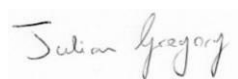
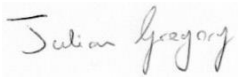


2022

Loughor Sections A to E Defence Maintenance Habitat Regulations Assessment (HRA)



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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 Loughor Sections A, B & E 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 October 2022 to October 2023. The works will require several months over the next year to complete the masonry repairs, vegetation clearance, visual scoping and manual repair to loose embankment material.
- 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). 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.
- 1.1.6 As the works necessitate repairs to a marine defence seaward of Mean High-Water Spring (MHWS) limits of the Loughor estuary (Burry Inlet), combined with the use of 3T plant machinery along the small beach on the eastern shore, a Band 2 License is required.
- 1.1.7 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).
 - ◆ Burry Inlet – Special Protection Area (SPA)
 - ◆ Burry Inlet – RAMSAR
- 1.1.8 Also requiring consideration in relation to seeking Site of Special Scientific Interest (SSSI) Assent for the works from NRW is:
- ◆ Burry Inlet and Loughor Estuary SSSI
- 1.1.9 Following review and consensus, this document will form part of the working methodology for the project, supporting working within a designated site.
- 1.1.10 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'.
- 1.1.11 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 along both shore of the Loughor Estuary, entering the Burry Inlet below both the Loughor Road & Rail Bridges. The defences stretch to the east and west parallel with the rail corridor. The alignment of the defences intersects with the MHWS at different points, while also demarcating the boundary of the designated sites at several locations. Please see figures 1 & 2 below for further context. No parts of the works concern the rail bridge structure, other than the intersection between the structure abutments and wider sea wall.

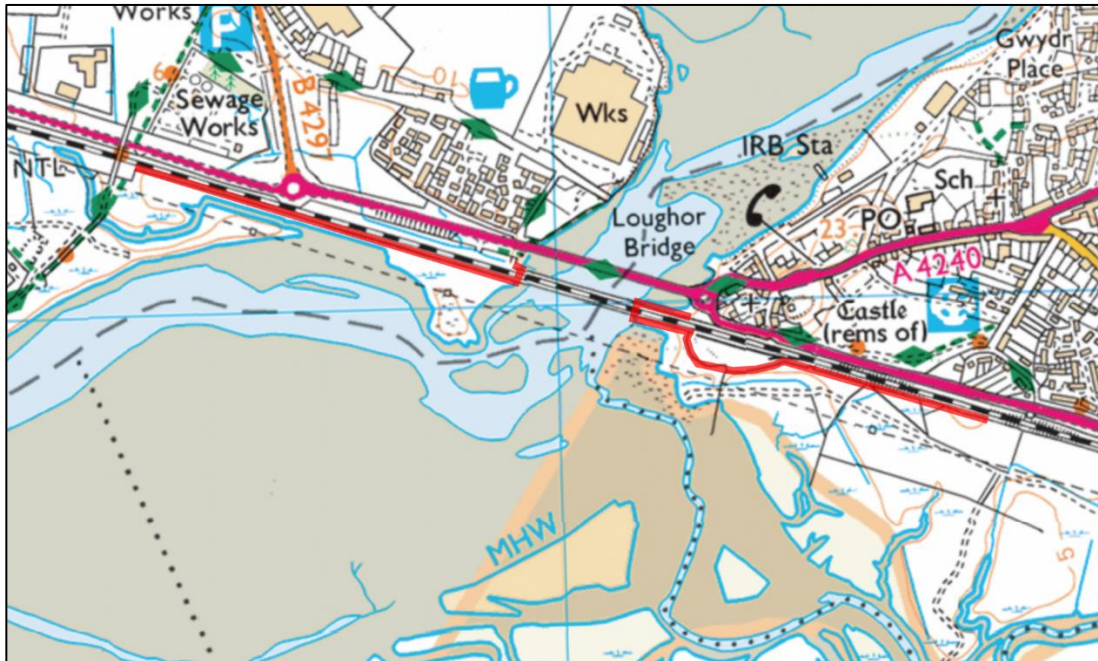


Figure 1: Project Location.



Figure 2: Section B (west) facing section E (eastern shore in distance).



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 Burry Inlet and Loughor Estuary 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), Burry Inlet – Special Protection Area (SPA) and Burry Inlet – RAMSAR

4. DESCRIPTION OF THE PROPOSED ACTIVITIES

4.1 SITE CONTEXT

- 4.1.1 The work site focuses on the areas of wall masonry and raised embankment at and below MHWS on the seaward facing side of the Sea Defences at Loughor sections A, B and E. Access to the defences is provided by existing rail crossings to the west of section B and an underpass at section E, allowing access to the southern shore of section E. Access to section A and B is also possible during low tide, but walking along the edges of the estuary below both the road and rail bridges.
- 4.1.2 Within the rail corridor itself, there is limited safe clearance allowing for day works, which would be constrained by line blocks. Therefore, any material that would need to be brought to site via the rail network would be at night.
- 4.1.3 The underpass at section E is accessed from a parking area connected to the A484. The size of the underpass limits the size of machine to approx. 3 tonnes.



