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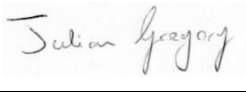
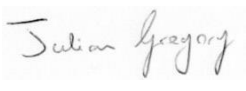
Sudbrook CERD

Preliminary Ecological Appraisal



AMCO GIFFEN



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1 TECHNICAL SUMMARY

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

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

Table 1: Technical Summary Table

Feature or Species	CERD Survey Remit	Future Remits
Habitat	Limited impact likely during survey stage.	Further surveys dependent of 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 2125.
Bird Species	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. Reptiles should be assumed along vegetated boundaries and near the access track.	Dependant on future works remit. E.g., potential for further surveys.
Priority Species	Eurasian Otter and Grey Seal recorded within vicinity of defences. Works should work 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 Management Plan	Dependant on future works remit.
Aquatic Species	Generation of underwater noise should assessed within the HRA.	Dependant on future works remit.



2 INTRODUCTION

2.1 PROJECT BACKGROUND

- 2.1.1 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 remit. AMCO have been commissioned to assess these six sites and propose future proofing designs to ensure long term resilience to sea level rise and climate change.
- 2.1.2 The sixth site of the survey remit was Sudbrook. The study is required to inform AMCO Giffen Ltd of the ecological constraints present, ahead 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).
- 2.1.3 The objectives for the survey were:
- ◆ To undertake an ecological assessment of the site;
 - ◆ 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 - Second Edition' (CIEEM, 2017). The objective of the report is to provide a preliminary ecological assessment of the site based on the current design.
- 2.1.5 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.



2.2 SURVEY AREA DESCRIPTION

- 2.2.1 The survey area concerns the section of sea defence along the southeast facing shore at Sudbrook, several hundred meters north (upstream) of the second River Severn road crossing, between ST 50664 87300 to ST 50873 87527.
- 2.2.2 Figure 1 below, is a copy of the assessment area specification outlined by AMCO Giffen. The compound is to be located within open areas at the Sudbrook pumphouse station, with personnel access and egress possible via existing access steps to a rear of the pumphouse and a path/track from the north, which allows for plant vehicle access to the beach area.
- 2.2.3 Access during the survey was possible during low tide, via a narrow public footpath to the south of the defences.



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 GI Machine rigs and topographical surveys to confirm the final design. These minor works will broadly involve:
- ◆ Vehicle and Personnel access and movement
 - ◆ Temporary Compound setup
 - ◆ GI sampling of beach and rail asset



3 METHODOLOGY

3.1 DESK STUDY

- 3.1.1 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. 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 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.
- ◆ Sewbrec Data Search – Ref: 5249

- 3.1.3 **Note:** Records outlined below are not for the public domain and should not be forwarded to unauthorised 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 present, identifying the suitability of the site to support protected and priority species.
- 3.2.2 Incidental observations of protected and/or priority species and the potential for such species to occur on site (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.
- 3.2.3 A search for plant species as included in Schedule 9 of the Wildlife and Countryside Act (1981) as amended, was made during the survey. Under the Act it is an offence to spread, or cause the spread of, these species.

3.3 LIMITATIONS

- 3.3.1 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.
- 3.3.2 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

4.1 DESIGNATED SITES

4.1.1 There is 6 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.

Site Name	Designation	Reason for Designation	Distance from Site (km)
Bushy Close	Site of Special Scientific Interest (SSSI)	Mixture	1.7km (North)
Gwent Levels – Magor and Undy	Site of Special Scientific Interest (SSSI)	Mixture	1.6km (west)
Severn Estuary	Site of Special Scientific Interest (SSSI)	Mixture	<0.1km
Severn Estuary	Special Area of Conservation (SAC)	Mixture	<0.1km
Severn Estuary	Special Protection Area (SPA)	Bird Assemblage and Supporting Habitat	<0.1km
Severn Estuary	RAMSAR	Bird Assemblage and Supporting Habitat	<0.1km

