Afon Wen Seawall Defence Works

Preliminary Ecological Appraisal Draft Report

March 2024

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MPH Construction

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The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between (February 2023 and May 2023) and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

Where field investigations are carried out, these have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time and further confirmatory measurements should be made after any significant delay in issuing this Report.

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Abbreviations

AONB	Area of Outstanding Natural Beauty
CIEEM	Chartered Institute of Ecology and Environmental Management
EPS	European Protected Species
INNS	Invasive non-native species
LNR	Local Nature Reserve
MCZ	Marine Conservation Zone
PEA	Preliminary Ecological Appraisal
PRF	Potential Roosting Features
SAC	Special Area of Conservation
SINC	Sites of Importance in Nature Conservation
SPA	Special Protection Area
UKHab	UK Habitat Classification
WCA	Wildlife & Countryside Act

1 Introduction

1.1 Project Overview

The proposed works are required to repair damage caused to the sea defences at Afon Wen (Figure 1-1). Repeated exposure to storm wave activity has resulted in damage, and removal of several sheet piles that front the seawall. The loss of the sheet piles has opened up a series of voids below the concrete base of the seawall. This currently affects roughly a 3m stretch of the sea defence.

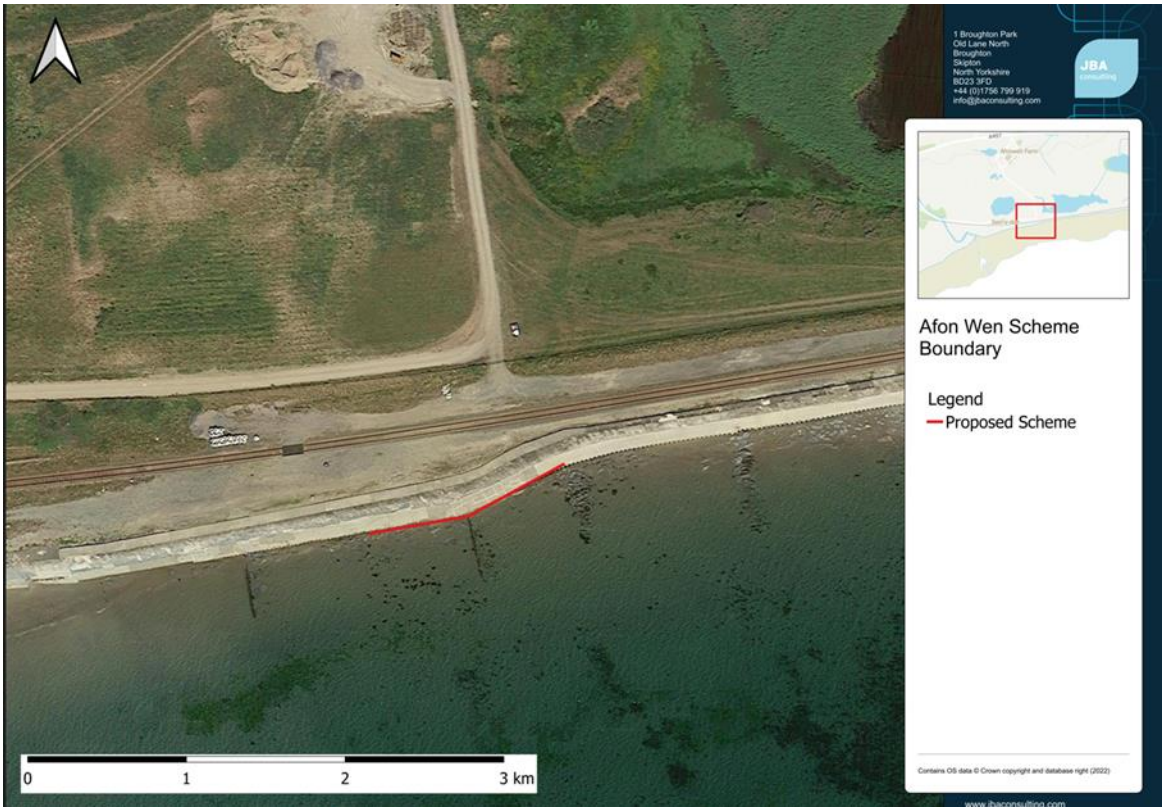

Figure 1-1. Site Location

1.2 Proposed Works

The proposed works involve repairs to the existing coastal defence along the frontage at Afon Wen. The works are required to reinstate the defences and protect the railway line which runs approximately 10 - 15 m behind the current coastal defences.

Storm damage to the defence has displaced a number of sheet piles which has resulted in the removal of material from beneath the concrete seawall embankments. This has led to the creation of several voids that present a risk of undermining the structure.

The proposed works are planned to fill the void spaces with pumped concrete prior to reinstating approximately eight sheet piles using a piling hammer positioned on the beach. The proposal is to then install rock armour in front of the piles to protect them from wave attack and limit movement in future.