Figure 3: Sea Defence Sections.

- 4.1.4 The attached Appendix highlights the current scope report for Section E. Sections A & E will be scoped in the near future. The works remit from that scope will be limited to the agreements in this Marine License. More complex works such as rock armour replenishment will require an amended marine license.
- 4.1.5 The maintenance works will consist of the summarised tasks described in the section below.



4.2 METHOD OVERVIEW – MASONARY WALL REPAIRS AND EMBANKMENT MAINTENANCE

- 4.2.1 Works are scheduled to commence October 2022 for approximately 12 months in duration. Work will occur over several weeks and not constantly during the requested license period. The longer license period is requested to account for poor weather conditions and limited available light as the determination of the license will likely take until autumn.
- 4.2.2 Works periods will be scheduled around daytime shifts primarily. However, night shifts will be required when heavy material or equipment needs to be dropped off on the edges of the rail boundary, such as bags of mortar, water containers, mixing equipment etc.
- 4.2.3 Maintenance to the sea walls during night is not envisaged, however some works or demobilisation on a given day may occur close to dusk.
- 4.2.4 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.
- 4.2.5 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 / embankments where required (dependent on slope angle and height).
- 4.2.6 Mixing equipment will consist of a 110v paddle mixer, 3.5kVa generator and mixing buckets. The pieces of equipment can be moved by hand when required.
- 4.2.7 Localised clearance of vegetation growing from 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.
- 4.2.8 Pointing materials will be mixed in accordance with manufacturer's instructions. Where possible, mixing of material will occur within the rail corridor or on stable sections of the defence assets. However, some mixing may need to occur at ground level.
- 4.2.9 PIC (Person in Charge) indicates rope access operatives or engineers may begin work when the tidal conditions allow access to the base of the defences (non-high tide times).
- 4.2.10 Operatives will place polythene protection to base of sea wall/embankments at the areas of works, in order to capture any arisings from the maintenance.
- 4.2.11 Existing loose mortar will be removed using hand tools and collected where possible.
- 4.2.12 Operatives will document each section of works, on completion of pointing rope access operatives collect dropped pointing materials and remove from the working area.
- 4.2.13 The use of the 3t plant machine will be limited to the scour failure of the toe beam, seen in the Scope Report (Appendix B – TM4+ 11). This will require the machine to assist in clearing out the defect, to allow for a casting of new concrete to shore up the failure. The machine will carry heavy material such as block stone to fit into the void caused by the failure. The repair will be like for like and will not increase the footprint of the defence asset.
- 4.2.14 Should the void at TM4 require additional grout or cemented volumes that are beyond the capacity of the portable paddle mixer, then this additional material will be pumped from a source outside of the marine environment.



- 4.2.15 Regarding the embankment, vegetation growth will require removal to better ascertain the condition of these areas. Loose material will be moved by hand and set into position using target use of mortar or securing pins. As with the masonry works, any minor repairs will be like for like. Vegetation clearance will only occur on the sea defences and 30cm from the toe of the defence as to not impact the adjacent designate habitat features. There will be no removal of Annex I habitat from the designated sites.
- 4.2.16 All clearance will be undertaken with hand tools, with no mechanical clearance (e.g. track mounted or robot-flail units).

4.3 SUPPORTING WORKS

Site Welfare - Delivery/Setup

- 4.3.1 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 requires. There are several laybys available along the A484 to support the works.

Vehicle Access

- 4.3.2 The single 3 tonne excavator will be the only heavy machine permitted for use during this project.
- 4.3.3 In terms of agreed routes, the plant machine will be delivered via the A484 to the hard standing ramp north of section E and will use the existing path to pass below the railway and onto the south facing beach.
- 4.3.4 The machine will follow an existing worn path within the saltmarsh to reduce the potential impacts to the habitat.



Figure 4: 3tonne plant machine.

Emergency Plans

- 4.3.5 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.



