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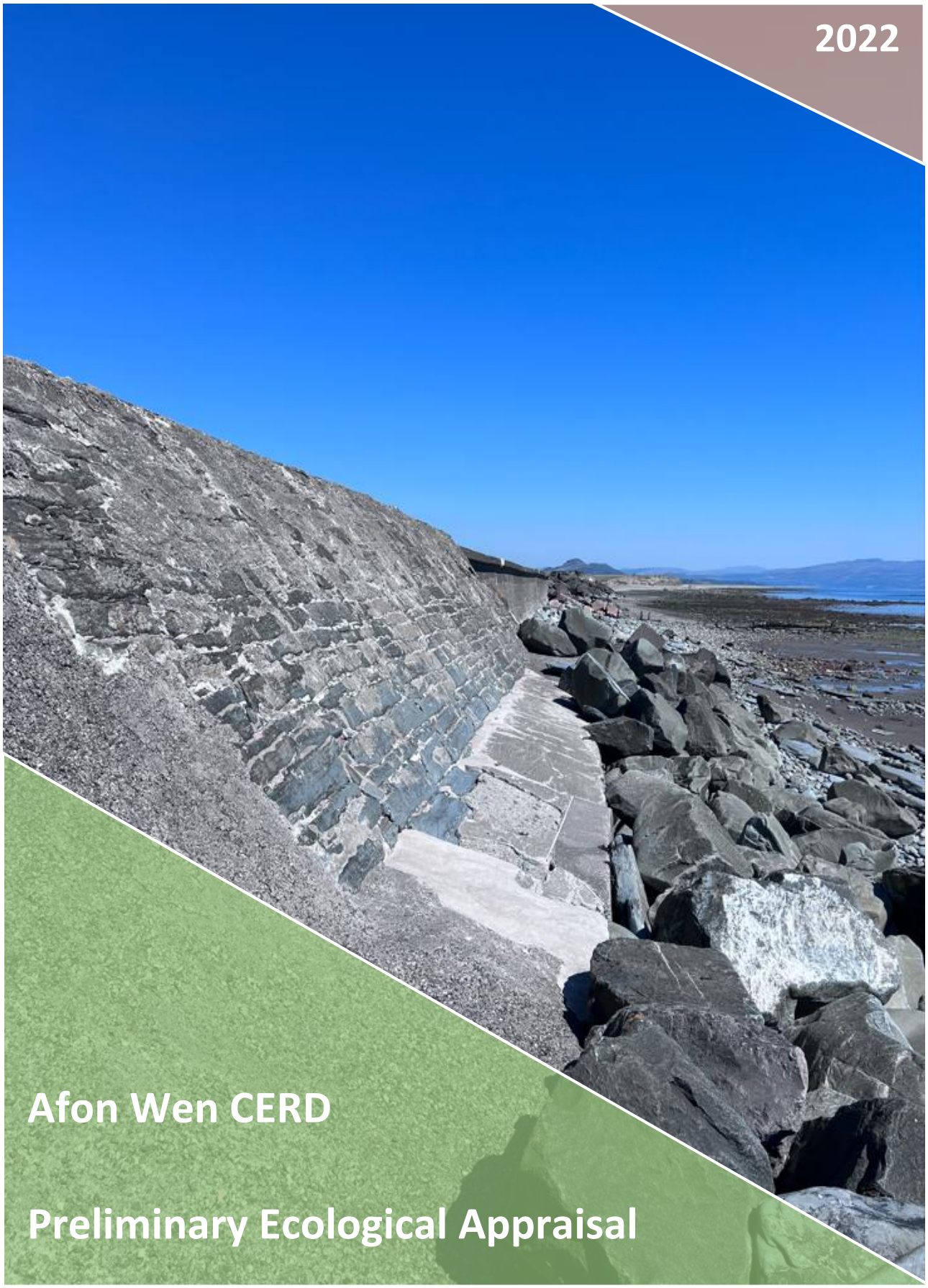

Afon Wen CERD

Preliminary Ecological Appraisal

EcoVigour Integrated Environmental Management

NetworkRail

AMCO·GIFFEN

DOCUMENT INFORMATION			
Project	Afon Wen CERDs		
Location	Address: Afon Wen, A497, Llanystumdwy, Chwilog, Gwynedd, Wales, LL53 6TX Grid Ref: SH 87023 78695 to SH 87638 78724		
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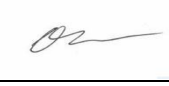
Document prepared by	Owain Waters		8/2022
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Disclaimer

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FIGURES

TABLES

1 TECHNICAL SUMMARY

The summary below is based on the current understanding of the survey remit. Recommendations on future remit are based on best available information on potential future requirements. Further consultation will be required once design recommendations have been made following the technical assessment and survey being undertaken by AMCO Giffen.

Please refer to Section 5 for legislative context and more detailed description of recommendations.

1.1.1

Table 1: Technical Summary Table

1.1.2

Feature or Species	CERD Survey Remit	Future Remits
Habitat	Limited impact likely during survey stage.	Further surveys dependent on design proposal
Designated Sites	Appropriate Assessment (HRA) and S28G Notice required for survey works. Marine License Band to be determined following consultation with NRW Marine Team.	Hold the Line (HTL) Policy valid until 2025. Managed Realignment (MR) recommended following 2025. This may influence long term rail asset management.
Bird Species	Sand Martin colony near eastern rock armour section. Works close to the colony should occur outside peak activity period (April to September). Wader species foraging and roosting will be considered within the project HRA.	Dependant on future works remit. E.g. potential for further surveys or timing restrictions.
Common Amphibian and Reptile	Best practice and toolbox talk measures required.	Dependant on future works remit. E.g. potential for further surveys, such as HSI or population surveys.
Priority Species	Otter and Grey Seal recorded within vicinity of defences. Works phased around low tide conditions during the daytime.	Dependant on future works remit. E.g. potential for further surveys or timing restrictions.
Invasive Species	Toolbox talks and leave identified stands in-situ, as outside the works footprint.	Dependant on future works remit.
Aquatic Species	Generation of underwater noise should be avoided by working during low/receding tide conditions.	Dependant on future works remit.

2 INTRODUCTION

PROJECT BACKGROUND

EcoVigour was instructed by AMCO Giffen Ltd to undertake a Preliminary Ecological Appraisal (PEA) of six Rail Sea Defence Assets as part of the wider Coastal Estuaries River Defences (CERDs) asset appraisal and future design remits. AMCO have been commissioned to assess these six sites and propose future proofing designs to ensure long term resilience of the assets in relation to sea level rise and climate change.

2.1

The second site was Afon Wen. The study is required to inform AMCO Giffen Ltd of the ecological constraints
2.1.1 present, ahead of structure assessment, topographical surveys and sampling (bed and structure coring). This report documents the findings of the PEA and will serve as a supporting document to Appropriate Assessments (e.g., TLSE's or HRA's).

2.1.2 The objectives for the survey were:

- To undertake an ecological assessment of the site;

2.1.3

- To identify ecological features within the site that could pose a constraint to the proposed development;
- To identify opportunities for incorporating biodiversity enhancements into the development proposals;
- To assess the site's potential to support protected species and make recommendations for further survey, where required to clarify potential ecological constraints;
- To make recommendations for any valuable habitats to be considered, through retention or enhancement, or if this is not possible, by habitat mitigation or compensation;
- To identify the presence of any invasive non-native species on site.

2.1.4

The ecological report has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance document 'Guidelines for Preliminary Ecological Appraisal -
2.1.5 Second Edition' (CIEEM, 2017). The objective of the report is to provide a preliminary ecological assessment of the site based on the current design.

An initial ecological overview of the site is provided and potential ecological constraints and impacts of the current proposals are assessed. Recommendations for further surveys are provided where necessary.

SURVEY AREA DESCRIPTION

The survey area concerns the section of sea wall south of Afon Wen along the northern shore of the Tremadoc Bay/Ceredigion Bay, between SH 44439 37153 to SH 45704 37339. Figure 1 below is a copy of the location specification outlined by AMCO Giffen.

2.2 Access was via a small road off the A497 roundabout at Afon Wen village. A footpath runs parallel with the rail corridor from the west allowing access to the lower wall sections at beach level.