The works are further detailed as below, and Figure 1-2 and Figure 1-3:

Existing sheet pile wall to be removed.
Existing concrete infill behind current sheet pile wall to be removed.
Piling works to reinstate storm damaged sheet piling - repair works are to be completed using a piling hammer. Construction of proposed sheet pile wall (13.0 m long, see
Grout injection into known voids behind new sheet pile wall.
Installation of rock armour in front of the sheet piles to prevent future damage.

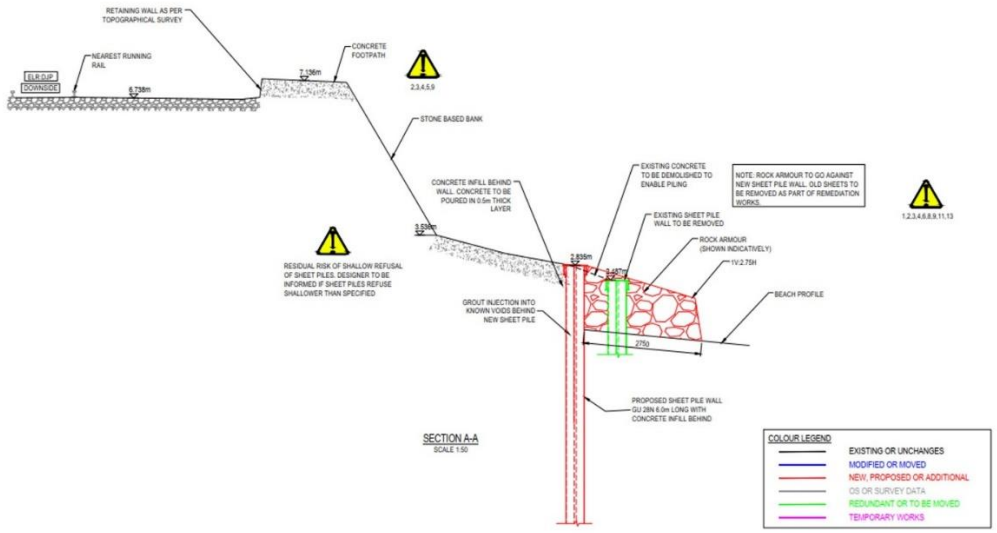

Figure 1-2: General Arrangement drawing section (profile view) - image capture taken from 'PROPOSED SECTIONS' created by Crouch Waterfall, Project Number: 23162B / Drawing Number: 001 - Revision B03, dated June 2023, provided by Daniel Overson (MPH Construction) on 23rd February 2024.

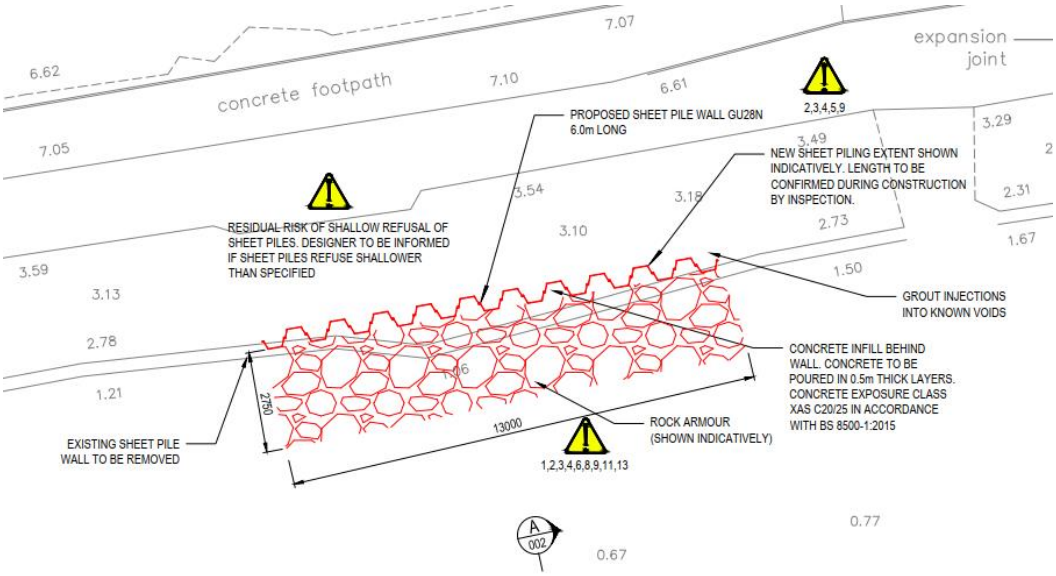

Figure 1-3: General Arrangement drawing section - image capture taken from 'GA ON PROPOSED SHEET PILE WALL AND ROCK ARMOUR' created by Crouch Waterfall, Project Number: 23162B / Drawing Number: 001 - Revision B03, dated June 2023, provided by Daniel Overson (MPH Construction) on 23rd February 2024.

