



2026

**1025A - Llanfairfechan
Apron Failure
Water Framework Directive (WFD)**

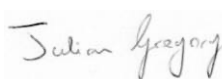


ECOVIGOUR
Integrated Environmental Management



MGroupServices



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1. INTRODUCTION

- 1.1.1 EcoVigour was instructed by MGroup – Rail Division to undertake a Water Framework Directive Assessment (WFD) for proposed maintenance works to the Llanfairfchan Sea Defence.
- 1.1.2 This assessment includes a summary of the current local conditions and, where appropriate, identifies mitigation measures for any likely significant effects (LSE) that may arise as part of the construction and operation of the Proposed Scheme. This WFD Assessment is required to demonstrate that the proposed works will not result in deterioration in the water body status and adjoining water bodies or prevent them from meeting their Water Framework Directive objective.

1.2 PROJECT CONTEXT

- 1.2.1 Recent significant damage has been sustained to the lower concrete apron below the Sea Defence Wall at Llanfairfechen. Resulting in exposed voiding with the outer sea defence alignment. Timely remedial measures have been requested by Network Rail asset teams. MGroup have been commissioned to undertake the repairs at the earliest opportunity.
- 1.2.2 The coastal defence is situated along the north facing shore of Conwy Bay, to the rear of the defence is the Chester South Junction to Holyhead CNH3 railway line and A55 North Wales Expressway. Along this defence length, the closest designated SAC boundary runs parallel and overlaps the defence alignment. The SSSI boundary also overlaps the defence footprint.
- 1.2.3 Scheduled masonry arch repairs required by Network Rail (NR). The proposed works will be undertaken during Summer 2026 (exact start date of works dependent on Marine License Assent).

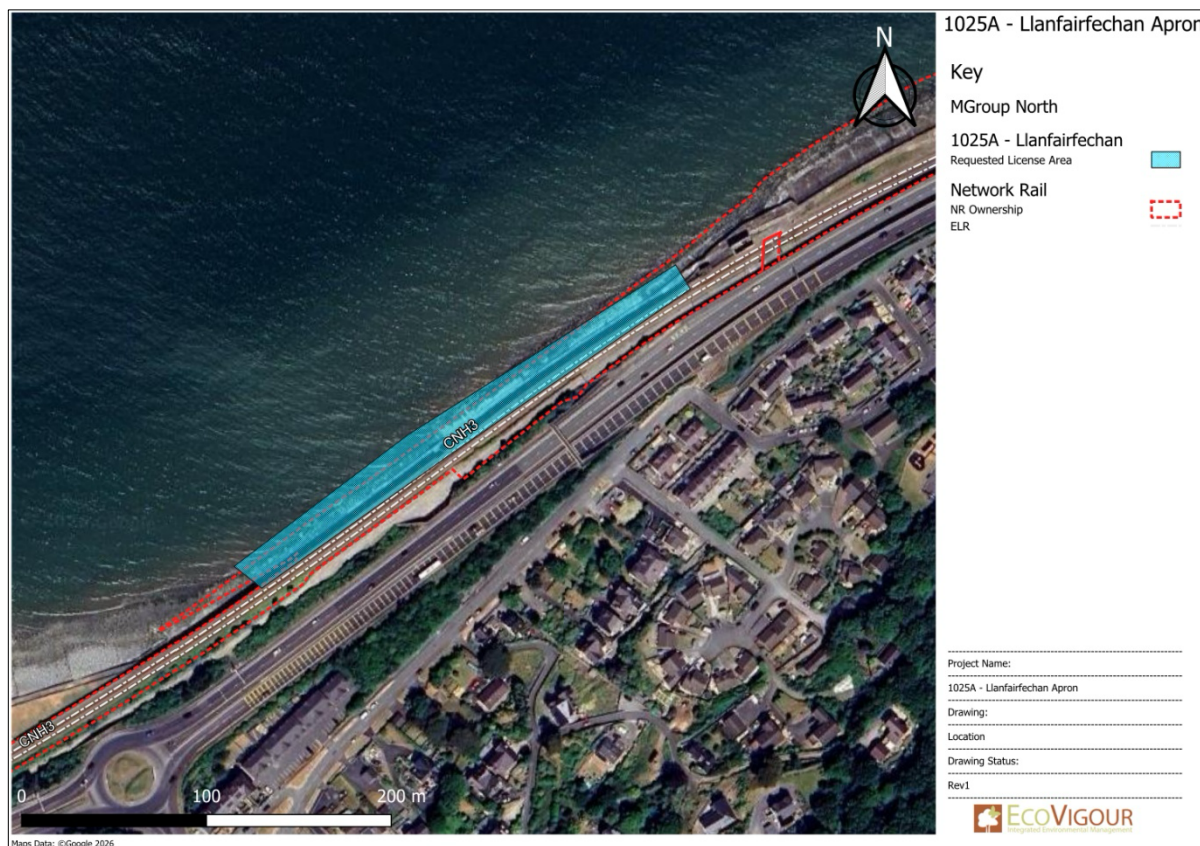


Figure 1: Main works location (OS Map).

1.3 PROJECT DESIGN OVERVIEW

- 1.3.1 The proposed design includes masonry repairs, replacement rock armour components and sheet pile replacement. The figures below illustrate the design footprint and new proposed alignment. Full size design drawings are available in the attached appendices.