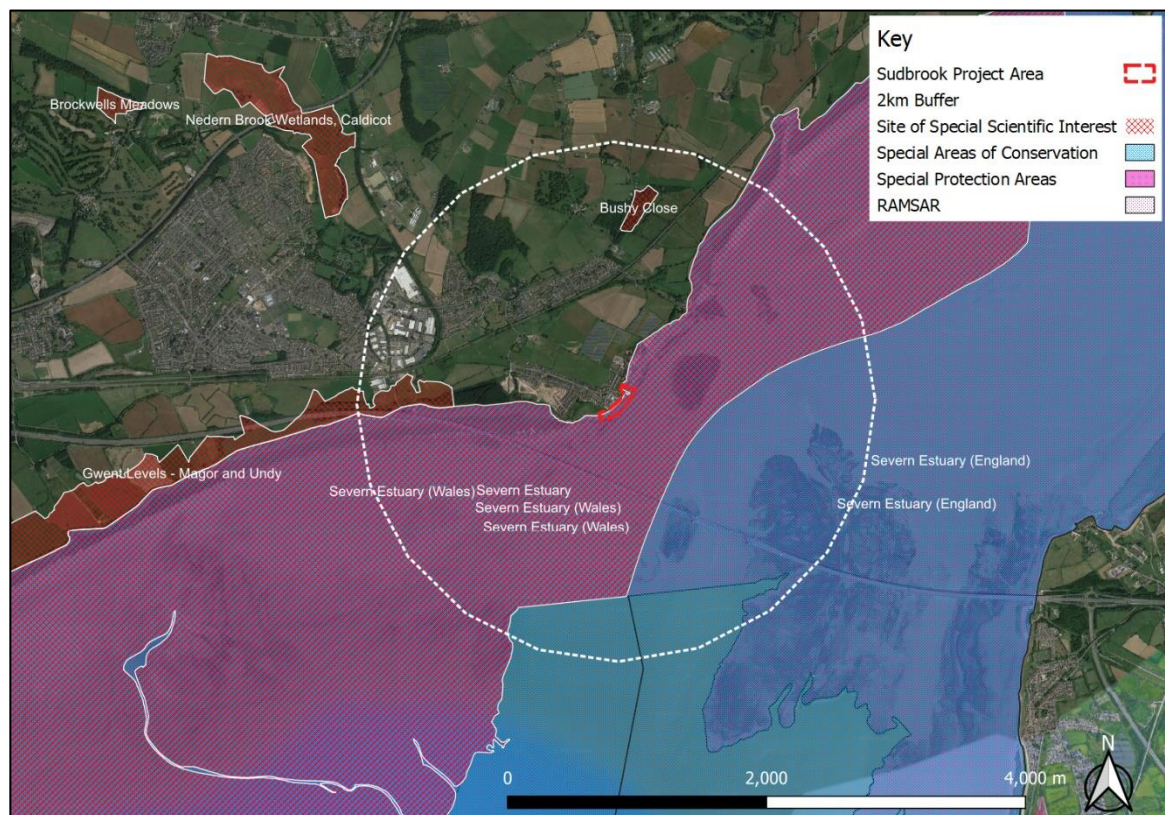


Figure 2: Statutory Designated Sites within 2km

4.1.2 The boundary of the Severn Estuary designated sites borders or is in close proximity to the sea defences below Sudbrook pumphouse.



4.1.3 There are also 7 non-statutory designated sites within 2km of the site boundary. All are Site of Importance to Nature Conservation (SINC).



Figure 3: Non-Statutory sites within 2km of project.

Table 3: Non-statutory sites within 2km.

Site Name	Designation	Reason for Designation	Distance from Site (km)
Farthing Hill	SINC	Mixture	>1km
Pill Farm	SINC	Mixture	>1km
Portskewtt Hill	SINC	Mixture	>1km
Portskewett Hill North	SINC	Mixture	>1km
Withey Bed	SINC	Mixture	>1km
Rffets	SINC	Mixture	>1km
Sudbrook Paper Mill	SINC	Mixture	0km

4.1.4 Sudbrook Paper Mill overlaps with the project area. Potential impacts will be further considered in the following sections of this document.



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 WATERBODIES

- 4.3.1 There appear to be no static waterbodies within 250-500m of the project footprint. However, please note this desk-based assessment cannot account for ephemeral ponds or ponds not found within available mapping sources.



4.4 SURVEY FIGURES

- 4.4.1 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.



Figure 4: Upper section of sea defence upstream of slipway onto beach.



Figure 5: Tidal flap protection walls and outfall stream.



Figure 6: Down stream tiered defence wall and some rock armour (rock armour appears to have been displaced)



Figure 7: Smaller dwarf defence wall aiding channel of Sudbrook outfall water.