4.4 SITE IMAGES AND FIGURES

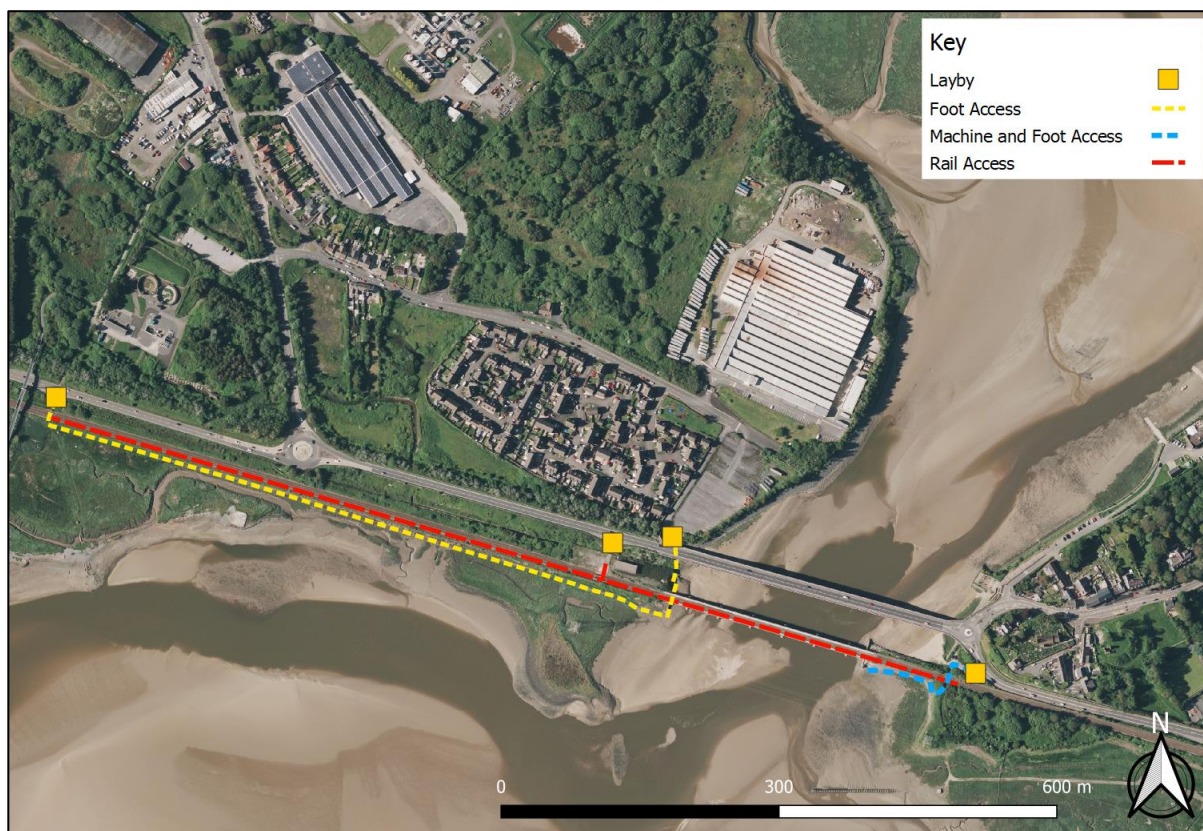


Figure 5: Proposed Access Routes.



Figure 6: Section A embankment facing west.



Figure 7: Section B rock armour and small loose embankment material.



Figure 8: Section E Masonry section (south shore).



Figure 9: Section E (north shore).



Figure 10: Underpass to be used.



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 Defences. Directly concerned with the Sea Defences are:
- 6.1.2 Site of Special Scientific Interest:
- ◆ Burry Inlet and Loughor Estuary SSSI
- 6.1.3 Special Area of Conservation:
- ◆ Carmarthen Bay and Estuaries - Special Area of Conservation (SAC).
 - ◆ Burry Inlet – Special Protection Area (SPA)
- 6.1.4 RAMSAR's
- ◆ Burry Inlet – RAMSAR
- 6.1.5 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.
- 6.1.6 The SAC, SPA and RAMSAR will be detailed within the same sections as the SPA & RAMSAR Ornithological features are reliant on the in-situ features present within the SAC.



7. CARMARTHEN BAY AND ESTUARIES - SPECIAL AREA OF CONSERVATION (SAC) & BURRY INLET (SPA & RAMSAR)

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>



7.2 SPA & RAMSAR FEATURES

7.2.1 In conjunction with the Annex features outlined in the previous section, this site also qualifies as a Wetland of International Importance by regularly supporting, during winter, over 20,000 waterfowl. Over a five year period 1985/86 to 1989/90 an average peak of 48,100 birds was recorded, comprising 12,500 wildfowl and 35,600 waders.

7.2.2 Furthermore, the site qualifies for its elevated status by supporting internationally or nationally important wintering populations of the following species of migratory waterfowl.

7.2.3 The Ornithological features present within the SPA are listed below:

- ◆ Curlew (*Numenius arquata*)
- ◆ Dunlin *Calidris alpina alpina*
- ◆ Grey plover *Pluvialis squatarola*
- ◆ Knot *Calidris canutus*
- ◆ Oystercatcher *Haematopus ostralegus*
- ◆ Pintail *Anas acuta*
- ◆ Redshank *Tringa tetanus*
- ◆ Shelduck *Tadorna tadorna*
- ◆ Shoveler *Anas clypeata*
- ◆ Teal *Anas crecca*
- ◆ Turnstone *Arenaria interpres*
- ◆ Wigeon *Anas penelope*

7.2.4 The table below indicates the current condition assessment of species from the NRW SPA Indicative Site Level Assessment 2018 – Report No: 236.

