ALEXANDRA PARADE SEA WALL REPAIR MARINE LICENCE APPLICATION

Consenting Approach Document

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Alexandra Parade Revetment
Consenting Approach
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1 INTRODUCTION

Peterhead harbour located in north-east Scotland is one of the UK's most versatile ports, providing deepwater berthing facilities for a range of industries including oil and gas, renewables, fishing and leisure.

The Alexandra Parade seawall and revetment is located on the northern boundary of Peterhead Harbour adjacent to North harbour. The seawall and revetment acts as a sea defence to the fish processing facility and harbour related businesses that are vital to the operation of the harbour located behind the revetment (Figure 1.1).

During a storm event in 2012, significant overtopping of the existing seawall occurred (waves inundating areas behind the seawall), causing a failure of the seawall structure, and causing the complete destruction of the Mapco fish processing factory located to the east of the proposed works. As a result, improvements to the existing seawall and revetment were undertaken, which included raising the seawall crest height and placing large 60T precast concrete sections along the revetment crest. However, during construction of the new fish processing facility in 2017- 2018, further significant overtopping events occurred during the winter months, which identified that the previous improvement works undertaken were not sufficient to reduce the risk from overtopping, and that the volume of overtopping occurring at the seawall was unacceptable.

It is therefore proposed that further works (herein referred to as the 'Proposal') are required along the entire length of the revetment.

In 2018 PPA initially sought confirmation the proposal is exempt from marine licensing; a request which was declined by Marine Scotland (MS). MS further provided a view that the revetment repair works should be screened as to whether they meet the requirements of an EIA under the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regs).

This consenting approach document has been developed to describe PPA's intended approach for preparing a Marine Licence application for the proposed revetment works and the scope of the Environment Report. The purpose of the document is two-fold:

1. To set out and justify the consenting approach, with reference to the requirements of The Marine (Scotland) Act 2010, The Marine Works (Environmental Impact Assessment) Regulations 2007 and the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013; and
2. To set out the proposed scope of the supporting Environmental Report to be submitted to MS-LOT and their advisors.

The structure of this document is as follows:

- **Section 2, Project Description**: this section provides a description of the proposal's method and the licensable activities that will be the subject of the application, and sets out a summary of the designed-in mitigation measures;
- **Section 3, Approach to Consent**: this section sets out the overarching approach and programme for the consenting process, including consideration of the need for EIA and Pre Application Consultation (PAC); and
- **Section 4, Scope of Environmental Report**: this section provides details of the scope of the Environmental Report that will accompany the Marine Licence application, including the data sources to be utilised, the receptors to be considered, and the potential impacts to be assessed, including cumulative effects.

PPA is seeking confirmation from MS-LOT that the scope of the assessment, as set out in this document, is sufficient to enable the required Marine Licence to be determined once the application is submitted.

Figure 1.1: Location of the proposed project

2 PROJECT DESCRIPTION

2.1 Background

The eastern end of the existing seawall defence was constructed in 1820, following a catastrophic storm event in October 1818 which destroyed the original revetment. The western end of the seawall and revetment was constructed in 1981. During winter of 2012 a severe storm event resulted in overtopping of the seawall causing complete destruction of the fish processing facility.

Improvements works, commissioned by Peterhead Port Authority (PPA), were then undertaken with the aim to reduce the volume of overtopping. The works included raising the seawall crest height and placing large 60T precast concrete sections along the revetment crest. Plate 1, Plate 2, Plate 3, Plate 4 show the form and condition of the existing revetment.

Plate 1: View west along the revetment.

Plate 2 View east along the revetment.

Plate 3: Eastern end section of existing revetment.

Plate 4: 60T concrete sections within the Phase 1 footprint.

During the winter months of 2017, whilst the new fish market facility was being re-constructed, significant overtopping events were again observed, with one event causing damage to a vehicle.

It was therefore realised that the works undertaken at Alexandra Parade following the 2012 storm event were insufficient to reduce the volume of overtopping.

To determine the extent of works that would be required to reduce to the impact of overtopping PPA commissioned topographic and bathymetric surveys, with the data then input into a model to understand the wave climate impacting the seawall. Following completion of modelling it was identified the wave heights were 10% higher than previously calculated, hence resulting in the observed overtopping events.

Further physical modelling was then undertaken to understand the potential frequency at which overtopping may occur over a range of different storm events and therefore the potential risk to the newly constructed fish market. The results of the study were then used to further define what would be required to limit the number of overtopping events.

The results demonstrated that in order to withstand the expected wave heights and wave energy, rock armour in the order of 15-25T is required on the revetment crest, as well as 20T concrete armour units on the sloping face of the revetment. It was therefore apparent that the existing revetment consisting of 3-6T rock armour was not sufficient. The proposal includes strengthening of the full length of the Alexandra Parade revetment.

2.2 Methodology

2.2.1 Revetment Design and Footprint

The Proposal includes strengthening of the full length of the Alexandra Parade revetment, a total length of circa 330 m, over two phases of construction.

The proposal includes re-profiling of the existing revetment, formation of a toe trench and placement of various sizes of rock armour and pre-cast concrete units within the toe trench, on the existing embankment and along the crest extending to the existing seawall (Figure 2.1).

The construction footprint of the Proposal will be located within the existing rock revetment footprint covering an area of approximately 5,170 m^2 for phase 1 of the Proposal, and an area of approximately 5,700 m^2 in phase 2.

The footprint area of the Proposal extending beyond the existing footprint of the existing revetment is approximately 710 m^2 for phase 1 and 1,975 m^2 for phase 2 (Figure 2.2) with the total area being 2685 m^2; 2648 m^2 of this area is below MHWS.

