

Dwr Cymru Welsh Water

Menai Shellfish - Rock Revetment

Water Framework Directive Screening

Reference:

P01 | 22 May 2025



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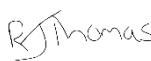
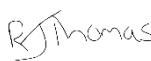
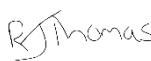
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1. The Project

1.1 Scheme Overview

A stormwater storage tank has been constructed beneath the Bangor Beach Road football pitch to address shellfish water quality in the Menai Strait. As part of the scheme, unrelated to the functioning of the stormwater system, some improvements are being made to the foreshore around DCWWs Sewage Pumping Station. This includes rock revetment improvements covered by this assessment.

The proposed works are located near Beach Road, Bangor, Gwynedd (National Grid Reference: SH 58644 72889, nearest postcode: LL57 1BU), hereafter referred to as ‘the Site’.

1.2 Scheme Description

The proposed project involves the construction of a new short length of rock armour revetment as a coastal erosion protection work, located at the corner between the existing seawall and the existing revetment around the Sewage Pumping Station.

The contractor has confirmed that the rock revetment installation will be completed within 5 days.

1.3 Purpose of this Report

The purpose of this assessment is to identify potential effects of the proposed rock revetment on the current status and future status objectives of waterbodies present at the Site, with reference to the Water Framework Directive (WFD). This assessment is to support a Band 2 Marine License Application for the Works. The key objectives of the assessment are to:

- Identify the relevant WFD water bodies that may be affected by the proposed project and collate the available baseline information;
- Identify activities with the potential to affect the water bodies at the Site;
- Undertake a preliminary scoping assessment to identify the baseline condition at the Site and the likely impacts of the proposed project on the current status and status objectives of the relevant waterbodies (including identification of any additional mitigation requirements);
- Identify any risks of non-compliance with water body objectives and associated requirements for further detailed impact assessment and/or mitigation design; and

The report summarises the assessment methodology and results. The assessment has been undertaken in accordance with relevant guidance¹ and has involved a desk-based study using readily available baseline information and existing available site information.

The assessment comprises a ‘living document’ and will be reviewed and updated as necessary in liaison with NRW as part of the Marine Licence consenting process.

1.4 Other Supporting Environmental Reports

Environmental reports used to support the production of this assessment are as follows:

- Construction Environmental Management Plan (CEMP) (reference: CEMPWWFOO6)
- Risk Assessment Method Statements (RAMS) (reference AGMS 057 Rev3)
- Habitat Regulations Assessment (HRA) (reference: APEM (2025). Bangor Scour Protection Works Habitats Regulations Assessment Report. APEM Scientific Report P00017989. Alun Griffiths Contracting Ltd, May 2025, v1.0.)

¹ <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

1.5 Assumptions and Limitations

The WFD water body classification data in this assessment has been taken from NRW's Water Watch Wales website for WFD Cycle 3 (Interim 2024). These classifications are considered to provide the current best estimate of status and are the formal baseline against which the NRW will assess compliance with the 'no deterioration' objective.

2. Legislative Context

The Water Environment (Water Framework Directive) (England and Wales) Regulations (WER) (amended 2017) is currently the largest and most influential piece of UK legislation for the water environment and transposes the European Commission Water Framework Directive (WFD) into English and Welsh law. Natural Resources Wales is the competent authority responsible for delivering the requirements of the WFD (as transposed) in Wales. Although the UK legislation is now referred to as the 'WER' the common usage term remains as WFD; this is the preferred term of reference for legislation and associated data in this report.

Under the WFD, water bodies are the basic management units. These water bodies form part of a larger River Basin District (RBD), for which River Basin Management Plans (RBMPs) are developed and environmental objectives are set. These RBMPs are produced every six years, in accordance with the river basin management planning cycle.