Table 2: Indicative condition assessments for Burry Inlet SPA

Common Name	Latin Name	Indicative Condition Assessment	Confidence in Assessment
Oystercatcher (wintering)	<i>Haematopus ostralegus</i>	Unfavourable	High
Knot (wintering)	<i>Calidris canutus</i>	Favourable	High
Turnstone (wintering)	<i>Arenaria interpres</i>	Unknown	High
Pintail (wintering)	<i>Anas acuta</i>	Favourable	High
Shoveler (wintering)	<i>Anas clypeata</i>	Unfavourable	High
Teal (wintering)	<i>Anas crecca</i>	Favourable	High
Wigeon (wintering)	<i>Anas penelope</i>	Unfavourable	High
Dunlin (wintering)	<i>Calidris alpina</i>	Favourable	High
Curlew (wintering)	<i>Numenius Arquata</i>	Unfavourable	High
Grey plover (wintering)	<i>Pluvialis squatarola</i>	Favourable	High
Redshank (wintering)	<i>Tringa totanus</i>	Favourable	High
Shelduck (wintering)	<i>Tadorna tadorna</i>	Unfavourable	High
Waterbird assemblage (wintering)	Not applicable	Favourable	High



7.2.5 In relation to Monitoring, the project is situated within the DB027 and DB005 of the BTO Research Report No.467 monitoring areas (see figure below).

