



Environmental Impact Assessment Screening Request

Construction of additional breakwater
Lerwick Marina, Shetland

May 2024

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Document history

Report Reference	Date	Notes
P2024-08-EIASC-R1	14 May 2024	Draft for review
P2024-08-EIASC-R2	16 May 2024	Final issue
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1. Introduction

Lerwick Port Authority are proposing to construct an additional breakwater at the entrance to Lerwick Marina, which is within Lerwick Harbour in Shetland, as shown on Figure 1. It is required as weather conditions and wind tidal action are causing safety issues for vessels moored in the marina basin and during access and egress.

This document supports a request to Marine Directorate – Licensing Operations Team (MD-LOT) for a screening opinion under The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 for the proposed breakwater.

2. Environmental impact assessment (EIA) Screening criteria

It was expected that the works would fall under paragraph 10(g) of Schedule 2 of the Marine Works (EIA) Regulations (Scotland) 2017 (Construction of harbours and port installations), as a breakwater is a harbour installation.

However, MD-LOT have stated that the works would fall under paragraph 10(m) of Schedule 2 (Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works) for which the EIA screening threshold is 'All works'.

When determining whether Schedule 2 works are an EIA project, Scottish Ministers must take into account such of the selection criteria set out in Schedule 3 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 as are relevant to the works. These include the characteristics of the works, the location of the works, and the characteristics of the potential impact. Information to support this determination is provided in Sections 3 - 5.

3. Characteristics of the works

3.1. *Size and design of the works*

The breakwater is proposed at the entrance to the existing Lerwick Marina within Lerwick Harbour in Shetland, as shown on Figure 1. The approximate crest length of the breakwater is 72m, and the seabed footprint is approximately 2,400m² (0.24 hectares).

3.1.1. Construction method

The existing rock armour at the root of the proposed breakwater will be carefully removed and stored for reuse. The rubble mound breakwater will be constructed from the land using inert stone fill from the Dales Voe laydown area, with material placed directly on the existing seabed. A silt boom will be placed ahead of the advancing breakwater to contain migration of fines. Once approximately 20m away from shore, a geotextile membrane will be placed on slopes and held in position using secondary armour. This operation will be repeated until the breakwater is advanced to the full length.

Rock armour stone will then be placed over the geotextile membrane. Graded stone fill will be placed on the crown of the breakwater to provide a suitable surface for future maintenance access.

It is anticipated that construction will commence in late summer 2024 (subject to obtaining a marine licence) and the construction period will be approximately 5 weeks.

3.2. Cumulation with other existing works and/or approved works

Lerwick Port Authority are intending to carry out a capital dredging operation in the North Harbour but this will not coincide the construction of the proposed breakwater.

No other projects have been identified on the Marine Scotland Information licensing portal that would be ongoing at the same time as the construction of the proposed breakwater.

3.3. Use of natural resources, in particular land, soil, water and biodiversity

Natural resources used to construct the breakwater include approximately 9,100m³ of inert stone fill and approximately 2,575m² of rock armour stone, sourced from material excavated from the Dales Voe laydown area. The beneficial use of this material from a nearby development negates the requirement to extract natural resources specifically to build the breakwater.

Materials will be delivered by Heavy Goods Vehicle (HGV) using the existing road network.

3.4. Expected residues and emissions and production of waste

The generation of waste in/near the marine environment during breakwater construction will be negligible.

Emissions to air are limited to the equipment that will be used during construction. This is likely to involve the use of one 30-tonne excavator moving all material into position from where it is deposited on site from HGVs. There will be no marine plant used in construction.

3.5. Pollution and nuisances

Adherence to the Scottish Environment Protection Agency's (SEPA) Guidance for Pollution Prevention (GPP) 5: 'Works and maintenance in or near water' will minimise the risk of pollution incidents during the breakwater construction.

Due to the nature of the materials used, construction activities will not generate significant levels of dust or sediment plumes.