The WFD requires classification of the current condition of water bodies. This is referred to as their 'status' or, for artificial or Heavily Modified Water Bodies (HMWBs), their 'potential'. The WFD also requires the setting of a series of objectives for maintaining or improving conditions so that water bodies reach and/or maintain at least 'Good' overall status or potential in the future. These overall Environmental Objectives are to:

- Prevent the deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters.
- Aim to achieve at least 'Good' status or potential for all water bodies by 2015. Where this has not been possible and is subject to the criteria set out in the Directive, aim to achieve Good by 2021 or 2027.
- Meet the requirements of WFD Protected Areas.
- Promote sustainable use of water as a natural resource.
- Conserve habitats and species that depend directly on water.
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment.
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants.
- Contribute to mitigating the effects of floods and droughts.

All new (and on-going) activities in the water environment need to be guided by the requirements of the WFD. This includes ensuring that no changes occur that cause a deterioration of current status of a water body or prevent the achievement of the future status objectives of a water body.

3. Assessment Methodology

3.1 Scope of Assessment

WER Compliance Assessments typically comprise a stepped process undertaken in parallel with the design development for a project. This includes the following key steps:

- Screening assessment;
- Scoping assessment;
- Detailed impact assessment (where required); and
- Application of Article 4.7 / Regulation 19 (where applicable).

Further guidance on the WFD assessment for estuarine and coastal waters is provided by the Environment Agency².

This report comprises the screening and scoping assessment stages to support a Band 2 Marine License Application for the Works. The assessment is based on a desk-based study using readily available desk-based information.

The spatial scope of the assessment includes all water bodies potentially affected by the proposed project. The assessment considers the potential impacts of the proposed project on the relevant quality elements associated with the water bodies affected, at the water body scale.

The assessment focuses on the permanent impacts of the proposed works. Temporary impacts, typically resulting from construction activities, are not considered to result in a deterioration in WFD status if the water body:

- Is only impacted for a short time period;
- Is likely to recover within a short time period;
- Is likely to recover without the need for any restoration measures.

3.2 Data Sources

The following datasets and resources are readily available online and have been collated to support this assessment:

- Western Wales River Basin Management Plan³;
- WFD Protected Area data; and
- Designated Site and WFD Habitat Sensitivity information⁴.

² Environment Agency, 2023. Water Framework Directive assessment: estuarine and coastal waters. Available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters> [Accessed 26th March 2025]

³ Natural Resources Wales (2022) Western Wales River Basin Management Plan 2021 – 2027

⁴ Defra, 2023. Multi-Agency Geographic Information for the Countryside (MAGIC) Maps. Available at: <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed 26th March 2025].

4. Project Study Site

4.1 Site Description

4.1.1 Geology

The British Geological Survey (BGS) 1:50,000 scale mapping indicates that the Site is underlain by Quaternary superficial geology: coastal zone deposits consisting of clay, silt, sand, and gravel.

The Site is underlain by Ordovician bedrock, namely siltstone from the Nant Ffrancon Subgroup.

4.1.2 Topography

The Site topography is predominantly flat, ranging from 7m Above Ordnance Datum (AOD) to 4m AOD.

4.1.3 Land Use

The land surrounding the Site of the proposed project is primarily related to recreation and residential uses. The Beach Road Football Pitch lies to the south of the Site location.

4.1.4 WFD Water Bodies

The Menai Strait (GB681010120000) coastal WFD water body is the only water body hydrologically connected to the Site.

The location of the proposed project in relation to this water body is illustrated in Figure 1: WFD Water Bodies.



Figure 1: WFD Water Bodies

4.1.5 WFD Protected Areas and Statutory Designated Sites

The proposed scheme is located within an area of high environmental sensitivity. A Habitat Regulations Assessment (HRA) has been prepared for the scheme. This identified the following European and Ramsar protected sites to be screened in the assessment:

- Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC – 0.41km from the works.
- Traeth Lafan/ Lavan Sand SPA – 0.47km from the works.
- Anglesey Terns/ Morwenoliaid Ynys Môn SPA – 8.3km from the works.
- Liverpool Bay SPA – 7.1km from the works.
- The Dee Estuary SPA – 52.4km from the works.