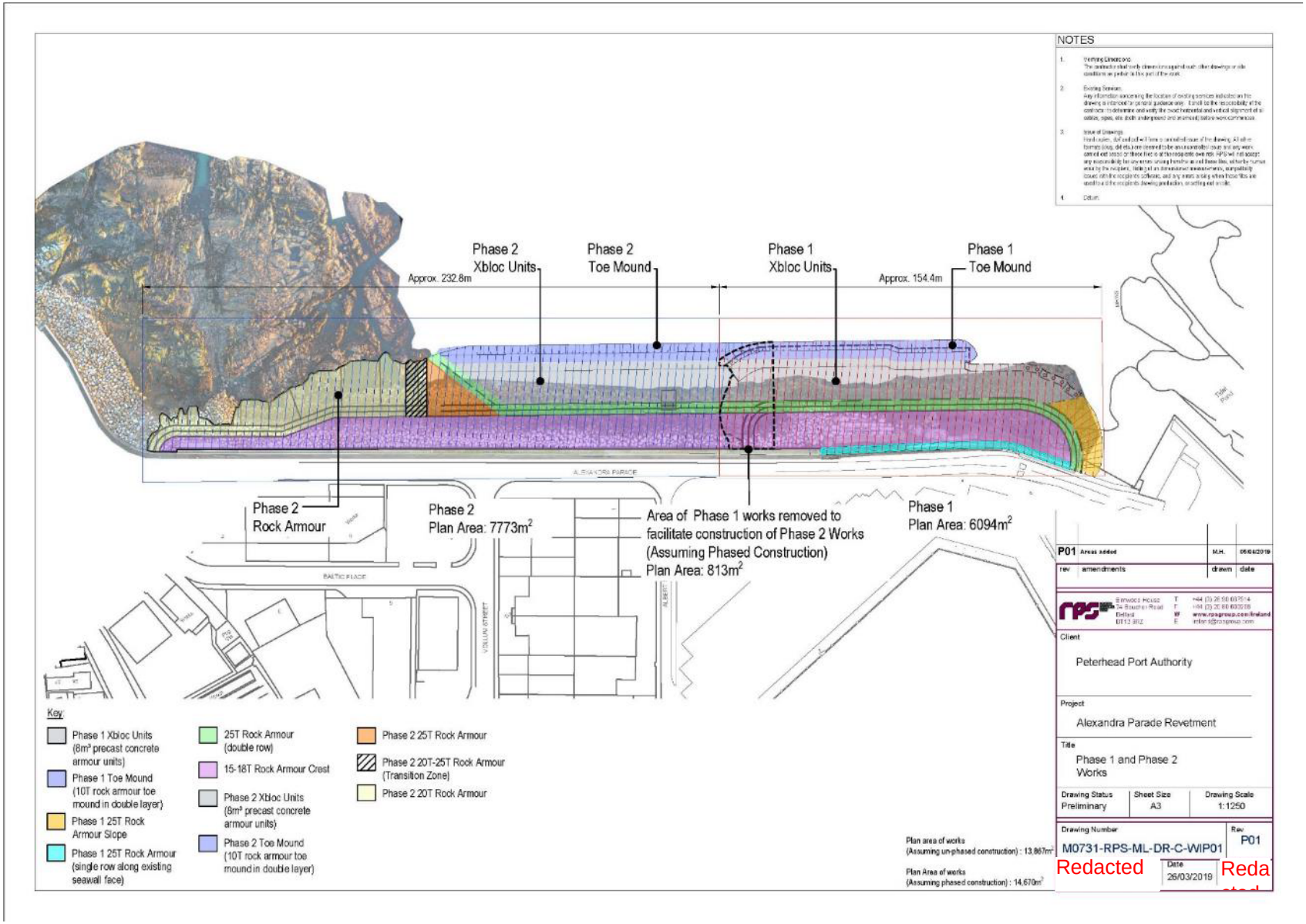

Figure 2.1: Proposed layout of revetment and location of rock armour sections, concrete units.

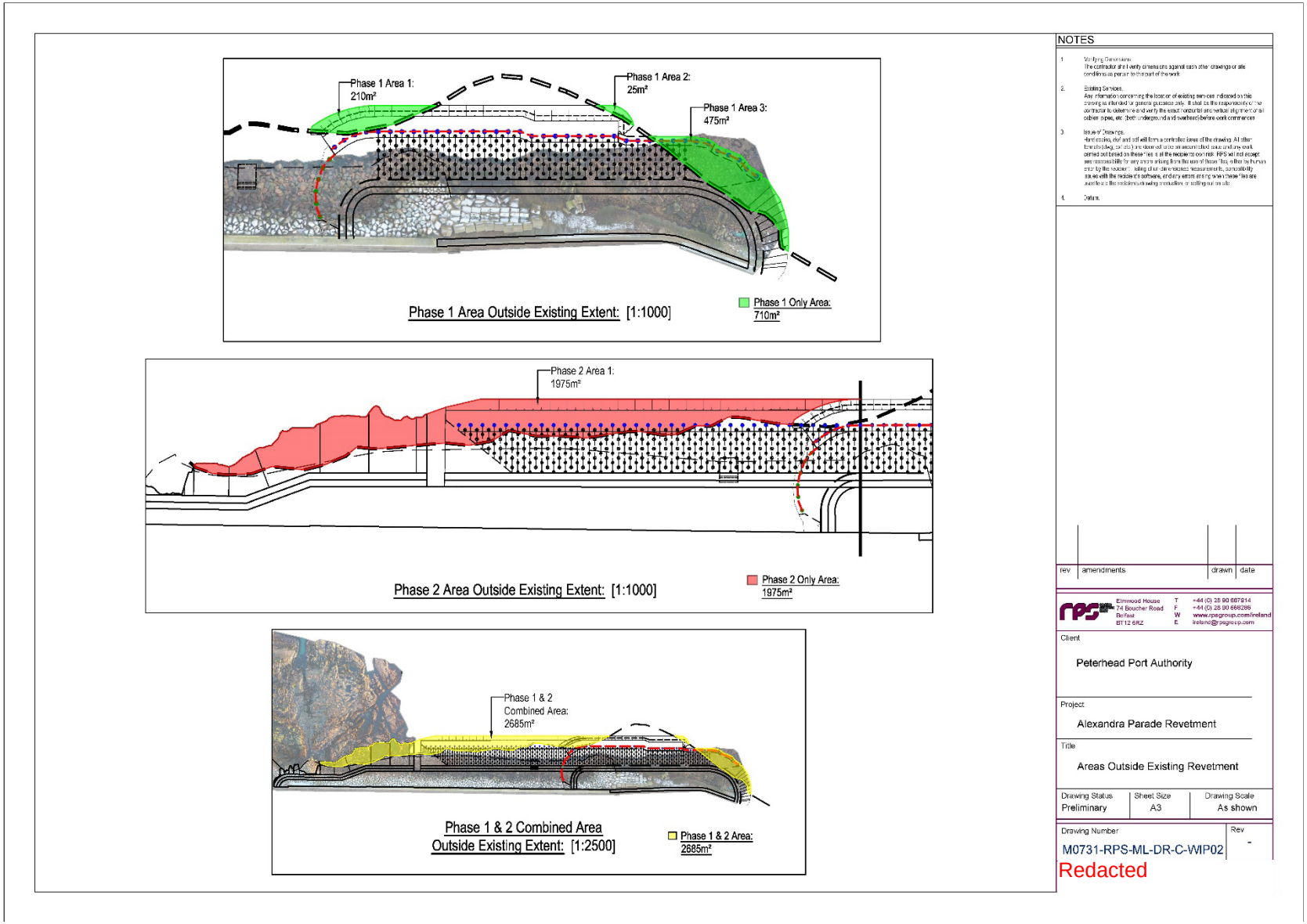

Figure 2.2: Extent of construction footprint outside the existing revetment boundary.