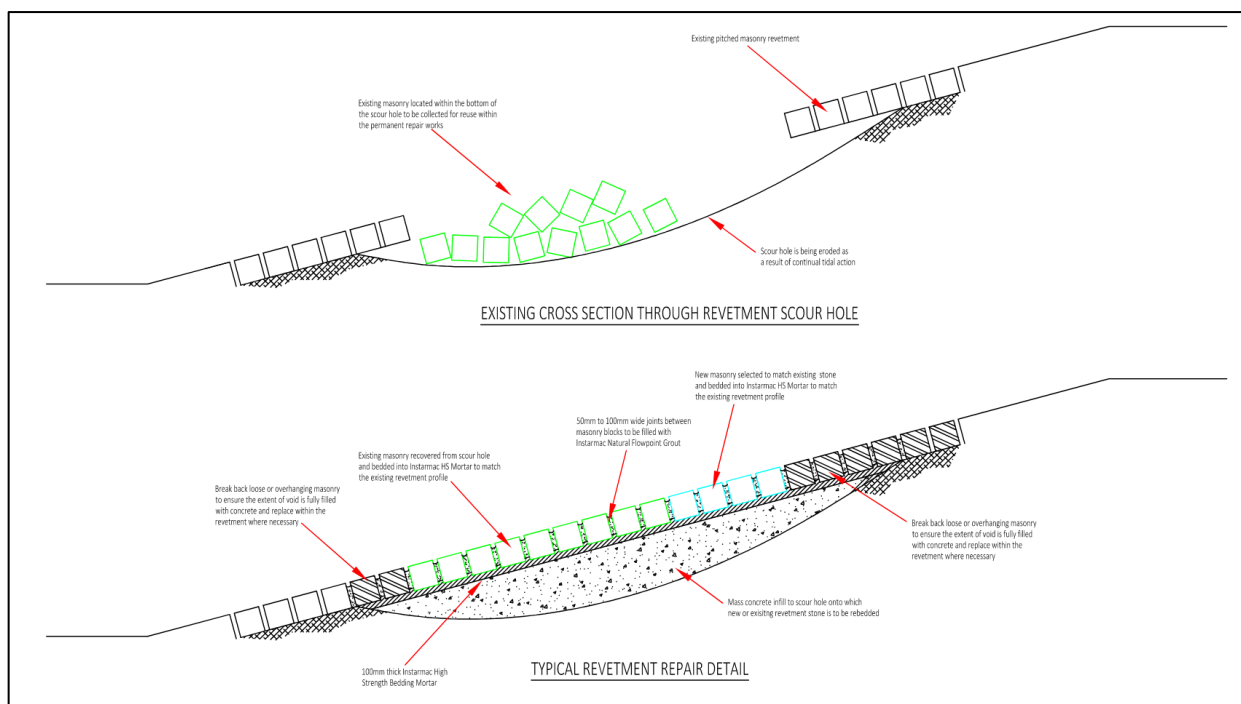


Figure 2: Drawing illustrating new rock armour extent (red) near northern rail crossing (based on previous designs).

1.4 METHODOLOGY

1.4.1 The method of works is set out below. Please note, a formal site task plan will be produced closer to the operational date, to account for changes to personnel allocation and suppliers.

- ◆ The majority of the work areas is below Mean High-Water Spring (MHWS) levels so all works will be planned to be carried out during low tide conditions.
- ◆
- ◆ Roped access technicians will work from the top of the existing lower defence to gain safe access to the apron. Some locations the angle of slope is relatively flat and in these areas the plant machine will operate and support the works team.
- ◆ Materials and equipment will be brought to the work areas using the existing rail line with equipment being lowered to the damaged defence section using Road Rail Vehicles (RRV's) and larger rail mounted cranes (this will be used to deploy low tonnage 360 plant machines).
- ◆ Concrete for the works will be delivered in small ready mixed concrete wagons or mixed within the rail corridor using mobile mixture apparatus moved by RRV. A small static concrete pump will be towed by pick up to the works location and all vehicles and pump equipment will remain on the concrete/stone apron during this process. Where concrete pumps are not used, a 'skip' will be used (crane mounted poring equipment).
- ◆ Areas of work will be inspected by operatives, and the voids will be prepared as required with the use of handheld breakers where loose material requires cutting out and removing. Where possible, failed areas of apron material will be reused in the repair.
- ◆ Small submersible pump will be utilised in the instance where voids do not readily drain between tides, which could affect the concrete mixture. Although the likelihood is low, teams will be briefed on fish rescue techniques during any void draw down, in the event mobile aquatic species are present.



- ◆ Concrete will be discharged into the voids via the concrete pump. Operatives will control the pump hose and monitor the discharge of concrete. The concrete will be trowel finished once void has been filled.
- ◆ An follow up ecology survey will be undertaken to identify environmental risks associated with the works.
- ◆ The works will be subject to tidal movements and majority of repairs will be below water level at high tide.
- ◆ Small welfare arrangements will be established to support the workforce during these works. These will utilise existing hard standings and rail access points. Some night working may be required, should rail possessions prove difficult to arrange.
- ◆ Teams will abide by all GPP's relevant to the works and conditions outlined within the HRA and Marine License.

2. INTRODUCTION TO THE WATER FRAMEWORK DIRECTIVE

2.1 THE WATER FRAMEWORK DIRECTIVE



- 2.1.1 The Water Framework Directive (WFD) (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000) is a European Union Directive which committed member states to achieve good qualitative and quantitative status of all water bodies by 2015. Under the Directive water bodies are defined as all ground and surface waters, including rivers, lakes, transitional waters and coastal waters (up to one nautical mile from shore).
- 2.1.2 It was not possible to achieve good status of all water bodies by 2015; therefore, outstanding water bodies have objectives set for 2021 or 2027. Interim assessments were undertaken in 2018.
- 2.1.3 The WFD is transposed into law in England and Wales by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the 2017 Regulations). These revoke and replace The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (subject to transitional provisions in article 38 of the 2017 Regulations).