4.5 COMBINED FIELD SURVEY AND DATA SUMMARY

4.5.1 **Habitat:** A full updated Phase I survey of the entire survey area has not been undertaken to date, the data set below (Figure 9) is based on available mapping from Sewbrec and NRW dataset and should be used as a rudimentary representation of the habitat present.

Habitat below the sea defence is predominantly, intertidal sand/mud and shingle/gravel habitats above (narrow raised pebble beach along the toe of the wall). To the north of the site, there are areas of saltmarsh habitat close to the Sudbrook tidal flap outlet and detached flow guide dwarf wall.

To the rear of the defences is predominately manmade, however there is a narrow strip of vegetated habitat between the upper sections of the sea defences/slip way, comprised of dense bramble, scrub species and some smaller mature broadleaf species.

The proposed location for the temporary compound is within the pumphouse compound.

To the south of the pumphouse and defences is a small amenity grassland and larger woodland habitat further west.

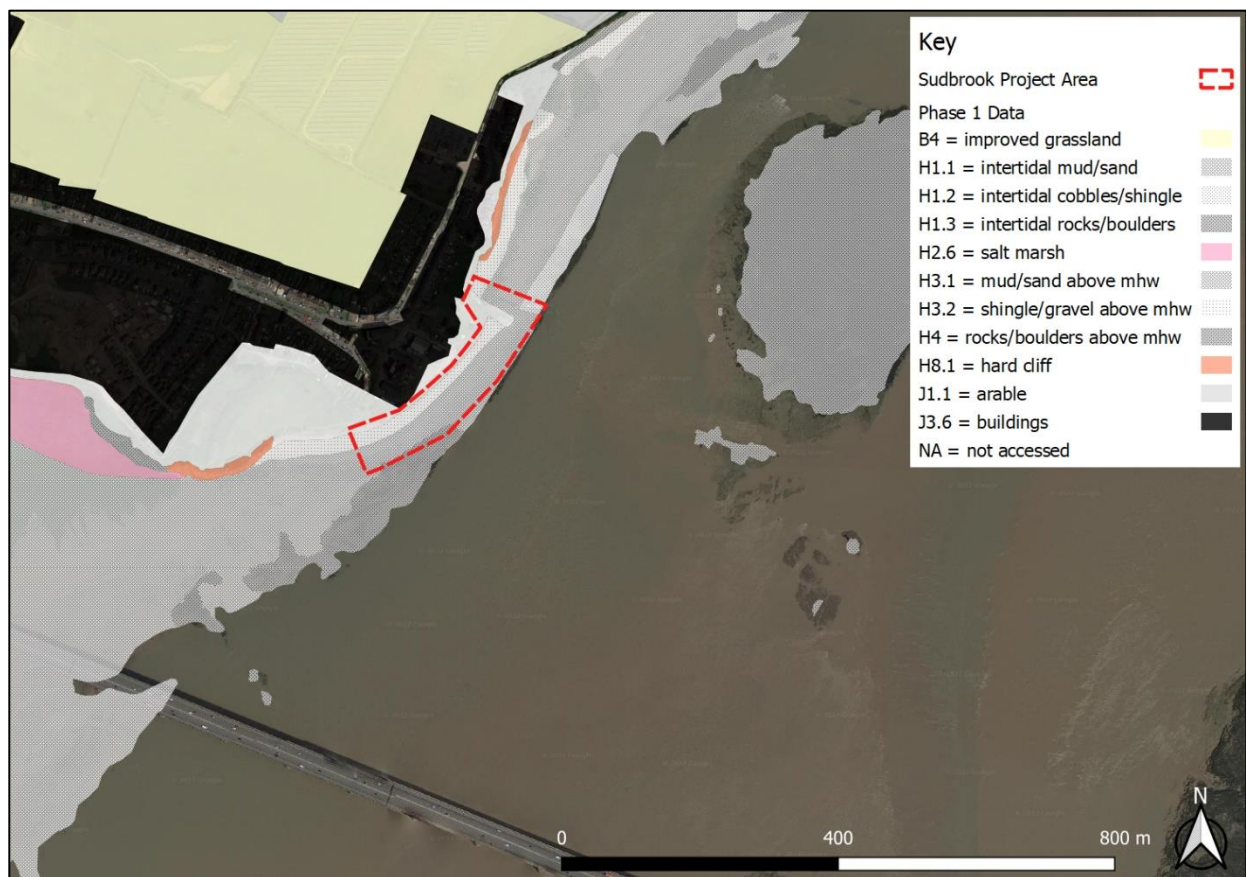


Figure 8: Phase I Habitat Data (Cofnod 2022)



- 4.5.2 **Bird Species** - The survey was undertaken during latter portion the traditional bird breeding season (March – August inclusive). Habitat is optimum i.e. surrounding vegetation, sources of wader foraging habitat, and elevated areas to perch.