2.2.2 Materials

The types of construction material that will be used as part of the proposed works include 8m^3 precast concrete armour units, 1-3T rockfill, 10T rock armour, 15T-20T and 25T rock armour.

Table 2.1 provides details of the type, volume, source of the material and mode of transport that will be adopted to transport the material to site. The proposed volumes include all works above and below Mean High Water Spring (MHWS) for Phase 1 and Phase 2 of the Proposal and total volume material required below MHWS.

The total volumes provided are based on the Proposal being undertaken over two phases as this will represent the worst case in terms of material volume. This is because it will be necessary to "re-work" the North Western end of Phase 1 to incorporate Phase 2 works. The reworking includes:

- The 25T rock armour placed on the slope at the NW end of Phase 1 needs to be removed to accommodate the Xbloc units in Phase 2.
- The crest detail at the NW end of Phase 1 also needs to be reworked (curved end of Phase 1 to be removed and replaced with straight crest section for Phase 2 extension).
- The 1-3T revetment infill and crest armour at curved NW end of Phase 1 needs to be amended to accommodate straight section of crest in Phase 2.
- The toe detail at the curved NW end of Phase 1 needs to be amended to accommodate straight extension of toe trench for Phase 2.

Table 2.1: Details on the construction materials that will be used for the proposal.

Type	Phase 1 Volume (m^3)	Phase 2 Volume (m^3)	Total Volume Below MHWS (m^3)	Source	Mode of transport
25T rock armour	3,111	913	3,726	Norway	Barge and landed at at North Breakwater in Peterhead Harbour and brought to works area by internal port roads
20T rock armour	N/A	3,912	2,398	Norway	Barge and landed at at North Breakwater in Peterhead Harbour and brought to works area by internal port roads
15T-18T rock armour	3,711	2,845	1,306	Norway	Barge and landed at North Breakwater in Peterhead Harbour and brought to works area by internal port roads
10T rock armour	2,647	3,201	5,848	Norway	Barge and landed at North Breakwater in Peterhead Harbour and brought to works area by internal port roads
1-3T rockfill	9,788	13,207	Not calculated	Local quarries	Lorry
8m^3 pre-cast concrete Armour Units (Xbloc)	17,960	16,168	28,712	Option 1: Cast onsite within Peterhead Harbour on Smith Quay Embankment	Moulds will likely be brought to site by road in Lorries, concrete will be brought to site by road in concrete lorries
				Option 2: Cast offsite at a suitable facility (such as Nigg Bay)	Precast units will be brought to site either by road or by sea

2.2.3 Construction Method

Phase 1 and Phase 2 will be undertaken separately. Each phase will comprise of the following activities.

Re-profiling and toe trench development

Re-profiling of the existing rock armour revetment will be undertaken by removing existing concrete elements and rock armour in the revetment through the use of a crane or excavator.

Remaining sections of the concrete pitched revetment will then be broken up to improve porosity using a rock breaker mounted on to an excavator.

Re-profiling of existing bedrock and remaining revetment toe will then be undertaken to facilitate revetment construction and localised toe trench formation/placement of Xbloc units. The toe trench will be formed using a rock breaker or rock wheel mounted on an excavator. A total of circa 2,210 m^3 of material will be removed to facilitate the toe trench in Phase 1, and circa 2,060 m^3 will be removed to form the toe trench in Phase 2.

Rock Embankment Construction

A rock embankment overlaying and encapsulating the existing revetment using 1-3T rockfill will be constructed. The rockfill will transported to the Proposal area using a loading shovel or dump truck and placed using an excavator.

Toe Mound Construction

8m^3 pre-cast concrete armour Base Units (Xbloc) will then be placed in the newly developed toe trench by using an excavator and slings (fitted with a positioning system).

A double layer of 10T rock armour will then be placed on top of the Xbloc base units using an excavator with slings and a positioning system.

Revetment Construction

Xbloc units will be placed on the rock embankment slope, extending from the toe structure to the crest of the revetment, using an excavator with slings and a positioning system.

25T rock armour will then be placed on the crest of the revetment, along the back edge of the top row of Xbloc units, and will then be placed using an excavator with slings, lifting eyebolts and a positioning system,

15-18T rock armour will be placed along the crest of the revetment, to provide a crest width of 20m from the top of the revetment slope to the existing seawall and placed by an excavator with slings and a positioning system.

In Phase 1, 25T rock armour will be placed at the eastern and western ends of the improved revetment structure, where the armour will be bedded into the existing revetment armour where appropriate.

In Phase 2, the Xbloc slope will transition into a 20T rock armour slope, which will overlay the 1-3T rockfill, and will tie into the existing revetment at the western extremity of the existing revetment.

2.2.4 Plant and Equipment

Plate 5 to Plate 12 provide typical examples of the plant and equipment that will be used during the proposed works.

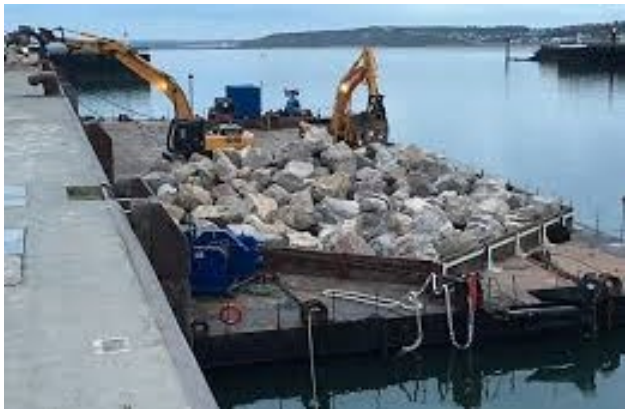

Plate 5: Barge for delivery of rock armour from Norway quarry

Plate 6: HGV lorries for delivery of locally sourced rock armour

Plate 7: Excavator unloading from dump truck

Plate 8: a crane for lifting units/armour into place or clearing existing revetment

Plate 9: Loading shovel/telehandler

Plate 10: Moxy dump truck

Plate 11: Concrete wagon

Plate 12: Moulds for Xbloc units and vibrating concrete pokers for casting units

2.3 Licensable Marine Activities

The works associated with the Proposal below MHWS which are licensable under the Marine (Scotland) Act 2010 are summarised in Table 2.2. These activities will form the focus of the Environmental Report to be submitted in support of the Marine Licence application. However as certain non-licensable activities can increase the duration and extent of the impact (e.g. use of vessels/plant and presence of human activity during surveys leading to disturbance effects), these wider activities will also be considered in the overall assessment to be presented in the Environmental Report (where relevant).