2.2 SCOPE OF THIS ASSESSMENT

- 2.2.1 All new activities in the water environment need to take account of the requirements of the WFD. For a project or activity to be compliant with the WFD, it should demonstrate that:
- ◆ There is no risk of it causing a deterioration of the status of any element, in addition, for groundwater, it will limit or prevent the input of pollutants;
 - ◆ There is no risk of it preventing WFD protected areas from achieving their objectives;
 - ◆ It will not jeopardise any waterbody from achieving good status/potential; and
 - ◆ It will contribute to the protection, enhancement and restoration of waterbodies.
- 2.2.2 This WFD Assessment considers all activities that will take place as part of the proposed scheme, during both construction and operation, and identifies the potential risks associated with these activities and the WFD receptors that are at risk.
- 2.2.3 The NRW guidance includes detailed screening criteria that can be used to determine whether a proposed activity is not likely to cause a deterioration in the status of a waterbody. This includes a list of activities that in general will not cause a deterioration, such as ‘temporary’ works that do not normally last more than six months and are not likely to have a residual impact on a waterbody. The guidance also lists other physical works and defines screening thresholds for each; these thresholds help to determine whether any activity presents a risk to a waterbody and any requirements for further assessment. However, these thresholds are for guidance only and expert judgement is required to determine if a proposed activity may have an impact on a waterbody.
- 2.2.4 Published guidance also states that the assessment must consider the potential for impacts on the following:
- ◆ Protected Areas – these are defined under Article 6 of the Directive.
 - ◆ Priority Habitats – these are ‘habitats of principal importance for conservation and biodiversity’, which are defined under Section 41 of a Natural Environmental and Rural Communities (NERC) Act 2006 in England and Section 7 of the Environment (Wales) Act 2016 in Wales.
 - ◆ Invasive non-native species (INNS) – assessment of INNS is required if a development could cause the introduction or spread of INNS to a waterbody.



- 2.2.5 A detailed Compliance Assessment would be required if it cannot be concluded that the scheme would not cause deterioration or inhibit the objective status of a waterbody. Further to this and in line with WFD requirements, there would be a need to apply the Article 4.7 test to seek approval for progression of the scheme if after the full WFD

2.3 DETERMINATION OF GOOD STATUS

- 2.3.1 Good status is determined from the ecological and chemical status of surface waters. These statuses are assessed according to the following criteria:
- ◆ Biological quality (fish, benthic invertebrates, aquatic flora);
 - ◆ Hydromorphological quality (e.g. riverbank structure, river continuity and substrate of the riverbed); and
 - ◆ Physical-chemical quality (e.g. temperature, oxygenation and nutrient conditions).
- 2.3.2 The chemical quality refers to environmental quality standards for river basin specific pollutants. These standards specify maximum concentrations for specific water pollutants. The WFD works on a 'one out, all out' basis, so if one such concentration is exceeded, then the water body will not be classed as having a good status. The chemical status of surface waters is therefore classified as good or fail.
- 2.3.3 The ecological status of surface waters is classified as being high, good, moderate, poor or bad, whilst water bodies that have been modified (e.g. canals or contain significant flood defences) are classed as 'Heavily Modified Water bodies' (HMWB) and have to reach at least good potential by their objective year.



3. ASSESSMENT METHODOLOGY

3.1 METHODOLOGY

3.1.1 This WFD Assessment was completed using the following methodology:

- ◆ The collection of baseline data to identify the current status, as well as future baseline and ability of the water bodies within and in close proximity to the proposed works to meet the WFD objectives;
- ◆ A Consultation with relevant authorities;
- ◆ The review of the proposed works and the potential impacts to the identified surface and groundwater bodies; this involves identifying the impacts that could reduce the WFD status and affect the ability of the water bodies to meet the objectives of the WFD;
- ◆ The consideration of mitigation that can be included in the design, and
- ◆ The provision of an assessment of residual risks.

3.1.2 This assessment has been prepared using the following WFD screening/scoping assessment guidance:

- ◆ Guidance for assessing activities and projects for compliance with the Water Framework Directive, OGN72, Version 1.1, May 2017, Natural Resources Wales.
- ◆ Advice Note 18: The Water Framework Directive, Version 1, June 2017, The Planning Inspectorate. Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2017/06/advice_note_18.pdf
- ◆ Local Authority services and the water environment: Advice note on the Water Framework Directive, Natural Resources Wales. Available at: <https://naturalresources.wales/media/2627/wfd-docs-eng.pdf>
- ◆ Water Framework Directive assessment: estuarine and coastal waters – How to assess the impact of your activity in estuarine (transitional) and coastal waters for the Water Framework Directive (WFD), 9 November 2017, Environment Agency.
- ◆ Available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>.



4. BASELINE CONDITIONS

4.1 WDF STATUS OF WATERBODIES

- 4.1.1 Data on the location and status of WFD waterbodies and WFD Protected Areas has been obtained from the Water Watch Wales website (Waterwatchwales.naturalresourceswales.gov.uk) and the Multi-Agency Geographic Information for the Countryside (MAGIC) website (magic.defra.gov.uk/MagicMap.aspx)
- 4.1.2 The following WFD surface waterbodies are in proximity of the proposed scheme: Menai Strait (GB681010120000) and Conwy Bay (GB671010400000).
- 4.1.3 Table 3 (below) presents summary information on the current WFD status of each of the constituent quality elements of the waterbodies downstream of the works. This information has been obtained from the Water Watch Wales website. Each of the quality elements will be assessed to determine whether the proposed scheme has the potential to adversely affect their status.



Table 1: Summary of the WFD status of the rivers / watercourses flowing into the Estuary and connected water bodies.

