



North Promenade, Barmouth

Environmental
Impact Assessment
Report to Inform
Screening Opinion



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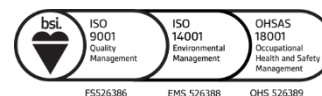
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Appendix A: General Arrangement Drawing

1.0 Introduction

YGC, on behalf of Gwynedd Council, are developing a project to improve the flood defences at the North Promenade region in Barmouth, Gwynedd. The work will primarily involve betterment of existing defences. This option includes increasing the height of the secondary (noted in drawings as alternative primary wall) and tertiary walls, refurbishing existing sheet piles, additional rock toe armour, and build out of shingle beach profile.

As the development meets the thresholds of Schedule 2 of the *Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017* and Annex II of *The Marine Works (Environmental Impact Assessment) Regulations 2007* a screening opinion from the relevant planning authority and regulating body is required to confirm whether Environmental Impact Assessment is necessary. The screening process determines whether or not the development is likely to have significant effects on the environment, for which an Environmental Impact Assessment would be required.

Current EIA legislation requires certain information to be provided by the person seeking the screening opinion. The aim of this EIA Screening report is therefore to provide supporting information, in accordance with Schedule 3 and Annex II, to assist the relevant consenting authority in determining whether there are likely to be significant environmental effects as a result of the development, and hence whether Environmental Impact Assessment is required.

2.0 The Development

The existing defences at North Prom, Barmouth are of poor condition. Should beach drawdown continue, then structural failure is increasingly a concern. Part of the promenade failed due to unsafe voiding beneath the promenade slab, requiring emergency stabilising repairs in 2020 and 2021. The repair works were emergency measures to extend the life of the existing structures until the preferred option is implemented. Beach levels decrease and defences deteriorate in condition toward the north of the study area. Studies conclude that overall foreshore bed levels along North Promenade are lowering and this lowering is expected to continue.

Proposed Scheme

In order to improve the standard of defence in the area, the main works will primarily consist of:

- The secondary, or alternative primary wall to be re-built structurally and increased by 600mm over a length of 1.2km.
- Tertiary flood wall to be re-built structurally and increased by 450mm over a length of 1.1km.
- Between both these walls lies the highway.

- 300m of rock toe armour to be provided to protect the primary sea wall and revetment, at the north end of the scheme. Remainder of the primary defences to be protected by 560m of shingle beach nourishment.
- 515m of existing sheet piles, starting from northern end of the scheme to be refurbished.

The total length of the scheme is estimated to be in the region of 1.2km in length.

See Appendix A – Preferred Option Drawings

Figure 1: Location of development



3.0 Screening for Significant Environmental Effects (Town and Country Planning)

3.1 Characteristics of the Development

Using the selection criteria provided in Schedule 3 of the *Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017*, the characteristics of the development have been considered with regard to the criteria contained in Table 3.1.

Table 3.1: Characteristics of the development

<i>a) the size and design of the development</i>	The preferred option carried forward for the site is option 2, which is the betterment of existing defences. This option includes increasing the height of the secondary (noted in drawings as alternative primary wall) and tertiary walls, refurbishing existing sheet piles, additional rock toe armour, and build out of shingle beach profile. The total length of the scheme is estimated to be in the region of 1.2km in length. The main works primarily consists of: • The secondary, or alternative primary wall to be re-built structurally and increased by 600m over a length of 1.2km. • Tertiary flood wall to be re-built structurally and increased by 450mm over a length of 1.1km. • Between both these walls lies the highway. • 300m of rock toe armour to be provided to protect the primary sea wall and revetment, at the north end of the scheme. Remainder of the primary defences to be protected by 560m of shingle beach nourishment. • 515m of existing sheet piles, starting from northern end of the scheme to be refurbished.
<i>b) the cumulation with other existing development and/or approved development</i>	There are works proposed for the Viaduct Garden area of Barmouth, approximately 1km east of the works at North Prom. The work proposed at Viaduct also include the betterment of the sea defence and also includes improvements to the road drainage in the area. There are no other proposed works known of that could generate a cumulative impact with the proposals.
<i>c) the use of natural resources, in particular land, soil, water and biodiversity</i>	Located on the mean low water marks immediately west of the scheme is Pen Llŷn a'r Sarnau SAC. Mudflats and Sandflats are a feature of the site with the whole of the North Prom frontage being directly adjacent to the Sandflat feature. No land take will be required from the SAC however both an HRA – Test of Likely Significant Effects will be completed and a Construction Environmental Management Plan (CEMP) will be produced in order to stipulate the steps taken to prevent construction derived pollution. Potential impacts on biodiversity have also been considered through the completion of an Initial Environmental Appraisal (IEA) – See Appendix B. No water will be extracted during the course of the works.