Table 2.2: Licensable activities

Licensable Activity	Description
Dredging of the Seabed	The proposed works include removal of 4,270 m^3 of rock substrate from the seabed below MLWS to form the toe trench. Material will be reused in the construction of the revetment. Dredging will be undertaken by excavator positioned on the revetment embankment.
Removal of substances and objects from the seabed	Removal of rock armour and pre-cast concrete blocks as part of re-profiling of the existing revetment between MHWS and -2.27 CD.
Deposits in the sea or on/under the seabed	Placement of various sizes of 1-3T (22,995 m^3), 10T (5,848 m^3), 15-18T (1,306 m^3), 20T (2,398 m^3), 25T (3,727 m^3) rock and 8 m^3 pre-cast concrete blocks within and outside the existing footprint of the revetment on the seabed between MHWS and -2.27 m Chart Datum (CD).

2.4 Embedded Mitigation Measures

A number of embedded mitigation measures are proposed to be incorporated into the design and construction method to manage the risk on the environment. These include:

1. Disturbance of seabed outside existing revetment footprint has been minimised where possible.
2. Rock will be washed down off site prior to installation.
3. Prior to construction an Environmental Management Plan (EMP) will be produced by the appointed Contractor and submitted to Marine Scotland for approval.
4. Adoption by the Contractor of PPA's existing Marine Pollution Management Plan.
5. Invasive non-native species risk assessment by the Contractor on award of contract.
6. Notice to Mariners issued prior to the commencement of works.
7. Implementation of a Protocol for Archaeological Discoveries (PAD) should a historical artefact be identified prior to or during execution of the works.

2.5 Timescales and Duration

The proposal is scheduled over two phases. Each phase is expected to be completed over a period of 6 months.

Preparation, breaking up of the existing revetment and toe trench formation will take approximately 6 weeks, casting of concrete of base units will be completed over a period of approximately 7 weeks while placement of rock armour and concrete armour will take approximately 16 weeks for each phase.

A timeline for each phase is provided below in Figure 2.3.

PHASE 1- 155m Revetment Construction	PHASE 1 (2020) Anticipated works starting onsite April 2020																							
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Localised removal of section of existing sea wall																								
Clearance of Existing Revetment (removal of existing precast elements)																								
Breaking up of existing pitched revetment & re-profiling of existing revetment toe																								
Toe trench formation																								
Placement of 1-3T rock fill to form rock embankment																								
Casting of 8m^3 Precast Concrete Base Units																								
Placement of 8m^3 Precast Concrete Base Units in toe trench																								
Placement of 8m^3 Precast Concrete Armour Units on slope																								
Placement of 10T armour for toe mound																								
Placement of 15T-25T crest armour																								
Placement of 25T rock armour at Eastern and Western ends of revetment structure																								
Reconstruction of section of sea wall																								

PHASE 2- 233m Revetment Extension	PHASE 2 Earliest expected commencement 2022 (During spring/summer months)																							
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Localised removal of section of existing sea wall																								
Removal of 25T rock armour at western end of Phase 1 extents																								
Toe trench formation																								
Placement of 1-3T rock fill and 3-6T rock armour to form rock embankment																								
Casting of 8m^3 Precast Units																								
Placement of 8m^3 Precast Concrete Base Units in toe trench																								
Placement of 8m^3 Precast Concrete Armour Units on slope																								
Placement of 10T armour for toe mound																								
Placement of 25T transition zone between precast units and rock armour																								
Placement of 20T armour on slope along western half of phase 2 revetment extent																								
Placement of 15T-25T crest armour																								
Reconstruction of section of sea wall																								

Figure 2.3: Proposed schedule for completion of proposal

3 APPROACH TO CONSENT

3.1 Consenting Regimes

The Proposal will be undertaken along the existing revetment that is located along 330 m of the shoreline adjacent to Alexandra Parade in the North East section of Peterhead Harbour between +10.24 m CD and -2.27 m CD.

Based on the proposed location and description of the Proposal the following consenting regimes applies:

For all works below MHWS a marine licence application will be required and submitted to MS-LOT and assessed against the following legislation:

1. The Marine (Scotland) Act 2010;
2. The Marine Works (Environmental Impact Assessment) Regulations 2017; and
3. The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013

For all works above MHWS a separate planning application will be required from Aberdeenshire Council under the following key legislation.

1. Town and Country Planning (Scotland) Act 1997
2. Planning etc. (Scotland) Act 2006

All works above MHWS have not been considered as they are outside the scope of this document and are not licensable under the identified The Marine (Scotland) Act, 2010.

3.2 Consideration of the Need for EIA

PPA is proposing to carry out a concise environmental assessment to support the Marine Licence application, which will be presented in an Environmental Report. PPA has determined that a full Environmental Impact Assessment (EIA) under The Marine Works (Environmental Impact Assessment) Regulations 2007 as amended by the Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017 (the “EIA Regulations”) is not required for the reasons described below.

The proposed works could be classified as Category 13(a) of Annex 2 of the EIA Directive (85/337/EEC) (as amended by 97/11/EC, 2003/35/EC and 2009/31/EC) (i.e. changes to existing Annex 2). An EIA is required where a project (i) falls into at least one of the proposal descriptions listed in Annex 2; and (ii) is likely to have a significant effect on the environment. The EIA Regulations specify that in reaching a conclusion as to whether or not an Annex 2 project is likely to have significant effects on the environment, the criteria set out in Schedule 3 of the EIA Regulations must be considered. These criteria cover the characteristics of the proposal, the location of the proposal and the characteristics of the potential impact. Each of these are addressed in turn in the following sections.

3.2.1 Characteristics of the Proposal

The 2017 EIA Regulations specify that the following characteristics must be considered to determine the requirement for EIA:

- The size and design of the Proposal;
- Cumulation with other existing works and/or approved works;
- The use of natural resources, in particular land, soil, water and biodiversity;
- The production of waste;
- Pollution and nuisances;

- The risk of major accidents and/or disasters which are relevant to the proposal concerned, including those caused by climate change, in accordance with scientific knowledge; and
- The risks to human health (for example due to water contamination or air pollution).

Details of the Proposal with respect to each item have been provided below.

3.2.1.1 The size and design of the Proposal

The proposed Proposal will be to modify the existing revetment structure covering an area of 10,870 m^2 with an additional 2,685 m^2 (20% of the proposal footprint) extending outside the existing revetment footprint. Given the majority of the Proposal will be within the existing revetment footprint the size of the project is not considered large enough to result in significant effects to the environment.