General arrangement design drawing (Figure 1-3) indicate the extent of the sheet pile and associated rock armour placement. The revised drawings indicate that the sheet pile and rock armour extent being repaired will be 13.0 m in length and will extend 2.75 m seaward of the emplaced sheet pile, as per communication from Daniel Overson (MPH Construction), on 22nd March 2023.

Subsequently, the footprint of the proposed repair works are expected to cover 35.75 m^2 of the intertidal area.

2 Methods

A PEA of the site has been undertaken in line with current best practice guidance (CIEEM, 2017) and included:

- A desk-based assessment to identify any records of protected and/or notable habitats and species, and designated nature conservation sites in the vicinity of the proposed works.
- A site survey comprising a Phase 1 Habitat Survey including and an assessment of the possible presence of protected or priority species, and (where relevant) an assessment of the likely importance of habitat features present for such species.
- An assessment of the potential impacts of the works on the habitats and species present at the site and the surrounding areas.

2.1 Desk-Based Assessment

Prior to undertaking the site survey, searches of databases containing ecological records, priority habitats, and information on statutory and non-statutory designated sites were made. The following sources were included in these searches:

- MAGIC mapping service (www.magic.gov.uk)
- https://datamap.gov.wales/

2.2 Site Survey

A site survey was undertaken on the 23rd June 2023 by a suitably qualified ecologist. The survey included the length of the proposed scheme.

The PEA was based upon a Phase 1Habitat Survey, conducted following the Joint Nature Conservation Committee (JNCC) survey method (JNCC, 2010). The method was extended to identify any features suitable for use by legally protected or notable species and locate evidence for their presence or likely absence based on standard techniques.

2.2.1 Habitats

Habitats within and adjacent to the site boundary were surveyed to the Phase 1 Habitat Survey methodology (JNCC, 2010). The Phase 1 habitat survey is a standard technique for classifying and mapping British habitats where the dominant plant species are recorded, and habitats are classified according to their vegetation types. All habitats within the site were recorded during the site survey and a description of each habitat type collected. Botanical names follow Stace (2010).

Where appropriate intertidal habitats were recorded using methods based on procedural guidelines outlined in the Marine Monitoring Handbook (JNCC, 2001), which provides advice on monitoring marine Special Areas of Conservation to assess their condition in accordance with the requirements of the Habitats Directive and UK Common Standards for Monitoring. The aim of the biotope survey is to create maps showing the distribution of

biotopes along with associated information, such as the occurrence of rare species, and details of habitat.

All biotopes were recorded and classified according to Connor D.W and the JNCC Marine Habitat Classification.

2.2.2 Protected and Notable Species

Habitats were also assessed for their potential to support any legally protected species or species of conservation concern and any incidental faunal sightings, or field signs discovered during the survey, were recorded. The following sections provide further details on the assessments undertaken in relation to specific species. Legislative guidance relating to protected species is outlined in Appendix 1, along with details of other relevant policy and legislation.

2.2.2.1 Birds

Vegetation and habitats around the site were assessed for their suitability to support nesting birds. Special consideration was given to bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Furthermore, any birds seen or heard on site during the survey were recorded as incidental observations.

2.2.2.2 Badger

The survey area was searched for signs of Badgers *Meles meles*, and where evidence was found details were recorded following Harris *et al*. (1989). In addition to recording the presence of setts and the level of activity at them, the following signs of activity were also searched for: latrines, footprints, evidence of feeding activity and well-worn paths through vegetation. Badgers will use a number of setts throughout their territory at different times of year; any large holes with the potential to be used by Badgers, but not showing obvious signs of recent activity, were therefore also recorded.

2.2.2.3 Bats

Structures and trees likely to be impacted by the proposed works were inspected to determine the potential for bat roosts to be present, using the methods specified in the Bat Conservation Trust (BCT) guidelines (Collins, 2016).

Buildings, structures and trees on the site were categorised as having either 'negligible', 'low', 'moderate' or 'high' roosting potential and this was determined by applying the definitions given within the BCT Guidelines (see Table 2-1). Evidence of bat activity associated with potential roost sites includes bat droppings, urine staining, feeding remains, scratch marks and dead/alive bats.

Potential Roosting Features (PRF) on trees include cracks/splits, crevices, rot cavities, fluting, loose bark, woodpecker holes and areas of Ivy Hedera helix. Evidence indicating the existence of a bat roost may include dark stains running below holes or cracks, bat

droppings, odours, or scratch marks. However, roosting bats may still be present without any external evidence being recorded.

Furthermore, the suitability of habitats across the site to support commuting and foraging bats was assessed in terms of habitat type, abundance, connectivity and distribution. These were categorised as having either 'negligible', 'low', 'moderate' or 'high' suitability for bats which was determined by applying the categories given within the BCT Guidelines (Table 2-1).

Table 2-1. Definitions of Roost Suitability (From Collins, 2016)

Suitability	Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites 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 or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites 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 – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.

