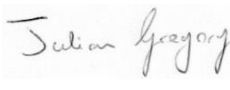


2022

**Saint Ishmaels & Ferryside
Defence Maintenance
Habitat Regulations Assessment (HRA)**





DOCUMENT INFORMATION			
Project	Saint Ishmaels & Ferryside Sea Defence Maintenance		
Location	Address: Lookout Level Crossing, Old Parish Road, St. Ishmael, Carmarthenshire, SA17 5UH ELR: SWM2 Grid Ref: SN 36208 09262 to SN 37149 11726		
Title	Habitat Regulations Assessment		
Document Ref	EV000881/HRA-2	Issue / Revision	2
File reference	EV000881/3/HRA-2		
Start Date	/06/2022		
	Name	Signature	Date
Assessment Undertaken by	Owain Waters		6/2022
Document prepared by	Owain Waters		06/2022
Checked by	Julian Gregory		06/2022
Authorised by	Julian Gregory		06/2022

DOCUMENT CONTROL		
Rev.	Date	Description
0	05/22	Draft
1	06/2	Issued
1	07/2	Amended

Disclaimer

No part of this document may be copied or reproduced by any means without prior written permission from EcoVigour. If you have received this report in error, please destroy all copies in your possession or control.

This document has been prepared for the exclusive use of the commissioning party/parties and unless otherwise agreed in writing by EcoVigour, no other party may use, make use of, or rely on the contents of the report.

No liability is accepted by EcoVigour for any use of this document, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the document are on the basis of EcoVigour using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy.



CONTENTS

1. Introduction	4
1.1 Assessment Background	4
1.2 Project Background	5
2. Legislative Context	6
2.1 Overview	6
3. Methodology	6
3.1 Overview	6
4. Description of The Proposed Activities	7
4.1 Site Context	7
4.2 Method Overview – Masonary Wall Repairs	8
4.3 Method Overview – Toe Repairs	10
4.4 Wall Breach Repairs	11
4.5 Supporting Works	12
5. HRA Methodology Objectives	13
6. Designated Sites within Proximity to Site	14
7. Carmarthen Bay and Estuaries - Special Area of Conservation (SAC)	15
7.1 SAC Overview	15
8. Afon Tywi SSSI	16
8.1 OVERVIEW	16
8.2 Site Management Statement	17
8.3 Habitat Present within Working Footprint	18
9. Physical Processes	20
9.1 Relevant Policies within the Shore Management Plant 2 (SMP2)	20
10. Assessment of Potential Impacts Resulting from Specific Activities and Proposed Mitigation Measures – Saint Ishmaels & Ferryside Sea Defences	22
10.1 Annex I Habitats – Impacts & Mitigation	22
10.2 Annex II Species – Impacts & Mitigation	25
11. Potential In-Combination Effects	29
11.1 Overview	29
12. Known Projects Within The Wider Area	29
13. HRA Conclusion	30
14. Appendix A - Biosecurity Management Plan & Risk Assessment	31
15. Appendix B- Project Technical Documents	32



FIGURES

Figure 1: Project Location.	5
Figure 2: Toe bean failure below Saint Ishmaels Sea Defence.....	5
Figure 3: Location of project in relation to wider area.	7
Figure 4: Selection of images of previous minor wall repairs on a different rail route.	8
Figure 5: The figure above provides a visual assessment wall during 2022.	8
Figure 6: Toe repair design.	10
Figure 7: Breach to upper section of Ferryside North embankment.	11
Figure 8: Argocat Vehicle.	12
Figure 9: SSSI Designated Site boundary in relation to project area (blue overlay).	16
Figure 10: Habitat - Saint Ishmaels Sea Defence	18
Figure 11: Habitat - Ferryside South	18
Figure 12: Habitat - Ferryside North	19
Figure 13: SMP2 - Policy Units	20

TABLES

Table 1: Annex I & II features of the SAC.	15
Table 2: PDO list from NRW Designated Site Finder Tool.	17
Table 3: Relevant Policy Unit description.	20



1. INTRODUCTION

1.1 ASSESSMENT BACKGROUND

- 1.1.1 This document provides information to support an Appropriate Assessment under The Conservation of Habitats and Species Regulations 2017 (hereafter referred to as the 'Habitats Regulations') for scheduled maintenance of Saint Ishmaels and Ferryside Sea Defences on behalf of Network Rail (NR).
- 1.1.2 Under the requirements of the European Council Directive 92/43/EEC 'The Habitats Directive', it is necessary to consider whether projects or plans may have significant effects upon areas of nature conservation importance designated/classified under the Directives. This requirement is translated into UK law through the 'Habitats Regulations'.
- 1.1.3 EcoVigour Ltd have been commissioned to produce these documents for Dyer & Butler Ltd (Rail Division), the principal contractor, working on behalf of Network Rail, the client.
- 1.1.4 The project is scheduled to begin at the earliest opportunity upon receipt of the Marine License. Estimate to occur between September 2022 to September 2023. The works will several months over the next year to complete the masonry repairs, repairs to a toe beam failure and repairs to an upper embankment breach.
- 1.1.5 In addition to serving the Appropriate Assessment (AA) requirements, this document will also serve notice of activities in proximity to a SSSI (S28G Notice).
- 1.1.6 This assessment will be submitted to the competent authority Natural Resources Wales (NRW) due to the structure spanning the or marking the legislative boundary of adjacent designated sites.
- 1.1.7 As the works necessitate repairs to a marine defence seaward of Mean High Water Spring (MHWS) limits of the Tywi/Carmarthen estuary, combined with the use of plant machinery along the beach, a Band 2 License is required.
- 1.1.8 The main statutory designated site which requires consideration under the Habitats Regulations has been identified as:
 - ◆ Carmarthen Bay and Estuaries - Special Area of Conservation (SAC).
- 1.1.9 Also requiring consideration in relation to seeking Site of Special Scientific Interest (SSSI) Assent for the works from NRW is:
 - ◆ Afon Tywi – Site of Special Scientific Interest (SSSI).
- 1.1.10 Following review and consensus, this document will form part of the working methodology for the project, supporting working within a designated site.
- 1.1.11 Under the requirements of the European Council Directive 92/43/EEC 'The Habitats Directive', it is necessary to consider whether projects or plans may have significant effects upon areas of nature conservation importance designated/classified under the Directives. This requirement is translated into UK law through the 'Habitats Regulations'.
- 1.1.12 In addition to the above the assessment has been compared with the Welsh Nation Marine Plan (WNMP) documentation, which can be found within Appendix D.



1.2 PROJECT BACKGROUND

- 1.2.1 The Sea Defences are located between St Ishmael and Ferryside North along the eastern shore of the mouth of the Twyi (see figure 1 below). The condition of masonry requires scheduled remedial measures, while the toe failure at the base of the wall, and the breach found in the upper section of Ferryside North embankment, requires repairs at the earliest safe opportunity (see figure 2).



Figure 1: Project Location.