No Ramsar sites were taken into the HRA screening as they have not been designated for, or support species that could be affected by the works, and they are all more than 10 km away from the works.

The location of the proposed project in relation to WFD Protected Areas is illustrated in Figure 2: WFD Protected Areas.

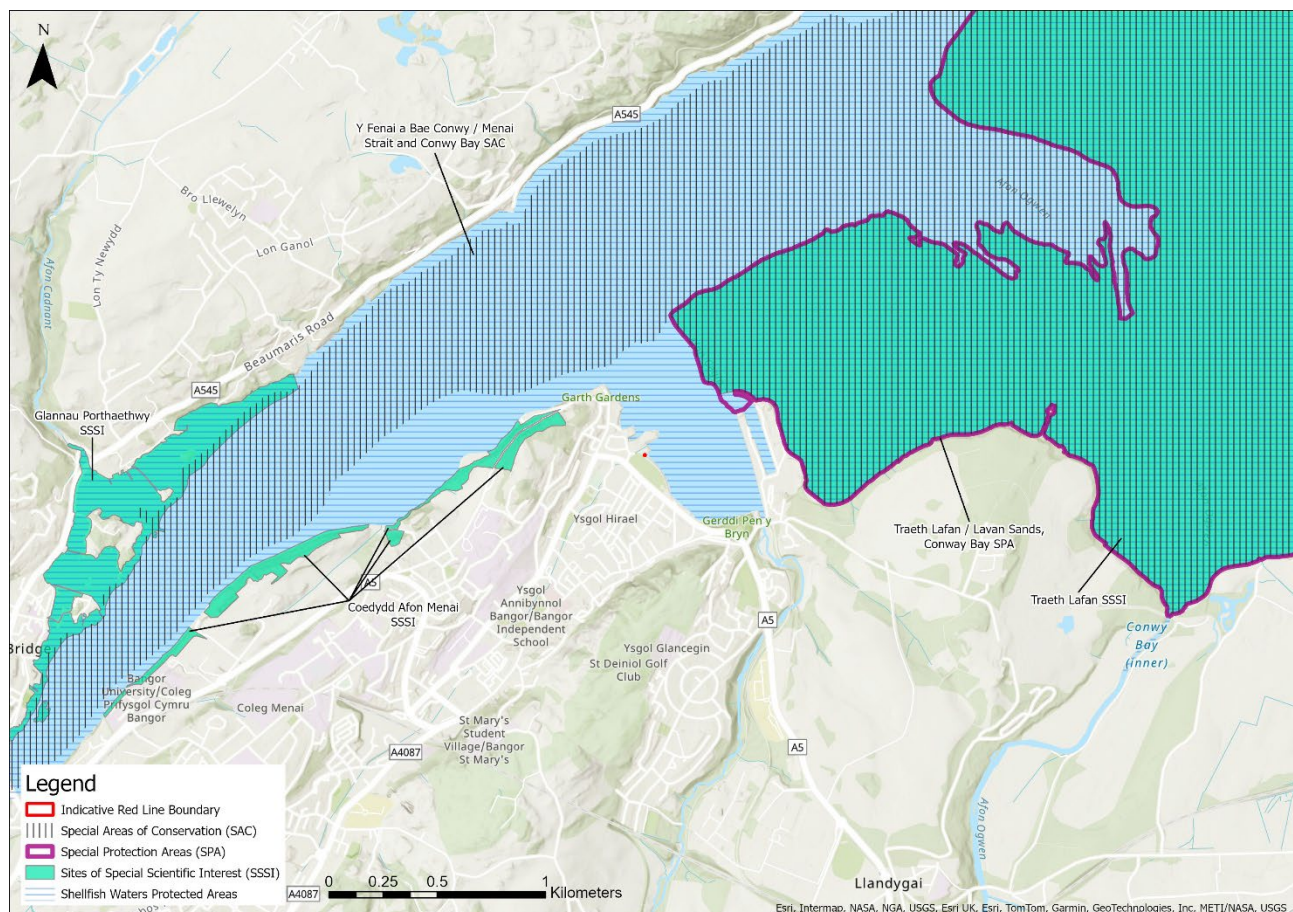


Figure 2: WFD Protected Areas

4.1.6 Drinking Water Protected Areas

There are no Drinking Water Protected Areas within 5km of the Site location.