Suitability	Roosting Habitats	Commuting and Foraging Habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.2.2.4 Otter

Watercourses and surrounding areas within the site were assessed for their potential to support Otter *Lutra lutra*, based on RSPB (1994) and Chanin (2003). This involved walking the survey section and recording any spraints (droppings), slides, feeding remains and footprints. A search was also made for possible holt and couch (resting) sites. Otters are extremely difficult to observe, and this method provides the most effective and efficient means of investigating presence or absence.

2.2.2.5 Reptiles

As part of the site survey, an assessment of the habitat suitability for common reptiles was made. This involved inspection of the site for key habitat features/microhabitats which may be favoured by reptiles, such as embankments, log, brash or rock piles, dry stone walls, hedgerows, open sandy areas, woodland edges and rides and interfaces between different habitat types (Froglife 1999).

2.2.3 Other Notable Species and Environmental Constraints

During the site survey, any signs or sightings of other notable species were also recorded. In addition, any environmental features that might constrain the works were also recorded (e.g. access restrictions).

2.2.4 Invasive Non-Native Species

Any Invasive Non-native Species (INNS) observed during the survey were recorded. For stand-forming plant species, the extents of such stands were noted.

2.3 Limitations

The habitats and species present in a given area are subject to change over time. A single field visit of this nature captures and reports the situation at the time of survey. As such, the advice contained within this report is considered valid for a period of 18 months before a review on the need for an updated survey/assessment must be made by an ecologist (CIEEM 2019).

Data from online databases is historical information, and datasets might be incomplete, inaccurate or missing. It is important to note that even where data is held, a lack of records for a defined geographical area does not necessarily mean that the species is absent; the area may simply be under-recorded. As such, records cannot be relied on and serve only as an indication of what might/ might not be found.

3 Results and Evaluation

3.1 Desk-Based Assessment

3.1.1 Statutory Designated Sites

3.2 Project Area of Influence and European Sites

The proposed scheme is located within the Pen Llŷn a'r Sarnau/ Lleyn Peninsula and the Sarnau Special Area of Conservation (SAC) and is 1.5km from the Gogledd Bae Ceredigion/ Northern Cardigan Bay Special Protection Area (SPA). The scheme location in relation to the designated sites is mapped below in Figures 4-1 and 4-2.