2.2.1

2.2.2

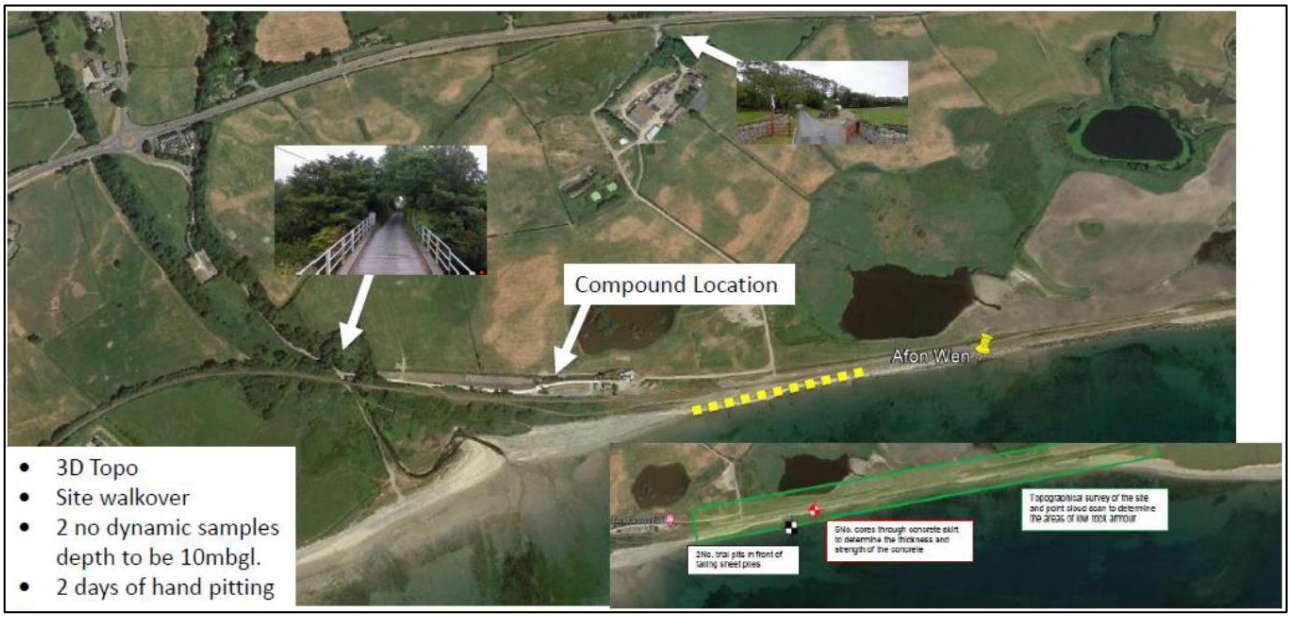

Figure 1: General project layout.

2.3

WORKS REQUIRED

2.3.1 The project is still in the design phase. AMCO Ltd engineers require access for small Ground Investigation (GI) Machine rigs and topographical surveys to confirm the final design. These minor works will broadly involve:

- Vehicle and Personnel access and movement
- GI sampling and structural coring
- Creation of a temporary compound on existing hard standings

3 METHODOLOGY

DESK STUDY

A desk study was conducted to assist with the overall site assessment. Statutory and non- statutory designated sites within 2km of the site boundary were identified. Broad habitat boundaries and types were identified from online aerial imagery.

3.1 2.1.2. The relevance of the reasons for designation of the protected sites within 2km of the site boundary has been considered during subsequent assessment of whether the proposed works will have any impact upon the 3.1.1 biological integrity of such sites.

The desk study also included the following sources:

- Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) website;
- Online aerial imagery resources;
- Ancient Woodland Inventory 2011;
- Natural Resources Wales (NRW);
- Joint Nature Conservation Committee (JNCC) and
- A review of OS mapping for waterbodies within 250-500 metres of the site.
- Cofnod Data Search – Ref: CO/E10321

Note: Records outlined below are not for the public domain and should not be forwarded to unauthorised 3.1.3 third parties. The records below are intended for project purposes only.

3.2 WALKOVER SURVEY

3.2.1 The walkover was conducted by Owain Waters an experienced EcoVigour Ltd environmental consultant supported by the Client representative. The survey was conducted using methods outlined in the Joint Nature Conservation Committee (JNCC)'s 'Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit' (JNCC, 2010). The survey consisted of a visual survey of the site, identifying the broad habitat types 3.2.2 present, identifying the suitability of the site to support protected and priority species.

Incidental observations of protected and/or priority species and the potential for such species to occur on site 3.2.3 (and in the surrounding landscape where relevant) were also noted, however no specific protected/priority species surveys were undertaken as part of this preliminary ecological assessment.

3.3

A search for plant species as included in Schedule 9 of the Wildlife and Countryside Act (1981) as amended, 3.3.1 was made during the survey. Under the Act it is an offence to spread, or cause the spread of, these species.

LIMITATIONS

3.3.2

Third party biological records do not represent a full species list for the area. The absence of records does not necessarily indicate absence of a species or habitat but rather that these have not been recorded or are perhaps under-recorded within the search area. The results of the survey and assessment undertaken by EcoVigour Ltd are representative at the time of survey.

This document does not contain a comprehensive list of botanical species on site with only plant species characteristic of each habitat and any incidental observations of notable plant species recorded. In addition, many plant species are only evident at certain times of the year; therefore, some plant species may have been undetected. No targeted ecological surveys were undertaken as part of this assessment to determine the presence of specific species.

4 RESULTS

DESIGNATED SITES

There is 5 statutory designated sites within 2km of the site boundary, details are provided in Table 1 below and locations in relation to the project in figure 2.

Table 2: Statutory designated sites within 2km.

4.1

Site Name	Designation	Reason for Designation	Distance from Site (km)
Morfa Abererch	Site of Special Scientific Interest (SSSI)	Biological	1.9km
Glanllynnau a Glannau Pen-ychain I Gricieth	Site of Special Scientific Interest (SSSI)	Mixture	0km
Talhenbont	Site of Special Scientific Interest (SSSI)	Biological	1.5km
Northern Cardigan Bay	Special Protection Area (SPA)	Assemblage of Birds and supporting habitat.	1.4km
Pen Llyn a'r Sarnau (PLAS)	Special Area of Conservation (SAC)	Mixture	0km

4.1.1

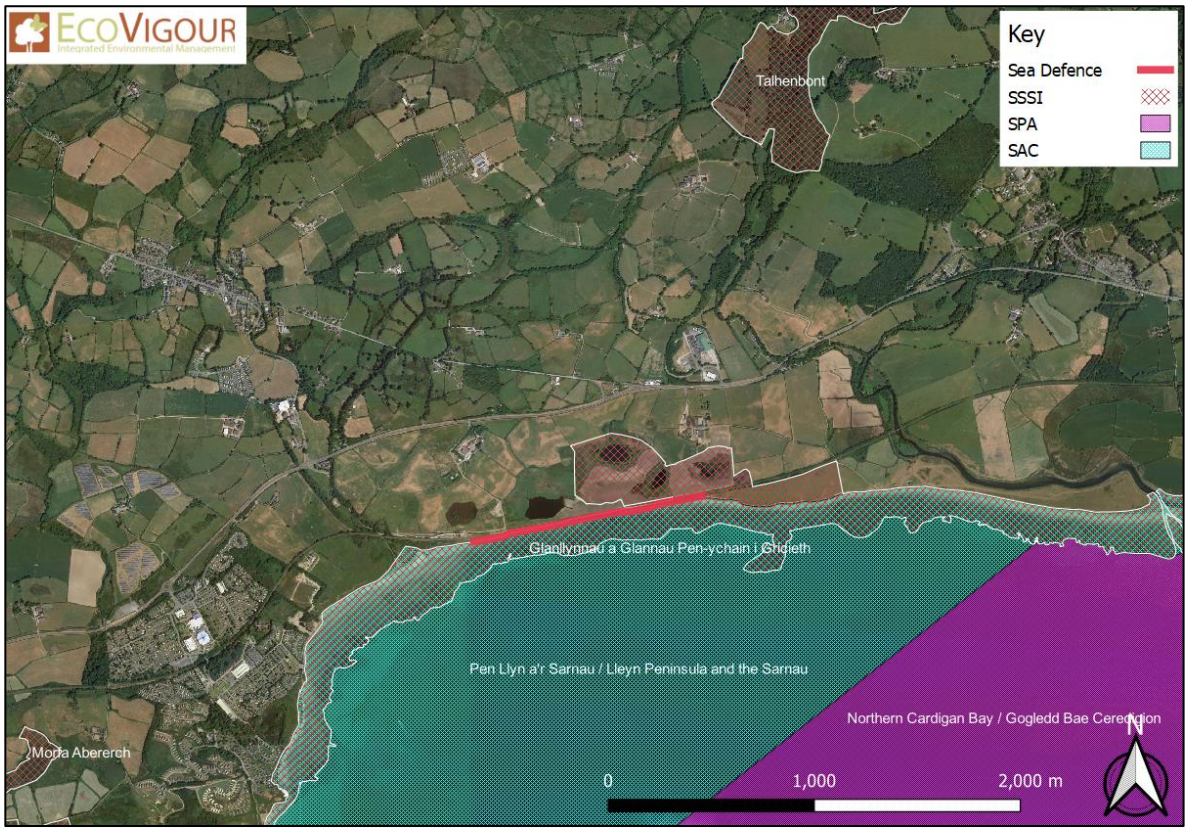

Figure 2: Statutory Designated Sites within 2km

4.1.2

The boundary of the SSSI and SAC follow the sea wall boundary and towards the east, overlap the rail boundary.

There are 28 non-statutory designated sites within 2km of the site boundary.

Table 3: Non-statutory sites within 2km.