4.1.7 Nitrate Vulnerable Zones (NVZs)

There are no NVZs within 5km of the Site location.

WFD Habitat Classification

Higher Sensitivity Habitats

The Site is mapped as a higher sensitivity habitat of Mussel Beds (*Modiolus modiolus*, *Mytilus edulis* & others). This is shown in Figure 3.



Figure 3: Extract from MAGIC Maps showing the extent of higher sensitivity Mussel Beds at the site. The extent shown on this mapping does not correspond with the coastal zone as much of this area is existing coastal development.

Lower Sensitivity Habitats

There are three lower sensitivity habitats present within 500m of the scheme. These are shown on Figure 4 and listed below:

- Rockysore (Intertidal rock) – Directly adjacent to the scheme to the north-east and south-east.
- Intertidal Soft Sediment (Sand, Mud & Mixed) – approximately 55m to the north-west and 65m to the north-east of the scheme.
- Gravel & Cobbles (intertidal & subtidal coarse sediment) – approximately 35m to the north-east and 100m to the south-east of the scheme.

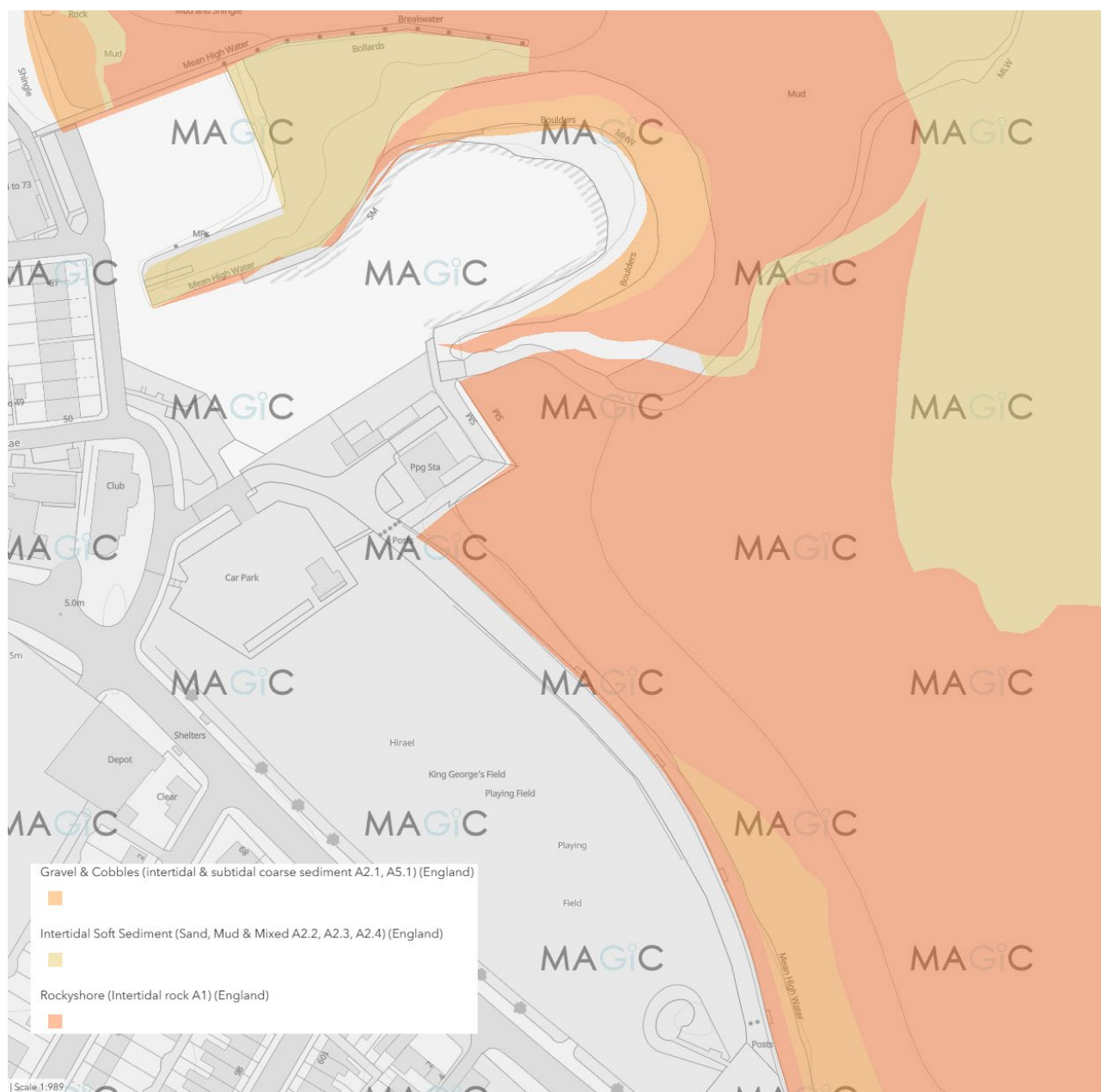


Figure 4: Extract from MAGIC Maps showing the extent of lower sensitivity habitats.

5. Proposed Works

5.1 Design Description

The proposed project involves the construction of a new rock armour revetment as a coastal erosion protection work, located at the corner between the existing seawall and the existing revetment around the Sewage Pumping Station. The area of revetment is approximately 40m² and infills a gap in the coastal protection in front of a recently constructed flood bund.

The scour protection works and works below MHWS will include the following:

- Excavation of granular material from the scour protection work area to formation level will be conducted using a tracked excavator.
- All excavation works will occur during good weather and during low tide periods.
- All material will be removed off the beach via forward tipping dumper (FTD) (approximately 200 T) to be stockpiled in the main site compound away from the work area above MHWS.