3.2.1.2 Cumulation with other existing works and/or approved works

Other proposed plans/projects most relevant to the proposed works would be ongoing operational activities, including vessel movements, plant operation and maintenance dredging associated with Peterhead Port which have been considered as part of the baseline. No other projects are currently being planned or being undertaken and therefore there will be no significant cumulative effects on the environment.

3.2.1.3 The use of natural resources, in particular land, soil, water and biodiversity

The proposed proposal will require the use of 76,975 m^3 of rock material that will be quarried from local licensed quarries and from licenced quarries in Norway based on the phased approach. 4,270 m^3 of rock substrates will be excavated from the seabed to form the toe trench. Where suitable, this material will be used in the construction of the embankment. Any unsuitable material will be disposed offsite by the Contractor to an appropriate licenced facility. No other natural resources are predicted to be used as part of the proposed works. Excavation of the toe trench will allow placement of rock armour that will provide suitable habitat for colonisation of species associated with the material removed from the toe trench footprint. Given that the net loss is likely to be minor, significant effects from the use of natural resources are not predicted.

3.2.1.4 The production of waste, pollution and nuisances

Minimal waste is predicted from the proposed project and will be typical of consumables generated during earth moving construction activities. All wastes will be managed in line with the EMP which will include waste management measures to minimise, recycle, reuse and dispose of waste streams in compliance with relevant waste legislation. Marine pollution prevention and contingency planning measures will be in accordance with PPA's existing Oil Spill Contingency Plan (OSCP). Nuisance will be controlled by conditions through the submission and approval of the EMP which must contain proposed measures for the mitigation of construction noise and vibration, and dust. Due to the measures in place to control and/or manage waste, pollution and nuisance, as secured by the terrestrial and marine consent conditions, significant effects on the environment are not predicted.

3.2.1.5 The risk of major accidents and/or disasters which are relevant to the proposal including risks

PPA requires all key Contractors and subcontractors to have completed adequate risk assessments for all aspects of construction through implementation of the EMP and adherence to OSCP. Activities are also considered typical of a marine construction project. Due to the measures in place to control and/or manage waste, pollution and nuisance, as secured by the terrestrial and marine consent conditions, significant effects on the environment are not predicted.

3.2.1.6 The risks to human health

PPA requires all key Contractors and subcontractors to have completed adequate risk assessments for all aspects of construction. PPA will require compliance with the Control of Substances Hazardous to Health Regulations 2002 (COSHH Regulations) in ensuring that the risk to health from workplace exposure to

hazardous substances is appropriately assessed and that exposure is prevented or, where this is not reasonably practicable, adequate controls are implemented and exposure monitored and managed to within acceptable levels in line with relevant regulations and the EMP.

3.2.2 Location of the Proposal

The 2017 EIA Regulations specify that the environmental sensitivity of geographical areas likely to be affected by works must be considered having regard to the following:

- the existing and approved land use;
- the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground;
- the absorption capacity of the natural environment, paying particular attention to the following areas:
  - wetlands, riparian areas, river mouths;
  - coastal zones and the marine environment;
  - mountain and forest areas;
  - nature reserves and parks;
  - European sites and other areas classified or protected under national legislation;
  - areas in which there has already been a failure to meet the environmental quality standards, laid down in Union legislation and relevant to the proposal, or in which it is considered that there is such a failure;
  - densely populated areas;
  - landscapes and sites of historical, cultural or archaeological significance.

The Proposal will be undertaken within the existing revetment modified to protect Peterhead Harbour infrastructure behind the existing seawall. The Proposal will extend from the existing revetment over an area of natural seabed covering 2,685 m^2. Materials for the Proposal will be transported from local quarries via road and/or sea within Scotland and from Norway by sea.

The proposed project is located adjacent to Peterhead Port a significant operational port servicing several industries in Scotland. Two open offshore disposal grounds are found within 3 km offshore which are used for the placement of dredged material from Peterhead and / or Boddam Harbour. An inactive telecommunications cable, Peterhead to Alexandrovsk (installed 1914), is found within the proposed footprint.

High levels of fishing effort are found within the vicinity of the proposed project which include scallop, crab and lobster, and line fisheries (i.e. mackerel). The proposed project is also located within the jurisdiction of the Ugie District Salmon Fisheries Board; the River Ugie meets the sea just to the north of the proposed works, with salmon and sea trout caught between Boddam to Cairnbulg, by traditional Bag net and net and coble fisheries.

Coastal processes around Peterhead are relatively benign. The net littoral drift direction is variable, as northward wave-induced drift is generally negated by southward tidal currents.

The area to which the Proposal extends seaward past the existing revetment are dominated by outcropping rock platforms and boulders with kelp and seaweed-dominated biotopes typical of rocky reef which is found to be prevalent in the area. Survey of the shallow subtidal area adjacent to the proposal as part of the Hywind project classified the biotopes as "*Laminaria hyperborea* with dense foliose red seaweed on exposed infralittoral rock" (IR.HIR.KFaR.LhypR) and "Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock" (CR.MCR.EcCr.FaAlCr). The patches of sand amongst the bedrock, were classified as "Infralittoral fine sand" (SS.SSa.IFiSa) and "Infralittoral mobile clean sand with sparse fauna" (SS.SSa.IFiSa.IMoSa) with very sparse numbers of infauna species and abundance (MMT 2013).

The intertidal zone as surveyed by the Hywind project within the Proposal footprint comprises of four main biotopes displaying distinct zonation from lower to upper shore. Four identified biotopes are consistent between

those identified on the existing revetment and adjacent bedrock areas. This indicates that following placement of rock material typical species associated with the surrounding bedrock reef areas colonise the placed rock armour material of the revetment. Kelp biotopes in the form of *Laminaria digitata* on moderately exposed sublittoral fringe bedrock (IR.MIR.KR. Ldig/ Idig) dominates the lower intertidal zone with *Fucus serratus* and red seaweeds on moderately exposed lower eulittoral rock (LR.MLR.BF.Fser.R) dominating the middle to lower intertidal zone, followed by mussels and barnacles classified by *Semibalanus balanoides*, *Fucus vesiculosus* and red seaweeds on exposed to moderately exposed eulittoral rock (LR.HLR.MusB.Sem.FvesR), and yellow and grey lichens on supralittoral rock (LR.FLR.Lic) in the upper zone (Xodus 2013).

The northeast Scotland region is comparatively diverse in cetacean species (whales, dolphins and porpoises), with eight out of 26 species of the UK cetacean fauna regularly recorded. The most common species in nearshore waters (within 60 km of the coast) are the harbour porpoise and bottlenose dolphin followed by minke whale and white beaked dolphin.