Site Name	ID No:	Designation	Reason for Designation	Distance from Site (km)
Talhenbont Wood	1	Wildlife Sites	Mixture	>500m
Bryn Bachau Farm [Candidate]	2	Wildlife Sites	Mixture	>500m
Hidiart Lydan [Candidate]	3	Wildlife Sites	Mixture	>500m
Chwilog Bach	4	Wildlife Sites	Mixture	>500m
Tyn Coed Uchaf	5	Wildlife Sites	Mixture	>500m
Cefn Coed	6	Wildlife Sites	Mixture	>500m
Pen y Bryn [Candidate]	7	Wildlife Sites	Mixture	>500m
Lon Goed [Candidate]	8	Wildlife Sites	Mixture	>500m
Bryntirion	9	Wildlife Sites	Mixture	>500m
Llynnoedd Afonwen	**10**	**Wildlife Sites**	**Mixture**	**< 50m**
Pen-y-bryn	11	Wildlife Sites	Mixture	>500m
By Butlins	12	Wildlife Sites	Mixture	>500m
Pont Llwyn-gwyn	13	Wildlife Sites	Mixture	>500m
Pen-y-bryn [Candidate]	14	Wildlife Sites	Mixture	>500m
Drwsdeugoed	15	Wildlife Sites	Mixture	>500m
Lon Drwsdeugoed [Candidate]	16	Wildlife Sites	Mixture	>500m
Butlins 2 [Candidate]	17	Wildlife Sites	Mixture	>500m
Porth Fechan coastal grassland [Candidate]	18	Wildlife Sites	Mixture	>500m
Butlins 3 [Candidate]	19	Wildlife Sites	Mixture	>500m
Penychain [Candidate]	20	Wildlife Sites	Mixture	>500m
Morfa Abererch [Candidate]	21	Wildlife Sites	Mixture	>500m
Butlins 1	22	Wildlife Sites	Mixture	>500m
Afon Wen	**23**	**Wildlife Sites**	**Mixture**	**< 50m**
Ynysgain Fawr [Candidate]	24	Wildlife Sites	Mixture	< 500m
Glanllynnau ditch banks [Candidate]	25	Wildlife Sites	Mixture	>500m
Glanllynnau floodbanks [Candidate]	26	Wildlife Sites	Mixture	>500m
Glan-y-mor [Candidate]	27	Wildlife Sites	Mixture	>500m
Ty'n-y-morfa [Candidate]	28	Wildlife Sites	Mixture	>500m
Afon Wen	25	Wildlife Sites	Mixture	>500m
Bryn Bachau Farm [Candidate]	26	Wildlife Sites	Mixture	>500m
Bryntirion	27	Wildlife Sites	Mixture	>500m
Butlins 1	28	Wildlife Sites	Mixture	>500m

4.1.3

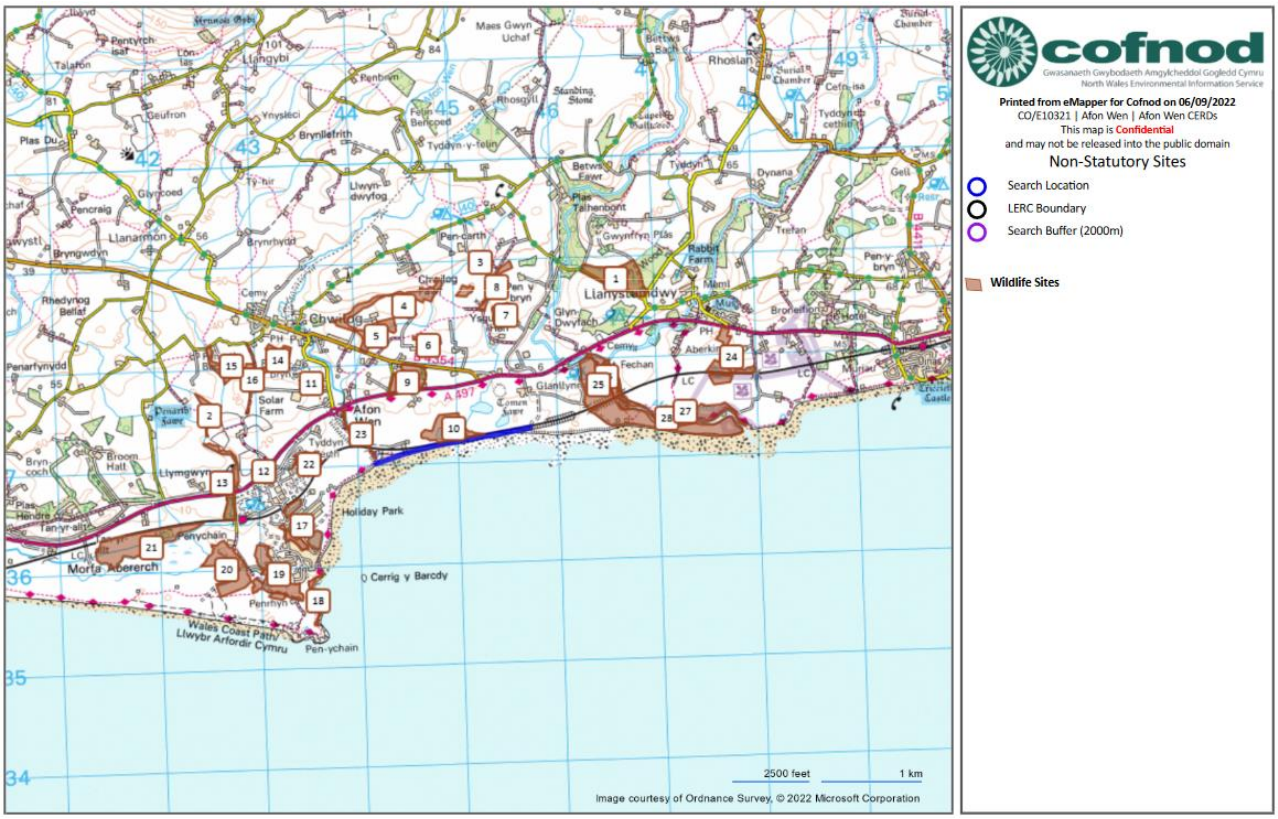

Figure 3: Non-Statutory sites in proximity to Sea Defences.

4.1.4 Site 23 overlaps with the main access road to Afon Wen sea wall, while site 10 is situated directly behind the rail corridor.

4.2

ANCIENT WOODLAND

4.2.1 There are several Ancient Semi Natural Woodland (ASNW) and Restored Ancient Woodland sites within 1km of the project area. None however are within an impact radius of the works and do not require further assessment at this time.

4.3

4.3.1

WATERBODIES

There are 4 large waterbodies within 250-500m and several smaller ponds. 3 of these ponds are within 250m pf the sea wall and project area. A Habitat Suitability Index (HIS) assessments have not been undertaken to date.

The figures below provide a visual summary of the walkover. This is not an extensive collection of the images collected from the survey. Additional images are available upon request.

4.4

4.4.1

Figure 4:View of lower defence area of Afon Wen.

Figure 5: Shingle beach habitat during low tide.

Figure 6: New rock armour towards the most easterly section of the defence.

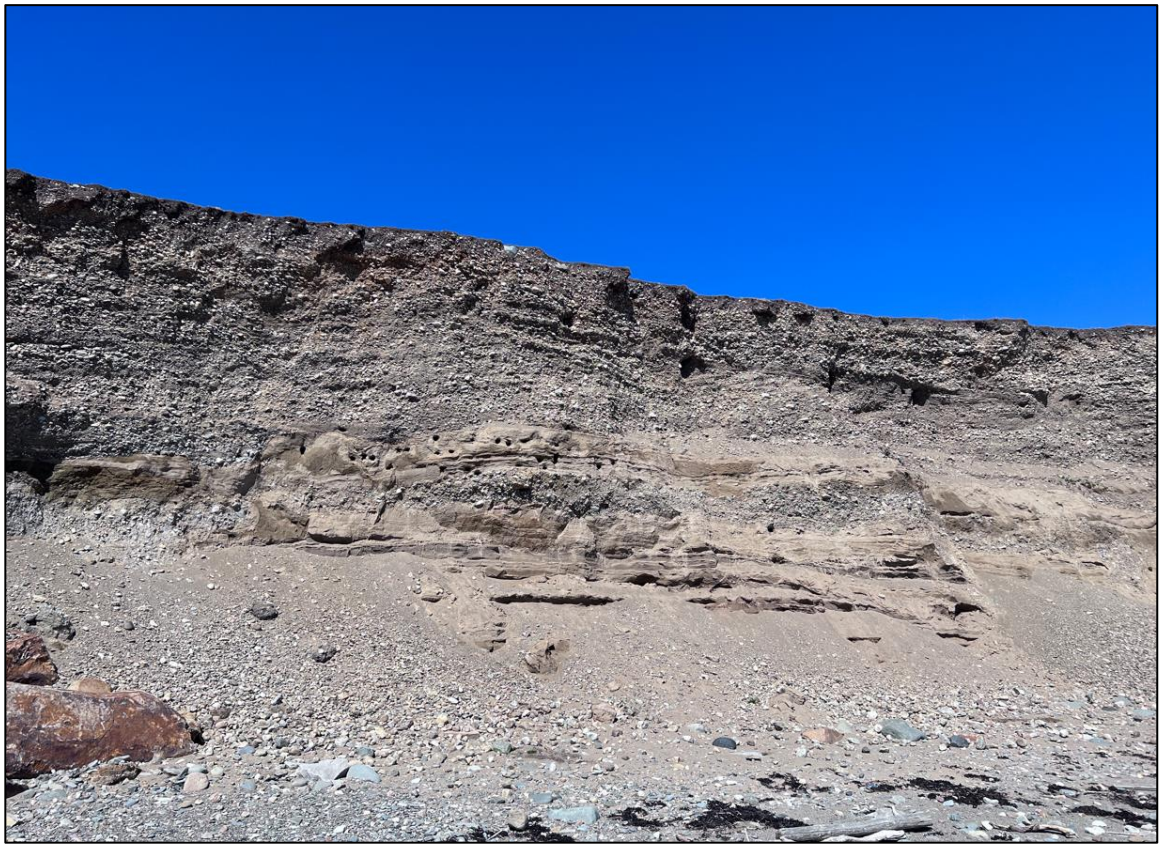

Figure 7: Sand Martin colony further east of new rock armour.

