MARINE (SCOTLAND) ACT 2010, PART 4: MARINE LICENSING

BEST PRACTICABLE ENVIRONMENTAL OPTION (BPEO) ASSESSMENT
REMOVAL BY SILT AGITATION MAINTENANCE DREDGING OF ACCUMULATING SILT FROM THE HARBOUR BED OF GRANTON HARBOUR (EAST HARBOUR)

1 Introduction

This BPEO Assessment supports an application for the renewal of a Maintenance Dredging Licence under the Marine (Scotland) Act 2010, Part 4, Marine Licensing.

2 The History of Granton Harbour and current uses

2.1 Granton Harbour is a man made harbour created by the Duke of Buccleugh in the mid 19th century. The tidal waters are now owned by Forth Ports plc. It has two parts – the east harbour and the west harbour, divided by Middle Pier. It was created as a commercial harbour for fishing and import/export business (coal, esparto grass etc). In 1936 an extension to Middle Pier was built to accommodate coal carrying vessels.

2.2 Prior to the construction of the Forth Railway Bridge, trains ran to the south west corner of the harbour, to be placed (without engines) via fixed slipways and floating ramps onto cross-Forth ferries plying between Granton and Burntisland. In the Second World War, the harbour accommodated a minesweeping fleet.

2.3 In the 1970s, commercial activity largely ceased and the Northern Lighthouse vessel (Hesperus, Pharos) ceased to dock at the Pharos Pier. Since then, the principal uses have been pilotage, recreational sailing, motorboating and fishing. The Harbour is home to the Firth of Forth Pilot Service, to the Royal Forth Yacht Club (RFYC) and the Forth Corinthian Yacht Club (FCYC) and to the Sea Cadets. Two commercial workboats and two or three inshore fishing vessels are also based in the Harbour. Members of the public who are not members of either sailing club use the "public slip" to launch and recover dinghies, power boats and jet-skis. Most of the west harbour has been infilled in recent years for landward development. The East Harbour is an SSSI.

2.4 The RNLI inshore rescue service will normally deliver casualties rescued from vessels in the Forth to the Edinburgh Marina Ltd pontoon in the east harbour, as this is accessible at all times irrespective of adverse weather and tide. The Marine Section of Police Scotland also uses the Marina pontoon while operating in the Forth, as does the Royal Navy.

2.5 The Harbour receives, on average, 70 visiting yachts every summer, from England and the Continent (largely Holland and Germany). It is host to national sailing championships, the East Coast Sailing Festival and the Helgoland Race, which has run every two years between Kiel and Granton since 1968. The Harbour has, accordingly, a local, national and international importance.

2.6 Seawater from the Forth estuary enters the harbour twice a day on the flood tide and leaves the Harbour twice a day on the ebb tide. Silt occurring naturally in the Forth Estuary (some 200,000 tonnes enters the Estuary annually from the land via rivers discharging into the Forth upstream of Granton) accumulates in the Harbour on flood tides and has done so since its creation in 1858. The effect of this on silt levels in the harbour in comparison with open coastal waters, such as the adjacent Wardie Bay, can be seen on admiralty charts. Dredging has always been necessary. There is no natural river outlet into the Harbour, but two outlets from the public surface water drainage system discharge into the Harbour.

2.7 With the cessation of commercial shipping and the ending of the Harbour as the berth for the Northern Lighthouse Board's Support Vessel (Pharos), commercial dredging ended in 1970. Between 1970 and 2006, Forth Ports and the Royal Forth Yacht Club carried out dredging intermittently by barge based bucket, the spoil being deposited in the designated spoil ground upstream of the Harbour in the Forth.

2.8 By 2007, the cost of commercial dredging to keep the parts of the Harbour used for yachting navigable became too expensive for the Clubs to bear. Having obtained the agreement of its own members and Forth Ports (as owner of the Harbour) and the support of the Royal Yachting Association and the Royal Society for the Protection of Birds, and having carried out proving trials, the Royal Forth Yacht Club obtained a dredging licence from Scottish Ministers and bought a bespoke self-propelled catamaran barge designed to return silt entering the Harbour from the Forth Estuary back into the Estuary. This started operating in 2010.

3 Alternative Harbours

3.1 The Harbour is the only "harbour of refuge" between Blyth and Peterhead. That is, it is the only harbour open and accessible, irrespective of weather conditions, to recreational craft driven to seek shelter from storm conditions, for a distance of 140 nautical miles. Dredging of Granton Harbour would theoretically be unnecessary if there were another Harbour on the Forth usable as a substitute harbour of refuge without dredging. Only one Harbour appears to operate without dredging – Burntisland Harbour on the north shore of the Forth. But it is not safe in violent southerly storms and not safe to enter in such conditions.