Figure 2: Toe bean failure below Saint Ishmaels Sea Defence



2. LEGISLATIVE CONTEXT

2.1 OVERVIEW

- 2.1.1 This document provides information to support an Appropriate Assessment under the Habitats Regulations of the proposed works by (Dyer & Butler) on behalf of Network Rail.
- 2.1.2 The Habitats Directive, transposed into UK legislation through the Conservation of Species and Habitat Regulations (2017) (Article 6 of European Council Directive 92/43/EEC), any plan or project not directly connected with, or necessary to, the management of a European designated site but likely to have a significant effect, either alone or in combination with other plans or projects, shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives.
- 2.1.3 If the Appropriate Assessment concludes that the proposed works may have an adverse effect on the integrity of a European Site, or that such an effect cannot be ruled out (in line with the recognised precautionary principle) avoidance and mitigation measures to avoid such an effect must be considered.
- 2.1.4 If it cannot be concluded that the proposed works will not have an adverse effect upon the integrity of the site(s), further measures and assessments would be required. Potentially in the form of compensation.

3. METHODOLOGY

3.1 OVERVIEW

- 3.1.1 This assessment has been produced in-line with Habitats Regulations guidance published by the JNCC (2010), English Nature (now Natural England) (2001) and the Countryside Council for Wales (now Natural Resources Wales) (2008).
- 3.1.2 The asset is situated directly within the Carmarthen Bay and Estuaries SAC and Afon Tywi SSSI.
- 3.1.3 Additionally, there are several SSSI's and a further SAC within close proximity to the project which will be discussed in further detail within the scoping section below.
- 3.1.4 This HRA will focus on the potential likely significant effects (LSE) of the rail asset maintenance on the Carmarthen Bay and Estuaries - Special Area of Conservation (SAC) and Afon Tywi Special Scientific Interest (SSSI).



4. DESCRIPTION OF THE PROPOSED ACTIVITIES

4.1 SITE CONTEXT

- 4.1.1 The work site focuses on the areas of wall masonry at and below MHWS on the seaward facing side of the Sea Defence Wall. Access to the wall is provided by two existing rail crossings, north and south of working area. A relatively wide safe access route between the running rail and inner sea wall is present, which will allow for rope access technicians to operate from.
- 4.1.2 The southern access crossing is suitable for machine crossing, to the large ramp leading down to the beach. This will allow access to the toe failure.



Figure 3: Location of project in relation to wider area.



4.2 METHOD OVERVIEW – MASONRY WALL REPAIRS

4.2.1 This sub section details the equipment, general condition of the sea wall and proposed tasks as part of the maintenance project.



Figure 4: Selection of images of previous minor wall repairs on a different rail route.



Figure 5: The figure above provides a visual assessment wall during 2022.



4.2.2 The maintenance works will consist of the summarised tasks described below:

- ◆ Works are Scheduled to commence September 2022 for approximately 12 months in duration initially, to coincide with the planned rail blockade during summer 2022, these works will continue, when possible, into autumn and winter 2022/2023 when line blocks are available (also coinciding with lower tide times). Works periods will be during daytime shifts ideally. However, night shifts will be required when periods between train movement is limited.
- ◆ No works on the outer sea wall will occur during high tide periods.
- ◆ Pre-works checks during daytime by the supporting ecologist will be undertaken. These checks will highlight important features or potential bat features in the wall requiring further investigation or avoidance depending on guidance of a licensed bat ecologist. Any features requiring specific mitigation will be highlighted on a map and detailed to the principal contractor prior to works being undertaken.
- ◆ The project works will be monitored by an Environmental Clerk of Works (ECoW) to ensure abidance to the HRA conditions, undertaking supervision duties when required and undertaken audits. The ECoW has the authority to abort site operations in the event works are causing disturbance to bird species. E.g., during sensitive early morning foraging periods.
- ◆ Rope access system will be setup in accordance with Specialist Subcontractor RAMS and operatives will access the wall from the top down to the required location of the repair along the sea wall.
- ◆ Equipment will also be transported to worksite via a trolley or gator, these will be removed at the end of each shift and returned back to the stores for secure storage. This will consist of 110v paddle mixer, 3.5kVa generator and mixing buckets.
- ◆ Clearance of vegetation growing from the some areas sea wall will be removed where necessary to access the wall or prevent root systems from causing further internal damage to the walls structure.
- ◆ Pointing materials will be mixed in accordance with manufacturer's instructions. The majority of mixing will occur within the rail track area. However, some mixing may need to occur at beach level where there is no safe buffer between the running rails and site personnel.
- ◆ PIC (Person in Charge) indicates rope access operatives may begin work when the tidal conditions allow access to the base of the sea wall (non-high tide times).
- ◆ Rope operatives place polythene protection to base of sea wall in works area.
- ◆ Existing loose mortar will be removed using hand tools and collected where possible.
- ◆ Rope access operatives begin pointing and document section of works.
- ◆ On completion of pointing rope access operatives collect dropped pointing materials and remove from the working area.



4.3 METHOD OVERVIEW – TOE REPAIRS

- 4.3.1 The toe repairs aspect of the project is limited to a specific failure point along the southern section of the works area (Grid Ref: SN 36150 08450).
- 4.3.2 These works will require the delivery of a 9-tonne plant machine, which will be delivered to site along Old Parish Road and will use the existing rail crossing at the projects southern point, to access the existing beach ramp. From the beach ramp, the vehicle will travel north to the works location.
- 4.3.3 The works will implement a like for like repair by removing the failed block and casting a new block at the toe of the sea defence. The concrete will be pumped to the new cast location via a line attached to a wagon or concrete skip situated outside of the MHWS and marine environment, based from the rear of the access ramp.
- 4.3.4 The figure below illustrates the proposed design footprint. Additional information and engineer calculations and material requirements can be found in Appendix B.