Waterbody name, ID, Type, Management Catchment, River Basin District.	Hydro-morphological designation	Current overall status & objectives	Biological elements	Physico-chemical elements	Water body Protected Area Links
Menai Strait (GB681010120000) Type: Coastal Man Catchment: Llyn and Eryri TraC RBD: Western Wales Area Name: Marine;North West Wales	Designated as Natural	Current overall status = Good; Current ecological status = Good; Current chemical status = High;	Phytoplankton = High Opportunistic Macroalgae = Not assessed Invertebrates = Good Infaunal Quality Index = Good	Dissolved oxygen = High Dissolved Inorganic Nitrogen = High Annex 8 Chemicals = Not assessed Copper = High Zinc = High Cadmium = High Brominated diphenylether (BDPE) Calc = Not assessed Benzopyrene = Not assessed Hexachlorobutadiene = Not assessed Hexachlorobenzene = Not assessed Mercury = Not assessed Fluoranthene = Not assessed Lead = High Nickel = High	Protected Area = Yes Bathing Waters = No Special Protection Area = No Drinking Water Protected Area = No Special Area of Conservation = Yes Nitrate Vulnerable Zone = No Shellfish Water = No
Conwy Bay (GB671010400000) Type: Coastal Man Catchment: Llyn and Eryri TraC RBD: Western Wales Area Name: Marine;North West Wales	Designated as Heavily Modified	Current overall status = Moderate; Current ecological status = Moderate; Current chemical status = Moderate;	Phytoplankton = Good Invertebrates = Moderate Infaunal Quality Index = Moderate	Dissolved oxygen = High Dissolved Inorganic Nitrogen = High Annex 8 Chemicals = Not assessed Copper = High Zinc = High Cadmium = High Brominated diphenylether (BDPE) Calc = Not assessed Benzopyrene = Not assessed Hexachlorobutadiene = Not assessed Hexachlorobenzene = Not assessed Mercury = Not assessed Fluoranthene = Not assessed Lead = High Nickel = High	Protected Area = No Bathing Waters = No Special Protection Area = No Drinking Water Protected Area = No Special Area of Conservation = No Nitrate Vulnerable Zone = No Shellfish Water = No



5. WATER FRAMEWORK DIRECTIVE ASSESSMENT: SCOPING FOR ACTIVITIES IN ESTUARINE AND COASTAL WATERS

Consider the potential risks of your activity to each of these receptors: hydromorphology, biology (habitats and fish), water quality and protected areas. Also consider invasive non-native species (INNS).

5.1 SECTION 1: HYDROMORPHOLOGY

5.1.1 The first stage is to consider if there is hydromorphology at risk from your activity.

Table 2: Summary table to find out the hydromorphology status of the water body, if it is classed as heavily modified and for what use.

Consider if your activity:	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	There will be no changes to the below MHWS sections of the structures. During construction and temporary works at MHWS will be removed at the end of each shift. The works will therefore not impact the hydromorphology of the bay or the watercourse.
Could significantly impact the hydromorphology of any water body	Please see above - No impacts on any other water bodies.
Is in a water body that is heavily modified for the same use as your activity	The bay is considered to be heavily modified.



SECTION 2: BIOLOGY, HABITAT & FISH

5.2.1 The second stage is to consider if habitats, Biology and Fish Species are at risk from your activity. The figures and tables below illustrate and discuss the features present within the relevant units.

Table 3: Water body summary table and Magic maps, or other sources of information if available, to find the location and size of these habitats.

Area Name & ID		Conwy Bay (GB671010400000)	
Higher sensitivity habitats		Lower sensitivity habitats	
Habitat Type	Potential Impacts	Habitat Type	Potential Impacts
		Gravel & Cobbles (intertidal & subtidal coarse sediment A2.1, A5.1)	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.
		Intertidal Soft Sediment (Sand, Mud & Mixed A2.2, A2.3, A2.4)	Direct impact in the form of vehicle movement over this harder substrate to access the structure Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.
		Subtidal Soft Sediment (Sand, Mud & Mixed A5.2, A5.3, A5.4)	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.
		Rockyshore (Intertidal rock A1)	Potential direct impact (where exposed) in the form of vehicle movement over this harder substrate to access the structure Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.



² Higher sensitivity habitats have a low resistance to, and recovery rate, from human pressures.

³ Lower sensitivity habitats have a medium to high resistance to, and recovery rate from, human pressures.

Table 4: Biology.

Consider if the footprint ⁴ of your activity is:	Biology habitats risk issue(s)
0.5km ² or larger	The total licensed area of the at and to access the structure is approximately 800m ² and hence the worksite will be below 0.5km ² (49687559m ²).
1% or more of the water body's area	The bay covers an area of approximately 49687559 m ² . The footprint of the works is therefore less than 1% of the bays area.
Within 500m of any higher sensitivity habitat	Works will be undertaken within the following designated sites: ◆ Traeth Lafan – Site of Special Scientific Interest (SSSI) ◆ Menai Strait and Conwy Bay – Special Area of Conservation (SAC) – (onshore/offshore) ◆ Traeth Lafan – Special Protection Area (SPA) – (onshore/offshore) The impact of the works on the SSSI and SAC are considered in the sections below.
1% or more of any lower sensitivity habitat	

⁴ Note that a footprint may also be a temperature or sediment plume. For dredging activity, a footprint is 1.5 times the dredge area.

6. DESIGNATED SITES WITHIN PROXIMITY TO SITE

- 5.2.2 There are several statutory designated sites within proximity to the defence line.
- 6.1.2 Site of Special Scientific Interest:
- ◆ Traeth Lafan – Site of Special Scientific Interest (SSSI) – (onshore/offshore)
- 5.2.3 Special Area of Conservation:
- ◆ Menai Strait and Conwy Bay – Special Area of Conservation (SAC) – (onshore/offshore)
- 5.2.4 Special Protection Area (SPA)
- ◆ Traeth Lafan – Special Protection Area (SPA) – (onshore/offshore)
- 5.2.5 There are additional offshore sites, within 200m of the remedial work:
- ◆ Bae Lerpwl – Special Protection Area (SPA) – (offshore)
- 5.2.6 They will not be considered further in this assessment in terms of design, however as indicated within the first section of this document, they must be assessed against a project methodology, to ensure no indirect impacts vectors are likely.
- 5.2.7 In terms of direct interaction with designated site boundaries, the defence alignment is in direct contact with the defined statutory designated site boundaries.
- 5.2.8 Consequently, the Menai Strait and Conwy Bay (SAC) and Traeth Lafan (SAC) sites will be discussed further in their own sections below. The Traeth Lafan (SSSI) will also be assessed to satisfy the S28G Notice.