3.2 And it is additionally unsuitable because: it is not large enough to accommodate Granton's commercial, pilot and recreational yachting activities, including visiting yachts from overseas; it would hopelessly inconvenient as a substitute harbour for the residents of, and visitors to, Edinburgh.

3.3 Leith Docks are not open to recreational craft and access is in any case only through lock gates; it is not a suitable alternative.

3.4 We conclude that there is no suitable alternative to Granton as Edinburgh's Harbour.

4 Blasting and disposal options

4.1 Blasting is not required for maintenance dredging in the Harbour.

4.2 Material dredged from the seabed in the Harbour may theoretically be disposed of in a number of ways, as follows:

- Incineration
- Landfill
- Spreading on agricultural land
- Land reclamation
- Beach replenishment
- Sea disposal

4.3 Incineration

It is not possible to incinerate mud silt. This option for disposal is discounted.

4.4 Landfill and spreading on agricultural land

This option is open only to dredging by bucket and grab and is accordingly not open for consideration in this application. In any case, it would require the mud silt to be transferred from a dredge barge upwards onto Middle Pier and into lorries for removal to a landfill site. This would have the following undesirable consequences: additional transport cost (over sea disposal), landfill tax, sterilisation of Middle Pier for its current uses (boat storage, which is in short supply) and the introduction of heavy goods traffic past residential properties. This option for disposal is discounted.

Spreading on agricultural land is also not open for consideration in this application. It would in any case have the same undesirable consequences as the landfill option. In addition, marine mud silt is simply unsuitable for spreading on agricultural land due to its high water and salt content. This option for disposal is discounted.

4.5 Beach replenishment

Marine mud silt is unsuitable for beach replenishment, which requires to be done with sand. This option for disposal is discounted.

4.6 Sea Disposal

Sea disposal returns the mud silt whence it came, consistent with the Harbour's practice over the past 154 years. In our view, it is the only practical, sensible, natural and affordable option for the disposal of dredged marine mud silt from Granton Harbour.

4.7 Other beneficial uses

The National Planning Policy Guideline NPPG 10 on Planning and Waste Management encourages the principle of recycling and reuse of products, and waste minimisation, by, for example, the use of dredged materials in construction projects. Unfortunately, mud silt is unsuitable as construction fill material and this is accordingly not an option. No other beneficial uses have been identified for marine mud silt and there is indeed no market for it.

5 DISPOSAL INTO THE ESTUARY

5.1 Maintenance dredging licenses have been granted by Marine Scotland to the Royal Forth Yacht Club (and to Forth Ports) for many years for bucket dredging. Since 2010 the Club has received licenses for both bucket and silt agitation maintenance dredging.

5.2 The silt samples analyses taken for the current application indicate as follows:

Organohalogens

The results do not exceed Action Level 1.

Trace Metals and Organotins

The results while exceeding Action Level 1 do not exceed Action Level 2.

Polyaromatic Hydrocarbons

The results while exceeding Action Level 1 do not significantly exceed that level.

5.3 We submit that returning sediment to the Forth, which has come from the Forth, and which contains the foregoing compounds cannot logically have a significant adverse impact on the marine environment of the Estuary.

5.4 Operational aspects

There is a long history of dredging and associated sea disposal within the Firth of Forth. The Club's silt agitation catamaran barge operates solely within the Harbour and is accordingly no impediment to commercial or recreational traffic in the Estuary. It has been operating within the Harbour since 2010 without incident.

5.5 Public health implications

There are no known threats to public health associated with disposal of marine mud silt, coming from the Firth of Forth, into the Firth. Recreational and commercial fishing occurs, and has occurred, for generations in the Firth in the vicinity of the Harbour and the spoil ground without any evidence of contamination of the food chain from the disposal of dredged material from the Harbour.

5.6 General Ecological implications

Dredged material from Granton Harbour and other harbours on the Forth has been deposited in the Forth and at the Mid Firth spoil ground for generations. Disposal by silt agiitation has been happening since 2010. There is no evidence that any of these operations have caused any significant adverse effect on the sea or the resident wild life. No complaints have been made regarding the disposal of dredged material and there is no evidence of foaming, water discolouration, smell or long term turbidity at or around the spoil ground.

5.7 Amenity/aesthetic implications

We have no record of any complaints about fouling of beaches from marine mud silt removed by dredging operations from Granton Harbour.

6 Identification of the Best Practicable Environmental Option

We conclude that the Best Practicable Environmental Option for the disposal of marine mud silt from the maintenance dredging of Granton Harbour is by sea disposal into the Estuary and that this is an acceptable disposal option in terms of the Marine (Scotland) Act 2010.

APPENDIX TO THE BPEO

Agitation Dredging – Standard Operating Procedure

1/ The agitation dredging will be carried out at the pontoon owned by The Edinburgh Marina Ltd only in the area bounded by the following coordinates:

55 59.11N / 003 13.330W
55 59.11N / 003 13.310W
55 59.05N / 003 13.354W
55 59.05N / 003 13.328W

That area is area A on the attached chart.