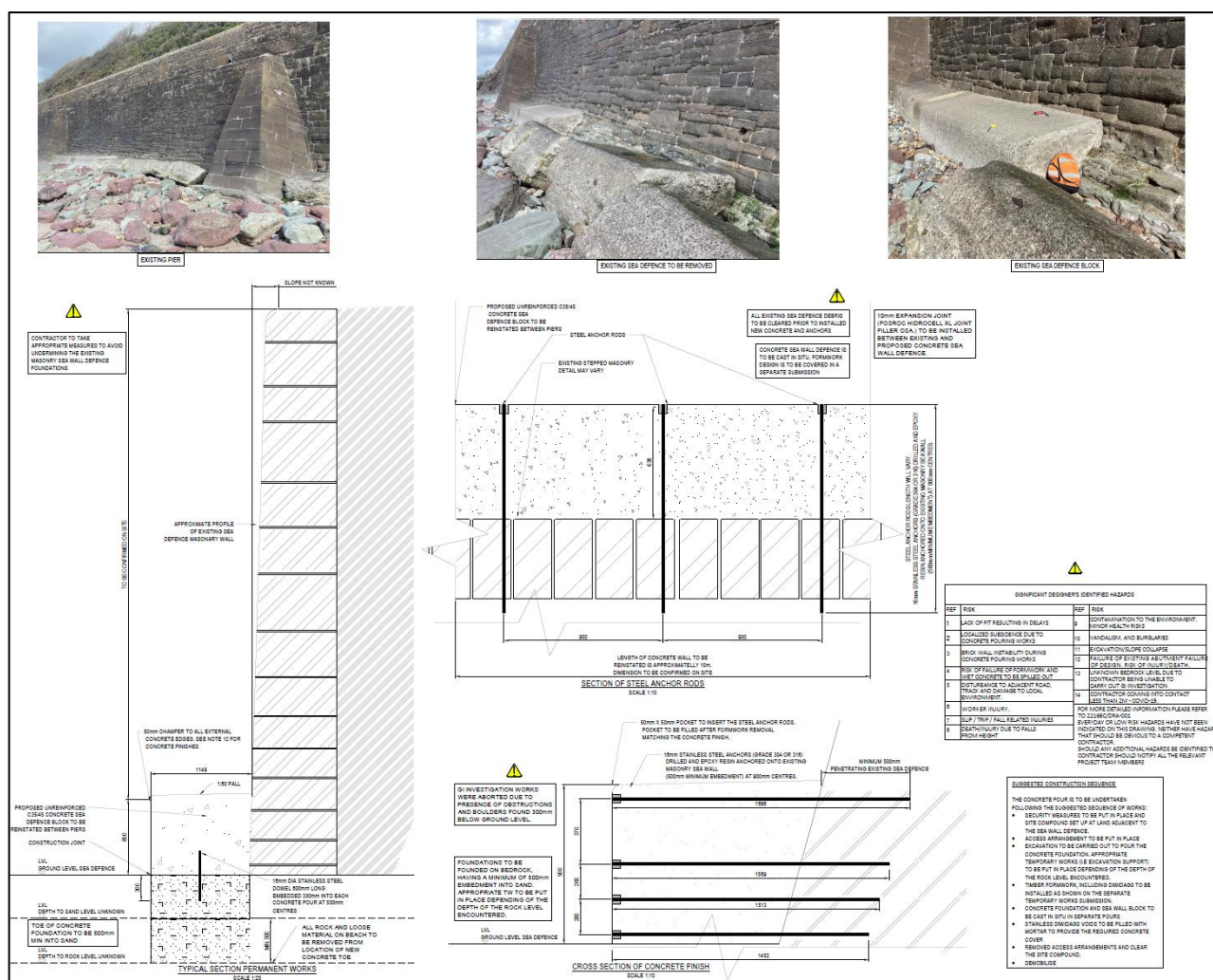


Figure 6: Toe repair design.

- 4.3.5 Please note a larger drawing is available in the attached appendix.



4.4 WALL BREACH REPAIRS

- 4.4.1 The wall breach (Grid Ref: SN 37074 11242) will likely be repaired using a rapid setting marine standard concrete patch to ensure no further rail ballast is lost to high energy events.
- 4.4.2 These works will be undertaken during low tide conditions. The approximate volume required is 1.5-2cube of concrete to ensure the failure is suitably repaired. The profile of the repair will match that of the current defence.

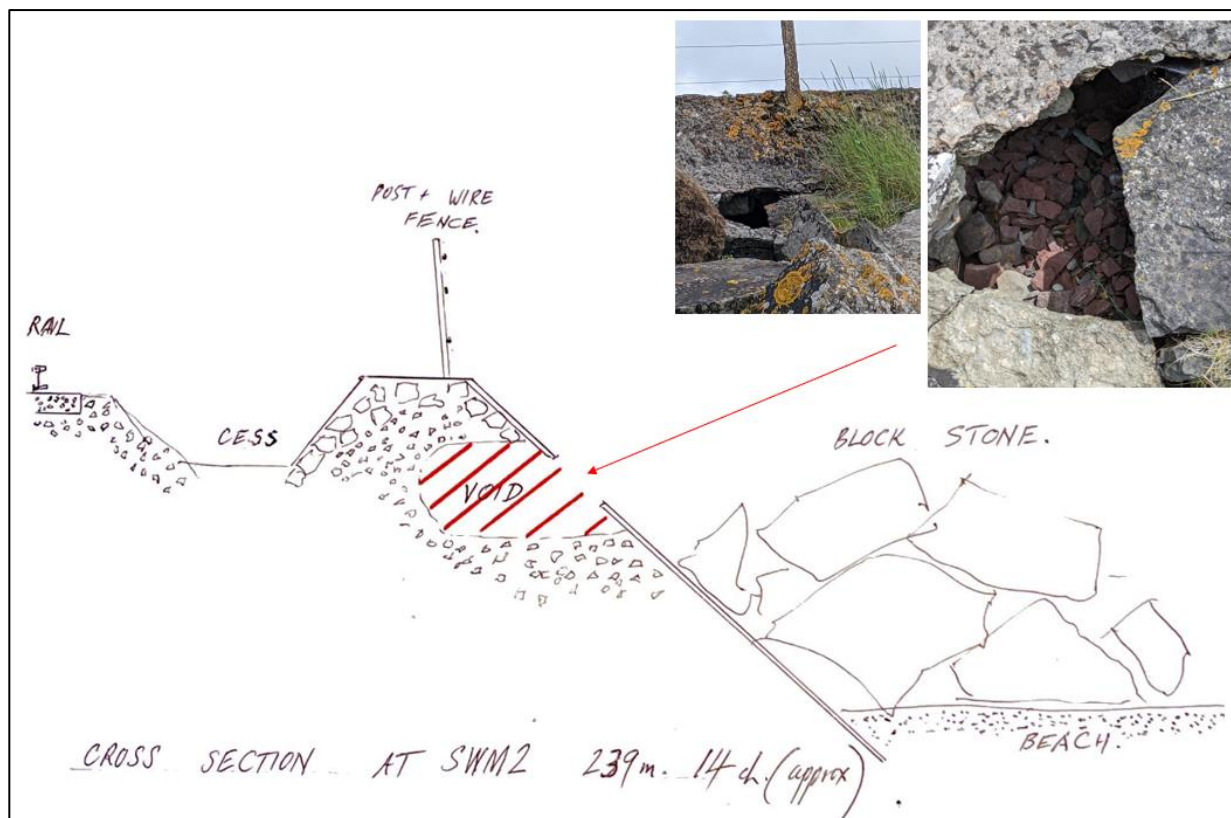


Figure 7: Breach to upper section of Ferryside North embankment.



4.5 SUPPORTING WORKS

Site Welfare - Delivery/Setup

- 4.5.1 No formal compound is required to support the works. Welfare will be provided using mobile welfare vans. These will be moved to suitable locations as the project progresses. A single plan machine is required for the works and will only be delivered and collected from the rail crossing on Old Parish Road.

Vehicle Access

- 4.5.2 The single 9 tonne excavator will be the only heavy machine permitted for use during this project.

- 4.5.3 In terms of light vehicle, due to the distance the defences stretch along this section of coast, and potential lack of safe rail access (primarily to the north) and Argocat vehicle is proposed to be used, to assist teams with moving equipment along the beach front.

- 4.5.4 This vehicle will also serve so render assistance should a medical emergency occur.



Figure 8: Argocat Vehicle.

- 4.5.5 In terms of agreed routes, the Argocat will be limited to use on the harder shingle and sand substrate only and will not be permitted further out into the estuary in such a manner that mudflats could be impacted.

