



## **Eigg Harbour Highland Council Harbours**

Dredging of Harbour Jetty approach

MARINE SCOTLAND ACT 2010  
APPLICATION FOR DREDGING AND DEPOSIT OF SOLID WASTE IN THE  
TERRITORIAL SEA AND UK CONTROLLED WATERS ADJACENT TO  
SCOTLAND

BEST PRACTICABLE ENVIRONMENTAL OPTION ASSESSMENT

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# Eigg Harbour

Dredging of Inner Harbour and  
Entrance

MARINE SCOTLAND ACT 2010  
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## **1. INTRODUCTION**

Eigg harbour approaches contain soft sediments to an average depth of about 1 m. It is these sediments that are mainly targeted for dredging, however in some areas harder underlying material may be encountered which may have to be reduced to meet the under keel clearance requirements of the ferry (MV Loch Nevis).

The recent, extensive chemical analysis of representative harbour sediment samples has shown overall that the harbour is relatively uncontaminated. The only metal displaying higher concentrations is Nickel.

### **1.1 Background**

This report has been prepared by Highland Council Harbours. The report considers options for disposal of material dredged from approaches to the ferry jetty at Eigg Harbour. The following points have been addressed:

- review of previous practices
- recommendations for improving the current practice to achieve a sustainable method for dredging operations

Eigg Harbour is located on the North coast of Scotland, at OSGB Grid Reference NM 48734 84080.

Due to drifting and gradual build-up of silt and the Calmac ferry's new approach angles to the jetty, some deepening of the approach is required.

We are aware that some dredging was undertaken during the construction of the, slipway, jetty and causeway in the early 2,000's, however there are no details on record. We presume the spoil from this dredging work were deposited at the HE020 site.

### **1.2 Program of Work**

The program of work involves the removal of approx. 20,000 m<sup>3</sup> of sand, silt and stone that has accumulated on the bed of the approach to the ferry jetty, as a result of tidal flow and natural deposition. This work will be classed a capital dredge as no dredging has been undertaken at this location in the last 7 years.

The works are proposed to take place in April 2022.

It is proposed that the material will be removed by Wyre Marine Services (subject to tender) and preferably deposited at the nearest spoil ground at HE020. This is the nearest spoil ground to the works and would be the most environmentally sensible choice, reducing the spread of alien material and reducing CO<sup>2</sup> emissions of the dredger.

However, MS-Lot have closed the spoil ground at HE020 and these dredging

works are time sensitive, in order to return the lifeline ferry to normal service as quickly as possible. We are not able to wait the 18 – 24 months opening this ground, therefore we are forced to select HE070 spoil ground (15 miles from the works) for these deposits.

### **1.3 Scope of this Report**

In this report we will review each available disposal option for the dredged material. In this fashion those options which are not practical can be rejected and the reasons (be it on the grounds of strategy, environment, or cost) for so doing explained. Once this review has been completed a conclusion as to the Best Practical Environmental Option (BPEO) can be drawn.

### **1.4 Report Structure**

The remainder of the report will be structured as follows:

**Section 2:** description of available disposal options

**Section 3:** discussion of those options shown to be practicable

**Section 4:** summary of findings

**Section 5:** conclusion including BPEO

## **2. Available Options**

### **2.1 Introduction**

This section will discuss all available disposal options for the dredge materials. If the method is considered impractical the reasons will be explained for its exclusion from the remainder of the report. Those options considered as practical will be carried through the report for further analysis.

### **2.2 Land Disposal**

Enquiries with the residents of Eigg for storing and repurposing the spoil into construction projects have been rejected by the community on the basis of large quantities and types of material. Unfortunately, there are insufficient construction projects to make use of this material.

Subsequently the spoil would have to be transported to the mainland for disposal.

In order to prepare the dredge material for disposal to landfill it would first have to undergo a number of stages. The material in the dumper trucks will have to be stored to allow de-watering to take place. This material would then have to be reloaded to allow transport to a landfill site.

Repeated handling of this wet material is time consuming and expensive.

There is no practical location on the mainland where this could be undertaken without the visual impact and smell of such storage impacting on residents and tourists.