Grey and harbour seals are both resident in Scottish waters. Both species use coastal sites for breeding/pupping and hauling out, and feed in inshore and offshore waters. Under the Marine Scotland Act, Marine Scotland has designated 194 coastal sites around Scotland as seal haul-out sites. No such sites occur within the vicinity of the proposal the nearest haul out sites are located 140 km and 150 km from the proposed project within the Moray Firth for grey seal and harbour seal respectively. Low densities of harbour seal are expected within the proposed works area. However, grey seal density is considered to be between 50 and 100 animals per 25 km^2.

The Proposal is not located within a Marine Protected Area (MPA) or designated site. The nearest MPA is the Turbot Bank MPA, located approximately 43 km to the east of the proposed works and is designated for the protection of sandeels. The proposed Southern Trench MPA is located approximately 10 km east of the proposed works and features deep shelf waters (to ~200 m) and hydrographic fronts, burrowed mud habitat, minke whale and white-beaked dolphin.

The nearest designated site under the EU Habitats Directive is the Buchan Ness to Collieston Coast SPA located 2.4 km to the south of the proposed works which is designated for seabird species and assemblages. Other designated sites that have qualifying features that could be impacted by the proposed project include the River Dee SAC (45 km south of the proposal), Moray Firth SAC (95 km to the west of the proposal), Firth of Tay & Eden Estuary SAC (127 km to the south of the proposal), Isle of May (155 km south of the proposal) and Berwickshire and North Northumberland Coast SAC (175 km to the south of the proposal). Table 3.1 provides a summary list of identified designated sites, distance from project and qualifying features associated with each site.

Table 3.1: MPA's and designated sites relevant to the proposal.

Protected Area	Distance and Direction from Project	Qualifying Features
Turbot Bank MPA	43 km East	Sandeels
Southern Trench proposed MPA	10 km East	Deep shelf waters Hydrodynamic regime and Productivity Burrowed mud habitat, Minke whale White-beaked dolphin
Buchan Ness to Collieston Coast SPA	2.5 km South	Seabird Assemblage and Seabird Species
River Dee SAC	45 km	Salmon Otter
Moray Firth SAC	95 Km West	Bottlenose Dolphin
Firth of Tay & Eden Estuary SAC	127 km South	Harbour seal
Isle of May	155 km South	Grey Seal
Berwickshire And North Northumberland Coast SAC	175 km South	Grey Seal

3.2.3 Characteristics of the potential impact

The 2017 EIA Regulations specify that the likely significant effects of the Proposal on the environment must be considered with regard to the impact of the Proposal taking into account the following:

- the magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected);
- the nature of the impact;
- the transboundary nature of the impact;
- the intensity and complexity of the impact;
- the probability of the impact;
- the expected onset, duration, frequency and reversibility of the impact;
- the cumulation of the impact with the impact of other existing and/or approved works;
- the possibility of effectively reducing the impact.

The potential environmental impacts associated with the proposed project include:

- Changes to coastal processes from modification of the coastline associated with the proposed works;
- Changes to water quality from increases in suspended sediment concentrations from release of fine particles attached to rock material following placement below MHWS and during excavation of the toe trench;
- Removal of benthic habitats through placement of rock material outside the existing revetment; and
- Underwater noise emissions from rock breaking and removal of rock from the seabed during development of the toe trench.

Given the relatively benign nature of the coastline with minimal net drift changes to the coastline morphology, described in Section 3.2.2, the proposed project structure will unlikely result in significant accretion or erosion effects to the coastline following construction.

Some small localised increases in suspended sediment concentrations are likely following placement of the rock material below MHWS. Increases in suspended sediment concentrations will be of a short duration and of small magnitude due to the low volume of fine sediments associated with imported quarried rocks and increased dilution effects associated with the exposed environment in which the revetment will be constructed. Effects from placement of rock leading to increases in suspended sediment concentrations are therefore not considered significant.

Some increases in suspended sediment could also result from excavation of the toe trench. A total of 4,270 m^3 of sediment material will be removed from the toe trench footprint which is considered relatively low volume compared with typical capital dredge events. Sediments are likely to consist of rock or coarse material which are unlikely to become readily mobilised and will rapidly fall out of suspension within short distances following disturbance. Effects from excavation of the toe trench leading to increases in suspended sediment is therefore not considered significant.

It is predicted that approximately 2,655 m^2 of subtidal and 1,155 m^2 of intertidal rocky reef will be disturbed by the proposed works through development of the toe trench and placement of rock within the construction footprint. Benthic species colonising these areas would initially be removed, however, following placement of rock material recolonisation of similar species would likely to occur.

An example of the extent of potential recolonisation has already been observed on intertidal areas of the existing revetment where identical biotopes extend from the natural bedrock adjacent to the revetment onto the revetment structure itself (MMT, 2013). In addition, this habitat is common throughout the area as it extends along the coast line north and south of the proposal. Significant impacts from direct removal of benthic habitat are therefore not predicted.

Smothering effects and/ or restriction to photosynthesis due to light attenuation to benthic species from increases in suspended sediments outside the revetment footprint is not predicted given the localised, short term duration of suspended sediment events described above.

Some disturbance effects to behaviour of fish and marine mammal species are possible from underwater noise emissions generated by mechanical rock breaking and rock removal activities as part of preparation of the area for placement of rock. No blasting will be undertaken as part of proposal activities. In addition, noise levels are unlikely to reach levels that could cause injury to fish and marine mammals due to the majority of works being undertaken in dry conditions within the intertidal zone, above MHWS and over a short duration (5 weeks for each phase). In addition, marine mammals are not predicted within the vicinity of the proposed project other than occasional bottlenose dolphin and grey seal individuals which may be present, but would likely avoid the area, should they encounter underwater noise from the proposed project. No significant impacts from underwater noise emissions from the proposal on marine mammal populations are therefore predicted.

While the proposed project does not lie within a protected area a review of the features associated with protected areas in the region has identified potential connectivity for salmon and bottlenose dolphin features due to the distances in which they travel to forage, and for salmon the distance travelled to reach their feeding ground and to return to their natal rivers in order to breed. Salmon populations are only likely to migrate through the proposal area over relatively short period of time as smolts from the rivers and as adults returning to spawn. Potential underwater noise emissions from rock breaking as part of preparation of the existing embankment and dredging activities associated with toe trench formation will be completed intermittently over relatively short period of time, 5 weeks as part of phase 1 and 2 weeks as part of phase 2. Based on underwater noise levels associated with similar construction activities the area of influence associated with underwater noise emissions from dredging and rock breaking is unlikely to extend further than a few hundred meters from the source and only likely to a cause behavioural response to potential fish and marine mammal receptors rather than injury within the area of influence. Therefore no significant impacts, including barrier effects due to the location of the proposal, are predicted.