Figure 8: Habitat behind sea wall within rail corridor.

Figure 9: Additional sheet pile protected defence toe.

Habitat: A full updated Phase I survey of the entire survey area has not been undertaken to date, the data set below (Figure 10) is based on available mapping from Cofnod dataset and should be used as a rudimentary representation of the habitat present.

4.5 Habitat below the sea wall is predominantly, intertidal sand, shingle/mud habitat. Groins were observed along the sea wall however successful accumulation of sand appears limited.

4.5.1 A narrow broadleaf woodland is situated along the boundary of the Afon Wen access road to the nearby caravan park and beach access. The Afon Wen river flows parallel with the road crossing below the rail corridor to the west of the sea defences. Significant stands of Japanese Knotweed are present along the edges of the riparian corridor.

The sea wall itself may yield locally a regionally scarce plant species which are known to establish on sea defences.

Figure 10: Vegetation establishment on sea defence.

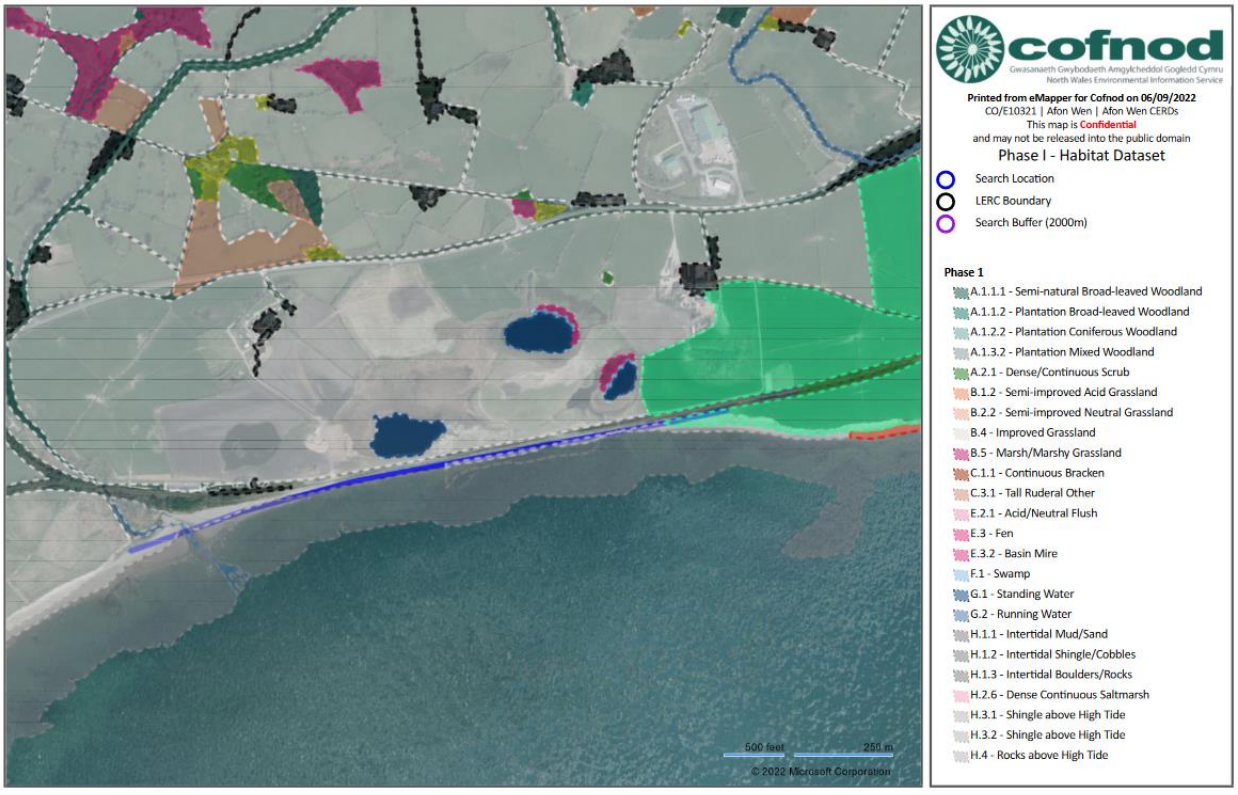

Figure 11: Phase I Habitat Data (Cofnod 2022)

Bird Species - The survey was undertaken during the latter portion of the traditional bird breeding season (March – August inclusive). Habitat is optimum i.e. surrounding vegetation, sources of fresh water, large areas of static water and areas for roosting.

4.5.2 Approx. 10-50m further east of the new rock armour noted in figure 6 is a colony of Sand Martins, nesting within the exposed cliff outcrop (see figures 7, 12 & 13).

4.5.3 Within the data search, numerous bird records within 2km. In closer proximity to the sea wall, species such as Ringed Plover, Black-headed Gull, Herring Gull, Curlew, Whimbrel, Herring Gull, Skylark, Cuckoo and Skylark. An exhaustive list is provided within the Appendix.

Figure 12: Sand Martin (RSPB.org)

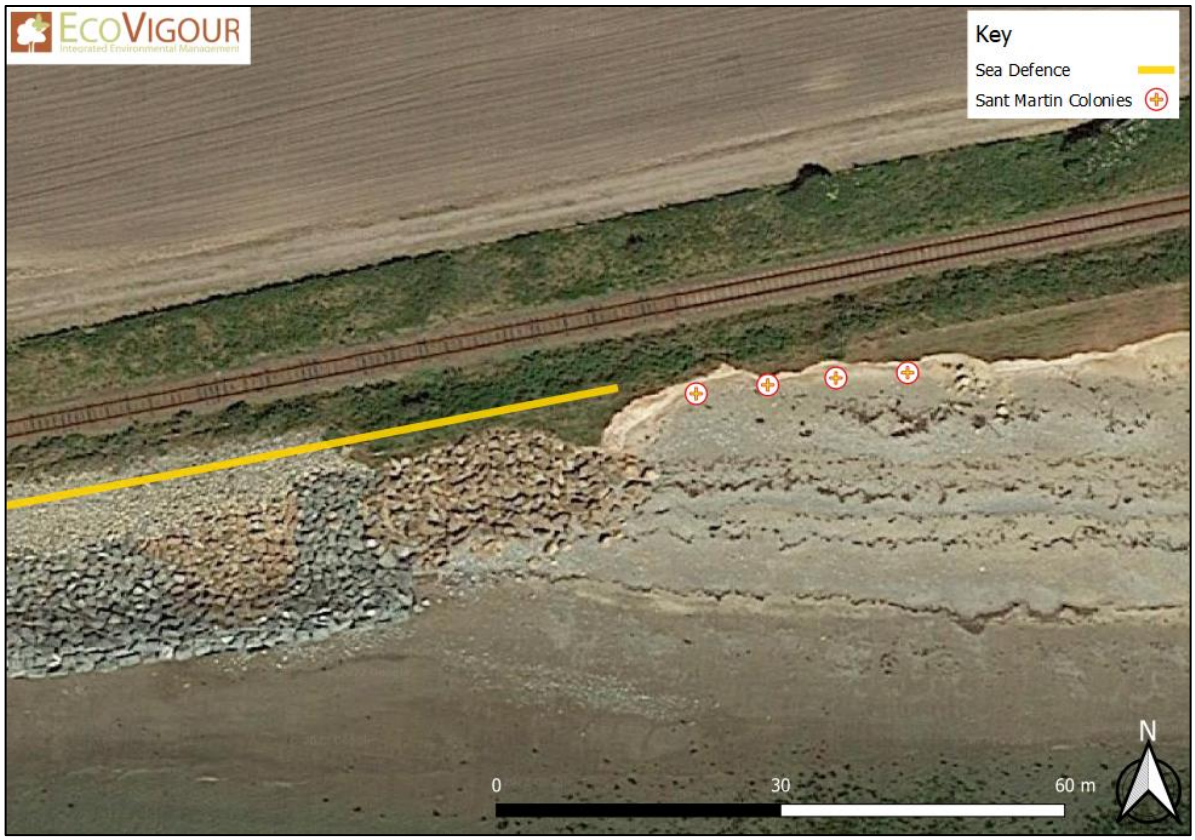

Figure 13: Location of Sand Martin colonies.

Bat Species - No definitive features pertaining to the presence of bats were identified within the surveyed areas.

4.5.4 Records predominantly originated from the residential areas or the holiday resort to the west. There are no records from the sea wall area of within 250m of either edge of the survey area. However, this lack of records is likely symptomatic of a lack of people inclined to record observations, rather than a lack of occurrence.