Even after this process has been completed the material would still have high water content and as such vehicles designed specifically for transporting such materials (closed transportation) will be required. The probability of creating a public nuisance is considered highly likely due to the repeated movement of these large vehicles, and the nature of the cargo, through a small coastal towns and villages.

This option will be further investigated in **Section 3**.

### **2.3 Land Incineration and Disposal**

The dredged material is non-combustible and therefore incineration is not possible. This option is therefore discounted from further analysis.

### **2.4 Spreading on Agricultural Land**

Due to the saline nature of the dredge material, it is not suitable for spreading on agricultural land, and farmers and landowners are generally unwilling to take delivery of the material for deposit. Even if they were, the same problems of transport highlighted in 2.2 remain. For this reason, this option is therefore discounted from further analysis.

## **2.5 Reclamation**

The dredge material is considered largely unsuitable for use as reclamation fill as a result of its lack of bearing capacity and its susceptibility to wash out. For this reason, this option is therefore discounted from further analysis.

## **2.6 Disposal to Sea**

Eigg is a small island harbour and sea disposal is considered a viable option.

This is a possible disposal method and will therefore be carried forward to **section 3** for further analysis.

## **2.7 Beach Nourishment**

There are no beaches on Eigg requiring replenishment

## **2.8 Other Beneficial Uses**

Investigation has not provided any alternative uses.

## **3. Options under consideration**

The options carried forward from **Section 2 (2.6 and 2.7)** above will be further considered with a view to strategic, environmental and cost implications.

### **3.1 Strategic considerations**

#### **3.1.1 Disposal to landfill**

The initial strategy has been discussed in brief above i.e. handling, dewatering, and transport of dredge material to a suitable landfill site. This process involves multiple handling as well as storage on a third party land/quayside on the mainland and is slow and messy.

##### **3.1.1.1 Availability of suitable sites/facilities**

Once the dredged material has been dewatered it must be reloaded in specialist closed transportation and taken to a suitable facility. No such facility exists nearby Eigg. This would take approximately 700 truck trips through the town.

##### **3.1.1.2 General public acceptability**

Multiple journeys of these large (30 ton) trucks through many local settlements is unlikely to be looked on favorably by the public in general. There is a risk of many complaints about noise, nuisance and congestion as well as the increased safety risk to other road users and pedestrians.

##### **3.1.1.3 Local acceptability (e.g. local residents)**

The storage of the dredge material to dewater will be problematic, identifying a suitable site has not been possible. Use of landfill for such quantities of inert material will increase the rate at which these utilities are filled, potentially requiring more to be opened. This will undoubtedly be an unpopular option.

#### **3.1.1.4 Legislative implications**

The dredge material will be considered as a controlled waste material for the purposes of transport and would be liable to Landfill Tax Regulations at the point of its eventual disposal. Thus, the strategy is possible but problematic, however environmental and cost implications make this option impractical.

#### **3.1.1.5 Summary of the outcome of consultation**

Highland Council Waste Management have stated it doesn't have a site nearby that is licensed to accept waste of this type, which would have to be tested for hazardous substances. However, it was also stated that this method of disposal is always extremely expensive in comparison to the alternatives.

#### **3.1.2 Disposal to Sea**

This is considered to be the most environmentally friendly and least cost option.

##### **3.1.2.1 Availability of suitable sites/facilities**

The nearest site is HE020, just a couple of kilometers from the dredge site, this would be the best site environmentally as it will:

- Reduce the number of sea miles required to be steamed to the disposal compared to the site at HE070, thereby reducing CO<sup>2</sup> emissions.

- Reduce the distance material is being spread

- Is the site that the existing seabed chemical composition will most likely match the dredged spoil.

Unfortunately, HE020 has been closed by Marine Scotland and due to the time constraints on this work being undertaken (lifeline ferry disruption), we simply do not have the 18-24 months or finance needed to reopen this site.

Therefore HE070 is the selected site.

##### **3.1.2.2 General public acceptability**

This disposal site has been used previously as a disposal site hence it is unlikely that the public will find this solution unacceptable.

##### **3.1.2.3 Local acceptability (e.g. local residents)**

The use of this site would not, it is believed, result in any local concerns.