Emergency Plans

- 4.5.6 The contractor will ensure that emergency pollution control plans above standardised spill control plans are prepared prior to the commencement of the project. The contractor will ensure a plan on vehicle extraction from the in-channel environment is available with plant machines or equipment on site capable of retrieving a stranded machine.

Emergency Plan Fundamentals:

- ◆ Any disabled machine within the channel environment will be immediately checked for any potential release of hydrocarbons, and if discovered, spill kits and trays will be used immediately.
- ◆ The on-call emergency plant engineer provider will be requested to attend site in the event that the fault cannot be resolved by the operator.
- ◆ Should the on-call engineer be unable to repair the machine, then it should be attempted to extract the machine using a similar powered machine, using task specific chains or tethers to tow the vehicle to a safe position.
- ◆ Should this fail, then the contractor must drain the machine of all fuel and hydraulic fluid before the tidal waters encroach on the machine. NRW and the on-call Environmental Clerk of Works will be contacted immediately and made aware of the emergency and risk of a pollution event.



5. HRA METHODOLOGY OBJECTIVES

- 5.1.1 Habitats Regulation Assessment is an assessment of the potential effects of a proposed project / maintenance activity on a European site(s) (alone and/or in combination with other plans and projects). The Habitats Regulations promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid significant adverse effects by identifying potential measures to avoid these effects.
- 5.1.2 Where adverse effects remain, mitigation measures should be applied to a point where these effects are no longer significant. If sufficient mitigation measures cannot be applied, the project should not be taken forward in its current form. In such a scenario, the project will require an assessment to identify alternative solutions that deliver the project in a form that avoids any significant adverse effects.
- 5.1.3 Where significant adverse effects remain, compensatory measures will be required if the project is to proceed. However, the application of such measures will only be permitted if no alternative solutions exist and the project is required for imperative reasons of overriding public interest (the 'IROPI' test).



6. DESIGNATED SITES WITHIN PROXIMITY TO SITE

- 6.1.1 There are several statutory designated sites interfacing or within proximity to the Sea Wall. Directly concerned with the Sea Wall are:
- ◆ Carmarthen Bay and Estuaries - Special Area of Conservation (SAC).
 - ◆ Afon Tywi – Site of Special Scientific Interest (SSSI)
- 6.1.2 The SSSI contains overlapping features and therefore will be viewed in combination with the SAC in terms of mitigation highlighted in the latter sections within this document.
- 6.1.3 There are additional designated sites further down stream (South) of the structure, these are:
- ◆ Pembrey Coast - Site of Special Scientific Interest (SSSI)
 - ◆ Carmarthen Bay - Special Protection Area (SPA).
 - ◆ Carmarthen Bay - Special Protection Area (SPA).
- 6.1.4 The closest site outside the main scope of this assessment is the Pembrey Coast, while the Carmarthen Bay SPA and RAMSAR site boundaries are a more significant distance away from the project. As the assessment wi



7. CARMARTHEN BAY AND ESTUARIES - SPECIAL AREA OF CONSERVATION (SAC)

7.1 SAC OVERVIEW

- 7.1.1 Within NRW documentation, Carmarthen Bay and Estuaries SAC is noted for its large area encompassing the estuaries of the Rivers Loughor, Tâf and Tywi (coastal plain estuaries) and the Gwendraeth (a bar-built estuary) Including extensive areas of intertidal mudflats and sandflats with large areas of these flats dominated by bivalves. Complete sequences of saltmarsh vegetation, from pioneer vegetation through to upper saltmarsh transitions is present, which is essential for transitions from saltmarsh to sand dune and other habitats.
- 7.1.2 Carmarthen Bay is an extensive shallow bay with a variety of seabed types, including mud, sand and rock, although the majority of the seabed is sandy. The site includes Helwick Bank, a linear shallow subtidal sandbank that is unusual in being highly exposed to wave and tidal action. The Burry Inlet and Three Rivers system provides a migratory route for salmonids, lampreys and shad.
- 7.1.3 Consequently, the SAC is a multiple interest site which has been selected for the presence of ten interest features that qualify under Annex I and Annex II of the Habitats Directive.
- 7.1.4 The table below details the qualifying habitats and species of the SAC, which is considered to be one of the best areas in the UK for:

Table 1: Annex I & II features of the SAC.

EU Code	Feature
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
1140	Mudflats and sandflats not covered by seawater at low tide
1160	Large shallow inlets and bays
1310	Salicornia and other annuals colonizing mud and sand
1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site	
	Not Applicable
Annex II species that are a primary reason for selection of this site	
1103	Twaiite shad <i>Alosa fallax</i>
Annex II species present as a qualifying feature, but not a primary reason for site selection	
1095	Sea lamprey <i>Petromyzon marinus</i>
1099	River lamprey <i>Lampetra fluviatilis</i>
1102	Allis shad <i>Alosa alosa</i>
1355	Otter <i>Lutra lutra</i>



8. AFON TYWI SSSI

8.1 OVERVIEW

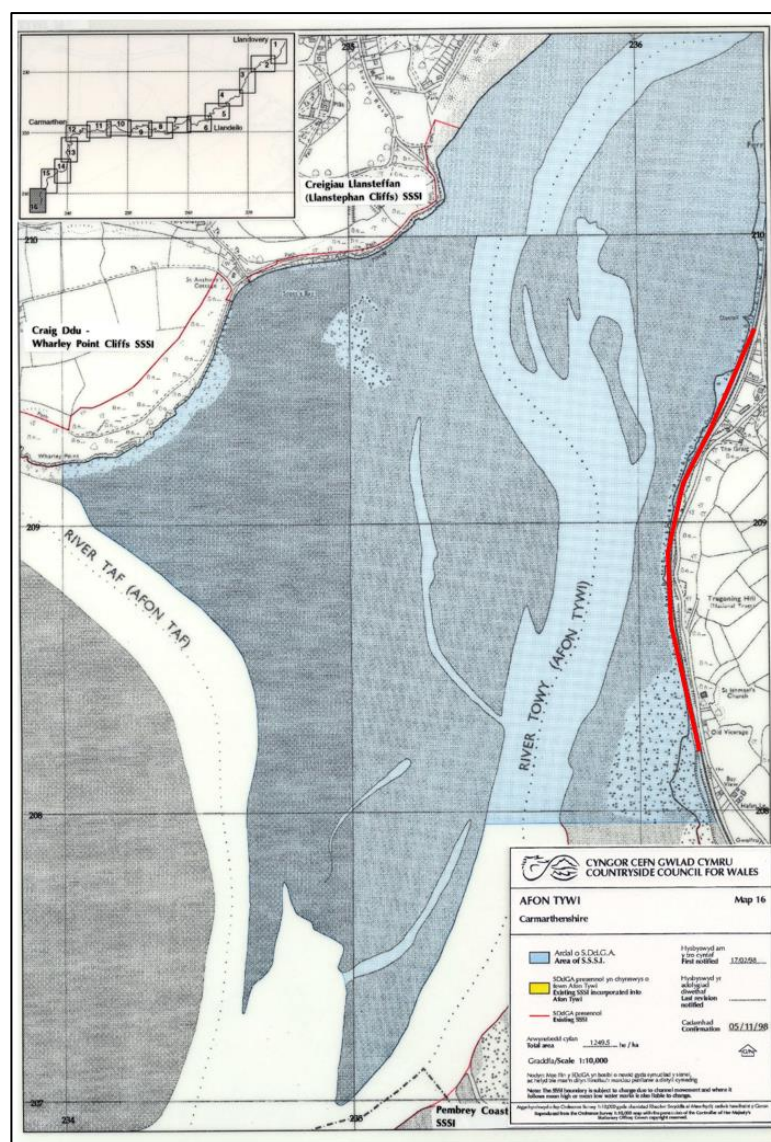


Figure 9: SSSI Designated Site boundary in relation to project area (blue overlay).