4.5.5

The woodland corridor along the road to the site and Afon Wen watercourse likely supports a local bat population.

As with similar, sea defences, viable bat roosting potential is considered unlikely, given any defects within the structure are predominantly caused by tidal impacts.

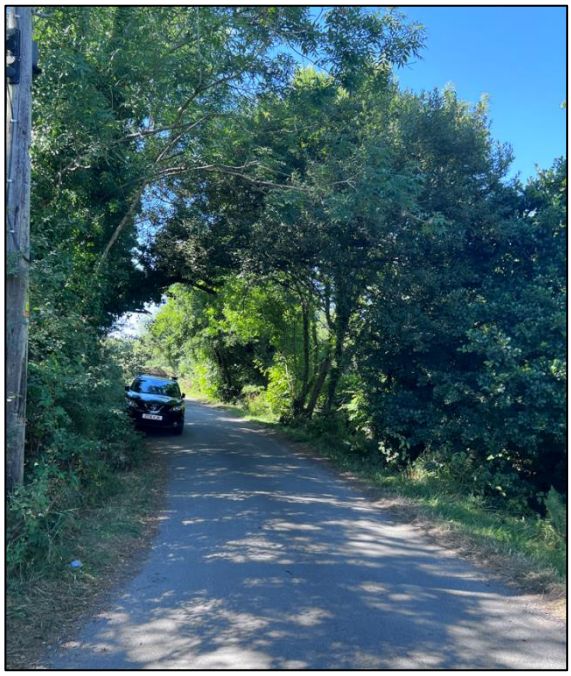

Figure 14: Habitat along road access.

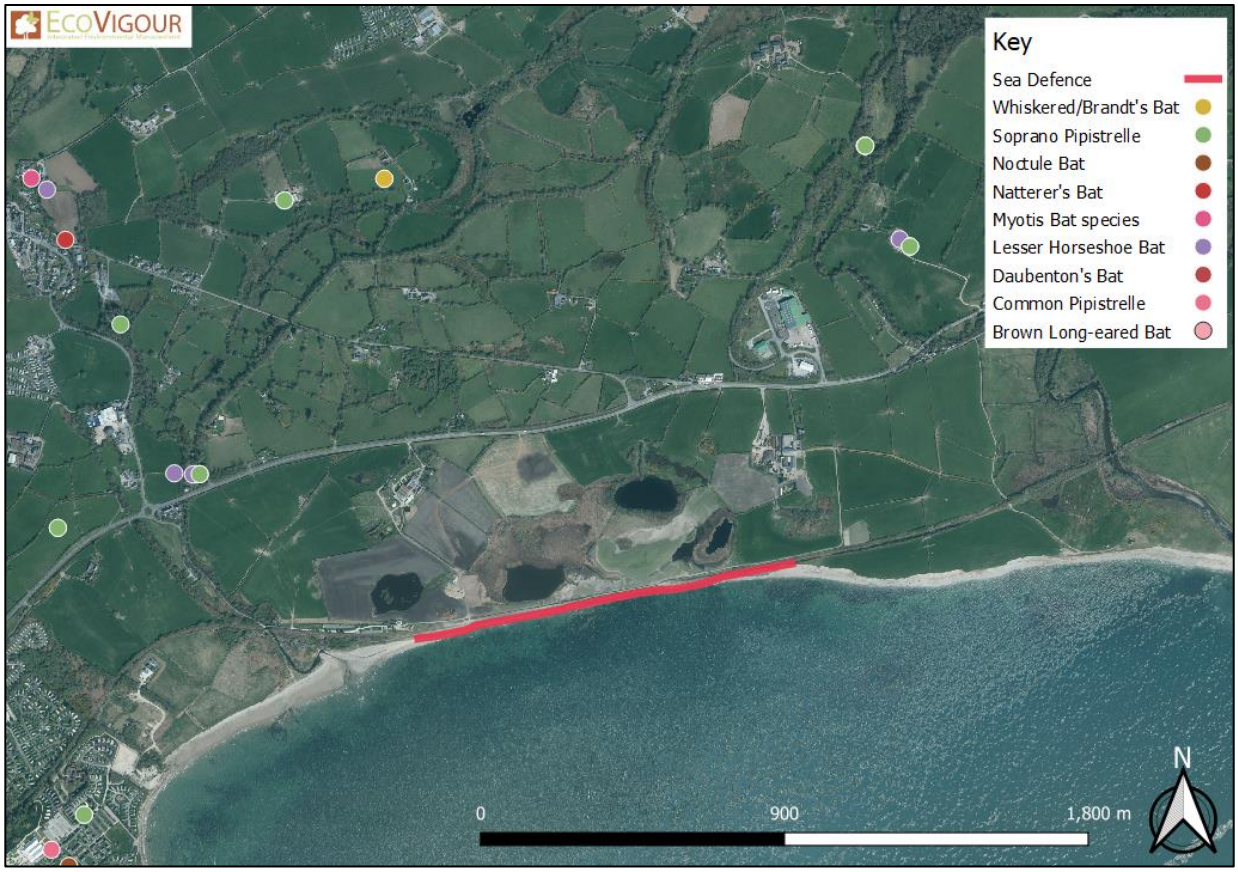

Figure 15: Bat Record Locations in relation to structure.

Common Mammal Species – Species records within Cofnod data set in this region include: Polecat, Hedgehog, hare and Badger. Badger have been recorded in numerous areas, many unfortunately as road collisions along the A497, however this does indicate a mobile population and it is likely badger are in the general vicinity of the rail corridor.

Priority Mammal Species – In terms of priority species, Otter and Grey Seal have been recorded. Note the location data of the Grey Sea from the data is erroneous. However, a Grey Seal was observed during the survey within 100m of the wall (not the target location in the figure below).

4.5.6

Otter have been recorded within the Afon Wen watercourse to the west of the site and the Afon Dwyfor to the east. A species specific survey has not been undertaken in relation to Otters, however it should be assumed that Otter forage in the bay during ideal conditions.

4.5.7

4.5.8

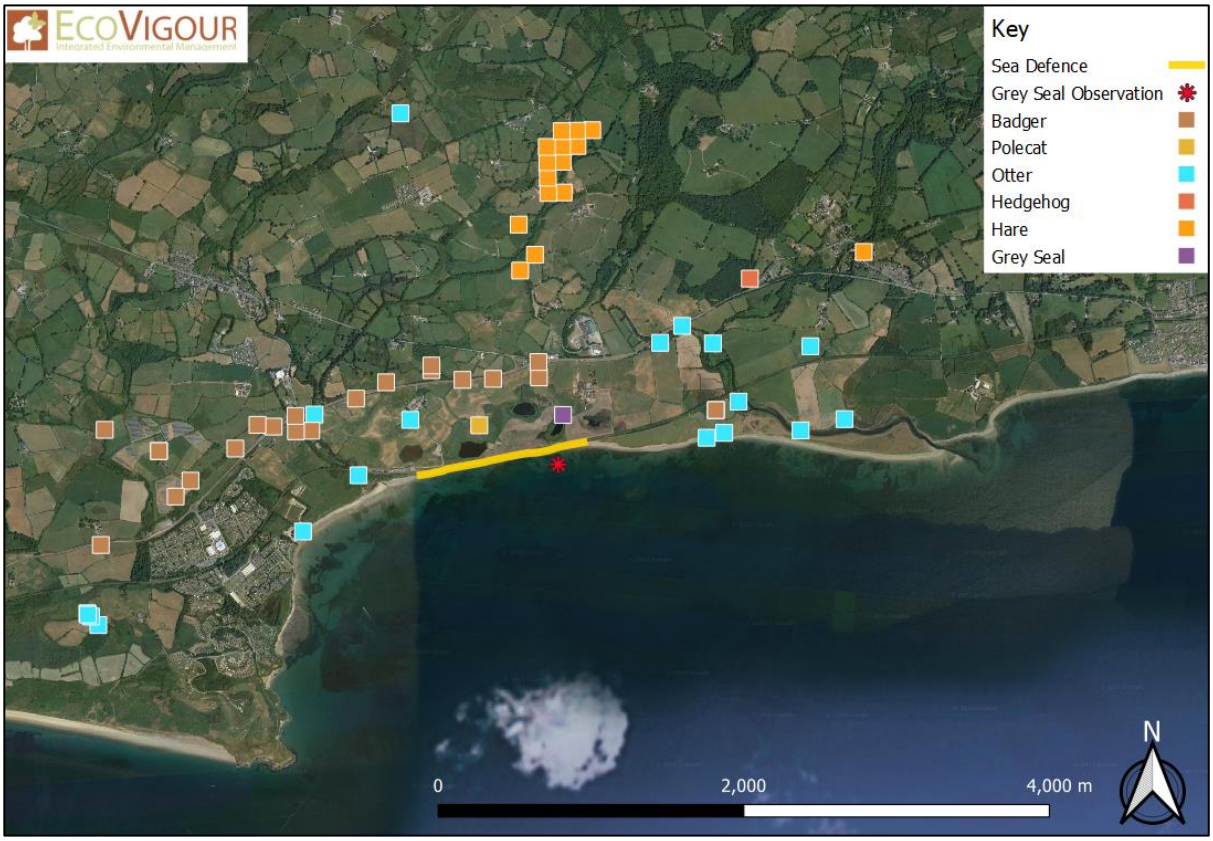

Figure 16: Priority species including Badger, in relation to project.