- Rock armour for the scour protection will be loaded into the FTD at the loading area and transported across the beach and tipped into the material laydown area, the transportation of the material across site will be below the MHWS line, however, the loading area and laydown area will both be above MHWS. There are two sizes of rock that will form the scour protection with the underlayer rock material being 0.4 m in diameter and the primary surface layer of rock being 0.62 m in diameter. A geotextile will be laid beneath the rock armour layers.
- The rock armour used for the scour protection works will be cleaned and jet washed prior to installation to reduce the risk of any residual silt entering the marine environment and the spread of invasive non-native species.
- The FTD will travel along the designated route from the ramp onto the beach at Beach Road East car park to the works area. All heavy machinery operations will occur during low tide periods to minimise risks of flooding and provide a stable work surface.
- The ground level at the foot of the revetment will be raised to the specified level using the core ground material. This will form the base of the scour protection.
- The underlayer of rock will be placed on top of the core ground material using the grab attachment on the excavator. The primary layer of rock will then be placed on top of the underlayer, also using the excavator grab attachment, until the whole area has been covered.
- Once the scour protection has been constructed, the surrounding area will be carefully reinstated to the original level and to the original state prior to works being carried out, using the stockpiled excavated material.

The works are shown on Drawing B16888-102503-01-BG-DR-CA-CI5022 submitted with the licence application.

5.2 Pollution Control

The Construction Environmental Management Plan (CEMP) has been prepared and is included as part of the Marine Licence application. The CEMP includes suitable measures, in line with GPP 5⁵ to minimise the risk of silt pollution during construction activities.