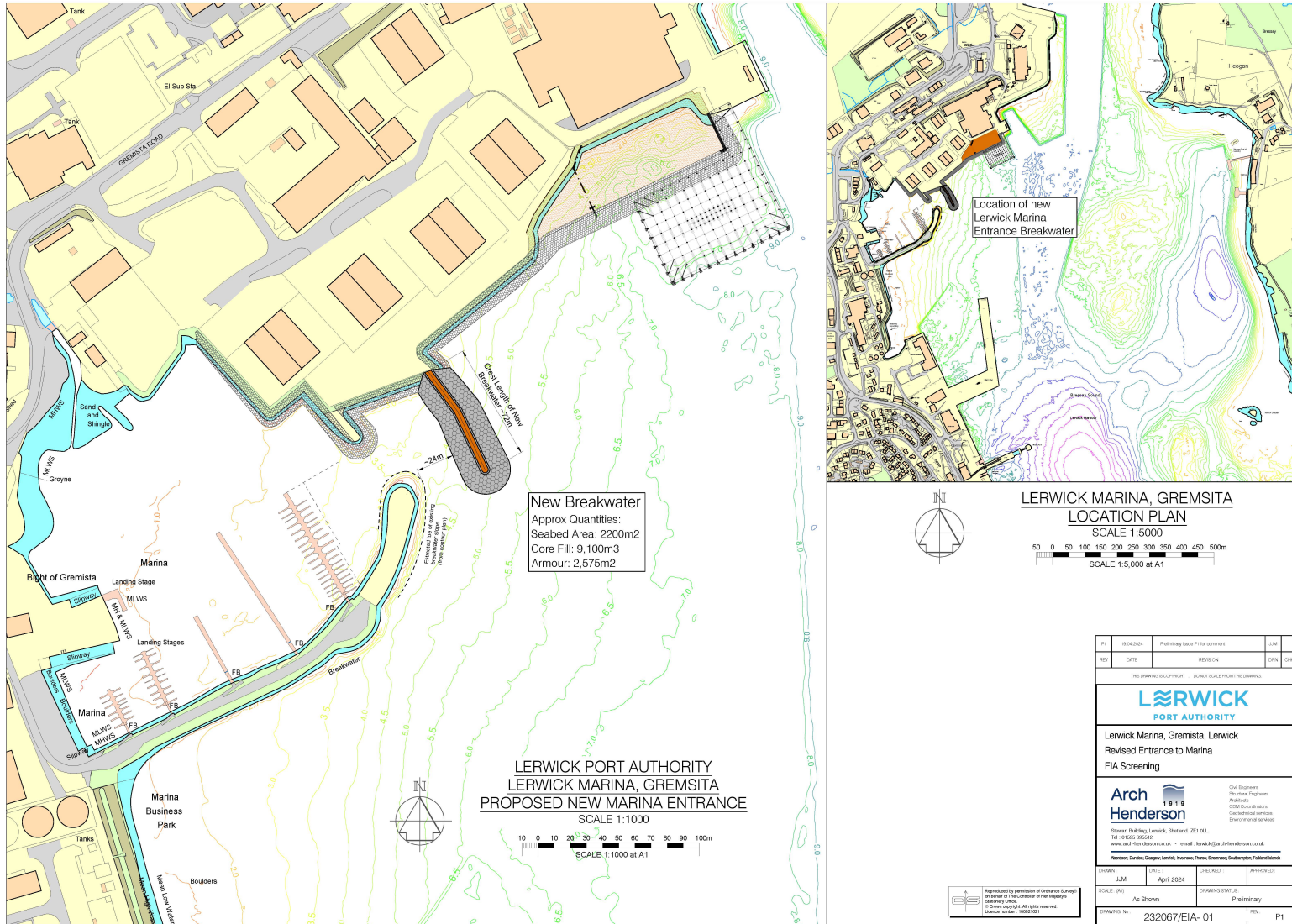


Figure 1 Location of proposed breakwater

3.6. Risk of major accidents and/or disasters which are relevant to the project concerned, including those caused by climate change

The risk of the breakwater construction causing, or being affected by, major accidents or disasters is minimal.

As stated above, adherence to SEPA's GPP 5: 'Works and maintenance in or near water' will minimise the risk of accidents during construction.

3.7. Risks to human health (air pollution/water contamination)

The proposed breakwater is within the Lerwick Port Authority area. The closest residential dwelling is approximately 200m away. As described in Sections 3.4 and 3.5, emissions, production of waste and pollution risks are expected to be small-scale and localised, so the risks to human health are predicted to be negligible.

As stated above, adherence to SEPA's GPP 5: 'Works and maintenance in or near water' will minimise the risk of water contamination during the breakwater construction. Due to the inert nature of the materials to be used in construction, water contamination is unlikely.

4. Location of works

4.1. Existing and approved land use

The marina is within the Lerwick Port Authority area, surrounded by industrial port land. The proposed breakwater will be built approximately 25m to the east of the existing breakwaters. The breakwater landfall location is within operational port land.