Within the data search, numerous bird records within 2km. In closer proximity to the sea wall, species such as Arctic Tern, Black Tern, Blue Tit, Cormorant, Curlew, Grey Plover, Kingfisher, etc. A comprehensive list of bird species can be found within the Appendix.

- 4.5.3 **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 further afield. There are no records from the sea wall area or the pumphouse itself.

Bats potentially forage along the edges of the Sudbrook area foreshore, where woodland habitat is still present between the estuary and new urban developments to the north and southwest. The defences themselves do not appear to support bat roosting features.

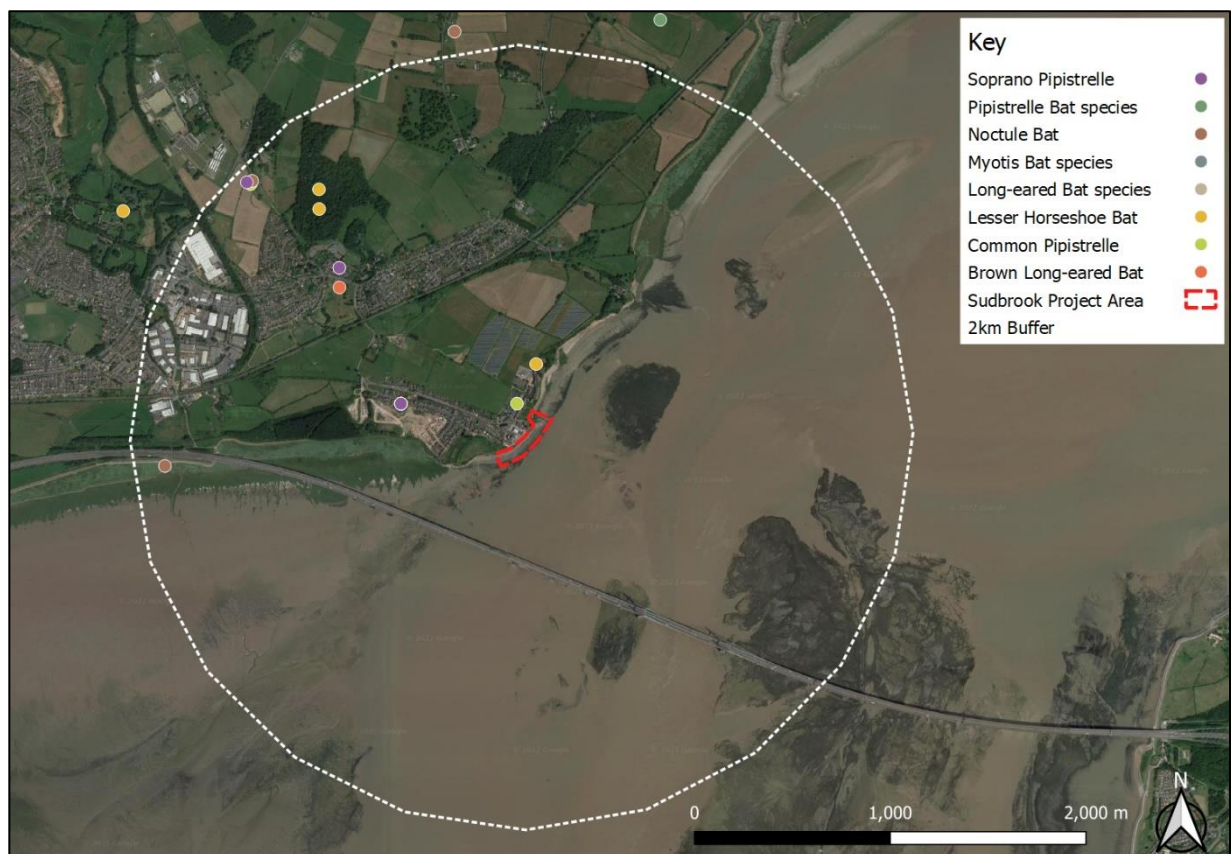


Figure 9: Bat Record Locations in relation to structure.