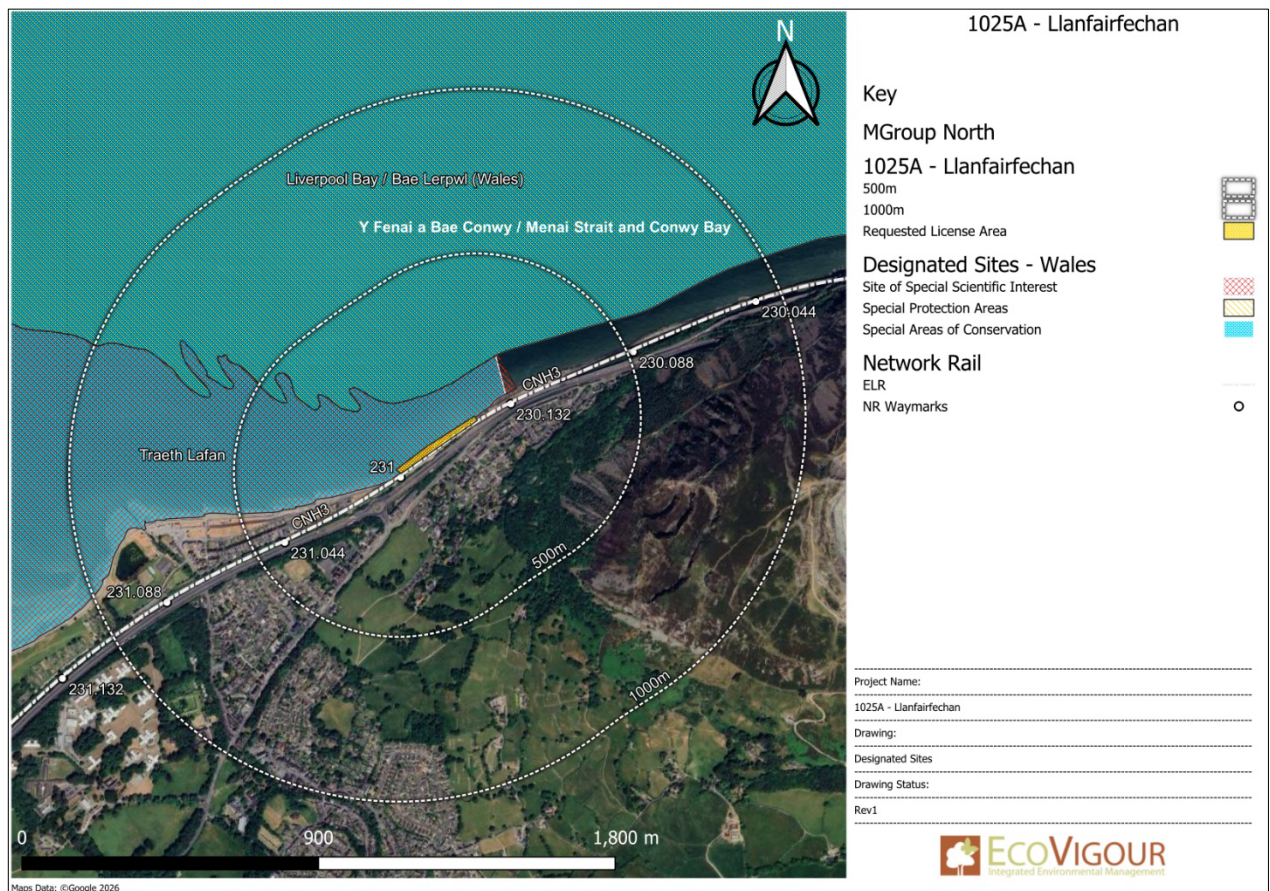


Figure 3: Statutory Sites in relation to remedial works license area.



5.3 MENAI STRAIT AND CONWY BAY SAC

5.3.1 The Menai Strait and Conwy Bay special area of conservation (SAC) is in northwest Wales. The site covers the whole of the Menai Strait and extends from Menai Point in the west to the Little Orme/ Rhiwledyn in the east and Traeth Lligwy on Anglesey in the north. The SAC covers approximately 26,483 hectares. It forms part of the UK's National Site Network - See figure below for project location in relation to the SAC boundary.