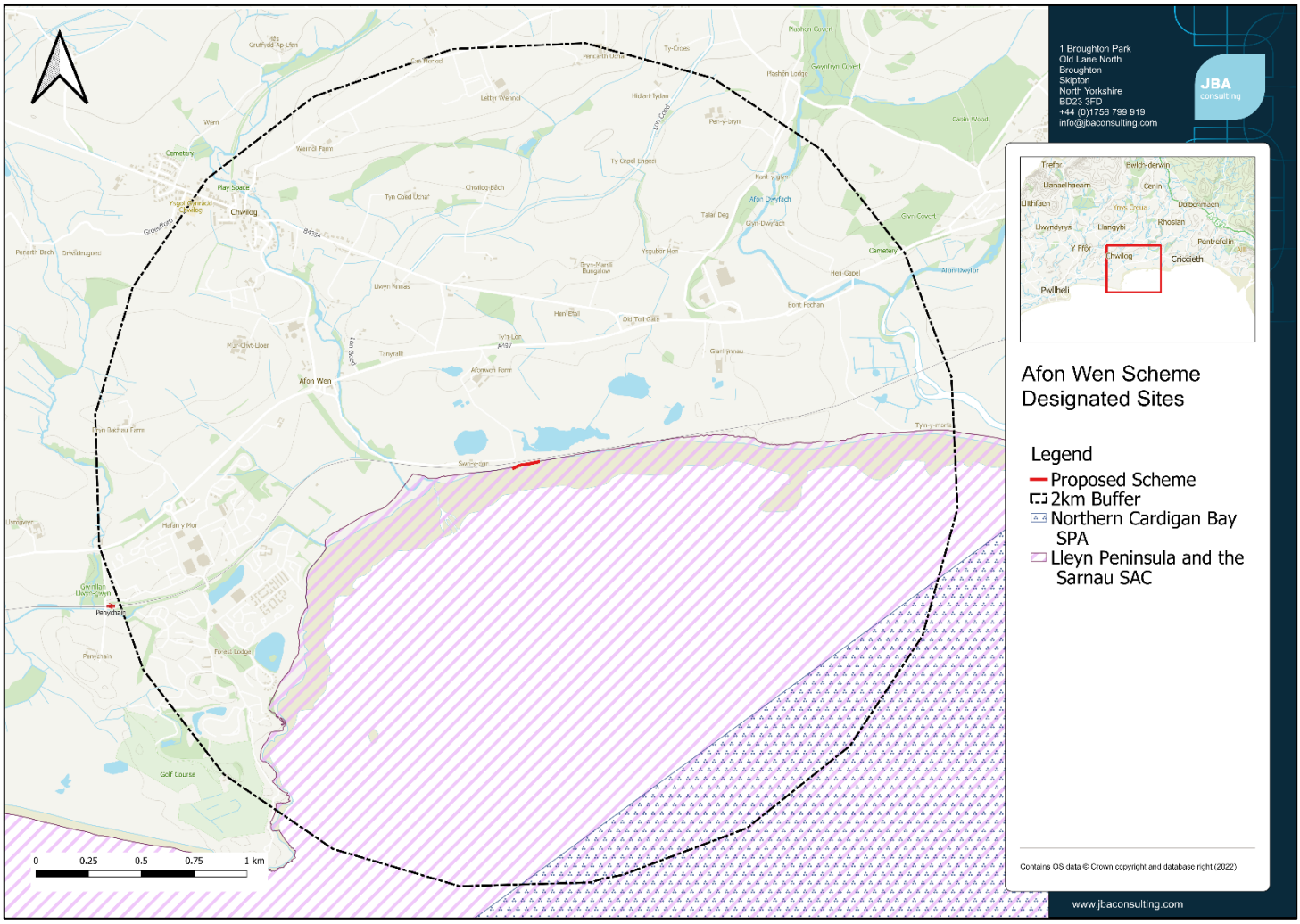

Figure 3-1. Location of proposed works area in relation to designated sites

3.3 Pen Llŷn a'r Sarnau/ Lleyn Peninsula and the Sarnau Special Area of Conservation (SAC)

3.3.1 Qualifying Features

The SAC comprises 92.6% marine areas and sea inlets, 5.4% tidal rivers, estuaries, mudflats, sandflats and lagoons (including saltwork basins, 1.2% salt marshes, salt pastures, salt steppes, 0.5% coastal sand dunes, sand beaches, machair, 0.2% shingle, sea cliffs, islets and 0.1% bogs, marshes, water fringed vegetation and fens.

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

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1130 Estuaries
- 1150 Coastal lagoons
- 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* maritime)
- 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 truncatus*
- 1355 Otter *Lutra lutra*
- 1364 Grey seal *Halichoerus grypus*

3.3.2 Conservation Objectives

To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.

- Habitat Features
  - The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.
  - The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded.
  - The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded.
- Species Features
  - The population is maintaining itself on a long-term basis as a viable component of its natural habitat.

- The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future.
- The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing.
- As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing.

3.4 Gogledd Bae Ceredigion/ Northern Cardigan Bay Special Protection Area (SPA)

3.4.1 Qualifying Features

The site qualifies under Article 4.1- Qualification (79/409/EEC):

- Over winter the area regularly supports: Red-throated diver *Gavia stellata*, 1,186 individuals representing 7% of the wintering population in Great Britain (2001/02 – 2003/04)

3.4.2 Conservation Objectives

The single qualifying feature of the proposed SPA is the nationally important nonbreeding population of Red-throated diver *Gavia stellata*. The conservation objectives outlined for this feature include:

- The wintering population of Red-throated diver should be stable or increasing.
- The foraging habitat of this species should not decrease significantly, and its quality should remain unaffected by anthropogenic factors.

This site is of special interest for its geological and marine biological features. It consists of an 8km length of shoreline with nationally and regionally important intertidal communities between the headlands at Pen-y-chain and Criccieth Castle. Geologically this site is important for the glacial deposits exposed along the coastal cliffs at Glanllynnau and the associated glacial landforms found inland. The site is a south and south-easterly facing, moderately exposed mixed rock and sediment shore, the majority of which is backed by low soft sediment banks.

3.5 Non Statutory designated sites

3.5.1 Llynnoedd Afonwen Wildlife Site

This site is located adjacent to the works on the landward side of the rail line. It is designated for standing water; fen and marginal swamp habitats.

3.6 Phase 1 Habitat Survey

3.6.1 Hardstanding

The works will all take place on the existing flood defence which consists of steel piles with a concrete fill. The top is clean concrete without algae growth or marine invertebrates present.

3.6.2 Sand Above High Tide Mark

Along the beachfront there is a small strip of sand that sits above the high tide mark. This section comprises of barren coarse sand that is heavily disturbed by beach users including dog walkers and sunbathers in the summer.

3.7 Maritime Biotopes

3.7.1 Intertidal Foreshore

The intertidal areas within the proposed scheme boundary consists of a mix of sediments with a range of boulders, cobbles and pebbles and sand. The following section details the biotopes recorded within the foreshore area adjacent to the proposed works.

LS.LSa.MoSa.BarSa - Barren Littoral Coarse Sand

The upper part of the littoral zone within the scheme boundary comprises of a sand beach lacking a macrofaunal community.

LS.LMx - Littoral mixed sediment

As the foreshore front extends into the lower part of the littoral zone the sediments become more mixed ranging from sand to gravel and pebble. These mixed sediments supported infaunal communities with species identified on site including Common Cockle *Cerastoderma edule*, Acorn Barnacle *Semibalanus balanoides*, Common Periwinkle *Littorina littorea*, and Topshell species.