⁵ Pollution Prevention Guidelines, 2007, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/485199/pmhol107bnkg-e-e.pdf [Accessed 01 April 2025]

The works are planned to be undertaken at low tide, which minimises the risk of sediment disturbance and/or accidental spillage of pollutants.

5.3 Biosecurity

As outlined in the CEMP, there are no invasive species identified on the scour protection work site on the foreshore. Appropriate construction, handling, treatment and disposal procedures will be implemented in relation to species listed in Schedule 9, Part I or Part II of Section 62 of the Wildlife and Countryside Act 1981 (as amended) or the Weeds Act 1959. Measures will be implemented to promote biosecurity and minimise the risk that invasive non-native species and diseases are spread.

6. Baseline (Screening) Assessment

6.1 Overview

A baseline assessment has been undertaken to identify the relevant water bodies affected by the proposed project and to collate latest available baseline data, in order to inform a scoping assessment of the likely effects of the proposed project on WFD status and objectives. The location of the proposed project area in relation to WFD waterbodies is illustrated in Figure 1. The location of the proposed project area in relation to WFD protected areas is illustrated in Figure 2.

6.2 Relevant WFD Waterbodies

The Site is adjacent to the Menai Strait coastal water body (GB681010120000). The WFD water body is shown on Figure 1. No other water bodies are relevant to the assessment.

6.3 Menai Strait

6.3.1 Waterbody Description

The Menai Strait coastal waterbody (GB681010120000) is directly adjacent to the proposed project and is designated as a 'natural' (not heavily modified or artificial) water body.

6.3.2 WFD Status

In WFD Cycle 3 Interim 2024, Menai Strait had an overall status of 'Good', with an ecological status of 'Good' and a chemical status of 'High'. A breakdown of the current status of the waterbody is provided in Table 1.

Table 1: Summary of 2024 WFD Status for 'Menai Strait' coastal waterbody

Waterbody ⁶	Description, notes, or more information
WFD waterbody name	Menai Strait
Waterbody ID	GB681010120000
Waterbody total area (ha)	193,522
Overall status	Good
Ecological status	Good
Invertebrates	Good
Infaunal quality index (IQI)	Good
Phytoplankton	High
Macroalgae	High
Opportunistic Macroalgae	High
Ecological General Component	High
Din	High
Dissolved Oxygen	High
Chemical status	High
Specific pollutants	High
Arsenic	High
Copper	High

⁶ Water Watch Wales, Natural Resources Wales, <https://waterwatchwales-nrw.hub.arcgis.com/> [Accessed 01 April 2025]

Waterbody ⁶	Description, notes, or more information
Phenol	High
Un-ionised Ammonia	High
Zinc	High
Priority hazardous substances	Moderate
Cadmium	High
Nonyphenol	High
Priority substances	High
Lead	High
Nickel	High
Trichloromethane	High
Target water body status and deadline	Good by 2027
Higher sensitivity habitats present	Mussel Beds (<i>Modiolus modiolus</i> , <i>Mytilus edulis</i> & others)
Lower sensitivity habitats present	Rocky shore (Intertidal rock) Intertidal Soft Sediment (Sand, Mud & Mixed) Gravel & Cobbles (intertidal & subtidal coarse sediment)
WFD protected areas within 5km	Traeth Lafan / Lavan Sands, Conway Bay Special Protection Area (SPA) Y Fenai a Bae Conwy / Menai Strait and Conwy Bay Special Area of Conservation (SAC) Menai Strait (East) Shellfish Water Protected Areas 2022 Llyn and Eryri - Groundwater Drinking Water Protected Areas with Risk

6.4 Screening Conclusions

The Menai Strait coastal water body is **screened in**. The Site is immediately adjacent to and drains into the water body.

7. Scoping Assessment

A baseline assessment has been undertaken to identify the relevant WFD waterbodies which may be affected by the proposed project and to collate the latest available WFD baseline data, in order to inform a scoping assessment of the likely effects of the options on WFD status and objectives.