5.3.2 For the qualifying habitats and species listed in the table below (table 1).

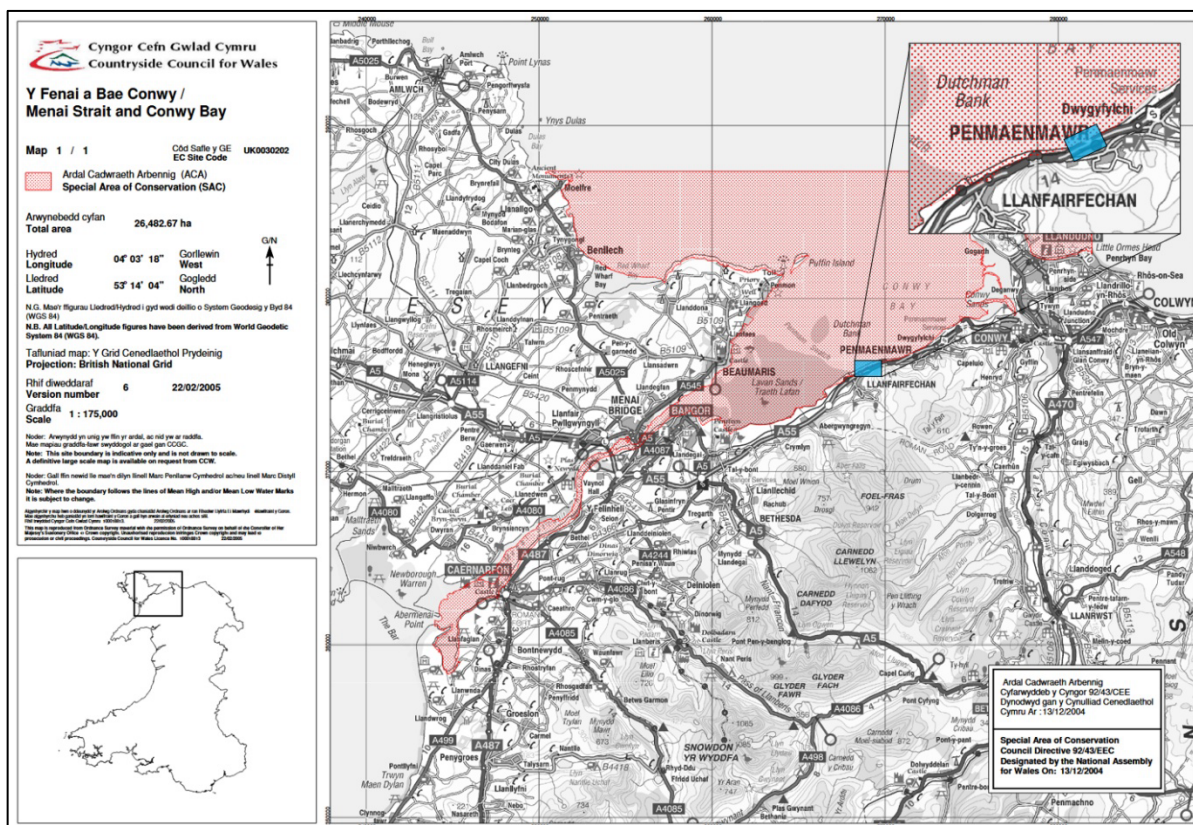


Figure 4: Location of design in relation to wider SAC.

Table 5: Annex I features of the Traeth Lafan.

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
1140	Mudflats and sandflats not covered by seawater at low tide
1170	Reefs
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site	
1160	Large shallow inlets and bays
8330	Submerged or partially submerged sea caves

5.3.3 As the projected remedial works occur directly within the SAC, it is necessary to identify the Annex I features that will be found directly within the project footprint.

5.3.4 Annex II species will be assumed as these species are highly mobile. The Annex I habitat however are discussed in the following subsections.



- ◆ 1160 Large shallow inlets and bays.
- ◆ 1140 Mudflats and sandflats not covered by seawater at low tide.

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Table 6: Potential fish species at risk from your activity, but only if your activity is in an estuary or could affect fish in or entering an estuary.

Consider if your activity:	Biology fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	Works will be restricted to the defence structures during lower tide conditions, with no physical impediment to fish passage along the estuary.
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	Please refer to information above. Works will not cause a barrier to migrating fish species.
Could cause entrainment or impingement of fish	No identified impacts.



5.5 SECTION 3: WATER QUALITY

5.5.1 Stage 3 - Consider if water quality is at risk from your activity.

Table 7: Water body summary table to find information on phytoplankton status and harmful algae.

Consider if your activity:	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	Sediment Release: There is potential for a small amount of sediment release from the rising tide and from scour due to water being discharged from the headwall between repairs or sediment mobilised during personnel access to the soft substrate below the structure. This would not add any materials to the marine environment but may re-mobilise deposited materials. Use of Hydrocarbons: No refuelling of equipment will occur within the bay. All items of static equipment will be placed within a plant nappy when not in use. Fuelled equipment will be checked for defects and leaks prior to the start of each shift. Within the compound, 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 using equipment specifically designed for that purpose. Network Rail have a spillage plan and specialised contractor in place to respond to and clean up spills. Impact Assessment – To assess the potential impacts of these activities, the following should be considered: Fuel powered equipment will be used on the asset within the estuary/bay and hence there is a heightened risk of hydrocarbon release due to leaks of fuels and oils. The contractor will refer to guidance from: ◆ GPP 2 - Above ground oil storage tanks, ◆ 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, ◆ GPP26 - Safe storage – drums and intermediate bulk containers.



Consider if your activity:	Water quality risk issue(s)
	This includes controls for the operation of equipment using biodegradable hydraulic oil (where this is within the manufacturers permitted specification), the re-fuelling of equipment, inspection and maintenance routines to identify defects which could result in the release of liquids, biosecurity protocols, silt mitigation procedures, waste management procedures. The ESMP also includes details on incident response and reporting, including hydrocarbon spills, remediation and reporting to NRW. Conclusion: Provided detailed mitigation plans are developed as part of the Task Specific Method Statements, in line with the broad guidance above, risks to water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns have therefore been assessed as low.
Is in a water body with a phytoplankton status of moderate, poor or bad	N/A (No Data)
Is in a water body with a history of harmful algae	N/A



Table 8: Assessing whether water quality is at risk from your activity through the use, release or disturbance of chemicals.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	Impact Assessment: Chemicals which will be taken into the estuary as part of the works will be: Hydrocarbons within machinery. Conclusion: Provided the project complies with the measures set out within the ESMP, which in turn contains guidance from the relevant GPPs, the risk of release of hydrocarbons and cementitious materials is low.
It disturbs sediment with contaminants above Cefas Action Level 1	Impact Assessment: There is a low risk of sediment release during disturbance to ground around the exposed section of sheet piles being replaced. Conclusion: Risks from sediment release are negligible.



Table 9: Assessing whether project falls within mixing zone.

If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Water quality risk issue(s) / Assessment of Risk / Mitigation Proposals.
The chemicals released are on the Environmental Quality Standards Directive (EQSD) list	The works are maintaining an existing asset.

⁵ Carry out your impact assessment using the Environment Agency's surface water pollution risk assessment guidance, part of Environmental Permitting Regulations guidance.

5.6 SECTION 4: WFD PROTECTED AREAS

5.6.1 Stage 4 is to consider if WFD protected areas are at risk from your activity. These include:

- ◆ Special Areas Of Conservation (SAC)
- ◆ Special Protection Areas (SPA)
- ◆ Shellfish Waters
- ◆ Bathing Waters
- ◆ Nutrient Sensitive Areas

Table 10: Location of protected areas in your water body (and adjacent water bodies) within 2km of your activity.