LS.LSa.St.Tal - Talitrids on the upper shore and strand-line

Strandlines are present throughout the length of the scheme on the sand beach in the upper littoral zone and comprise drift lines of decomposing seaweed and other debris. The decaying seaweed provides cover and humidity for a range of sandhopper species (*Talitrid amphipods*).

3.8 Assessment of Protected and Notable Species

3.8.1 Invertebrates

The majority of the habitats present within the proposed scheme boundary provide limited habitat for invertebrates. The majority of intertidal habitat present comprises of coarse sand

that lacks a macrofaunal community and is heavily disturbed, resulting in poor habitat potential for invertebrate species. The mixed sediment present in the lower intertidal areas and sublittoral zone provide more suitable habitat for a range of macroinvertebrate species which in turn provide an important food source for bird and fish species in the area.

3.8.2 Birds

The desk study provided records for a large number of bird species within 2km of the proposed scheme boundary including migratory bird species associated with the intertidal areas No areas with nesting opportunities were recorded during the site survey. The open water areas adjacent to the proposed works provide foraging opportunities for a range of wintering and migratory bird species that forage close to the shoreline at high tide.

3.8.3 Bats

No potential roost features were identified during the survey. However, there is the potential for the rail corridor, surrounding farmland and intertidal areas to be utilised by foraging bats.

3.8.4 Otter

No areas suitable for resting Otter were recorded within the scheme area, however, there is the potential for Otter to commute or forage in the area..

3.8.5 Marine Mammals

Recent local sightings highlight that seals are using the area in front of the proposed scheme boundary to forage at high tide. The slipways present throughout the site have the potential to be utilised as haul out spots for seals, however, given that the area is popular with tourists, dog walkers and café goers and presence of the road and parking areas directly adjacent to these slipways this is unlikely. The rest of the scheme area does not provide suitable haul out areas for seals with the high levels of disturbance on the beach making it unlikely that it will be heavily utilised by seals.

3.8.6 Reptiles and Amphibians

No reptile or amphibian species were recorded whilst on site and terrestrial habitats were considered to hold no potential for reptiles or amphibians with the majority of the site being hardstanding.

3.8.7 Invasive Non-Native Species

No invasive non-native species were identified in the desk study and no species were recorded during the site survey within the proposed scheme boundary.

4 Assessment of Impacts and Recommendations

The assessment and recommendations are based on general constraints.

4.1 Designated Sites

There are a number of statutory designated sites within the proposed scheme boundary, There is the potential for the proposed works to impact upon the features of these protected sites through disturbance or changes in water quality. It will therefore be necessary for a HRA screening assessment to be carried out in accordance with the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) to determine if the plan may affect the protected features of a site within the 'National Site Network'. An ecological consultant can complete this and will act as a shadow HRA which the local authority can then either adopt or use to complete their own.
A marine license will be required for any works planned below the Mean High Water Spring Tide (MHS).

The works will not directly impact the adjacent local wildlife site and potential impacts are limited to construction traffic. Therefore, all construction traffic will utilise and the existing farmers tracks and roads. To avoid indirect impacts pollution prevention measures will be required to be detailed in a CEMP.

4.2 Habitats

The works are limited to the repair and renewal of existing flood defences, therefore it is considered that the proposed works will not result in the loss or degradation of existing habitats.

However, There is the potential to negatively impact intertidal and subtidal habitats during the construction phase. Therefore, appropriate mitigation measures should be implemented prior to the construction phase to ensure that the water quality is not adversely affected through pollution incidents and the release of contaminants from the site. Pollution prevention measures are outlined in section 4.3.9 below.

Plant movement along the foreshore has the potential to negatively impact habitats through compaction of the foreshore. To minimise disturbance and habitat degradation plant will keep to agreed haul routes and not stray outside of these areas. It is considered that in this case the haul routes will rapidly recover following the completion of the works.

Intertidal habitats are Priority habitat nationally and it is recommended that any loss is compensated for.

4.3 Protected Species

4.3.1 Invertebrates

Sabellaria alveolata has been identified in the area and is a feature of the adjacent SSSI. However, the species was not recorded during the surveys within or adjacent to the proposed works. It is also recommended that a further survey is carried out prior to the works to ascertain the current extent of the species.

4.3.2 Birds

The foreshore near the low tide mark has the potential to provide habitat for macroinvertebrate species, which in turn provides a food source for a range of species. . Recommended mitigation measures to avoid temporary or indirect impacts on this habitat are included in the below sections.

Areas of intertidal sediments provide habitat for wintering wildfowl and wading bird species. It is noted that use of the beach by large numbers of people walking dogs or undertaking other leisure activities causes large amounts of temporary disturbance to birds. Given that the birds present are already habituated to large amounts of disturbance, and the availability of alternate nearby intertidal habitat, it is considered unlikely that disturbance due to the works will result in a significant impact upon wading bird species.

However, a HRA as detailed above will be required to identify impacts to bird features of the adjacent SPA.