	Additional land may be temporarily used to provide a site compound but the exact location of the construction compound is currently not known as the contractors have not yet been appointed. Shingle, rock and sand will be required in order to re-profile the beach and provide rock revetment, both to protect the primary sea wall. It is estimated that approximately 74,000m³ of shingle will be required for the beach recharge and approximately 12,000 tonnes of rock to construct the rock toe and underlayer.
<i>d) the production of waste</i>	All measures shall be taken to minimise waste during construction and all relevant regulations that governs the transfer of waste and material shall be adhered to in full. Waste generated from the site is likely to be re-enforced concrete, tarmac and rubble. Materials expected to be used during the construction include, concrete, steel, tarmacadam, masonry, rock. These materials should be obtained by a reputable supplier and source and only the amount needed shall be ordered in order to minimise the risk of waste on site. Successful contractors must be able to comply with waste legislation and will implement and adhere to a Site Waste Management Plan during the course of the works.
<i>e) pollution and nuisances</i>	There is a temporary risk of pollution of the marine environment through accidental spillages especially during the construction phase and transport of rock roe armour. Pollution control will be maintained during the course of the construction and it is expected that the contractor will adopt all practical measures described in relevant guidance such as the Pollution Prevention Guidelines. Due to the location and nature of the works it will be subject to Marine Licensing. A Water Framework Directive Assessment (WFD), Flood Consequent Assessment (FCA) and Construction Environmental Management Plan (CEMP) will also be required for the proposal. Construction-generated noise and vibration could result in temporary nuisance during the course of the works, especially to residential properties and features of Pen Llŷn a'r Sarnau SAC.. Working hours restrictions and noise and vibration limits can be stipulated as terms of the construction contract to minimise impacts on the local residents and biodiversity, however significant vehicular movements will be required to construct such a large project at this location.
<i>f) the risk of major accidents and/or disasters relevant to the development concerned, including those caused by climate change, in accordance with scientific knowledge</i>	The proposal is not considered likely to increase the risk of any major accidents or disasters during the construction or operation of works. The proposal aims to provide a positive impact on the local area by providing an improved flood defence to the highway and greater area of Barmouth. This preferred option at North Prom reduces the risk of flooding to 757 properties in total.
<i>g) the risks to human health (for example due to water contamination or air pollution)</i>	No risks to human health are foreseen during the operation of the proposal. During construction, temporary nuisance associated with air quality, noise / vibration and water pollution would be addressed via the best practice and consenting procedures discussed above.

3.2 Location of the Development

Using the selection criteria provided in Schedule 3 of the *Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017*, the environmental sensitivity of geographical areas likely to be affected by the development has been considered with regard to the criteria contained in Table 3.2.