7.1 Hydromorphology

Table 2: Hydromorphology Scoping Assessment

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status		Impact assessment not required	Not a WFD waterbody of high status.
Could significantly impact the hydromorphology of any water body		Impact assessment not required.	The footprint of works is approximately 40m ² and therefore will have no effect on the hydromorphology of the water body.
Is in a water body that is heavily modified for the same use as your activity		Impact assessment not required.	The Menai Strait coastal waterbody is designated 'natural' (not heavily modified or artificial).

7.2 Biology

7.2.1 Habitats

Table 3: Habitats Scoping Assessment

Consider if the footprint of your activity is:	Yes	No	Biology Habitats risk issue(s)
0.5km ² or larger		No, impact assessment not required.	The proposed project area is approximately 40m ² (0.00004km ²) and therefore does not exceed 0.5km ² .
1% or more of the water body's area		No, impact assessment not required.	The proposed project area is less than 1% of the waterbody's area.
Within 500m of any higher sensitivity habitat	Yes, impact assessment required.		Higher sensitivity habitats comprising mussel beds are located within the proposed project area.
1% or more of any lower sensitivity habitat		No, impact assessment not required.	

7.2.2 Fish

Table 4: Fish Scoping Assessment

Consider if your activity:	Yes	No	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		No, impact assessment not required.	The proposed project area is not located within an estuary and the proposed project will not present any barrier to the migration of fish.
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)		No, impact assessment not required.	The proposed project does not present any barrier to the movement or migration of fish. The proposed project area is in the upper intertidal zone and would only infrequently be accessible to fish. All works will be undertaken at low tide and in the upper intertidal zone, limiting underwater noise.
Could cause entrainment or impingement of fish		No, impact assessment not required.	There is no potential for the proposed project to result in fish entrainment or impingement. Excavations will be immediately backfilled. No excavations will be left exposed over a tidal cycle.

7.3 Water Quality

Table 5: Water Quality Scoping Assessment

Consider if your activity:	Yes	No	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)		No, impact assessment not required.	All works will be undertaken at low tide and in the upper intertidal area. In addition, the proposed project will take place under a CEMP which includes sufficient measures to mitigate the risk of sediment runoff.
Is in a water body with a phytoplankton status of moderate, poor or bad		No, impact assessment not required.	Phytoplankton status is 'High' for this waterbody.
Is in a water body with a history of harmful algae		No, impact assessment not required.	
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water Quality risk issue(s)

Consider if your activity:	Yes	No	Water Quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list		No, impact assessment not required.	No proposal to discharge chemicals into the marine environment. Any spills from construction will be addressed through the Contractors Method Statement(s).
It disturbs sediment with contaminants above Cefas Action Level 1 ⁷		No, impact assessment not required.	Sediment disturbance is not anticipated.
The chemicals are on the Environmental Quality Standards Directive (EQSD) list		No, impact assessment not required.	No proposal to discharge chemicals into the marine environment.

7.4 WFD Protected Areas

Table 6: WFD Protected Areas Scoping Assessment

Consider if your activity is:	Yes	No	Protected Areas risk issue(s)
Within 2km of any WFD protected area	Yes, impact assessment required.		Traeth Lafan / Lavan Sands, Conway Bay Special Protection Area (SPA) is approximately 400m to the north-east of the Site location. Y Fenai a Bae Conwy / Menai Strait and Conwy Bay Special Area of Conservation (SAC) is approximately 400m to the north-east of the Site location. Mussel Beds (<i>Modiolus modiolus</i>, <i>Mytilus edulis</i> & others) – within the scheme boundaries. The Site is adjacent to the Menai Strait (East) Shellfish Protected Area.