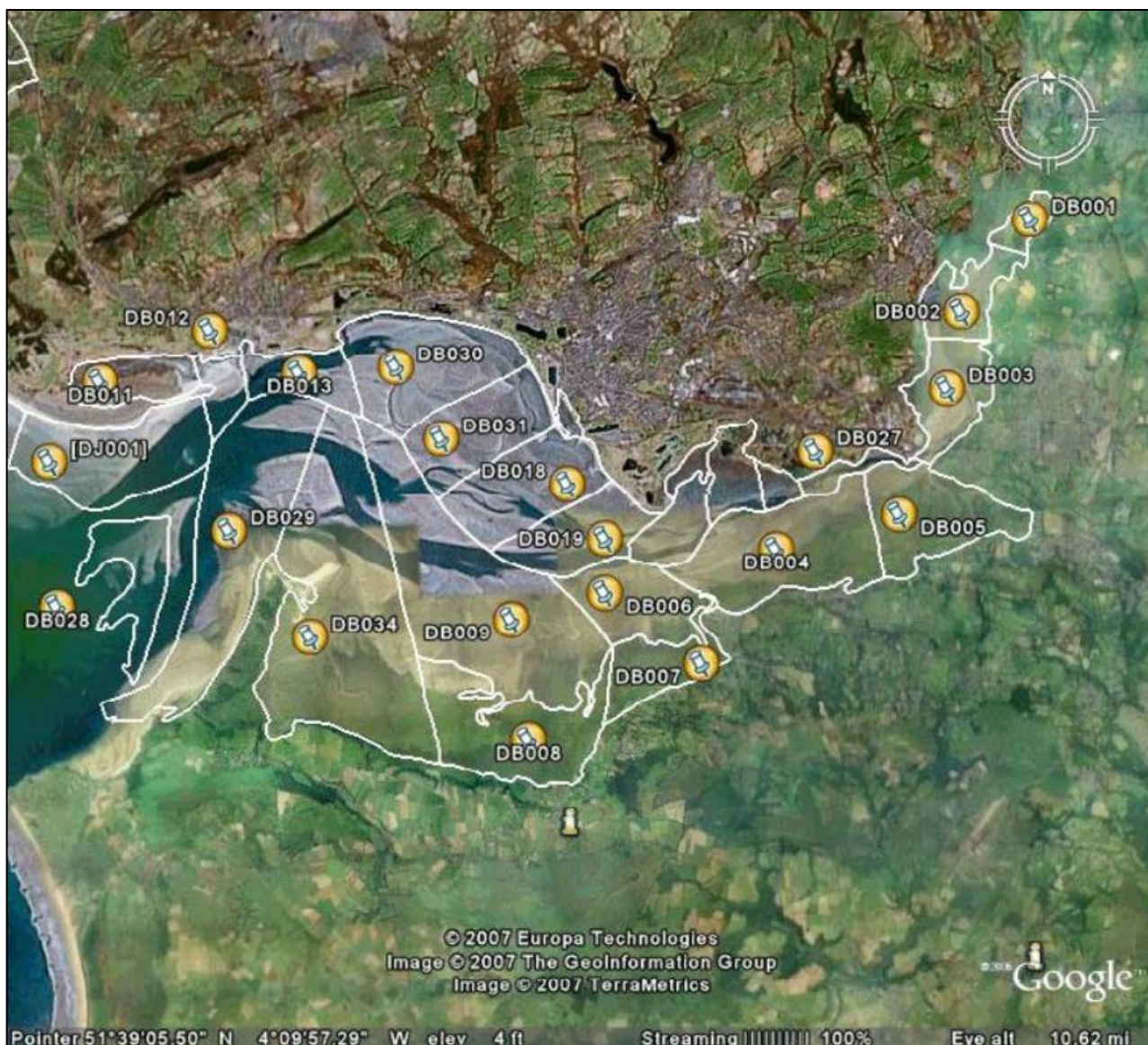


Figure 11: BTO Monitoring Areas.

7.2.6 Notable observation from the report described a shift in preferred roost sectors, moving from section DB020 & DB021 to DB033 & DB027 from Dec. This is possibly due to these sections being more sheltered during rough weather conditions.

“Changes in mean densities of roosting birds were most apparent on the north bank of the Burry Inlet. As the tidal cycle progressed, increasing numbers of Oystercatchers were recorded as roosting. In particular, the Llanelli area (sectors DB020, DB021, DB027 and DB032) witnessed great increases in numbers of roosting birds between two hours before and two hours after low tide; mean densities on DB020 rose from 1.56 to 11.74 birds per ha. Low numbers of Oystercatchers were recorded feeding on these sectors, and so it seems likely that birds feeding across the area return to the north of the Burry Inlet to roost.”

7.2.7 DB005 has less discussion within the report, with figures indicating lower numbers or absence of Oystercatchers feeding in this block.



8. BURRY INLET AND LOUGHOR ESTUARY SSSI

8.1 OVERVIEW

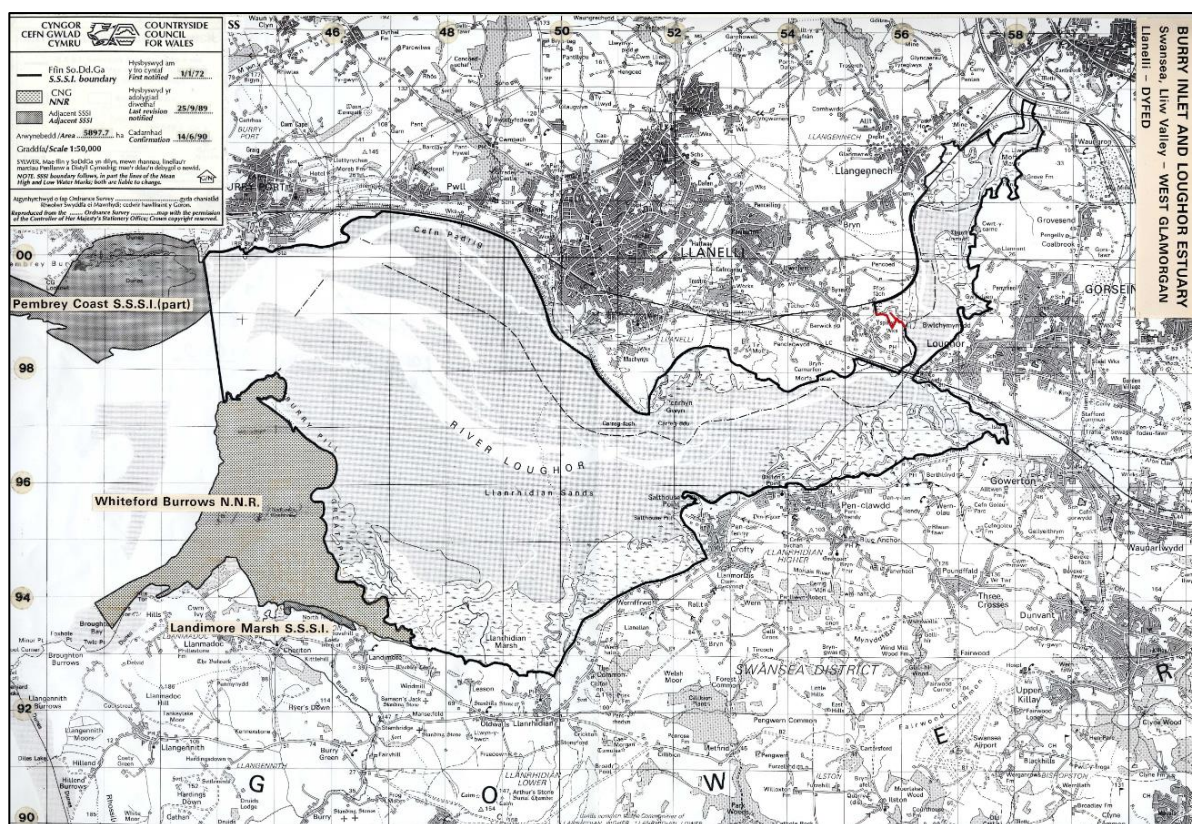


Figure 12: SSSI Designated Site boundary in relation to project area (blue overlay).