Construction methodology should be specified in consultation with statutory bodies to ensure agreement on the proposed methodology to both avoid and mitigate any potential impact on bird species.

4.3.3 Otter

The scheme area does not hold potential for resting sites for Otter. Therefore, it is considered that impacts to Otter can be managed through appropriate working practices such as excavations left overnight should either be covered or an escape ramp installed to prevent the trapping of animals such as Otter. Should an Otter be encountered on site during the works, all works should cease immediately and advice be obtained from an experienced ecologist.

4.3.4 Marine Mammals

Recent sightings records of Grey Seal suggest that a number of these species commute or forage within the proposed scheme boundary during high tide. Although the beach front has the potential to be utilised by seals for hauling out and basking, this is considered unlikely due to the high use of the area. Impacts from the works are therefore likely to be restricted to temporary noise and vibration disturbance to a few foraging and commuting individuals. However, research has shown that seals hearing can be damaged by piling operations, it is

therefore recommended, should piling operations be carried out, that a 'soft start' carried out each day on any piling works as this will move seals and cetaceans away from the area.

Cetaceans are known to be present in the bay. There is a risk of disturbance if piling is carried out in the water column, therefore all piling should be carried out in the dry.

4.3.5 General Avoidance Measures

General avoidance measures that should be incorporated within the scheme include:

- Limit the hours of working to daylight hours, to limit disturbance to nocturnal and crepuscular animals;
- Due to the potential presence of bats and Otters the use of lighting at night should be avoided. If the use of lighting is essential, then a directional cowl should be fitted to all lights to prevent light spill and to be directed away from the foreshore.
- Contractors must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled;
- Any pipes should be capped when not in use (especially at night) to prevent animals becoming trapped. Any excavations should be covered overnight to prevent animals from falling and getting trapped. If that is not possible, a strategically placed plank should be placed to allow animals to escape.

4.3.6 Biosecurity

Measures will need to be put in place to ensure that there is no spread of invasive non-native species or diseases. The Check-Clean-Dry approach should be followed, ensuring that all PPE and equipment is cleaned before leaving site. For more information go to: www.nonnativespecies.org/checkcleandry.

4.3.7 Pollution prevention and incident response

There is the potential to negatively impact intertidal and subtidal habitats through pollution incidents. Therefore, appropriate mitigation measures will be implemented through the construction phase to ensure that the water quality is not adversely affected through pollution incidents and the release of contaminants from the site. This will specifically cover dynamic marine environments. No refuelling of machinery will occur within 7m of any waterbody. A toolbox talk will be given to all site staff for pollution prevention and incident response. All site staff will undertake emergency drills for incident response.

4.4 Enhancement Measures

The works are extremely small scale and therefore opportunities for biodiversity enhancements are limited. The proposed works have the potential to result in the small-scale loss of intertidal habitats close to the existing sea wall, both through direct loss and future coastal squeeze. Whilst this is not considered to be a significant impact, intertidal

habitats are a priority habitat and it is recommended that compensatory and enhancement measures are considered.
Enhancements to the sea wall should be made that encourage growth of algae and colonisation by marine invertebrates such as periwinkles. Options could include

- • Placing large rocks at foot of seawall;
- • Textured formwork for concrete surfaces;
- • Adding water retaining features to vertical walls;
- • Constructing gentle slopes where possible; and
- • Allowing community produced tiles or other diversity enhancing features to be added to the flood defences.

Appendices

A Relevant Policy and Legislation

The legislation discussed below is intended as a guide only and does not replace formal legal advice.

A.1 Natural Environment and Rural Communities (NERC) Act 2006

Natural Environment & Rural Communities (NERC) Act 2006 Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity to have due regard for biodiversity and nature conservation during the course of their operations. Public authorities include government departments, local authorities and statutory undertakers. Section 42 of the Act requires the publication of a list of habitats and species publish which are of principal importance for the purpose of conserving biodiversity. The Section 42 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.

Note that Sections 40 and 42 were superseded in Wales by the Environment (Wales) Act 2016 (see below).

A.2 Environment (Wales) Act 2016

The Environment (Wales) Act puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way. Part 1 Section 6 of the Act introduces a new biodiversity duty, which replaces and enhances the biodiversity duties set out in the NERC Act 2006 and requires public authorities to seek to maintain and enhance biodiversity in the exercise of their functions and in so doing promote the resilience of ecosystems. Section 7 of the Act lists living organisms and types of habitat in Wales, considered to be of key significance to sustain and improve biodiversity in relation to Wales.