Table 3.2: Location of the development

<i>a) the existing and approved land use</i>	The land in which the scheme is proposed on is currently used as a coastal frontage. The proposal seeks to improve and replace the existing walls to create a formal coastal flood defence. The surrounding area of the works is mainly a developed, residential area.
<i>b) the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground</i>	Intertidal mudflats and subtidal sands and gravel are Welsh Priority Habitats and are sensitive to pollution and human disturbance. There is a temporary risk of pollution of the marine environment through accidental spillages especially during the beach recharge, construction of rock revetment and rebuilding of secondary wall. Pollution control will be maintained during the course of the construction and it is expected that the contractor will adopt all practical measures described in relevant guidance such as the Pollution Prevention Guidelines. The proposal will be subject to a Marine License from Natural Resources Wales. It is likely that a Flood Consequent Assessment and a Water Framework Directive Assessment will also be required for the proposal.
<i>c) the absorption capacity of the natural environment, paying particular attention to the following areas—</i> <i>(i) wetlands, riparian areas, river mouths;</i> <i>(ii) coastal zones and the marine environment;</i> <i>(iii) mountain and forest areas;</i> <i>(iv) nature reserves and parks;</i> <i>(v) European sites and other areas classified or protected under national legislation;</i> <i>(vi) areas in which there has already been a failure to meet the environmental quality standards laid down in Union legislation and relevant to the project, or in which it is considered there is such a failure;</i> <i>(vii) densely populated areas;</i> <i>(viii) landscapes and sites of historical, cultural or archaeological significance.</i>	i) The proposed sea defence improvement works will be constructed near the estuaries of two ordinary watercourses. It is not anticipated that any in-channel works are required in either of these ordinary watercourses. Construction activities will also be carried out within an area which is classed as a Flood Zone 2 and 3 and therefore a Flood Consequence Assessment (FCA) will need to be produced. ii) The proposed works will be partially carried out from the foreshore in particular during the beach recharge, rock revetment construction and secondary wall construction. The works does pose potential risk of water pollution and disturbance during the course of the works. However, these risks could be reduced through mitigation measures will be considered with greater detail in the HRA, FCA, WFD AND CEMP. iii) Not applicable vi) Not applicable v) The proposal site is not located within any European sites or any other classified or protected areas. However, Pen Llŷn a'r Sarnau SAC and Meirionnydd Oakwoods and Bat Sites SAC, Afon Eden Cors Goch Trawsfynydd SAC and Barmouth Hillside SSSI are all located within screening distances of the proposal. vi) Not applicable vii) Not applicable viii) The scheme is located within two Landscapes of Outstanding Historic Interest (LOHI) – Mawddach and Arduwy with the work thoroughly discussed and consulted with Gwynedd Archaeological Planning Service (GAPS).

3.3 Types and Characteristics of the Potential Impact

Using the selection criteria provided in Schedule 3 of the *Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017*, the likely significant effects of the development on the environment have been considered in relation to the criteria contained within Tables 3.1 and 3.2 and with regard to the impact of the development on the following factors specified in Regulation 4(2), and summarised in Table 3.3.

Table 3.3: Types and characteristics of the potential impact

<i>a) the magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected)</i>	The nature, size and location of the proposal is not considered likely to generate a significant geographical impact on the area. Any impacts would be local in scale and restricted to the site and adjacent area. The proposed scheme is expected to provide flood protection to 757 properties in the area. Barmouth ward has a population of 2,522 (2011), with the proposal providing flood protection to a large proportion of this figure. The current sea wall is not sufficient to combat potential future flooding, especially in light of additional factors such as climate change and therefore is considered an overall positive scheme.
<i>b) the nature of the impact</i>	Temporary impact that could occur during the construction phase: • Pollution to the marine environment caused by accidental spillages; • Nuisance to the local area and residents due to increased noise and vibration levels; • Potential damage to surrounding land during construction phase; • Temporary disturbance to local wildlife and biodiversity. Permanent impact that could occur on completion of the works: • Visual impacts caused by the construction of a new sea defence, rock revetment and beach nourishment.
<i>c) the transboundary nature of the impact</i>	The main impacts likely to occur would be only of a local scale and confined to the site and surrounding areas. Vehicular movements to deliver materials to site have the potential to create further transboundary impacts on the local road network.
<i>d) the intensity and complexity of the impact</i>	It is anticipated that the main environmental impacts generated by the proposals would be relatively simple and localised and can therefore be managed with confidence. The wider impact on the local road network would need to be assessed and managed.
<i>e) the probability of the impact</i>	The probability of nuisance to the local population from increased noise/vibration is thought to be high. However, the scale of the impact can be confidently managed through proactive planning of the construction phase, sensitive site management and maintaining liaison with affected third parties. Without mitigation, the probability of impacts upon the water environment and disturbance to sensitive species is also of moderate risk. As the works is subject to a Marine License any stipulations listed within the Marine License should be adhered to and best practice measures should also be followed, including the Pollution Prevention