- 4.5.5 **Common Mammal Species** – Species records within Sewbrec data set in this region include: Badger, Polecat and Hedgehog. No records originate within project footprint, however the several Hedgehog recordings within 250m of the project.
- 4.5.6 **Priority Mammal Species** – In terms of priority species, Otter, Hazel Dormice, Grey Seal and an historic record of Sei Whale have been noted.

Regarding the latter record of Sei Whale. The record related to a beached whale found during the 1940's and such an event is considered rare and unlikely to be experienced during the project.

Hazel Dormice are recorded in woodland blocks to the north-west, beyond 2km from the project footprint. The habitat at the seawall and along access routes is sub-optimal for this species.

Eurasian Otter and Grey Seal although not observed during the survey are likely to be present within the vicinity of the project.



Figure 10: Priority species including Badger, in relation to project.



- 4.5.7 **Common Amphibian and Reptile Species** – Common amphibian and reptiles are records appear in relative diversity within the dataset. GCN have been recorded a significant distance further west within Caldicot, while smooth newt have been recorded near the new residential development within 1km of the project.

In terms of habitat composition, the immediate areas around the sea defences and along the access routes may allow for small population of common reptile and amphibian species. No potential breeding ponds were observed within the survey area and along access routes. On the sea wall section connected to the narrow-vegetated strips offer limited basking areas for reptiles during ideal conditions.



Figure 11: Common Amphibian and Reptile species in proximity to works.

- 4.5.8 **Invasive non-native plant species** – Invasive Non-Native Species (INNS) Japanese Knotweed has been recorded near the proposed access route from the north within the rear of some local dwellings.
- 4.5.9 **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
Anguilla anguilla	European Eel	Llysywen
Gasterosteus aculeatus	Three-spined Stickleback	Crethyll Tri Phigyn
Platichthys flesus	Flounder	Lleden Fwd
Pomatoschistus microps	Common Goby	Gobi
Pomatoschistus minutus	Sand Goby	Gobi'r Tywod
Raja clavata	Thornback Ray	Morgath Styds



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

5.1.1 The proximity of the designated sites necessitates Appropriate Assessments to be undertaken. The Special Area of Conservation (SAC) and Special Protection Area (SPA) / RAMSAR are of primary importance in this instance, however the overlapping SSSI will require S28G Notice.

5.1.2 Severn Estuary/ Môr Hafren (SAC) annex features are outlined below:

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

- ◆ 1130 Estuaries
- ◆ 1140 Mudflats and sandflats not covered by seawater at low tide
- ◆ 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

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

- ◆ 1110 Sandbanks which are slightly covered by sea water all the time
- ◆ 1170 Reefs

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

- ◆ 1095 Sea lamprey *Petromyzon marinus*
- ◆ 1099 River lamprey *Lampetra fluviatilis*
- ◆ 1103 Twaite shad *Alosa fallax*

5.1.3 Special Protection Area (SPA) is determined by overlapping habitat features and the large wader bird assemblage.

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

5.1.5 In relation to the Shore Line Management Plan 2 policy units, this section of sea wall is found within 19 - Anchor Head to Lavernock Point - Policy Unit CALD1.

Table 5: SMP2 Policies

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



5.2 HABITATS

- 5.2.1 Limited vegetation clearance to allow for GI Rig access the lower sea defence and foreshore may be required, however, overall detrimental impacts to habitat continuity and current overall quality is unlikely. However, should substantial remedial measure in the future be required to secure the pumping station and tidal flap, then further impact assessments will be required.
- 5.2.2 Movement of GI rigs should not occur within the adjacent salt marsh habitats.

5.3 PROTECTED SPECIES - BATS

- 5.3.1 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).
- 5.3.2 Together these protect bats from:
- ◆ 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.
 - ◆ 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. Bat flight lines and foraging habitat is present further afield, however these are unlikely to be impacted by the current scope of works.

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:
 - (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,
- 5.4.2 No features pertaining to badgers has been confirmed to date, however this species be a component of toolbox talks.