#### **3.1.2.4 Summary of the outcome of consultation with third parties**

The local harbour users and residents of Eigg are mostly concerned with the current disruptions to the timetable ending. They wish the dredging work to be undertaken asap.

#### **3.1.3 Beach Nourishment**

Beach nourishment is not considered as being required or viable.

##### **3.1.3.1 Availability of suitable sites/facilities**

There are no suitable sites available

### **3.2 Environmental Considerations**

#### **3.2.1 Disposal at Sea**

##### **3.2.1.1 Safety implications**

Disposal at sea would have negligible implications for safety providing that normal navigational and maritime procedures are observed.

##### **3.2.1.2 Public health implications**

There are no known threats to public health associated with disposal at sea

##### **3.2.1.3 Pollution/contamination implications**

It is believed that the system of sea disposal has not been demonstrated to have had any significant adverse effect on the receiving environment and no evidence has been found of any substance likely to be harmful to the marine life.

##### **3.2.1.4 General ecological implications**

There would be little or no known risk of ecological impact arising from disposal to sea. Chemical analysis of the samples taken from the proposed dredge site are provided at appendix.

##### **3.2.1.5 Interference with other legitimate activities, e.g. ferry and fishing operations.**

The dredging works are deemed necessary to facilitate the return of the ferry to its scheduled timetable, the dredging works will temporarily cease during scheduled ferry times to avoid disruption.

There is no known fishing activity in the dredge area.

### **3.2.1.6 Amenity/aesthetic implications**

No amenity or aesthetic implications have been identified for this option.

## **3.2.2 Disposal to landfill**

### **3.2.2.1 Safety implications**

The increased handling of the dredge material increases the risk to plant operatives and in the region of 700 return journeys would pose an increased risk to other road users.

### **3.2.2.2 Public health implications**

A small increase in health risk due to exhaust and dust emissions would result from increased traffic.

### **3.2.2.3 Pollution/contamination implications**

There is the risk due to the high salinity of the dredge material that this could affect local water courses. This possibility would require further investigation in order to avoid any SEPA licence condition breaches.

### **3.2.2.4 General ecological implications**

No other risks have been identified at this time.

### **3.2.2.5 Interference with other legitimate activities, e.g. fishing operations**

As already discussed, the initial de-watering and storage will inconvenience harbour users and the numerous return journeys will create inconvenience to road users and residents along the length of the proposed route.

### **3.2.2.6 Amenity/aesthetic implications**

No amenity or aesthetic implications have been identified for this option.

## **3.2.3 Cost Considerations**

### **3.2.3.1 Disposal to landfill**

At the current disposal charge of £66.78/tonne, the cost for 20,000 tonnes to go to landfill totals £1,335,600. Landfill Tax @ £2.50/ton adds another £50,000 and there will be a further cost for the specialized transportation that will be required.

### **3.2.4.1 Disposal to Sea**

The work would take approximately 4 weeks and cost approximately (£100,000).

## **4 Summary of Findings**

Six options were initially considered for the removal of dredged materials from Eigg Harbour, four being ruled out in the initial stages (land incineration and disposal, spreading on agricultural land, beach replenishment and reclamation.)

The remaining two were further reviewed and the findings are summarised below.

### **4.1 Disposal to Land**

This option was problematic throughout and strategically it was fraught with issues. The costs are by far the highest of the three remaining options and are prohibitive to the Council.

In environmental terms the increase in road traffic would have been significant and the duration of such a project would have been greatly extended.

These factors when taken all together result in this being the least practicable of the three options.

### **4.2 Disposal to Sea**

This option is not the most cost effective, however appears to be the most rational method. The environmental impact of this method could be further reduced by the opening (temporary or otherwise) of HE020.

## **5 Identification of BPEO**

It is concluded having view to the strategic, environmental and cost considerations above that the BPEO for disposing of the dredged material from JoG Harbour is through disposal at sea. This is the preferred method as it will successfully dredge and spread the material over a designated spoil ground in a fast, reasonably cost effective and environmentally efficient way

All other investigated options are for various reasons unsuitable (be that based on cost or practicality) whereas the selected option is, we believe, acceptable on all counts. The cost is manageable given the Council's duties and budget constraints, and the initial short term impact on the immediate environment is acceptable.