Consider if your activity is: Within 2km of any WFD protected area ⁶	Protected areas risk issue(s)
Menai Strait and Conwy Bay – Special Area of Conservation (SAC)	The works will be undertaken within the Menai Strait and Conwy Bay – Special Area of Conservation (SAC) It is not anticipated that there will be any direct impacts on the SAC but without sufficient controls in place, there is potential for the release of deleterious materials from the works. This is considered within the following sections and also in the Habitat Regulations Assessment for the scheme.
Designated Bathing Waters	There is potential for impacts from the works due to the following: - Impacts are unlikely due to the scale and relatively low impact of the proposed works. Mitigation will be implemented as described above.



Consider if your activity is: Within 2km of any WFD protected area ⁶	Protected areas risk issue(s)
	- Reference has been made to GPP 2: Above ground oil storage tanks, GPP 5: Works and maintenance in or near water and PPG 6: Working at construction and demolition sites, GPP 7: Safe storage – The safe operation of refuelling facilities, GPP 21: Pollution incident response planning, GPP 22: Dealing with spills, GPP26: Safe storage – drums and intermediate bulk containers in the preparation of the ESMP.
Shellfish Waters	Impacts and proposed mitigation will be the same as for the Designated Bathing Waters area, above.

⁶ Note that a regulator can extend the 2km boundary if your activity has an especially high environmental risk.

5.7 SECTION 5: INVASIVE NON-NATIVE SPECIES (INNS)

5.7.1 Stage 5 is to consider if there is a risk your activity could introduce or spread INNS.

5.7.2 Risks of introducing or spreading INNS include:

- ◆ Materials or equipment that have come from, had use in or travelled through other water bodies.
- ◆ Activities that help spread existing INNS, either within the immediate water body or other water bodies.

Table 11: Risk from INNS.

Consider if your activity could:	INNS risk issue(s)
Introduce or spread INNS	No INNS have been identified within the worksite. The risk of introducing INNS into the estuary environment will be controlled through Biosecurity Best Practice - Equipment to be used within and adjacent to the estuary will be subject to the Check, Clean, Dry process and will be treated with an aquatic safe disinfectant such as Virkon S. A Biosecurity Management Plan has been prepared for the project, which assesses the risk from INNS and proposes mitigation for this. Please refer to Appendix A.



5.8 SUMMARY OF WFD PRE-ASSESSMENT FINDINGS

Table 12: Summary of Pre-Assessment Stage Findings.

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	The repairs will connect to previous structure repairs along the lower defence alignment. There will be no new independent structures placed into the bay and no temporary structures such as scaffolding used.	Mitigation to be out in place to minimise impacts – Please refer to Table 15 for proposed mitigation.
Biology: habitats	No identified impacts on habitats, provided adequate pollution control measures are put in place i.e. sealed crash deck beneath the structure, controls on the storage and use of hydrocarbons and chemicals, controls on the use of cements, grouts and concrete.	Mitigation to be specified within the Social and Environmental Management Plan (ESMP)
Biology: fish	No identified impact. There will be no physical blocks to fish migrating through the estuary/river. Key impacts on fish will therefore be noise and vibration from works and the use of a equipment near channel. As the works will occur during low tide, noise and vibration will not be transmitted directly into the water column.	As above
Water quality	Potential impacts to water quality has been assessed.	Mitigation for these potential impacts is described within Table 15.
Protected areas	Works will be undertaken within the Menai Strait and Conwy Bay – Special Area of Conservation (SAC).	Working procedures and mitigation to be put in place to minimise potential for sediment release and hydrocarbon release. Mitigation described in Table 15.
Invasive non-native species	A Biosecurity Management Plan has been developed for the project, which includes INNS. Please refer to Appendix A.	Please refer to Biosecurity Risk Assessment

5.8.1 The WFD guidance stipulates if a pre-assessment has not identified any receptors at risk during scoping, you don't need to continue to the impact assessment stage and your WFD assessment is complete.

5.8.2 However, if the pre-assessment identifies one or more receptors at risk during scoping, you should continue to the impact assessment stage.



7. PROPOSED PROJECT MITIGATION

6.1 CONSTRUCTION PHASE MITIGATION

5.8.3 In Table 15 below, measures have been set out detailing mitigation to be implemented to minimise the potential project impacts.

Table 13: Proposed Mitigation Matrix.

Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
Coastal habitat - Loss of habitat from project activities.	During the project, all welfare, storage, parking will be situated within the rail corridor or on existing hard standings outside of the coastal environment. No Annex I habitat removal is required. The only physical interaction with the bay bed will be during the low tide periods where vehicle access along the beach areas of sand / silt below the structure failure. Plant/machinery will not deviate from the designated routes at any time. Personnel will walk along the available public footpath or access route. No walking over the saltmarsh is permitted.	Negligible likelihood of significant impacts.
Salt marshes (also part of estuarine habitat) - Loss of habitat from project activities.	No loss of habitat is projected to occur as all site access takes place landward of the proposed works. No vehicle or pedestrian access into the saltmarsh habitats.	Negligible likelihood of impacts, with suitable mitigation in place.
Reefs - Loss of habitat from project activities.	No works are proposed above the mapped Reefs as per the HRA.	Negligible likelihood of impacts.
Mudflats and sandflats not covered by seawater at low tide – muddy gullies in the Estuary - Loss of habitat from project activities.	Access will primarily be limited to the area directly below the sea defence.	Negligible likelihood of impacts.
Release of contaminative chemicals from sediments within the estuary	Limited, as only removal of material from the exposed void is proposed, to allow for repair.	Negligible likelihood of impacts with mitigation in place.



Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
Contamination of the estuary from spillage of hydrocarbons during refuelling of plant and equipment or due to equipment failure.	Plant/Machinery will only operate in low tide conditions and will be removed from the estuary ahead of the rising tide. Provision will be made to remove broken down plant / vehicles or plant and vehicles which become bogged down. No refuelling of plant machinery or equipment will occur within the estuary habitat. All items of static plant will be paced within a plant nappy when in use or being stored. Plant will be checked for defects and leaks prior to the start of each shift. Bulk fuels will be stored in a bowser with secondary containment. This will be located in the site compound. Within the compound, 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 using equipment specifically designed for that purpose. Network Rail 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. 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. Plant will also be available to remove contaminated ballast from site if required. All machinery entering the estuary will undergo regular checks and only use approved biodegradable oils. If oil leaks or damage to hydraulic hoses is noted, plant and machinery will be removed from the site and isolated within the site compound with containment measures beneath the leak, until it has been repaired and signed off by a competent fitter. The contractor will develop and emergency response plan in the event a machine becomes standard in the estuary from mechanical failure. Equipment will be available to syphon the fuel from the disabled machine in order to reduce the potential release of hydrocarbons into the estuary/bay.	Negligible likelihood of impacts with mitigation in place.
Contamination of the estuary from release of concrete.	Works will only occur during low tide conditions. Concrete used will be a rapid drying marine standard which will have cured by the time the tide returns to the working area. No concrete / cementitious materials will be stored in areas within the tidal range of the estuary or in areas liable to flooding.	Negligible likelihood of impacts with mitigation in place.
Aggregations of non-breeding birds Noise disturbance / Visual Disturbance / Habitat Destruction.	Project activities will create a source of light and noise over 8-12 hours during the day. Times will vary depending on specific tasks. Working hours will be generally between 07:00-19:00 As working hours are not continuous there will be periods where birds are not disturbed by site activities during the early mornings and night. It is likely that local bird populations are habituated to a level of human activities.	Negligible likelihood of impacts with mitigation in place.



Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
Individual wintering birds - Noise disturbance / Visual Disturbance / Habitat Destruction.	The works are scheduled to occur within circa July to October 2026, outside of the important peak wintering period.	Impact Not Likely to be Significant
Otter - Noise disturbance / Visual Disturbance / Habitat Destruction.	Toolbox Talks will inform site personnel on identifying the Annex II Species. No otter holts have been noted to date within proximity to the structure, access route or Morfa Compound area. The project does not represent a hard boundary preventing access to the wider estuary by this species. Habitat impact is limited, however there may be a temporary impact to prey species disturbed by ongoing works. It is not anticipated that these works will have an impact on the population. Additionally, no equipment or excavation will be left in such a manner that during high tide an animal could become snared and trapped within the working area. Although unlikely, 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, 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 structure, it is unlikely that this will present an impassable barrier to salmon migrating to spawn. Directional lighting measures as with those proposed for bat species will be implemented for Otter population to limit disturbance.	Impact Not Likely to be Significant, with appropriate mitigation
Bottle Nose Dolphin - Noise disturbance / Visual Disturbance / Habitat Destruction.	The structure is a significant distance away from the deeper portions of the estuary that continued to flow during low tides. In addition, the project is scheduled to occur during a lower tidal variation period, constitutently it is unlikely this species will be encountered during the project period. Identification of this species will be provided in toolbox talks.	Impact Not Likely to be Significant, with appropriate mitigation
Grey Seal - Noise disturbance / Visual Disturbance / Habitat Destruction.	See above.	Impact Not Likely to be Significant, with appropriate mitigation
Fish Assemblage – Pollution and water quality impacts.	Pollution control and Biosecurity measures implemented as described above will minimise water quality impacts on fish species.	Impact Not Likely to be Significant, with appropriate mitigation
Fish Assemblage - Noise disturbance / Visual Disturbance /	The works will be undertaken towards the start of the fish spawning season for migratory fish such as salmon, trout and eel (mid Oct – Mid April). However, no working at the structure will occur during high tide conditions.	Works have potential to cause a Minor



Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
Habitat Destruction.	Works within the estuary during low tide at bed level will be localised and low impact and will not involve deep excavation or dredging. Task lighting will be designed to illuminate the works area but limit light spill into the estuary.	Significant impact.
Fish Assemblage - Contamination of the estuary from spillage	See comments under estuarine habitat	Impact Not Likely to be Significant
Biosecurity	A detailed Biosecurity Plan has been prepared for the project. This includes the following: - All site personnel and site visitors will be informed if any INNS are known to be present on site and that they are jointly responsible for preventing their spread/impacts. They will be made aware of what these species look like so they can avoid it where possible and take appropriate actions. - All site personnel and visitors will be inducted in good biosecurity practices. This will include adoption of the CHECK-CLEAN-DRY campaign (NNSS, 2015). - The CHECK-CLEAN-DRY poster will be displayed in the site office as a reminder of good biosecurity practices: - http://www.nonnativespecies.org/checkcleandry/ - All equipment, tools, vehicles and personal protective equipment (PPE) used on site will be checked for seeds originating from any identified INNS before leaving the area. If seeds from identified invasive species are identified, the items will be cleaned and removed seeds will be destroyed. - The spread of waterborne diseases will be limited through the adoption of the CHECK-CLEAN-DRY campaign. This would entail the use of a suitable disinfectant e.g. Virkon® S Aquatic to decontaminate all machinery and PPE prior to it entering site and upon leaving site. Following application of a suitable disinfectant, machinery and PPE will be allowed to fully dry for at least 72 hours before being used on another aquatic site. The Biodiversity Management Plan can be found in Appendix A.	Impact Not Likely to be Significant
Blue Mussels - Contamination of the estuary from spillage and increased sediment loading.	Works will be undertaken at low tide and hence these will not be immediately released into the estuary but there is some potential for incoming tides to wash out small volumes of mobilised sediment.	Impact Not Likely to be Significant
Vascular plant assemblage associated with salt marsh (part of estuarine habitat) - No impact	See comments under estuarine habitat	No impact



8. WFD CONCLUSION

- 6.1.1 Due to the nature and scale of the works to be undertaken during the Llanfairfechan Defence Repairs, providing the mitigation outlined within this document and within this document and the supporting Habitat Regulations Assessment (HRA) is implemented, this project will not prevent any of the water bodies associated with the project from meeting their Water Framework Directive objectives.



9. APPENDIX A - BIOSECURITY MANAGEMENT PLAN & RISK ASSESSMENT