5.5 BIRD SPECIES

- 5.5.1 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.
- 5.5.2 **Note:** Nesting birds found outside of nesting season are protected by the same level of protection as that within the standard nesting period.
- 5.5.3 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.
- 5.5.4 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 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.
- 5.5.6 The site is within proximity to an SPA & RAMSAR 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.

5.6 GREAT CRESTED NEWT

- 5.6.1 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 As a precaution, this species should feature in toolbox talks, but the likelihood of encountered is considered low.



5.7 COMMON REPTILES & AMPHIBIANS

- 5.7.1 The presence of reptiles and amphibians was not visually confirmed during the ecological assessment (presence or absence surveys have not been undertaken). The presence of common reptile and amphibians should be assumed along vegetated boundaries and along the access track perimeter.
- 5.7.2 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 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 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.
- 5.7.3 Where these animals are confirmed as present on land that is to be affected by development, guidance recommends that:
- ◆ 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.
- 5.7.4 Precautionary methods to avoid injury or death of reptiles potentially present on site may include:
- ◆ 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 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.
- 5.7.5 If any non-protected amphibian species are found during the works, then these will be moved to safety by the supervising ecologist.
- 5.7.6 Toolbox talks on reptiles should be provided.



5.8 OTHER PROTECTED SPECIES

- 5.8.1 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.
- 5.8.2 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 defence asset in question.

5.9 PRIORITY SPECIES IN PROXIMITY TO WORKS

- 5.9.1 Eurasian Otter and Grey Seal have been recorded within proximity to the structure. Working over water during high tide is unlikely, however works on upper sections of the wall landward of MHWS may occur.
- 5.9.2 Consequently, the following precautionary measures are recommended:
- ◆ 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 been 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.
 - ◆ The principal contractor must adhere to the Biosecurity Measures outlined within the Marine License documentation and all relevant GPP's.
- 5.9.3 The Gwynedd Marine Code should be adhered to as much a practically possible.
- 5.9.4 Hazel dormice are unlikely to be encountered during the assessment works as the adjacent habitat is unsuitable for Dormice populations to be viable supported.



5.10 AQUATIC SPECIES - WORKING NEAR OF IN A WATERCOURSE

- 5.10.1 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 banded 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.
- 5.10.2 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**).
- 5.10.3 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 License consultation process by NRW.
- 5.10.4 The potential for underwater noise will be assessed within the HRA.

5.11 INVASIVE SPECIES

- 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 cause ecological damage and must be disposed off-site safely.
- 5.11.2 A Biosecurity Plan will be a component of a Marine License application.
- 5.11.3 Demarcation of Japanese Knotweed stands and leaving them in-situ is recommended.



6 REFERENCES

Ancient Woodland Inventory (2011). [online] <https://lle.gov.wales/catalogue/item/AncientWoodlandInventory2011> [Accessed XX XX 2021].

CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal – Second Edition*.

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

Conservation of Habitats and Species Regulations 2017. [online] : <http://www.legislation.gov.uk/uksi/2017/1012/contents/made> [Accessed XX XX 2021].

Environmental Protection Act 1990. [online] Available at: <http://www.legislation.gov.uk/ukpga/1990/43/contents> [Accessed XX 2021].

Environment (Wales) Act 2016. [online] Available at: <http://www.legislation.gov.uk/anaw/2016/3/contents/enacted> [Accessed XX 2021].

English Nature (2004). *Reptiles: Guidelines for Developers*. Published by English Nature.

Environment Agency (2006). *The knotweed code of practice – Managing Japanese knotweed on development sites*.

Environmental Permitting (England and Wales) Regulations 2007. Environmental Protection (Duty of Care) Regulations 1991.

Google Maps (<https://www.google.co.uk/maps>) – accessed XX/XX/2021

Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey; A Technique for Environmental Audit*.

<http://jncc.defra.gov.uk>

<http://magic.defra.gov.uk/MagicMap.aspx>

Natural Resources Wales (2021). [online] Available at: <https://naturalresources.wales> [Accessed XX 2021].

Ordnance Survey Maps (2021). [online] Available at: <https://osmaps.ordnancesurvey.co.uk/> [Accessed XX 2021].

Protection of Badgers Act 1992. [online] Available at: <http://www.legislation.gov.uk/ukpga/1992/51/contents> [Accessed XX 2021].