- 8.1.1 Afon Tywi Site of Special Scientific Interest extends downstream from Llandovery to the confluence with the Afon Taf and Pembrey Coast SSSI in Carmarthen Bay.
- 8.1.2 It is an actively eroding river meandering across a wide flood plain which is composed of alluvium, glacial sands and gravels.
- 8.1.3 This has resulted in extensive shingle banks being formed. These are important for birds and invertebrates, and the river is also of special interest for its fish species and otters, and in its lower reaches for its saltmarsh vegetation.
- 8.1.4 Further upstream, the Tywi becomes an SAC closer to Carmarthen. The SSSI at this location shares many overlapping features with the Carmarthen Bay & Estuaries SAC.



8.2 SITE MANAGEMENT STATEMENT

8.2.1 The competent authorities (NRW & NE) both produce Site Management Statement's (SMS's), which outline the features that inform the overall status of a designated site. There are 8 special features that inform the site in question are:

- ◆ Saltmarsh
- ◆ Allis shad
- ◆ Twaite shad
- ◆ Otter (*Lutra lutra*)
- ◆ Little ringed plover
- ◆ Sand Martin
- ◆ Club-tailed Dragonfly
- ◆ A community of beetles, flies and other invertebrates inhabiting the river and shingle banks.

8.2.2 In addition to the highlighted features of importance. The SMS also outlines potential damaging vectors to a designated site feature, summarised as Potentially Damaging Operations (PDO) lists.

8.2.3 Below are the activities considered relevant to the proposed project (Table 2 below).

Table 2: PDO list from NRW Designated Site Finder Tool.

SMS Ref No:	Type of operation
19.	Erection and repair of sea defences or coast protection works, including cliff or landslip drainage or stabilisation measures.
21.	Destruction, construction, removal, rerouting, or regrading of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, including soil and rock exposures.
22.	Storage of materials.
23.	Erection of permanent or temporary structures or the undertaking of engineering works, including drilling or the laying, maintenance or removal of pipelines and cables, above or below ground.
26.	Use of vehicles, or craft.