Common Amphibian and Reptile Species – Common amphibian and reptiles records appear in relative diversity within the dataset. No records of GCN have been identified within the search, nor more common newt species (palmate and smooth). It is possible there is habitat in the wider area suitable enough to support a viable newt population. However, the habitat within the rail corridor itself and in front of the wall is not of high suitability for newts and common amphibians.

4.5.9 The rail corridor habitat is suitable for reptile habitation (see figure 8) and the south facing hard engineering provides an abundance of basking opportunities. Slow worm have been recorded within 250m of the most westerly section of the sea defence along the access path.

The large ponds to the north of the project have not been assessed to date.

Figure 17: Common Amphibian and Reptile species in proximity to works.

Invasive non-native plant species – Invasive Non Native Species (INNS) Japanese Knotweed have been identified to date within the survey area adjacent to the access routes along the bank of the Afon Wen river (see figures 18 and 19 below).

4.5.10

Figure 18: Japanese Knotweed stands.

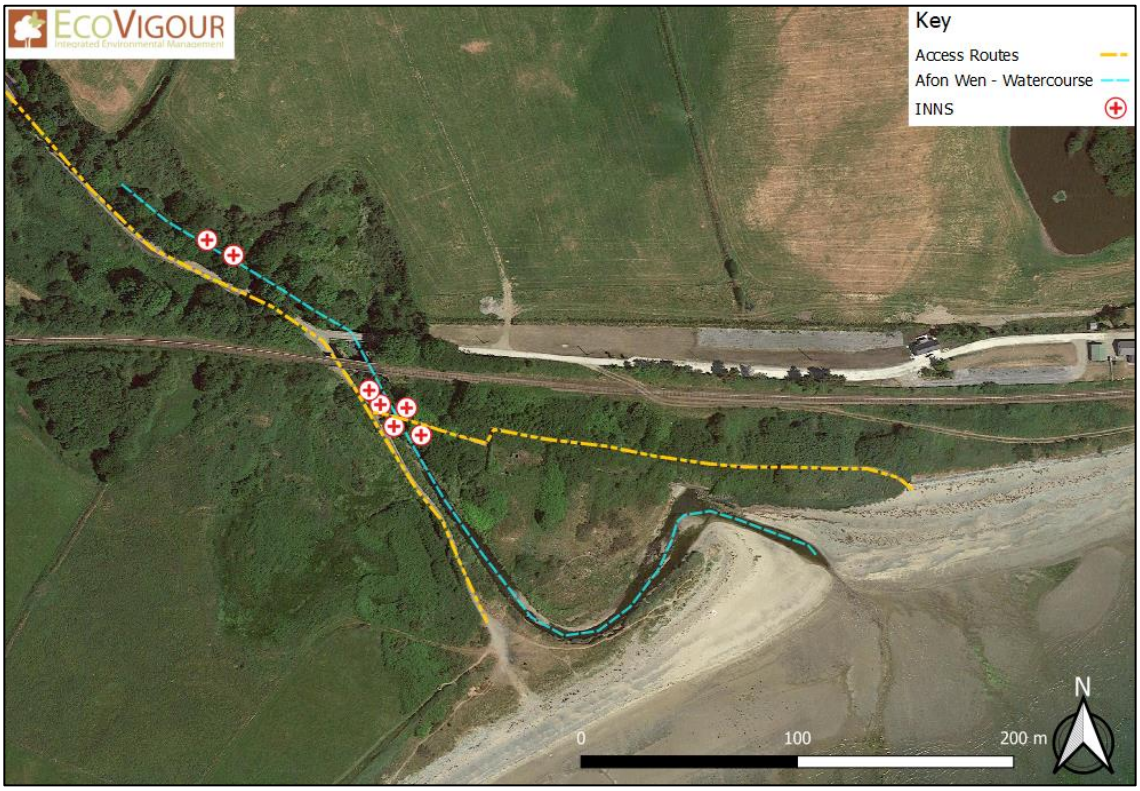

Figure 19: Location of INNS - Japanese Knotweed stands.

Aquatic Species – Within the available data, there is a diverse range of species record. See Table and Figure below indicating the species and range of recordings.

Table 4: List of recorded fish species.

Latin Name	English Name	Welsh Name
Alosa fallax	Twaite Shad	Gwangen
Anguilla anguilla	Eel	Llysywen
Salmo salar	Atlantic Salmon	Eog
Salmo trutta	Brown/Sea Trout	Brithyll
Pleuronectes platessa	Plaice	Lleden Goch
Scomber scombrus	Mackerel	Macrell
Solea solea	Sole	Lleden Chwithig
Petromyzon marinus	Sea Lamprey	Llysywen Bendoll y Môr
Pholis gunnellus	Butterfish	Llymrïen
Scyliorhinus canicula	Lesser Spotted Dogfish	Draenogyn Mor
Agonus cataphractus	Hook-nose	Chwitlyn Glas
Callionymus lyra	Common Dragonet	Congren
Barbatula barbatula	Stone Loach	Morgi
Ammodytes tobianus	Lesser Sand-eel	Bwgan Dwr
Dicentrarchus labrax	Sea Bass	Gobi'r Tywod
Pollachius virens	Saithe	Llyffant Môr
Conger conger	Conger Eel	Gwangen
Pomatoschistus minutus	Sand Goby	Llysywen
Myoxocephalus scorpius	Bull Rout	Eog

4.5.11

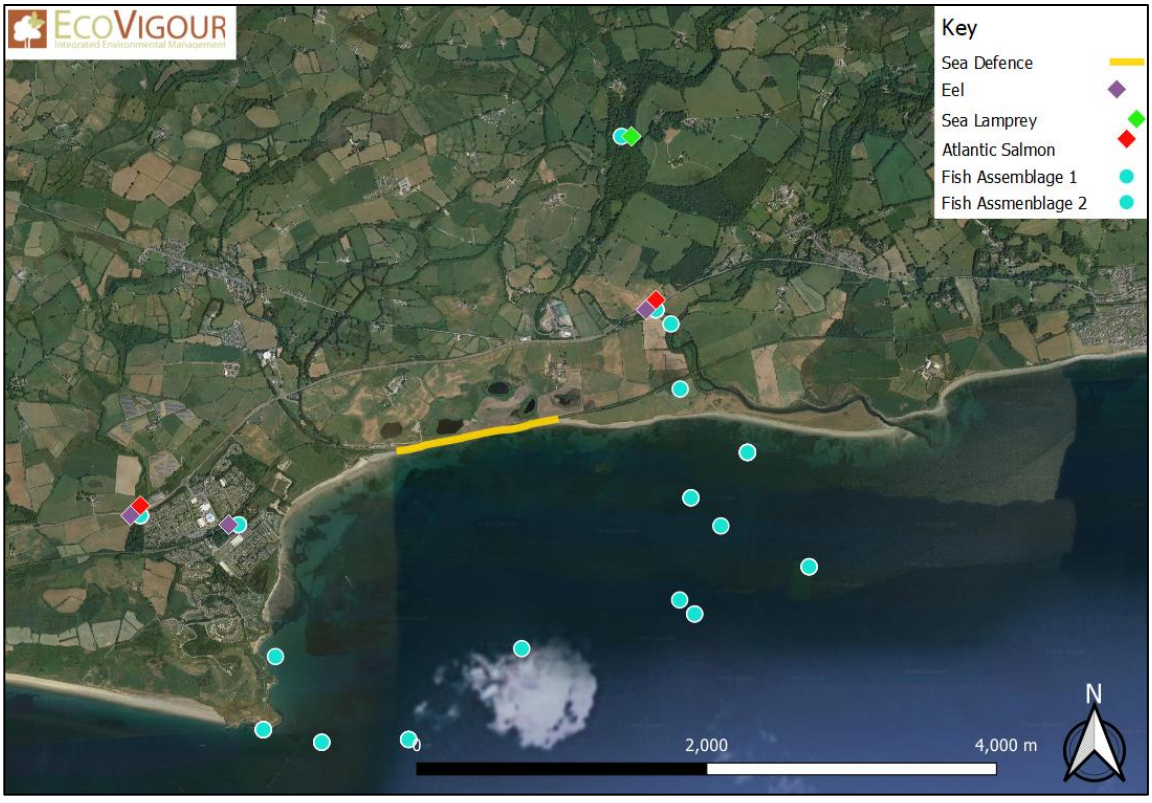

Figure 20: Location of fish species records.

5 ASSESSMENT AND RECOMMENDATIONS

This section provides a broad assessment of the information gathered and scopes out potential ecological vectors before remaining considerations and actions are proposed in the following recommendations and opportunities sections below.

5.1 DESIGNATED SITES AND RELIVANT SMP2 UNITS

The proximity of the designated sites necessitates Appropriate Assessments to be undertaken. Special Area of Conservation (SAC) primarily in this instance, however the adjacent SSSI will require S28G Notice and acknowledgement of the SPA further afield.