	Guidelines which is key to managing this risk. The Habitats Regulations Assessment (HRA) will set out mitigation measures to reduce impact on the ecologically sensitive features in the area. These considerations and measures will be strictly followed during the works. A Construction Environmental Management Plan (CEMP) will also be produced and all risk mitigation measures will be included and adhered to. The probability of loss of habitat as a result of the proposed work is high, due to the loss of the intertidal area directly adjacent to the northern part of the promenade, which would be replaced by rock armour. There is a moderate probability of adverse visual impacts associated with the proposed work, predominantly due to the construction of the new defence and associated works, which could have localised impact on the character of the area. However, the magnitude of the impact is likely to be small due to the overall positive impact of improvement and positive impact the work will have on the flood defence of the area.
<i>f) the expected onset, duration, frequency and reversibility of the impact</i>	The construction phase impacts (nuisance, pollution, habitat damage / disturbance and waste) would occur from the commencement of the works and would continue until completion. The works are likely to take between 18 and 24 months to complete – depending on project phasing requirements.
<i>g) the cumulation of the impact with the impact of other existing and/or approved development</i>	There are works proposed for the Viaduct Garden area of Barmouth, located approximately 1km east of the works at North Prom. The work proposed at Viaduct primarily includes the betterment of the sea defence and also includes improvements to the road drainage in the area. At this present stage it is not considered likely that works will be ongoing on both sites at the same time.
<i>h) the possibility of effectively reducing the impact</i>	The impact of the development can effectively be reduced through the implementation of mitigation measures, although the impact will need further detailed assessments before mitigation measures are finalised. The mitigation measures for the scheme will mainly be included in the Habitat Regulations Assessment (HRA), Water Framework Directive (WFD), Flood Consequence Assessment (FCA) and other supporting documents.

3.5 Conclusions

It can be concluded that from the size, nature and location of the works stipulated it is highly likely that an Environmental Impact Assessment will be required for the works under the Town and Country Planning Regulations. Adhering fully to the initial proposed mitigation measures and safe practices listed does reduce the overall impact of the development, however the proximity of sensitive environmental receptors and nature of the development does mean that the scheme should be considered and assessed further in terms of environmental impacts.

4.0 Screening for Significant Environmental Effects (Marine Works)

4.1 Description of the Development

Using the selection criteria provided in Schedule 1 of the *Marine Works (Environmental Impact Assessment) Regulations 2007*, a full description of the development has been considered with regard to the criteria contained in Table 4.1.

a) <i>The location, size and nature of the project and the regulated activity</i>	The preferred option carried forward for the site is option 2, which is the betterment of existing defences. This option includes increasing the height of the secondary (noted in drawings as alternative primary wall) and tertiary walls, refurbishing existing sheet piles, additional rock toe armour, and build out of shingle beach profile. The total length of the scheme is estimated to be in the region of 1.2km in length. The main works primarily consists of: • The secondary, or alternative primary wall to be re-built structurally and increased by 600m over a length of 1.2km. • Tertiary flood wall to be re-built structurally and increased by 450mm over a length of 1.1km. • Between both these walls lies the highway. • 300m of rock toe armour to be provided to protect the primary sea wall and revetment, at the north end of the scheme. Remainder of the primary defences to be protected by 560m of shingle beach nourishment. • 515m of existing sheet piles, starting from northern end of the scheme to be refurbished.
b) <i>The quantity and nature and source of the materials to be used in the course of the project and the regulated activity</i>	Shingle, rock and sand will be required in order to re-profile the beach and provide rock revetment, both to protect the primary sea wall. It is estimated that approximately 74,000m³ of shingle will be required for the beach recharge (560m) and approximately 12,000 tonnes of rock to construct the rock toe and underlayer (300m). The materials to carry out these elements of the scheme will be imported to site.
c) <i>The quantity, nature and source of any items or materials to be deposited in</i>	The beach nourishment material and rock toe armour element of the proposal will be deposited within the intertidal marine environment.