8.3 HABITAT PRESENT WITHIN WORKING FOOTPRINT

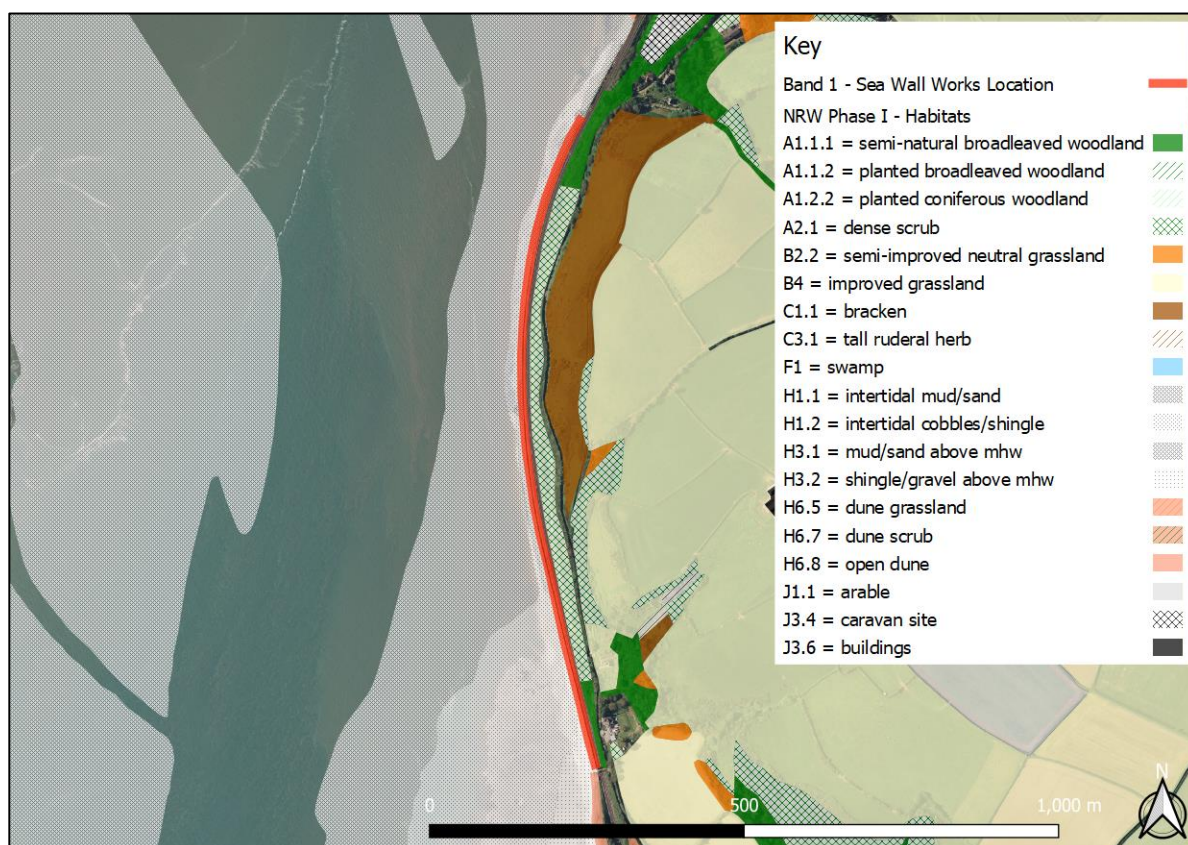


Figure 10: Habitat - Saint Ishmaels Sea Defence



Figure 11: Habitat - Ferryside South

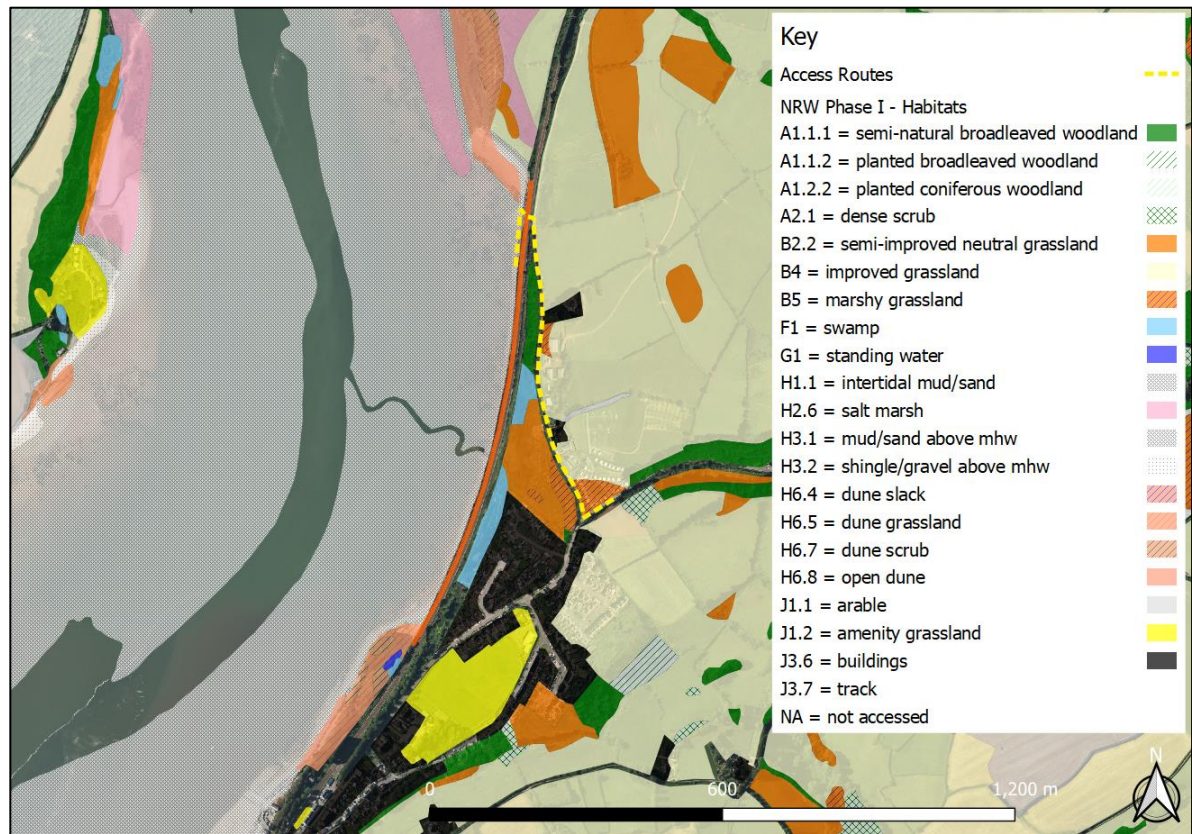


Figure 12: Habitat - Ferryside North

- 8.3.1 The habitat in which the works will take place and along the proposed access route is predominantly rock, rock/shingle and sand/shingle (please refer to earlier figures 6).
- 8.3.2 In terms of Annex I Habitat , (1130 -Estuaries) are the closest habitat in terms of direct impact vectors. The access route will maintain is position on the harder substrate found along the lower section of the wall, however it is possible that small areas may disturbed by the machine's movement in locations closer to whether the failure as the machine alters its position.
- 8.3.3 The machine will not traverse any further than is required to access the failure and will not be used to support the masonry works occur on the seaward facing wall sections.



9. PHYSICAL PROCESSES

9.1 RELEVANT POLICIES WITHIN THE SHORE MANAGEMENT PLAN 2 (SMP2)

9.1.1 As part of the Appropriate Assessment, it is necessary to compare the proposed works against the long-term policies outlined within the Shore Management Plan 2 (SMP2). Within the SMP2 there are several policy units relevant to this section of coastline and estuary.

9.1.2 The project is situated within Policy Unit PU14.8, 14.9 & 14.10.

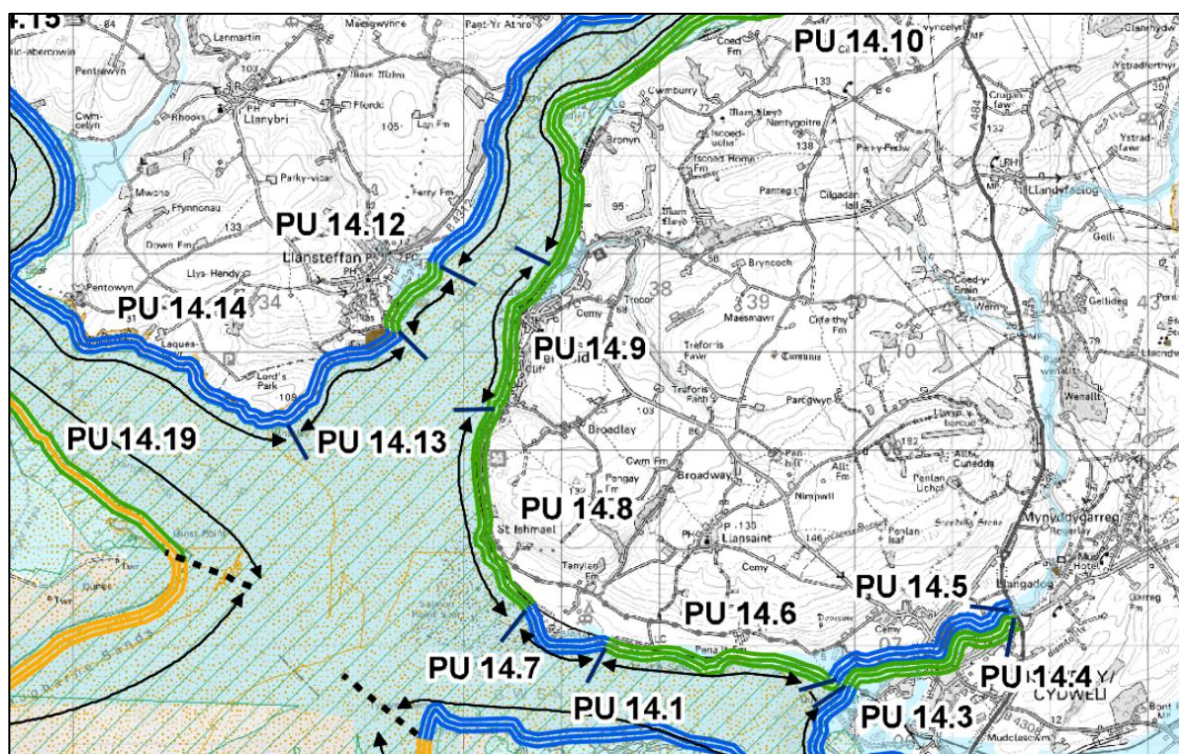


Figure 13: SMP2 - Policy Units

9.1.3 Management units are defined within epochs, with epoch 1 referring to periods from present to 2025, epoch 2 referring to years between 2025-2055 and epoch 3, 2055-2105. As part of the SMP2, the chosen policies are measured against the potential economic impacts and environmental impacts projected over the course of time.

9.1.4 Table 12 below, described the project habitat loss as a consequence of the long-term preferred policy.

Table 3: Relevant Policy Unit description.