3.2.4 Conclusion

In summary, having considered the matters outlined in Schedule 1 of the EIA Regulations in terms of the characteristics of the proposal, the location of the Proposal and the characteristics of the potential impacts from the proposal, PPA has determined that the Proposal are not likely to have significant effects on the environment, and therefore an EIA is not required.

3.3 Consideration of the need for Pre-Application Consultation (PAC)

Applicants for Marine Licences for certain prescribed classes of activities are required to carry out pre-application consultation (PAC) under The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013 (the “PAC Regulations”). One of the prescribed classes of activities is the alteration or improvement of any works within the Scottish marine area either in or over the sea or on or under the seabed by extending such works, but only where the total area in which such works, as extended, are to be located exceeds 1000 m^2 in extent.

As described in Section 2, the proposed works below MHWS outside the existing revetment cover an area of 2,648 m^2 which meets the criteria to be a prescribed class of activity.

PPA therefore considers that formal PAC under the PAC Regulations is required.

In accordance with The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013 notification is required to be issued to Marine Scotland requesting a pre-application consultation is required, however, on 28/03/2019 Malcolm Rose of MS-LOT advised a PAC statement from Marine Scotland was not required as the Proposal exceed 1000 m^2 in extent.

PAC will be undertaken through notification that an application for a marine license is to be submitted to Marine Scotland by notifying the following statutory consultees as per the PAC Regulations:

a) the Commissioners of Northern Lighthouses;

b) the Maritime and Coastguard Agency;

c) the Scottish Environment Protection Agency; and

d) Scottish Natural Heritage.

A PAC event will be organised to invite members of the public to provide comments to PPA with respect to the proposed works. Details of the event will be advertised in a local newspaper and will take place no later than 6 weeks after the notification of the event.

A pre-application consultation report will then be prepared providing details of the comments provided at the event and any other consultation undertaken.

4 SCOPE OF ENVIRONMENTAL REPORT

4.1 Overview

As noted in the previous sections, PPA proposes that the Marine Licence application for the proposed project is accompanied by a concise environmental assessment, presented in an Environmental Report.

Table 4.1 below provides a summary of the receptor topics scoped in for further assessment as part of the Environment Report and those that have been scoped out including a brief justification.

Data sources that will be used to inform the assessment of potential impacts for each receptor topic scoped into the Environment Report are provided below in section 4.2. Impacts that have been identified for each receptor topic that have been scoped in for further assessment are discussed in sections 4.3 - 4.6. Impacts that have been scoped out from further assessment for each receptor topic and a justification have also been provided.

Table 4.1: Summary of receptor topics scoped for further assessment

Receptor Topic	Scoped In/ Out	Justification
Physical processes	In	Potential for increases in suspended sediment concentrations from rock placement and removal of sediment as part or preparation of the toe trench. Change to coastal / sediment transport processes and hydrodynamic regime following revetment construction.
Benthic ecology	In	Removal of benthic habitat within the footprint from placement of rock material and excavation of the toe trench. Smothering from mobilised sediments during excavation of the toe trench.
Fish	In	Potential disturbance to fish species from underwater noise emissions.
Marine Mammals	In	Potential for disturbance to grey seals, bottlenose dolphin from underwater noise emissions generated by rocking breaking and excavation activities.
Marine Ornithology	Out	No impact receptor pathway identified. No significant marine bird populations identified within project footprint.
Commercial Fisheries	Out	Proposed works will not interfere with commercial fishing activities due to all works being undertaken from onshore locations. A notification to mariners will also be issued prior to commencement of works.
Shipping and Navigation	Out	No impact receptor pathway identified. All proposed works will be undertaken within intertidal area with placement of rock in shallow subtidal areas. A notification to mariners will also be issued prior to commencement of works.
Marine Archaeology	Out	No artefacts identified within construction footprint. Embedded mitigation to be implemented should an artefact be identified during the proposal (e.g. PAD).
Landscape, Seascape and Visual Impact Assessment	Out	The Proposal will be undertaken primarily within the existing revetment footprint and therefore will not change the seascape and character of the location.
Other Sea Users	Out	No impact pathway for other sea users to be affected by the proposed works. A notification to mariners will also be issued prior to commencement of works.
Socio-economic and Tourism	Out	The Proposal will be short term and identical to the current land use. Potential beneficial impact as reduced risk of damage from overtopping to fish market that provides suitable infrastructure for selling of fish and shellfish.

4.2 Data Sources

The following data sources will be utilised to inform the assessment of potential impacts on the receptor topics scoped into the Environmental Report:

- Statoil (2015). Hywind Scotland Pilot Park. Environmental Statement.
- Peterhead Port Authority, (2015). Inner Harbour Deepening & New Fish Market Development. Environmental Statement.
- Marine Scotland (2019). MAPS NMPi. https://marinescotland.atkinsgeospatial.com/nmpi/.
- Scottish Natural Heritage (2019). https://sitelink.nature.scot/site/8207

4.3 Physical Environment

4.3.1 Impacts Scoped In

The Environmental Report will contain an assessment of the following potential impacts with respect to the physical environment:

- **Presence of the proposed project has the potential to cause changes to coastal processes.**

This potential impact has been scoped into the assessment as the profile and structure of the proposed design has the potential to restrict the natural movement of sediments along the coast causing accretion and/or erosion affects along the coastline.

- **Preparation of the toe trench has the potential to cause an increase in suspended sediment concentrations in the water column.**

This potential impact has been scoped into the assessment as excavation of the toe trench will require the removal of rock and sediments causing increases in suspended sediment concentrations.

- **Placement of rock has the potential to cause an increase in suspended sediment concentrations in the water column.**

This potential impact has been scoped into the assessment as placement of rock when mixed with sea water may cause release of fine sediment particles attached to the surface of the rock to become mobilised into the water column causing an increase in suspended sediment concentrations.

4.3.2 Impacts Scoped out

Impacts to physical environment that have been scoped out from further assessment include:

- **The proposal structure may lead to a change in the wave climate within the area.**

The proposed works will reduce the impact of waves over topping the existing sea wall by absorbing the wave energy on contact with the revetment. However, the proposal will not change the height or frequency of waves prior to contact with the revetment. This impact has therefore been scoped out from further assessment.

4.4 Benthic Ecology

4.4.1 Impacts Scoped In

The Environmental Report will contain an assessment of the following potential impacts with respect to benthic ecology:

- **Project design footprint leading to removal of benthic habitats.**

This potential impact has been scoped into the assessment as the proposal will cause removal of 2689 m^2 of benthic habitat located outside the existing revetment boundary.