There will be no change to the existing land or marina use as a result of the proposed breakwater.

4.2. Relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground; absorption capacity of the natural environment

The proposed breakwater is within a busy port environment, at the entrance to an existing marina that is subject to regular vessel movements.

The impact on natural resources is limited to the footprint of the breakwater. The seabed at this location is likely to be subtidal sand, which is abundant in the local and wider area.

There are no landscapes or sites of historical, cultural or archaeological significance that could be affected by the construction of the breakwater.

5. Characteristics of the potential impacts

5.1. Potential impacts on designated sites

The proposed breakwater is approximately 300m from the East Mainland Coast Shetland Special Protection Area (SPA). There are no other marine/coastal designated sites within 5km of the proposed breakwater.

The East Mainland Coast Shetland SPA is a large site (256.47 km²) that stretches from Fish Holm and Lunna Ness in the north southwards, encompassing Whalsay, to the north coast of Bressay.

The SPA supports populations of European importance of the following Annex 1 species:

- Great northern diver (*Gavia immer*)
- Red-throated diver (*Gavia stellata*)
- Slavonian grebe (*Podiceps auritus*)

It also supports migratory populations of European importance of the following species:

- Common eider (*Somateria mollissima faeroeensis*)
- Long-tailed duck (*Clangula hyemalis*)
- Red-breasted merganser (*Mergus serrator*)

Divers and mergansers feed on a wide variety of fish that are associated with a range of seabed substrates. These birds catch fish by diving from the surface and pursuing their prey underwater. The fish species taken will be influenced by what is locally most readily available, but the diet of divers and merganser includes haddock, cod, herring, sprats and gurnard along with smaller species such as sand-eels, pipefish, gobies, flatfish and butterfish (Marine Directorate, 2020).

Slavonian grebe feed on small fish species but their diet also includes small amphipods and other crustaceans. Great northern divers also feed opportunistically on small crustaceans.

Common eider and long-tailed duck feed almost exclusively on molluscs and small crustaceans, diving from the surface to pluck their prey from the seabed (Marine Directorate, 2020).

Due to its location within Lerwick Port and immediately adjacent to a busy marina, it is highly unlikely that the area around the proposed breakwater is a suitable feeding habitat for the protected features of the SPA. Any birds in the vicinity are likely to have habituated to a level of visual and noise disturbance from existing landside activities and vessel movements. The impacts on the protected features of the SPA are expected to be negligible.

There will be no direct or indirect loss of habitat within the SPA.

5.2. *Disturbance during construction*

Noise and visual disturbance during breakwater construction could temporarily disturb or displace birds, fish or marine mammals from the immediate area of the works. The construction activities will not generate significant airborne or underwater noise (there will be no piling, blasting or dredging). The placement of the stone rock armour onto the seabed will generate intermittent localised noise, but this will be temporary, lasting approximately 2 weeks.

As described above, due to its location within Lerwick Port and immediately adjacent to a busy marina, the area around the proposed breakwater is highly unlikely to provide valuable habitat (e.g. for feeding, loafing, spawning etc) for any coastal or marine species. Disturbance during construction is expected to be minor, localised and temporary.

Two weeks prior to any works commencing on site, an otter survey will be undertaken of the existing armour slope at the root of the proposed breakwater and for a distance 50m either side, to establish the presence or otherwise of otter activity including presence of any holts. Results will be shared with MD-LOT and NatureScot and, if necessary, a European Protected Species licence to disturb otter will be sought.

5.3. *Operational impacts*

There will be no change to the existing operational use of the marina due to the proposed breakwater: the purpose of the breakwater is to improve conditions for vessels moored within the existing marina, and facilitate easier vessel access and egress.

Due to its relatively sheltered position within Lerwick Port, situated close to existing breakwater structures to the west, it is unlikely that the presence of the proposed breakwater will significantly alter the local hydrodynamic regime to an extent that would impact upon adjacent coastal/marine habitats (i.e. through scour or accretion).

It is likely that the breakwater will provide suitable resting and/or feeding habitat for mobile species such as otter and birds.

Operational impacts are expected to be negligible.

6. **References**

Marine Directorate (2020) /www.gov.scot/publications/east-mainland-coast-shetland-special-protection-area-business-regulatory-impact-assessment/pages/1/ [accessed 14 May 2024].