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
PU14.8	Carmarthen Bay Holiday Centre to south of Ferryside	HTL	HTL	HTL	NA
PU14.9	Ferryside	HTL	HTL	HTL	NA
PU14.10	River Towy Eastern bank (North of Ferryside to Aalton river bend)	HTL	HTL	HTL	NA

Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention



- 9.1.5 The proposed maintenance of the Coastal Defence assets South and North of Ferryside within the outlined Policy Units does not deviate from the Hold the Line long-term policy. Furthermore , the works fit within the definition of minor works, outlined with the recent Welsh Government Position statement regarding coastal processes.
- 9.1.6 It is conceivable that the current structural tolerances and functions will need to be reviewed in the light of future increased occurrences of high energy weather events, combined with naturally higher tidal limits.
- 9.1.7 However, such engineering and long-term infrastructure considerations are beyond the scope of these scour works and this Appropriate Assessment.



10. ASSESSMENT OF POTENTIAL IMPACTS RESULTING FROM SPECIFIC ACTIVITIES AND PROPOSED MITIGATION MEASURES – SAINT ISHMAELS & FERRYSIDE SEA DEFENCES

This section outlines the receptors of potential damaging vectors as a result of the proposed works and proposes appropriate mitigative measures to ensure that there is not a significant likelihood of impacts.

10.1 ANNEX I HABITATS – IMPACTS & MITIGATION

Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
Estuarine habitat	SAC/SSSI	Contamination of the estuary from spillage of hydrocarbons during refuelling of equipment or due to equipment failure. Or, Confirmation as a result of repointing of Masonry or targeted repairs, such as the void identified in Ferryside North of the toe beam on Saint Ishmaels.	All works set up and audited on a regular basis by the Environmental Clerk of Works (ECOW). A refuelling procedure will be implemented, whereby plant nappies will be placed beneath fuelling apertures during fuelling and refuelling will only be undertaken by designated, trained individuals. NR have a spillage plan and specialised contractor in place to respond to and clean up spills. The Contractor will develop and implement an Emergency Awareness and Response Plan. GPP5 Guidance for Pollution Prevention - Works and maintenance in or near water, will be referenced to. These will include: ◆ GPP 5 - Works and maintenance in or near water ◆ GPP 7 - Safe storage – The safe operation of refuelling facilities, ◆ GPP 21 - Pollution incident response planning, ◆ GPP 22 - Dealing with spills This will describe how spills will be contained and cleaned up. The emergency plan will appoint an Incident Coordinator, define roles and responsibilities during an incident, detail response procedures and contain an inventory of response equipment to be maintained on site. 9t Plant machine access will only occur over the existing rail crossing, sea wall ramp and along the shingle edges of the estuary to access the toe beam failure at the base of Saint Ishmael Defence Wall. The machine, when not in use, will be situated at the top of the sea wall ramp, a significant distance away from MHWS. The machine will have spill	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			protections placed beneath and end of day checks implemented as an additional check combined with normal pre-works checks. The use of the Argocat will be along the solid beach substrate only (e.g. sand and shingle) and will avoid softer substrate such as the mudflats. The use of this vehicle will be predominantly during the day, as night working normally allows for closed rail lines and therefore equipment can be moved along the rail corridor without the need for a secondary vehicle. As much as practically possible, the mixing of cavity fill material will be undertaken within the rail corridor (track side). If there is no safe distance between the running rail and the works location, some mixing will occur at beach level. This is most likely to occur at Ferryside north below the existing rock armour. This is due to the very narrow distance between the running rail and sea defence crest. No mixing equipment, plant or machines will be used without a supply of spill kits, plant nappies and pre-works checks. All mixing to occur on beach level will make use of tarp of over impermeable membranes laid on the beach to prevent any overspill coming into contact with the estuarine habitat. Spill kits, drip trays and plant nappies will be placed below and near the 110v generators during operation. Plastic screening will be placed on the base of the wall to capture material broken off from the sea defence or during cavity fill injection and repairs. Every practical effort will be made to collect all loose broken mortar material arising from the wall repairs and remove them from the designated site environment.	
Intertidal mudflats & sand flats (also part of estuarine habitat)	SAC/SSSI	Contamination of the estuary from spillage of hydrocarbons during refuelling of equipment or due to equipment failure.	See comments above under estuarine habitat.	Negligible likelihood of significant impacts.
Salt marshes (also part of estuarine habitat)	SAC/SSSI	Contamination of the estuary from spillage of hydrocarbons during refuelling of	There are no areas of Saltmarsh within the working footprint, See comments above under estuarine habitat.	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
		equipment or due to equipment failure.		
Rocky shores (also part of estuarine habitat)	SAC/SSSI	No impact	See comments above under estuarine habitat.	Negligible likelihood of significant impacts.
Reedbeds/ swamps	SAC/SSSI	No impact	See comments above under estuarine habitat	No impact
Neutral grassland	SAC/SSSI	No impact	See comments above under estuarine habitat	No impact
Estuarine Habitat	SAC/SSSI	Loss of Habitat as a result of vehicle movement.	It is possible shingle and sand habitat will be traversed along the very edges of sea wall toe beam will be disturbed by the movement of the plan vehicle. However, the proposed use of a plant machine is limited to the toe beam repairs only, limiting the potential impact footprint considerable. Furthermore, it is expected that any disturbed sand flat or shingle habitat will be temporary, with sediment material remobilising following incoming tides and will quickly be deposited into its previous alignment.	Negligible likelihood of significant impacts.
Estuarine Habitat	SAC/SSSI	Loss of Habitat as a result of structure repairs.	The repairs will not cause an increase in the horizontal footprint of the defences in such a manner which could cause direct habitat loss as a result of an enlarged defence footprint. In terms of long-term impact. The repairs represent maintenance as outlined in the Welsh Government position statement on coastal squeeze and does not deviate from the Shore Line Management Plan 2 – preferred policy of Hold the Line.	Negligible likelihood of significant impacts.