- 8.1.1 Noted as the largest estuarine complex within old West Glamorgan county and Borough of Llanelli. The SSSI is comprised of extensive areas of grazed saltmarsh, sand and mud flats, the area is internationally significant for its wader and wildfowl populations with overwintering totals averaging in excess of 46,000 birds, therefore is SPA and RAMSAR designation.
- 8.1.2 The Burry Inlet exhibits a particularly wide tidal range (approx. 8m) with its estuarine form deriving from the effects of glacial processes.
- 8.1.3 Whilst fine sands comprise the bulk of the sediments within the estuary, smaller particle sizes predominate in more sheltered areas where tidal velocities are reduced. The saltmarshes formed in areas where plants have subsequently been able to colonise are the most extensive in Wales and cover an area more than 1600 ha.



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. The features that inform the site in question are:

- ◆ Saltmarsh
- ◆ Geomorphology consisting of a range of sediment deposition including the formation of intertidal mudflats and sandflats
- ◆ Brackish swamps, reedbeds and grassland
- ◆ Important numbers of wildfowl and waders
- ◆ Intertidal features

8.2.2 In addition to the highlighted features of importance. The SMS also outlines potential damaging vectors to a designated site features, summarised as Potentially Damaging Operations (PDO) lists. Below are the activities considered relevant to the proposed project (Table 2 below).