7.5 Invasive Non-Native Species (INNS)

Table 7: INNS Scoping Assessment

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS		No, impact assessment not required.	No invasive species have been identified on the scour protection work site on the foreshore. The CEMP includes appropriate

⁷ Cefas Action Level 1 compounds: <https://www.gov.uk/guidance/marine-licensing-sediment-analysis-and-sample-plans#sample-plans-and-sediment-analysis> [Accessed 26th March 2025]

Consider if your activity could:	Yes	No	INNS risk issue(s)
			construction, handling, treatment and disposal procedures to mitigate the risk of introducing or spreading INNS.

7.6 Scoping Summary

Table 8: Scoping Assessment Summary

Receptor	Potential Risk to Receptor	Risk Issues for Impact Assessment
Hydromorphology	No	Not applicable, see Table 2.
Biology – Habitats	Yes	Higher sensitivity habitats comprising mussel beds are located within the proposed project area.
Biology – Fish	No	Not applicable, see Table 4.
Water Quality	No	Not applicable, see Table 5.
Protected Areas	Yes	Traeth Lafan / Lavan Sands, Conway Bay Special Protection Area (SPA) Y Fenai a Bae Conwy / Menai Strait and Conwy Bay Special Area of Conservation (SAC) Mussel Beds (<i>Modiolus modiolus</i>, <i>Mytilus edulis</i> & others) Menai Strait (East) Shellfish Protected Area.
INNS	No	Not applicable, see Table 7.

8. Impact Assessment

The Scoping Assessment identified potential risks to the following receptors: biology (habitats), and protected areas.

8.1 Biology: Higher Sensitivity Habitats

Higher sensitivity habitats comprising mussel beds are located within and immediately adjacent to the proposed project area.

There is no risk to these habitats from the rock revetment itself but construction activities, in the absence of good practice, could cause impacts via sedimentation (from vehicle tracking) or accidental spillages (leaks from machinery/plant).

A detailed CEMP has been prepared for the works and submitted alongside this assessment as part of the Marine Licence application. This CEMP includes measures to minimise disturbance and the risk of pollution, these include:

- Works within the intertidal zone will be undertaken at low tide to avoid sediment suspension.
- A defined corridor for vehicle tracking through the intertidal zone will be established to keep disturbance to a minimum.
- Pollution control measures will be implemented to control the risk of spillage from plant, machinery and refuelling.
- Stockpiled material will be placed above MHWS.

As such, it is reasonable to conclude that no adverse impacts are predicted on higher sensitivity habitats.

8.2 Protected Areas

The HRA for the scheme concludes that there is no potential for likely significant effects (LSE) from the proposed works to any of the protected areas identified. No sites were taken through to Appropriate Assessment and no in-combination effects were identified.

It is therefore concluded that the scheme would not result in impacts to WFD Protected Areas. No further assessment is required.

9. Conclusion

The screening stage identified one water body that the proposed project could potentially impact the WFD status of, the Menai Strait coastal water body. The Menai Strait coastal water body was screened into the preliminary scoping assessment, due to it having the potential to be directly or indirectly impacted by various components of the proposed project.

Based on the information available, the Scoping Assessment identified potential risks to the following receptors: biology (habitats), and protected areas. Further assessment for each of the risks was conducted.

For higher sensitivity habitats, it is reasonable to conclude that no adverse impacts are predicted, due to the active avoidance of sensitive habitats on-site and the implementation of good practice technique, as detailed in the CEMP, to minimise the risk of disturbance and pollution incidents.

For protected sites, the HRA assesses the potential for impacts on internationally designated sites for nature conservation. The test for likely significant effects carried out on European sites concluded that there is no potential for likely significant effects from the proposed works. As such, no sites were taken through to Stage 2 AA for consideration of adverse effects on site integrity. The HRA concluded that there will be no adverse effects on the integrity of any international designated sites as a result of the proposed project.

In conclusion, the proposed Rock Revetment is compliant with the objectives of the Water Framework Directive. The assessment should be reviewed if significant changes are made to the design or construction methodology.