<i>the sea in the course of the project and the regulated activity; and</i>	There is a clear tidal impact pathway between the scheme and the Pen Llŷn a'r Sarnau SAC.
<i>d) The working methods to be used in the course of the project and the regulated activity.</i>	Exact method statement is yet to be agreed upon appointment of contractor, however the main components of the scheme are listed in section a) of table 4.1.

4.2 Environmental Factors

Using the selection criteria provided in Schedule 1 of the *Marine Works (Environmental Impact Assessment) Regulations 2007*, a full description of the aspects of the environment likely to be significantly affected by the development and the regulated activity has been considered with regard to the criteria contained in Table 4.2.

<i>a) Human beings, fauna and flora;</i>	The impact on human beings is considered long term positive as the development provides betterment to the flood defence. It is expected to provide flood protection to 757 properties in the area. Barmouth ward has a population of 2,522 (2011), with the proposal providing flood protection to a large proportion of this figure. The construction phase of works may pose moderate impact as result to noise, dust etc. however strict mitigation measures will be followed at all times and stipulated within the project CEMP. These measures will reduce the overall construction impact on the area. Impacts on flora and fauna have been explored in an Initial Environmental Assessment (IEA), carried out for the site. See Appendix B.
<i>b) Soil, water, air, climate and the landscape;</i>	Water, air and landscape elements are affected to some degree during the works. However, the only aspect which will be impacted long term is landscape. The others will be temporarily affected during the course of the works with negative impact reduced to minimal through mitigation measures which will be stipulated within the CEMP. The landscape will be visually affected as the rebuilding of walls, shingle nourishment and rock armour will change the appearance of the area. However, the benefit of the scheme is considered far greater and therefore the long-term visual impact is considered negligible.
<i>c) Material assets and the cultural heritage; and</i>	Not applicable.
<i>d) The interaction between any two or more of the things mentioned in the preceding sub-paragraphs</i>	Not applicable.

Table 4.3

A description, complying with sub-paragraph 2 of the likely significant effects of the project and the regulated activity on the environment resulting from the following included in Table 4.3. The description should cover each of the following categories of effect –

- Direct or indirect effects;
- Secondary effects;
- Cumulative effects;
- Short-term, medium-term and long-term effects;
- Permanent and temporary effects; and
- Positive and negative effects.

a) <i>The nature of the activities to be carried out and the manner in which they are to be carried out;</i>	The scheme at North Prom will have a long-term positive impact on the wider area as it provides a betterment to the current flood defence structure. The scheme will allow for improved flood protection to 757 properties.
b) <i>The use of natural resources;</i>	Rock and shingle will be imported to site to provide for beach nourishment and rock armour. All imported material will be sympathetic to the surrounding landscape. This element will provide a permanent positive impact on location as it's a fundamental part of the new and improved flood defence scheme, however will contribute to visual changes.
c) <i>The emission of pollutants;</i>	Any emissions and potential pollutants will be short-term and temporary during the construction phase only. Stringent pollution prevention measures will be followed throughout the works in order to reduce impact on the area during construction.
d) <i>The creation of nuisances; and</i>	Nuisances will be short-term and temporary during the construction phase only. The import of materials into site is likely to cause a significant short term nuisance. Again, mitigation measures will be followed throughout the works and will be available to view within the project CEMP.
e) <i>The elimination of waste.</i>	Where possible, waste will be reused as much as possible on site, however any waste generated that needs to leave site will do so in line with current waste guidelines and disposed of accordingly.

4.4 Conclusions

It can be concluded that from the size, nature and location of the works stipulated it is highly likely that an Environmental Impact Assessment will be required for the works under the Marine Works (Environmental Impact Assessment) Regulations 2007. Adhering fully to the mitigation measures and safe practices listed does reduce the overall impact of the development, however the proximity of sensitive environmental receptors and nature of the development does mean that the scheme should be considered and assessed further in terms of environmental impact.

Appendix A: Preferred Option Drawings

Please find Appendix A as separate supporting document

Appendix B: Initial Environmental Appraisal

Please find Appendix B as separate supporting document