Table 3: 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

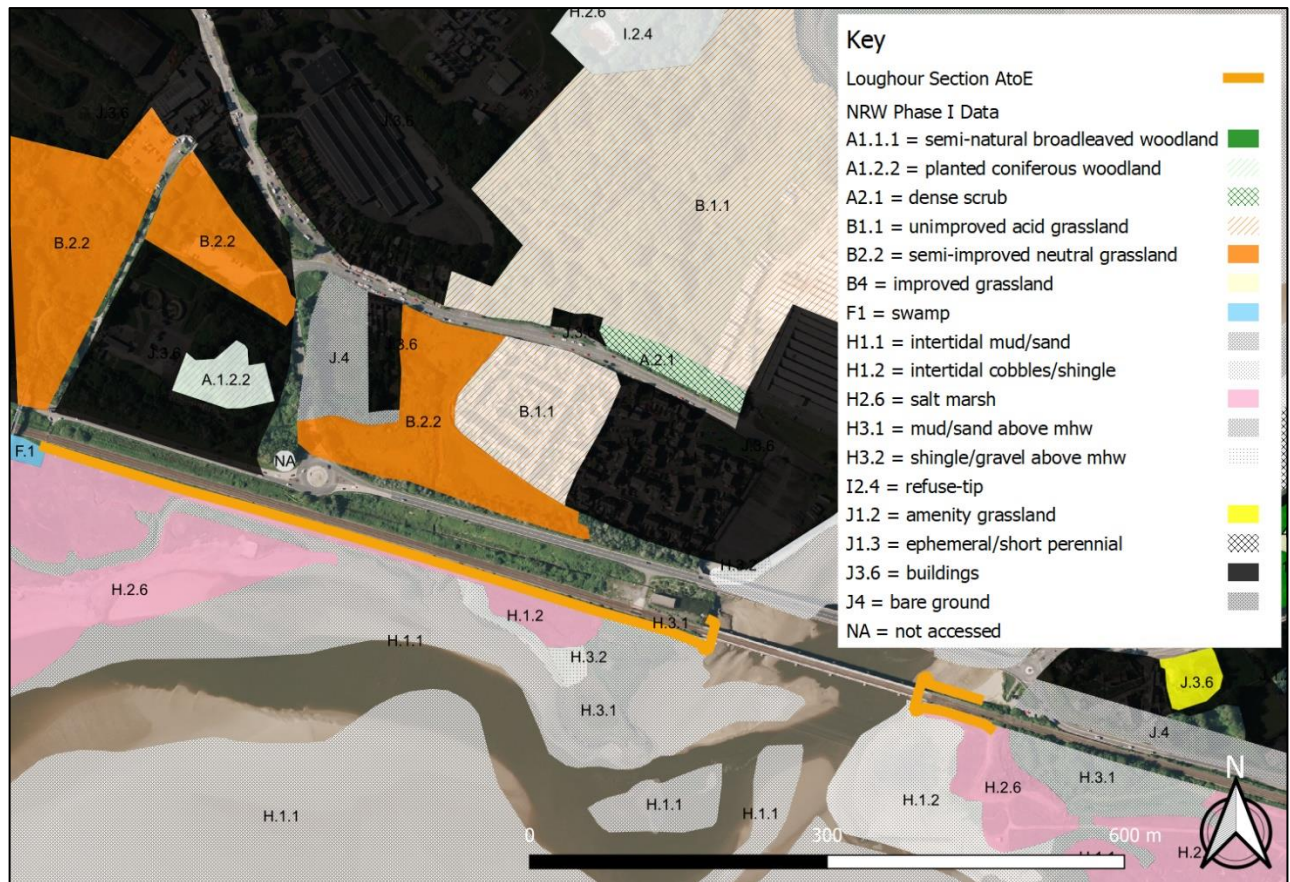


Figure 13: Habitat adjacent to Loughor Tidal flap and access route.

- 8.3.1 The habitat in which active works on the embankment and upper sea walls is A2.1. Access however, will take place within H.2.6 salt marsh, H.3.1 mud-sand above MHW, H.3.2 shingle/gravel above MHW and H.1.1 intertidal sand/mud. The vast majority of access within H.2.6 will be via foot access and will follow more worn paths made by local fisherman and walkers predominantly.
- 8.3.2 The use of a smaller plant machine further reduces the likelihood of impacts and its use is limited to the scour failure at section E only.



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 structure is contained within Policy Unit PU12.6 (River Loughor West Bank (NTL, south of Pontardulais to Loughor Bridge).

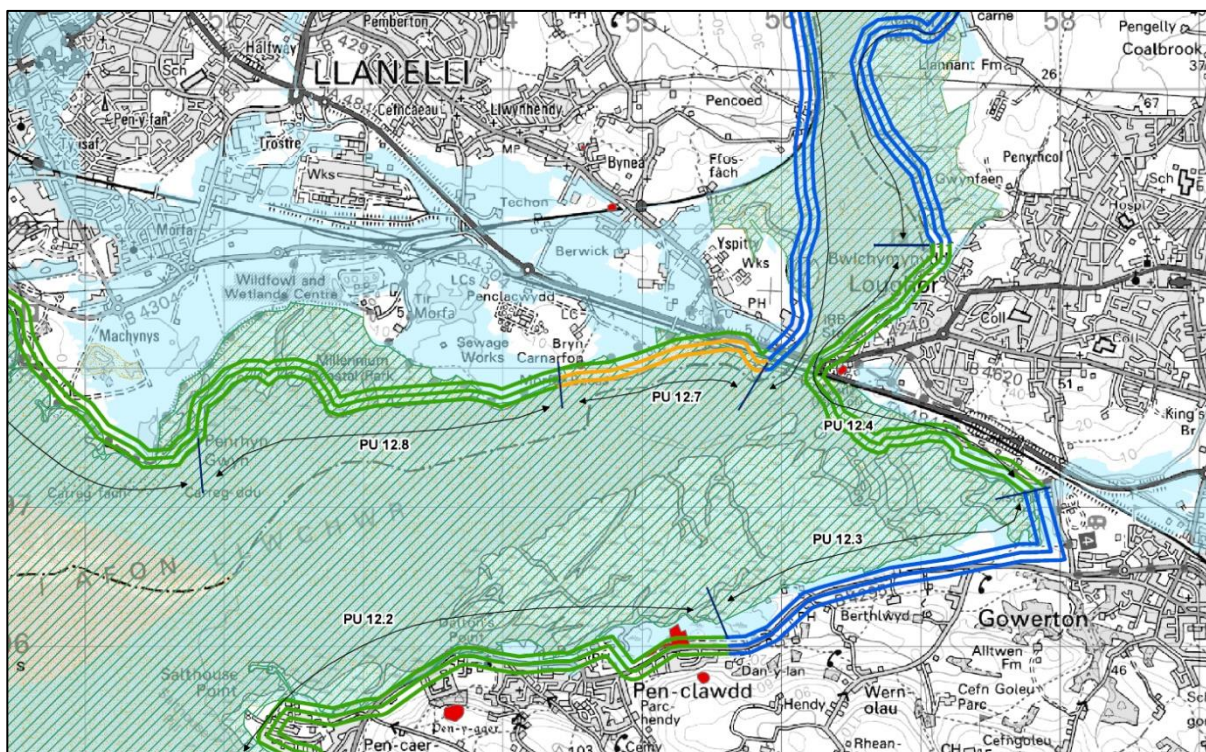


Figure 14: SMP2 - Policy Units

- 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.
- 9.1.4 As part of the SMP2, the chosen policies are measured against the potential economic impacts and environmental impacts projected over the course of time.



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

Table 4: Relevant Policy Unit description.