10.2 ANNEX II SPECIES – IMPACTS & MITIGATION

Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
Aggregations of bird species	SSSI	Noise disturbance / Visual Disturbance.	Maintenance work will result in a period of noise and visual disturbances. However, noise levels are unlikely to exceed those currently generated by trains and road traffic currently utilising the rail network. Some works will be fitted around available line blocks, which will change from week to week and may night shifts. However, the vast majority of works will be undertaken during the day, at low tide conditions. Works above or seaward of MHWS during high tide is not permitted as part of the works. Some supporting works during high tide may occur within the boundary of the rail corridor. Such as mobilisation or demobilisation of rope access equipment between shifts. Should the aforementioned night shift be required, then the contractor will avoid working at dawn or dusk to avoid impacting the crepuscular cycle of local bird and other animal populations. Works will consist of 30-60m sections of sea wall worked on at any given time to further reduce overall cumulative noise and visual impacts. This will only impact small sections of the estuary at any one time. Additionally, the protected sites habitats in areas are of sea defence meeting MHWS are considered unlikely to support large numbers of bird species given the small intertidal zone remaining during high tide. Paddle mixture equipment will use low nose electric motors to mix the required material. The 11v generator will only run when required and will be placed in such a way that noise emissions are intercepted by structures such as wall, or barriers to deaden noise further. Tower lighting (if required) will face the reliant work locations and will not face directly out into the estuary using Flat glass luminaires. Lighting, if possible, will be limited to hand portable task lights. Toolbox talks will be provided by the Environmental Clerk of Works prior to works commencing. This will identify potential impacts and direct localised mitigation where required.	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
Fish Assemblage	SAC/SSSI	Contamination of the estuary from spillage	See comments under estuarine habitat	Negligible likelihood of significant impacts.
Vascular plant assemblage associated with salt marsh (part of estuarine habitat)	SAC/SSSI	No impact	See comments under estuarine habitat	Negligible likelihood of significant impacts.
Otter (Lutra Lutra)	SAC/SSSI	Noise disturbance / Visual Disturbance / Habitat Destruction.	Otter populations are known to be present near Ferryside North embankment. Toolbox Talks (TBTs) will inform site personnel on identifying the Annex II Species. No otter holts have been noted to date within proximity to the structure and are unlikely to be found during works on the seaward facing wall sections. Habitat impact is limited, and it is not anticipated that these works will have an impact on the wider population and Otter policy objectives of the Core Management Plan. Additionally, no equipment will be left in such a manner that an animal could become snared and trapped within the working area. Should an Otter be encountered during works, personnel will temporarily stand down until the animal has vacated the immediate area under its own volition. The contractor will abide by the Gwynedd Marine Code of Conduct. Salmon and other species of the assemblage, which are a prey of Otter will not be prevented from travelling up the estuary during the project. Although there will be an elevated human presence around the defences, it is unlikely that this will present a significant determinantal impact to salmon and other species of fish migrating to spawn during the coming winter months.	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			If night working is required, directional lighting measures will be implemented to limit disturbance. Task specific lighting will be used, and the use of flood lights will be avoided. Steps should be undertaken to ensure that otters, mammals and birds do not become trapped within working and storage areas (e.g., small pieces of equipment, or stowed away ropes are likely to be left on site on a semi-regular basis).	
Fish Assemblage	SAC/SSSI	Noise Disturbance / Visual Disturbance / Habitat Destruction.	Work will be undertaken during favorable conditions within the spawning season for migratory fish such as salmon, trout and eel (mid Oct – Mid April) but will fall within the spawning season for several species of fish which are offered protection under the Natural Environment and Rural Communities Act. Spawning periods for these species are generally between March and July. No works within the designated sites will occur until formal assent has been granted by Natural Resources Wales. Works will be undertaken within the estuary during the 2022 – 2023 spawning seasons for protected and migratory fish. Complete mitigation of impacts from these works will be difficult but the largest mitigating factors are: ◆ The works will not present a barrier to the permanent flowing portion of the estuary. During high tide, it will be possible for fish to migrate along vast majority of the estuary without coming into proximity to any tasks being undertaken at that particular moment. ◆ Works within the estuary during low tide at bed level will be localised and low impact and will not involve any deep excavation or dredging. No increase in structure footprint is envisaged. ◆ The sea defences form part of an active and busy rail corridor. This implies that fish within the estuary are habituated to a level of noise and vibration from the structure.	Impact Not Likely to be Significant, with appropriate mitigation



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			◆ Best practice will be used in terms of the construction methodology to limit this i.e., modern well silenced plant, use of manual tools to rake out masonry during repointing, working on the wall and embankments during low tide. ◆ Task lighting will be designed to illuminate the works area but limit light spill into the estuary. This will be achieved through the use of LED flat glass luminaires set at a low level.	



11. POTENTIAL IN-COMBINATION EFFECTS

11.1 OVERVIEW

- 11.1.1 It is necessary to consider the potential for significant effects from this project in-combination with other plans or projects.
- 11.1.2 In addition, the plan or project must have been subject to a HRA, which has confirmed that the plan or project is not likely to have a significant effect or demonstrates that the effects have been sufficiently assessed so as to be reasonably understood.
- 11.1.3 The assessment of in-combination effects must also focus on other projects that have the potential to cause the same types of effects as the proposed maintenance (so that these effects may occur in-combination) and where similar potential impact pathways may exist.
- 11.1.4 Therefore, this assessment has focused on other projects that could give rise to noise, visual or physical impacts on the SAC species and does not consider projects that could cause different effects.

12. KNOWN PROJECTS WITHIN THE WIDER AREA

- 12.1.1 There is currently no known large-scale project in a proximity to the proposed maintenance areas which could cause in combination effects.
- 12.1.2 However, should NRW have upcoming FRAP's or other Marine Licenses in place that are soon to be undertaken or currently being undertaken, then the maintenance will be undertake at a period that achieves the least in-combination impacts possible.



13. HRA CONCLUSION

- 13.1.1 This section will combine the key features and challenges highlighted in the CMP's and proposed to mitigation to ascertain whether likely significant impacts to the designated could occur.
- 13.1.2 The limited amount of tidal habitat available for key bird species in the immediate vicinity to the works site reduces the likelihood of direct interaction with the bird assemblage. Combined with the limited working periods, during low tide predominately, during the day, further reduces the intensity if the undertaking.
- 13.1.3 Localised bird population are likely habituated to the presence of moving trains, with personnel accessing the site by foot where possible and limited use of vehicles are unlikely to cause an excessive elevated level of normal activity. to these reasons it is envisaged that the works will have little impact on the protected areas and wildlife.
- 13.1.4 Regardless of the limited disturbance from the individual working takes, further mitigation in the form of working during low tide conditions will be undertaken as much as possible. No repairs will occur during hightide, but equipment preparation of safety set up may occur ahead of a receding tide.
- 13.1.5 In terms of terms of the fish assemblage, the works will not create underwater noise, nor will works occur within the water itself. There will be no alteration or impediment of normal migratory of foraging locations.
- 13.1.6 Pre-works assessment in relation to Otters will be undertaken to ensure no potential features not yet identified (e.g. holts) are impacted upon.
- 13.1.7 Refuelling and emergency response procedures as per Management Plan (MP) preparations. The implementation of this will be monitored and audited by an Project Managers from Dyer & Butler and Environmental specialist (Ecovigour).
- 13.1.8 Any sand flat habitat disturbed along the edge of the shingle access route is anticipate to regenerate in a short timeframe. The Argocat will be limited to these estuarine edge habitats, while the 9t plant vehicle will be limited to the working footprint at the toe-beam failure only.
- 13.1.9 The project does not represent a deviation from the current Shore Line Management Plan policy and the scope of works is in concurrence with the Welsh Government Position Statement on coastal asset management.
- 13.1.10 The ECoW will undertake a pre check of the access route and immediate working areas.
- 13.1.11 From the available information and proposed mitigation measures, it is assessed that the high tide habitat below the rail corridor at the works site will not be significantly impacted, nor species or features relevant to the designated site as a whole.
- 13.1.12 The exact timing of the works will be agreed with NRW, dependent on whether there are further in combination impacts that require specific working dates.
- 13.1.13 In conclusion therefore, the proposed mitigation measures will ensure that no significant impact to the designated site will occur as a result of the proposed works.



14. APPENDIX A - BIOSECURITY MANAGEMENT PLAN & RISK ASSESSMENT





15. APPENDIX B- PROJECT TECHNICAL DOCUMENTS