A.3 Statutory designated nature conservation sites

Sites with statutory designations receive varying degrees of legal protection under UK statute and European Directives. There are several statutory designations used for sites of high nature conservation value in the UK, which are applied depending upon the importance of the site in a local, regional, national or international context. This includes:

- Ramsar Sites (International designation)
- Special Areas of Conservation (SAC) and Special Protection Area (SPA) (European designations)
- National Nature Reserves (NNR) and Site of Special Scientific Importance (SSSI) (National designations)
- Local Nature Reserves (LNR) (Local designation)

A.4 Non-statutory designated sites

Non-statutory sites are afforded no statutory legal protection but are normally recognised by local planning authorities and statutory agencies as being of local nature conservation value. The protection afforded to such sites is usually discretionary, through Local Plan policies. Non-statutory sites are designated by the local authority, usually in partnership with the County Wildlife Trust (or equivalent).

A.5 Marine and Coastal Access Act 2009

The Marine and Coastal Access Act 2009 presents a strategic marine planning system to agree and clarify marine objectives and priorities for the future and to steer sea users and decision-makers towards more efficient, sustainable use and protection of our marine resources.

Part of this strategic process is the designation of Marine Conservation Zones (MCZs) in the territorial waters adjacent to England and Wales and in UK offshore waters. The purpose of this is to provide an ecologically coherent network of protected marine and coastal sites with the aim of providing protection to species and habitats of national importance.

A.6 Protected species

Several species are protected under UK and international legislation. In the UK, primary protection is provided under the Wildlife and Countryside Act 1981 (as amended). Species of European importance receive additional protection in Wales under the Conservation of Habitats and Species Regulations 2017 (as amended); others may receive protection through specific legislation. Further details on specific species and their levels of protection are provided below.

A.6.1 Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built
- take, destroy or possess the egg of any wild bird.

Certain species, such as the Barn Owl Tyto alba, receive additional protection under Schedule 1, which makes it an offence to intentionally or recklessly disturb birds and also their young at, on or near an active nest.

A.6.2 Badger

Badgers *Meles meles* are protected by the Protection of Badgers Act 1992 and the Wildlife and Countryside Act 1981 (as amended), Schedule 6. Under the Protection of Badgers Act, it is illegal to intentionally kill, capture, injure or ill-treat any Badger. It is also an offence to

obstruct, destroy or damage a Badger sett or disturb Badgers within a sett. Disturbance is defined, for development purposes, as any activity that could damage a sett or be greater than what Badgers commonly tolerate.

A.6.3 Bats

All UK bat species are European Protected Species (EPS), protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitat and Species Regulations 2017 (as amended). This makes it an offence to:

- deliberately capture, injure or kill a bat
- intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- intentionally or recklessly obstruct access to a bat roost.

A.7 Otter

The European Otter *Lutra lutra* is an EPS protected under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence to:

- deliberately capture, injure or kill an Otter
- deliberately disturb an Otter such as to affect local populations or breeding success
- damage or destroy an Otter holt, possess or transport an Otter or any part of an Otter
- sell or exchange an Otter.
- Otters also receive protection under the Wildlife and Countryside Act 1981 (as amended), this makes it an offence to:
- intentionally or recklessly disturb any Otter whilst within a holt
- intentionally or recklessly obstruct access to a holt.

A.7.1 Great Crested Newt

The Great Crested Newt *Triturus cristatus* is a EPS under the Conservation of Habitats and Species Regulations 2017 (as amended). This makes it an offence to:

- kill, capture or disturb a Great Crested Newt
- take or destroy the eggs of a Great Crested Newt
- damage or destroy the breeding or resting places of Great Crested Newt.

It also receives additional protection under the Wildlife and Countryside Act 1981 (as amended) making it illegal to possess or control any Great Crested Newt, living or dead.

A.7.2 Reptiles and other amphibians

Legal protection varies considerably for different species. Smooth Snake *Coronella austriaca*, Sand Lizard *Lacerta agilis* and Natterjack Toad *Epidalea calamita* are EPS, and it is an offence to:

- deliberately kill, capture or disturb these species
- deliberately take or destroy the eggs of these species
- damage or destroy the breeding or resting places of these species.

Under the Wildlife and Countryside Act 1981 (as amended) Adder *Viperus berus*, Grass Snake *Natrix natrix/Natrix helvetica*, Common Lizard *Zootoca vivipara* and Slow Worm *Anguis fragilis* are protected from intentional killing or injuring, additionally Common Frog *Rana temporaria*, Common Toad *Bufo bufo* and other newt species are prohibited from sale.

A.7.3 Fish

The Salmon and Freshwater Fisheries Act (1975) affords protection to fish and to the spawning grounds of fish. Section 2(5) makes it an offence to wilfully disturb spawning fish or the spawn of fish. Section 4(1) makes it an offence to knowingly permit the introduction of material to a watercourse such that it becomes injurious to fish, the spawn of fish or the spawning grounds of fish.

A.7.4 Invasive non-native species

Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) lists plant species, groups of plants and animal species for which it is illegal to plant, release, allow to escape or cause to spread into the wild.

Some species are also classed as 'controlled waste' under the Environmental Protection Act 1990 and must be disposed of properly (i.e. Japanese Knotweed and Giant Hogweed). These provisions mean that, if these species occur on a site proposed for development or other work which may disturb the ground, control of these species is likely to be required.

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