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
PU12.4	Loughor (Island Bridge to Bwlchymydd)	HTL	HTL	HTL	
PU12.7	Morfa Baccas (Loughor Bridge to Wildfowl and Wetlands Centre)	HTL	MR	MR	
Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention MR – Managed Realignment					

9.1.6 Regarding whether the proposed works are an infringement of preferred policy, this assessment deems the project as not challenging the current preferred policy units. All areas are within HTL zones until 2025.

9.1.7 In addition, the works fit within the definition of minor works, outlined with the recent Welsh Government position statement regarding coastal processes.

9.1.8 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. In terms of managed realignment, this will be a topic of further discussion for any maintenance works projected to occur during 2025 onwards.

9.1.9 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 – LOUGHOR SECTIONS A TO E

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 section E.	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. 3t Plant machine access will only occur through the existing rail underpass, from the gravel ramp behind section E, along the edge of the salt marsh habitat to the larger void within the base of the masonry at Section E. 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. As much as practically possible, the mixing of mortar material will be undertaken within the rail corridor (track side). If there is no safe distance between the running rail and the works location, mixing will occur at beach/ground level. 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 or other impermeable membranes laid on the ground 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 defences during masonry 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. Should the paddle mixer not be of sufficient volume to readily repair the void noted within the scoping report at section E. Then grout or cement will be pumped from a source situated outside of the marine environment. All hand tools for vegetation clearance will be checked prior to use and stored in secure areas and on spill mats when not in use. Equipment will be fuelled at the layby areas indicated prior to use. No refiling is permitted within or adjacent to the Salt Marsh habitats.	
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.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
Salt marshes (also part of estuarine habitat)	SAC/SSSI	Contamination of the estuary from spillage of hydrocarbons during refuelling of equipment or due to equipment failure.	Salt Marsh is present along the edges of the working area. The contractor will ensure measures such as placement of tarps, covers any vulnerable areas of salt marsh habitat to limited the potential for contamination. See comments above under estuarine habitat.	Negligible likelihood of significant impacts.
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 will be disturbed by the movement of the plan vehicle. However, the proposed use of a plant machine is limited to the section E void 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. The low pressure 3t excavator will traverse along the edge of the structure close to salt marsh habitat. It is anticipated that the machine will be able to avoid the salt marsh habitat. However, should this not be possible. Ground mats will be placed temporarily along the path of the excavator to avoid direct disturbance to any salt marsh while this machine is in use.	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 / SPA / RAMSAR	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 or offloading of material to be closer to working locations. 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 defence 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. 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. Task lighting (if required) will face the reliant work locations and will not face directly out into the estuary using flat glass luminaires. 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. The assessment acknowledges the proximity of the works to the BTO monitoring units and the importance of DB027 during December and challenging weather conditions. As such, during poor weather conditions during winter, works will be avoided. This will both serve a safety critical	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			component while also ensuring the bird assemblage is not unduly disturbed when looking for shelter during winter storms. In terms of visual buffers, DB027 is a relatively narrow unit, stretching downstream from the rail asset. Assuming similar SPA visual guidelines to other sites. It is very likely that a 200m buffer from significant portions of the projected bird assemblages can be maintained, as when the water levels encroach on the working areas, teams will demobilise. During peak low-tide, the vast majority of these monitoring units will be undisturbed.	
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.	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			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. 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 prohibited. 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.	Impact Not Likely to be Significant, with appropriate mitigation



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			Works will be undertaken within the estuary during the 2022 – 2023 spawning seasons for protected and migratory fish. ◆ 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. ◆ 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 Limited working periods, during low tide predominately, during the day, reduces the intensity if the works, will also maintaining consideration for bird during challenging winter weather conditions, will ensure bird in a vulnerable position will not be unduly disturbed.
- 13.1.3 Localised SPA bird population are likely habituated to the presence of moving trains, local fishers and walkers. Consequently, operatives access the site predominantly on foot will be unlikely to cause an excessive elevated level of normal activity. It is envisaged that the works will have little impact on the protected areas and wildlife therein, with no determinantal impact to the current condition assessment of Annex features.
- 13.1.4 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 a Project Managers from Dyer & Butler and Environmental specialist (EcoVigour).
- 13.1.8 The use of 3t machine on predominantly sand and shingle habitat, while following the narrow path along the edges of salt marsh, will likely not detrimentally impact the Annex I feature of the designated site. As the machine is to be used for a single part of the overall works, it's cumulative impact of use is highly limited.
- 13.1.9 Localised vegetation clearance at the structures will not remove any Annex I habitats from the designated sites.
- 13.1.10 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.
- 13.1.11 The ECoW will undertake a pre check of the access route and immediate working areas.
- 13.1.12 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.
- 13.1.13 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.
- 13.1.14 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