Pen Llŷn a'r Sarnau/ Lleyn Peninsula and the Sarnau annex features are outlined below:

5.1.1

Annex I habitats that are a primary reason for selection of this site

5.1.2

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1130 Estuaries
- 1150 Coastal lagoons * Priority feature
- 1160 Large shallow inlets and bays
- 1170 Reefs

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1310 Salicornia and other annuals colonizing mud and sand
- 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
- 8330 Submerged or partially submerged sea caves

Annex II species present as a qualifying feature, but not a primary reason for site selection

- 1349 Bottlenose dolphin Tursiops truncates
- 1355 Otter Lutra lutra

5.1.3

- 1364 Grey seal Halichoerus grypus

5.1.4

As investigatory works are required seaward of MHWS, a Marine License will be required. The specific license Band in question will be determined by the NRW Marine License team.

In relation to the Shore Line Management Plan 2 policy units, this section of sea wall is found within 21 - St Ann's Head to Great Ormes Head - Policy Unit 12.24.

Table 5: SMP2 Policies

Policy	Epoch
Hold the line	0 – 20 year policy:
Managed realignment	20 – 50 year policy:
Managed realignment	50 – 100 year policy:

5.2 HABITATS

No vegetation clearance to access the main sea defence structures is envisaged, overall impacts to habitat continuity and quality from survey works is unlikely. However, should substantial remedial measure in the future be required to secure the rail asset, then further impact assessments will be required.

In relation to future repairs, consideration to plant species growing from the wall is recommended.

5.3 PROTECTED SPECIES - BATS

5.2.1

All British bats and any place used for shelter or protection or breeding site or resting place (their roosts) are fully protected by law under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended).

5.2.2

Together these protect bats from:

5.3.1

- Selling, offering for sale, possessing or transporting for the purpose of the sale or publishing advertisements to buy or sell a protected species.
- Deliberate, intentional or reckless killing, injury or taking of bats.

5.3.2

- Damage to or destruction of or, obstruction of access to any place of shelter, breeding (roost) or rest.
- Disturbance of an animal occupying a structure or place.
- The deliberate disturbance of any bat species in such a way as to be significantly likely to affect;
  - their ability to survive, hibernate, migrate, breed, or rear or nurture their young; or
  - the local distribution or abundance of that species.

5.3.3

No definitive features pertaining to bats have been identified in proximity to the project to date. However, further assessments may be required dependant on overall project scope once known. E.g. if the woodland along the access requires modification to allow for larger vehicles to deliver items such as welfare units or temporary offices etc.

5.4 BADGERS

5.4.1

The Protection of Badgers Act 1992 (as amended) is the main legislation protecting badgers and their habitat in the United Kingdom. Under the Act it is illegal to:-

- Wilfully kill, injure or take a badger or attempt to do so.
- Cruelly ill-treat a badger.
- Interfere with a sett by doing any of the following:

5.4.2

(i) damage a badger sett or any part of it,
(ii) destroy a badger sett,
(iii) obstruct access to a badger sett,
(iv) cause a dog to enter a sett,
(v) disturb a badger while it is occupying a sett,

No features pertaining to badgers have been confirmed to date, however this species should be a component of toolbox talks.

Bird Species

The Wildlife and Countryside Act 1981 (as amended) is the principal legislation affording protection to UK wild birds. All birds, their nest and eggs are protected by law under this legislation, it is an offence (with certain exceptions), to recklessly or intentionally:

- Intentionally kill, injure or take any wild bird.
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built.
- Intentionally take or destroy the egg of any wild bird.
- Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

5.5

5.5.1

Note: Nesting birds found outside of nesting season are protected by the same level of protection as that within the standard nesting period.

Following best practice, vegetation clearance is required during the main bird breeding season. Any vegetation scheduled to be removed must be checked by an ecologist for active nests no more than 48 hours prior to the start of works.

5.5.2

5.5.3

If nests are present, then a minimum 5m exclusion zone should be established around the nest(s) and no de-vegetation or other heavy machinery work should be carried out within the exclusion zone(s) until it is confirmed that the nest(s) is completed and that the young have fledged.

5.5.4

If nests are present, then a minimum 5m exclusion zone should be established around the nest(s) and no de-vegetation or other heavy machinery work should be carried out within the exclusion zone(s) until it is confirmed that the nest(s) is completed and that the young have fledged.

5.5.5

5.5.6

The site is within proximity to an SPA site with several Schedule 1 species. The contractor must refer to the HRA and any specific conditions outlined by NRW in relation to priority bird species. Ponds to the rear of the sea wall may support the wider bird assembles, primarily wading species.

5.5.7

Sampling and any remedial works of the rock armour sections near the Sand Martin colony should ideally be undertaken outside of their peak activity (generally April to September). Depending on future requirements, further assessments may be required.

5.6

5.6.1

Great Crested Newt

As a European Protected Species (EPS), GCN receive full protection under the Wildlife and Countryside Act 1981 (as amended), the 2017 Conservation and Species Regulations (as amended) and the Countryside and Rights of Way Act (CROW) 2000, which make it illegal to:

- Sell, offer for sale, possess, advertise or transport for the purpose of sale;
- Intentionally or deliberately capture, injure or kill GCN;
- Deliberately disturb GCN;
- Damage or destroy a breeding site or resting place;
- Intentionally or recklessly disturb GCN from, or damage, destroy or obstruct access to, a place used for shelter or protection.

5.6.2

There are no records of this species with the 2km record buffer. As a precaution, this species should feature in toolbox talks, but the likelihood of it being encountered is considered low. Dependant on survey requirements a Habitat Suitability Index assessment of the pond situated within Eirias Park maybe required.

The presence of reptiles and amphibians was not visually confirmed during the ecological assessment (presence or absence surveys have not been undertaken). The limited available records, from the rail corridor habitat, is likely due to limited footfall or persons inclined to submit recordings, then any indication of limited populations.

5.7 All commonly occurring reptile species (common lizard, slow worm, grass snake and adder) are protected by UK law, making it an offence to injure or kill them. Care must be taken to avoid killing or injuring reptiles &

5.7.1 amphibians. All commonly occurring reptile species (common lizard, slow worm, grass snake and adder) are protected by UK law, making it an offence to injure or kill them. Care must be taken to avoid killing or injuring reptiles & amphibians. All reptile species are partially protected under Schedule 5 of the Wildlife and

5.7.2 Countryside Act 1981 (as amended). This legislation protects reptiles from:

- Reckless or intentional killing and injury.
- Selling, offering for sale, possessing or transporting for the purpose of the sale or publishing advertisements to buy or sell a protected species.

Where these animals are confirmed as present on land that is to be affected by development, guidance recommends that:

5.7.3

- The animals should be protected from injury or killing during construction operations;
- Mitigation should be provided to maintain the conservation status of the species locally.

Precautionary methods to avoid injury or death of reptiles potentially present on site may include:

5.7.4

- Staged cutting of vegetation. Any vegetation being removed will be strimmed using hand tools to a **height of no less than 150mm and left for 48 hours** so that any animals within can disperse, with no vegetation will be removed below 150mm;
- Vegetation removal must be undertaken in a **slow, systematic manner** to allow any animals present to disperse safely away from the site and adjacent suitable habitat;
- Dismantling of refugia/hibernacula by hand or carefully by machine and scraping through ballast with a toothed bucket;
- If, during the works, a reptile is found, **works will stop (this is a legal requirement)** and the project ecologist will be contacted. To aid accurate species identification, a photograph of the animal should be taken and sent to the project ecologist. The animal (if unharmed) should be allowed to disperse of its own accord;
- Works should be undertaken within the reptile active period (March to early October), on warm days, when reptile species are more active and can readily escape any disturbance. If this is not possible due to construction timescales, an ecologist on site will dismantle by hand any hibernation features. Any reptiles discovered in this period should be covered over and remain in situ where possible or moved to a safe place outside of the works

5.7.5 area with hibernacula used to shelter them.

- If any injured reptiles are found during the works on site, these will be carefully placed into a clean bucket containing some vegetation and covered over in a quiet place away from the works and an ecologist or local wildlife hospital must be contacted immediately.

If any non-protected amphibian species are found during the works, then these will be moved to safety by the supervising ecologist.

OTHER PROTECTED SPECIES

Hedgehogs are protected in England under Schedule 6 of the Wildlife and Countryside Act (1981) and are also listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006). Wales under the Environment (Wales) Act 2016. This species has not been confirmed by is likely present within the wider urban area.

5.8 The Wild Mammals Protection Act (1996) makes it an offence to crush or asphyxiate any wild mammal. This may apply during site clearance works, particularly where burrowing mammals such as rabbit and fox are present, as such animals could be crushed or asphyxiated in their burrows by heavy machinery. No features pertaining to common mammals has been identified within the likely access routes or the structure itself.

5.8.1

5.8.2

PRIORITY SPECIES OTTER AND BOTTLE NOISE DOLPHIN IN PROXIMITY TO WORKS

Otter and Grey Seal have been recorded within proximity to the structure. Working over water during high tide is unlikely, however works on protected sections of the wall landward of MHWS may occur.