Welsh Government (2018) *Planning Policy Wales* - Edition 10.

Wildlife and Countryside Act 1981. [online] <http://www.legislation.gov.uk/ukpga/1981/69/contents> [Accessed XX 2021].

Institute for Ecology and Environmental Management (2012). *Guidelines for Preliminary Ecological Appraisal*.

<https://jncc.gov.uk>

Joint Nature Conservation Committee (2010) *Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit*, Revised print, Joint Nature Conservation Committee, Peterborough.

Rose, F. (1991). *The Wild Flower Key*. British Isles - N. W. Europe. Published by the Penguin Group. Penguin Books Ltd.

Stace, C. (2010). *New Flora of the British Isles* (third edition). Cambridge University Press.

7 APPENDIX

Table 6: The qualifying interest features and supporting habitats of the Severn Estuary SPA. (Severn Estuary SAC, SPA and Ramsar Site: Regulation 33 Advice from CCW and Natural England, June 2009).

Species	Notes	Supporting Habitat
Internationally important populations of regularly occurring Annex 1 species [under Article 4.1 of the EU Birds Directive].		
<i>SPA interest feature 1 :</i> Bewick's swan <i>Cygnus columbianus bewickii</i>	Over-wintering	Intertidal mudflats and sandflats Saltmarsh
Internationally important populations of regularly occurring migratory bird species [under Article 4.2 of the EU Birds Directive].		
<i>SPA interest feature 2 :</i> European white-fronted goose <i>Anser albifrons albifrons</i>	Over-wintering	Intertidal mudflats and sandflats Saltmarsh Hard substrate habitats (Freshwater coastal grazing marsh, improved grassland and open standing waters also occur within the SPA but these habitats lie outside EMS boundary)
<i>SPA interest feature 3 :</i> Dunlin <i>Calidris alpina alpina</i>		
<i>SPA interest feature 4 :</i> Redshank <i>Tringa totanus</i>		
<i>SPA interest feature 5 :</i> Shelduck <i>Tadorna tadorna</i>		
<i>SPA interest feature 6 :</i> Gadwall <i>Anas strepera</i>		
Curlew <i>Numenius arquata</i>		
Pintail <i>Anas acuta</i>		
Ringed plover <i>Charadrius hiaticula</i>	On passage	
<i>SPA interest feature 7 : Internationally important assemblage of waterfowl</i> (wildfowl & waders) [under Article 4.2 of the EU Birds Directive].		
Bewick's swan <i>Cygnus columbianus bewickii</i>	The wintering waterfowl assemblage includes all regularly occurring waterfowl. Species that qualify as a listed component of the assemblage include all the internationally important regularly occurring migratory species as well as the Annex 1 wintering species. The list also includes species present in nationally important numbers or species whose populations exceed 2,000 individuals	Intertidal mudflats and sandflats Saltmarsh Hard substrate habitats (Freshwater coastal grazing marsh, improved grassland and open standing waters also occur within the SPA but these habitats lie outside EMS boundary)
European white-fronted goose <i>Anser albifrons albifrons</i>		
Dunlin <i>Calidris alpina alpina</i>		
Redshank <i>Tringa totanus</i>		
Shelduck <i>Tadorna tadorna</i>		
Gadwall <i>Anas strepera</i>		
Wigeon <i>Anas penelope</i>		
Teal <i>Anas crecca</i>		
Pintail <i>Anas acuta</i>		



Pochard <i>Aythya ferina</i>	In the original citation, in winter, it is stated that the area regularly supported 68,026 individual waterbirds *4. In the SPA Review it is stated that the area regularly supports 93,986 individual waterfowl in winter * 5. In the Natura 2000 form, in winter, it is stated that the area regularly supports 84,317 waterfowl *6.	
Tufted duck <i>Aythya fuligula</i>		
Ringed plover <i>Charadrius hiaticula</i>		
Grey plover <i>Pluvialis squatarola</i>		
Curlew <i>Numenius arquata</i>		
Whimbrel <i>Numenius phaeopus</i>		
Spotted redshank <i>Tringa erythropus</i>		
Lapwing <i>Vanellus vanellus</i>		
Mallard <i>Anas platyrhynchos</i>		
Shoveler <i>Anas clypeata</i>		