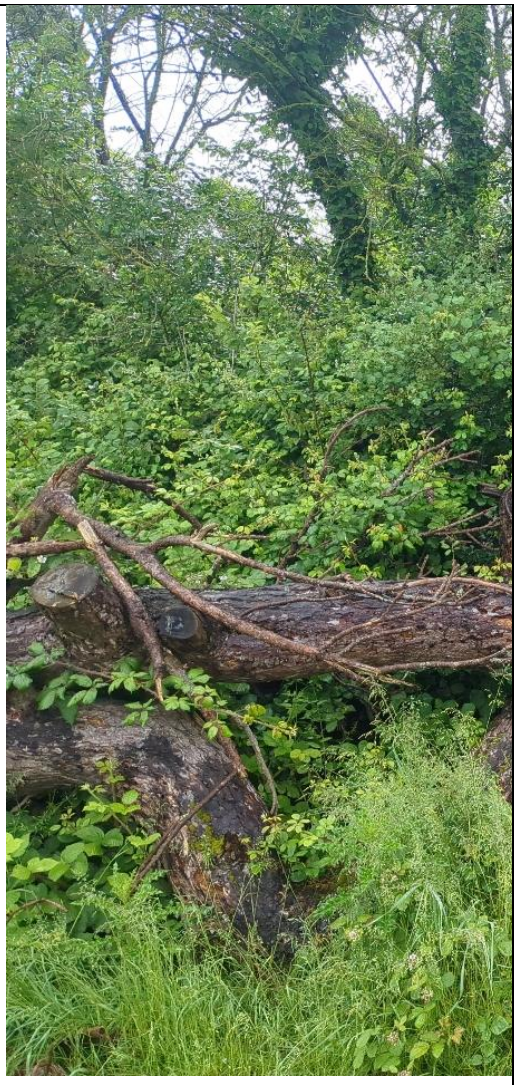
Common Name	Latin Name	DAFOR Scale
Wild parsnip	*Pastinaca sativa*	R
Willow sp.	*Salix sp.*	O
Wood dock	*Rumex sanguineus*	R
White clover	*Trifolium repens*	O
Yarrow	*Achillea millefolium*	R
Yorkshire fog	*Holcus lanatus*	R

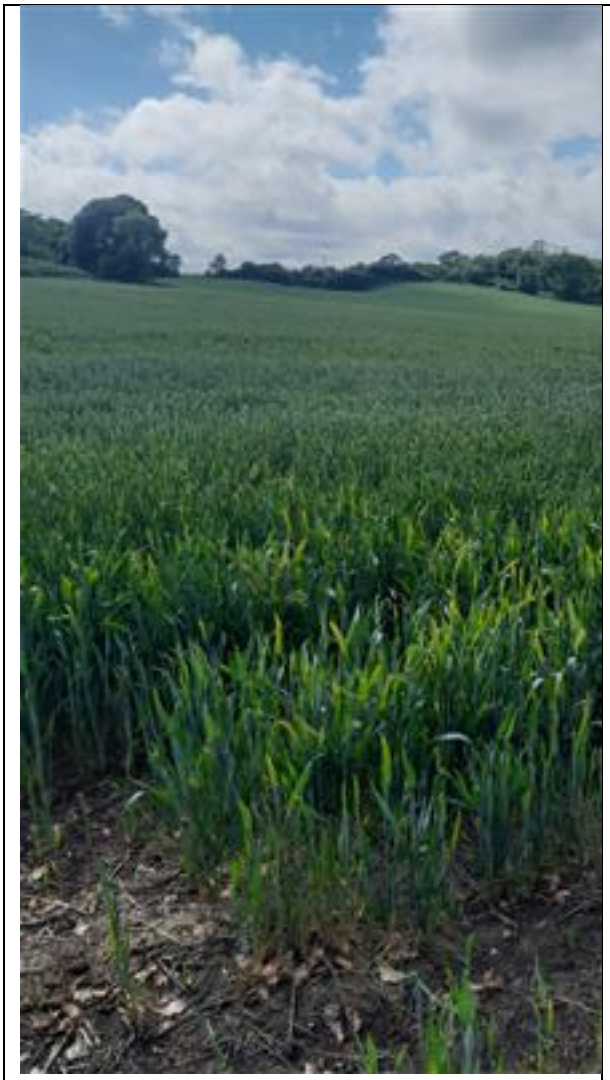
Annex D – Target Notes

Target Note Number	Description
TN1	Standing water habitat identified in 2025, on an arable field boundary adjacent to a road was not present and large dead tree trunk suitable for basking and sheltering reptiles and sheltering amphibians, invertebrates and small mammals.
TN2	A common toad was identified on Site, found beneath a flat stone during the survey.
TN3	Two slow worms were identified on Site, found beneath a large stone slab during the survey.
TN4	A large amount of hay arisings (approximately 4x20x10 m) identified as a suitable grass snake eggs laying site.
TN5	Log pile suitable refugia for hedgehog and other small mammals and hibernacula for reptiles and amphibians.
TN6	Example of patch of ground containing plant species that support invertebrates; greater bird's foot trefoil, a species of plant highlighted for its value to invertebrates.
TN7	Example of patch of ground containing plant species that support invertebrates; lesser trefoil, white clover and bush vetch, species of plant highlighted for their value to invertebrates.
TN8	Example of field margins and hedgerows containing plant species that support invertebrates; contained hawthorne, blackthorne, rose sp, bush vetch, white clover, meadow vetchling
TN9	Example of field margins and hedgerows containing plant species that support invertebrates; contained hawthorn, Blackthorn, white clover, bush vetch, malus sp., rose sp.
TN10	Example of field margins and hedgerows containing plant species that support invertebrates; hawthorne, blackthorn, rose sp, bush vetch, white clover
TN11	Example of field margins and hedgerows containing plant species that support invertebrates; bush vetch, rose, Meadow vetchling, hawthorn, blackthorn
TN12	Example of field margins and hedgerows containing plant species that support invertebrates; blackthorn, hawthorn, rose sp, meadow vetchling
TN13	Example of field margins and hedgerows containing plant species that support invertebrates; blackthorn, hawthorn, rose sp, meadow vetchling; blackthorn, hawthorn, rose sp
TN14	2025 badger print record
TN15	2025, badger print record
TN16	2025, Catti's warbler heard on woodland edge singing.

Annex E – Photographs

	
Arable field in middle of Site, some bare ground among crop stubble.	TN1 - Standing water habitat identified in 2025, on an arable field boundary adjacent to a road was not present and large dead tree trunk suitable for basking and sheltering reptiles and sheltering amphibians, invertebrates and small mammals.

	
Field containing partially dried crop stubble, southwest area of Site.	TN5 - Log pile suitable refugia for hedgehog and other small mammals and hibernacula for reptiles and amphibians.

	
Wheat crop field in middle of Site	Hawthorn dominated hedge along filed boundary in middle of Site

	
Blackthorn dominated hedge along field boundary in northern extent of Site.	Hawthorn dominated hedge along field boundary in northern extent of survey Area.

	
Wheat crop field south area of western portion of Site	TN4 - A large amount of hay arisings (approximately 4x20x10 m) identified as a suitable grass snake eggs laying site.