5.9

5.9.1 Consequently, the following precautionary measures are recommended:

5.9.2

- Where possible, works should be carried out during daylight hours (up to 30 minutes after sunrise and 30 minutes before sunset) where possible, to avoid disturbance to commuting or foraging otters.
- Any use of task lighting should be directional to avoid illumination of the river corridor at night. Access for otter along up and down stream of the waterbodies will be maintained during construction.
- The principal contractor will nominate a member of the site team to act as a warden. Should an otter be seen within proximity to the works, the warden will request works to be temporarily ceased if safe to do so and allow the animal to move in its preferred position and disperse from the area of its own volition.
- Any sightings of otter will be reported to the project environmental coordinator. The principal contractor must ensure that equipment at the lower section of the structure is well secured and not in a fashion that could ensnare or trap otter (or any other animal).
- Toolbox talks must be provided to the project team ahead of the works.

5.9.3

- The principal contractor must adhere to the Biosecurity Measures outlined within the Marine License documentation and all relevant GPP's.

The Gwynedd Marine Code should be adhered to as much a practically possible.

AQUATIC SPECIES - WORKING NEAR OF IN A WATERCOURSE

All works near the watercourses within the survey area will be conducted in line with industry standard best practice, Guidance for Pollution Prevention (GPPs). This will avoid the risk of polluting the watercourse through chemical contamination or substrate run off. This includes:

- Any chemicals required will be stored in designated places and bunded to prevent leakages;
- Spill kits will be on site to deal with any leakage of fuel, wet concrete or chemicals;
- Vehicles will be inspected regularly to identify leaks and fuelling will be carried out off site;
- On completion of the works the working area will be reinstated on a like-for-like basis.

5.10

5.10.1

Toolbox talks can be used to inform personnel undertaking works on the correct site protocol with regards to refuelling and general site behaviour (**i.e. No refuelling on site, all equipment stored on spill nappies, no night works and no materials to be left on site**).

5.10.2 Regarding fish spawning periods, the works are scheduled to be completed before the peak winter period and consequently should be able to avoid significant impacts to migrating species. A specific consideration to spawning periods at this section of the Ceredigion Bay should be noted, and will be outlined during the Marine

5.10.3 License consultation process by NRW.

The potential for underwater noise will be assessed, with working practices encouraged to working during low tide to avoid this potential.

5.10.4

INVASIVE SPECIES

5.11

5.11.1 Schedule 9 invasive species (Japanese Knotweed) of the Wildlife and Countryside Act in England and Wales has been confirmed to be present further downstream of the project. It is an offence to plant or otherwise cause to grow these species in the wild. It can result in fines or imprisonment if the species is spread due to negligence or deliberate intent. Soil or plant material contaminated with non-native and invasive plants can

5.11.2 cause ecological damage and must be disposed off-site safely.

A Biosecurity Plan will be a component of a Marine License application.

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7 APPENDIX

Table 6: Bird Species List from Cofnod Data.

Scientific Name	English Name	Lists
Charadrius hiaticula	Ringed Plover	Bern2, Bonn2, LBAP-C, LBAP-G, RL-NT, RL-VU, S7, UKBR, WBA
Chroicocephalus ridibundus	Black-headed Gull	BDir2.2, LBAP-G, RL-VU, S7, UKBA, WBR
Larus argentatus	Herring Gull	BAP, BDir2.2, LBAP-C, LBAP-G, RL-DD, RL-EN, S7, UKBR, WBR
Numenius arquata	Curlew	BAP, BDir2.2, Bonn2, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, LBAP-S, RL-EN, S7, UKBR, WBR
Numenius phaeopus	Whimbrel	BDir2.2, Bonn2, LBAP-C, LBAP-G, RL-CR, UKBR, WBA, WCA1.1
Alauda arvensis	Skylark	BAP, BDir2.2, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, LBAP-S, S7, UKBR, WBA
Cuculus canorus	Cuckoo	BAP, LBAP-C, LBAP-D, LBAP-F, LBAP-G, RL-VU, S7, UKBR, WBR
Dryobates minor	Lesser Spotted Woodpecker	BAP, Bern2, LBAP-C, LBAP-D, LBAP-F, LBAP-G, RL-EN, S7, UKBR, WBR
Emberiza schoeniclus	Reed Bunting	BAP, Bern2, LBAP-C, LBAP-D, LBAP-F, LBAP-G, S7, UKBA, WBA
Falco columbarius	Merlin	BDir1, Bern2, Bonn2, CITES-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, RL-EN, UKBR, WBA, WCA1.1
Gavia arctica	Black-throated Diver	BAP, BDir1, Bern2, RL-VU, UKBA, WBA, WCA1.1
Gavia immer	Great Northern Diver	BDir1, Bern2, LBAP-C, LBAP-G, UKBA, WBA, WCA1.1
Gavia stellata	Red-throated Diver	BDir1, Bern2, Bonn2, LBAP-C, LBAP-G, WBA, WCA1.1
Hydrocoloeus minutus	Little Gull	BDir1, Bern2, LBAP-C, WBA, WCA1.1
Ichthyaetus melanocephalus	Mediterranean Gull	BDir1, Bern2, Bonn2, LBAP-C, UKBA, WBA, WCA1.1
Limosa limosa	Black-tailed Godwit	BAP, BDir2.2, Bonn2, LBAP-C, LBAP-G, RL-EN, UKBR, WBA, WCA1.1
Linaria cannabina	Linnet	BAP, Bern2, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, RL-NT, S7, UKBR, WBR
Melanitta nigra	Common Scoter	BAP, BDir2.2, Bonn2, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, RL-CR, S7, UKBR, WBA, WCA1.1
Pluvialis apricaria	Golden Plover	BDir1, BDir2.2, Bonn2, LBAP-C, LBAP-F, LBAP-G, LBAP-S, S7, WBR
Podiceps nigricollis	Black-necked Grebe	Bern2, RL-EN, RL-VU, UKBA, WBA, WCA1.1
Prunella modularis	Dunnock	BAP, Bern2, LBAP-C, S7, UKBA
Pyrrhula pyrrhula	Bullfinch	BAP, LBAP-C, LBAP-D, LBAP-F, LBAP-G, S7, UKBA, WBR
Sterna dougallii	Roseate Tern	BAP, BDir1, Bern2, Bonn2, LBAP-A, LBAP-G, RL-EN, S7, UKBR, WBR, WCA1.1
Sturnus vulgaris	Starling	BAP, BDir2.2, LBAP-C, LBAP-F, LBAP-G, RL-VU, S7, UKBR, WBR
Troglodytes troglodytes	Wren	BAP, BDir1, Bern2, UKBA

Turdus iliacus	Redwing	BDir2.2, LBAP-C, RL-CR, UKBA, WBA, WCA1.1
Turdus philomelos	Song Thrush	BAP, BDir2.2, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, LBAP-S, LBAP-W, S7, UKBA, WBA
Vanellus vanellus	Lapwing	BAP, BDir2.2, Bonn2, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, LBAP-S, RL-EN, RL-VU, S7, UKBR, WBR
Acanthis cabaret	Lesser Redpoll	BAP, LBAP-C, LBAP-D, S7, WBR
Limosa lapponica	Bar-tailed Godwit	BDir1, BDir2.2, Bonn2, LBAP-C, LBAP-G, S7, UKBA, WBR
Tyto alba	Barn Owl	Bern2, CITES-A, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, LBAP-S, LBAP-T, LBAP-W, WBA, WCA1.1, WCA9
Alcedo atthis	Kingfisher	BDir1, Bern2, LBAP-C, LBAP-D, LBAP-F, LBAP-G, LBAP-T, WBA, WCA1.1
Branta bernicla bernicla	Dark-bellied Brent Goose	BAP, BDir2.2, Bonn2, GBNNSIP, S7, UKBA, WBA
Circus cyaneus	Hen Harrier	BDir1, Bonn2, CITES-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, LBAP-S, RL-VU, S7, UKBR, WBR, WCA1.1
Clangula hyemalis	Long-tailed Duck	BDir2.2, Bonn2, RL-NT, UKBR, WBA, WCA1.1
Passer domesticus	House Sparrow	BAP, LBAP-C, LBAP-F, LBAP-G, S7, UKBR, WBA
Turdus pilaris	Fieldfare	BDir2.2, LBAP-C, RL-PX, UKBR, WBA, WCA1.1
Falco tinnunculus	Kestrel	Bern2, Bonn2, CITES-A, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, RL-VU, S7, UKBA, WBR
Motacilla flava	Yellow Wagtail	BAP, Bern2, LBAP-C, LBAP-D, LBAP-F, LBAP-T, RL-NT, S7, UKBR, WBR
Passer montanus	Tree Sparrow	BAP, LBAP-A, LBAP-C, LBAP-D, LBAP-F, LBAP-G, RL-VU, S7, UKBR, WBR
Ficedula hypoleuca	Pied Flycatcher	Bonn2, LBAP-C, LBAP-G, LBAP-S, RL-VU, S7, UKBA, WBR
Circus aeruginosus	Marsh Harrier	BDir1, Bonn2, CITES-A, LBAP-C, RL-NT, UKBA, WBA, WCA1.1
Milvus milvus	Red Kite	BDir1, Bonn2, CITES-A, LBAP-C, LBAP-G, WBA, WCA1.1, WCA9