- **Introduction for Invasive Non-Native Species (INNS).**

This potential impact has been scoped into the assessment as the proposal has the potential to introduce INNS from vessel movements following importation of rock from other parts of the UK and Norway.

4.4.2 Impacts Scoped Out

Impacts to benthic ecology that have been scoped out from further assessment include:

- **Preparation of the toe trench and placement of rock may cause an increase in suspended sediment concentrations and associated sediment deposition.**

Increases in suspended sediment concentrations has the potential to cause light attenuation at the seabed which can restrict the ability of species to photosynthesise. Smothering of benthic species from sediment deposition can also occur as sediments fall out of suspension following disturbance. However, these potential impacts have been scoped out from further assessment as the material that will be removed to develop the toe trench will be of a very small volume and will be removed over a short period. The material to be excavated to form the toe trench will also be likely rock or mixed coarse sediments which will fall out of suspension rapidly over short distances following suspension.

- **Placement of rock may cause an increase temporary increases in SSC and associated sediment deposition.**

Increases in SSC has the potential to cause light attenuation at the seabed which can restrict the ability of species to photosynthesise. In addition, as mobilised sediments fall out of suspension and undergo deposition on the seabed impacts benthic species from smothering possible. This potential impact has been scoped out from further assessment based on the volume of fine sediment residue attached to the rock used for the proposal will be very small and following interaction with the sea will dilute rapidly through wave action and tidal currents resulting in elevated suspended sediments for a short period of time within a localised area.

- **Development of the toe trench may cause seabed disturbances leading to the release of sediment contaminants and consequent toxic effects on benthic species.**

The material to be removed from the toe trench will likely consist of coarse sediments and rock which do not have affinity to bond with contaminates unlike clay and silt sediments. Given the volume of material to be removed and low levels of contaminants likely contained within the material impacts on benthic ecology from release of contaminants has been scoped out from further assessment.

- **Placement of rock may result in the release of sediment contaminants leading to toxic effects on benthic species.**

No contaminants are predicted to be contained within the small volume of fine sediment residue attached to rock which will be imported from licensed quarries that have environmental measures in place to manage chemicals and fuels onsite. The rock material itself will not absorb contaminants due to the materials geological properties and is therefore considered inert. The potential impact on benthic ecology from release of contaminants from placement of rock has therefore been scoped out from further assessment.

- **Project activities may result in accidental release of pollutants leading to toxic effects on benthic species.**

The potential for accidental release of pollutants affecting benthic ecology receptors has been scoped out of further assessment on the basis the designed-in mitigation measures which include pollution prevention and control measures which will reduce the likelihood of impact to a negligible level.

4.5 Fish

4.5.1 Impacts Scoped In

The Environmental Report will contain an assessment of the following potential impacts with respect to fish:

- **Rock breaking activities may result in noise emissions leading to disturbance to fish.**

This potential impact has been scoped into the assessment as the Proposal will use hydraulic rock breakers to re-profile the existing revetment to act a base for the rock embankment. The use of a rock breaker has the potential to generate underwater noise which may have adverse effects on fish populations within the vicinity of the proposed project.

- **Toe trench development activities may result in noise emissions leading to disturbance to fish.**

This potential impact has been scoped into the assessment as the use of an excavator to remove material in forming the toe trench has the potential to generate underwater noise which may have adverse effects on fish populations.

- **Introduction for Invasive Non-Native Species (INNS).**

This potential impact has been scoped into the assessment as the Proposal has the potential to introduce marine INNS from vessel movements following importation of rock from other parts of the UK and Norway. Rock imported for construction of the revetment is not, however, considered as a vector for marine INNS as the rock will be quarried from a licenced site onshore and transported dry to the project site.

4.5.2 Impacts Scoped Out

Impacts to fish that have been scoped out from further assessment include:

- **Development of the toe trench may cause seabed disturbances leading to the release of sediment contaminants and consequently toxic effects on fish.**

The material to be removed from the toe trench will likely consist of coarse sediments and rock which do not have affinity to bond with contaminates unlike clay and silt sediments. Given the volume of material to be removed and low levels of contaminants likely contained within the material the potential impact on fish from release of contaminants has been scoped out from further assessment.

- **Placement of rock may result in the release of sediment contaminants leading to toxic effects on fish.**

No contaminants are predicted to be contained within the small volume of fine sediment residue attached to rock will be imported from licensed quarries that have environmental measures in place to manage chemicals and fuels onsite. The rock material itself will not absorb contaminants due to the materials geological properties and is therefore considered inert. The potential for impact on fish from release of contaminants has therefore been scoped out from further assessment.

- **Project activities may result in accidental release of pollutants leading to toxic effects on fish.**

The potential for accidental release of pollutants affecting benthic ecology receptors has been scoped out of further assessment on the basis the designed-in mitigation measures which include pollution prevention and control measures reduce the likelihood of impact to a negligible level.

4.6 Marine Mammals

4.6.1 Impacts Scoped In

The Environmental Report will contain an assessment of the following potential impacts with respect to marine mammals:

- **Rock breaking activities may result in noise emissions leading to disturbance to marine mammals.**

This potential impact has been scoped into the assessment as the Proposal will use hydraulic rock breakers to re-profile the existing revetment to act as a base for the rock embankment. The use of a rock breaker has the potential to generate underwater noise which may have adverse effects on marine mammal populations.

- **Toe trench development activities may result in noise emissions leading to disturbance to marine mammals.**

This potential impact has been scoped into the assessment as the use of an excavator to remove material in forming the toe trench has the potential to generate underwater noise which may have adverse effects on marine mammal populations.

4.6.2 Impacts Scoped Out

Impacts to marine mammals that have been scoped out from further assessment include:

- **Vessel traffic associated with the Proposal may result in collision risk.**

No vessels are proposed to be used to construct the revetment. All works will be undertaken from the shore. However, a single barge will be used for the transport of rock armour from Norway to site. The barges associated with transport of rock will sail at speeds <10 knots low enough not to cause a collision risk to marine mammals based on Laist *et al.* 2001. Therefore, the potential for collision to marine mammals from vessel movements has been scoped out from further assessment.

4.7 Cumulative Effects

The proposed project is located adjacent to Peterhead Harbour which is an operating port servicing the oil and gas, renewables, fishing and leisure. Port activities may include vessel movements, maintenance dredging, car loading and unloading and are considered part of the baseline. No other projects are currently being planned or being undertaken. There will be therefore no significant cumulative effects on the environment and has been scoped out from further assessment.

5 REFERENCES

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