2/ There is a dredging exclusion zone adjacent to the Middle Pier public slip where there is contaminated mud which must ON NO ACCOUNT be disturbed.That exclusion zone is bounded by the following coordinates:

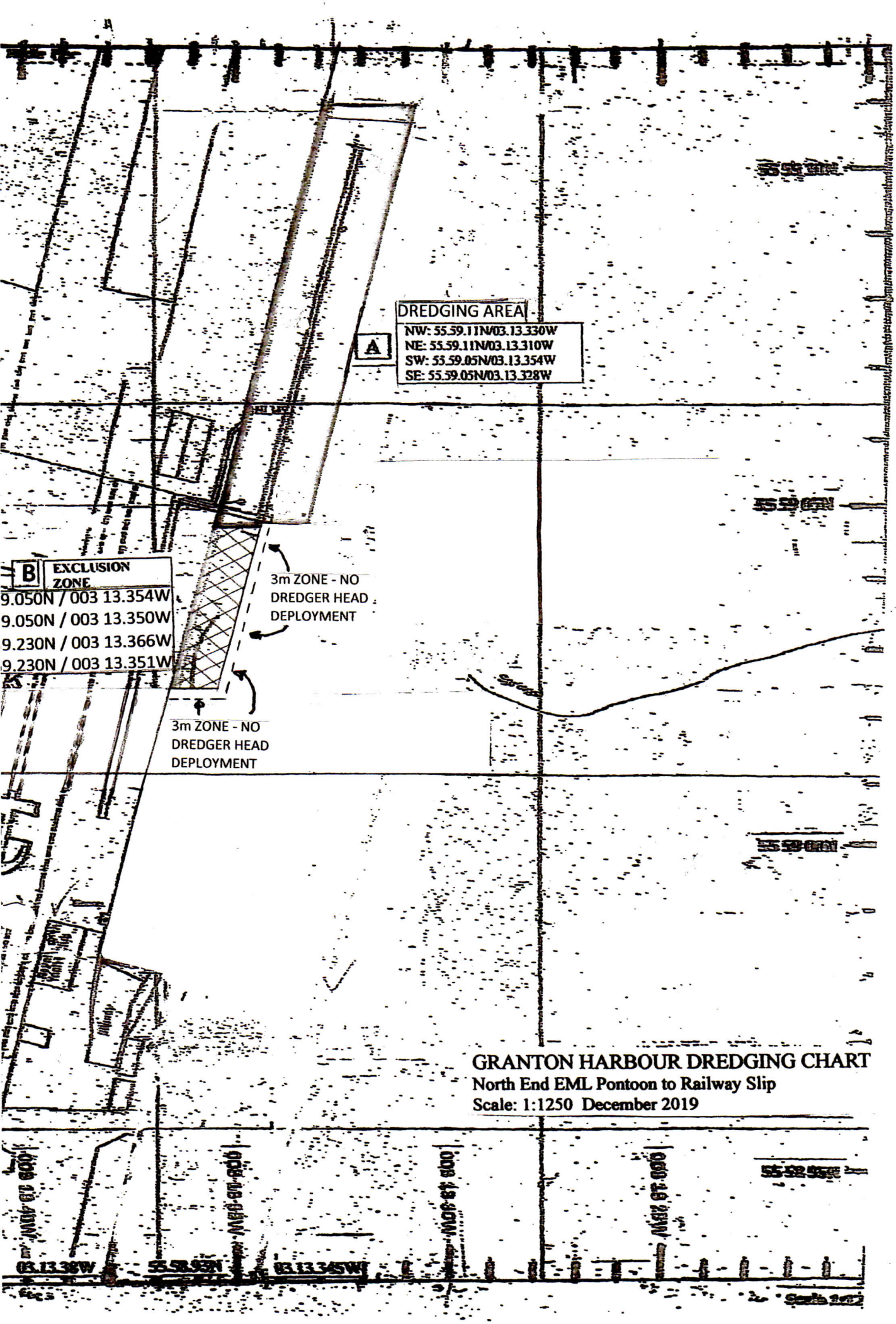
55 59.050N / 003 13.354W
55 59.050N / 003 13.350W
55 59.230N / 003 13.366W
55 59.230N / 003 13.351W

That zone is area B on the attached chart. The dredger head must not be deployed within 3 metres of the exclusion zone to ensure that there is no indirect disturbance of the contaminated sediment theirin. The 3 metre width is clearly shown on the chart.

3/ The sole operator of the dredger will be the Bosun of the Royal Forth Yacht Club. He has been the only operator of the dredger, also the mechanic, for the past ten years and is fully aware of the location of the exclusion zone.
In case there is a mechanical problem with the dredger when in operation the Club will provide launch safety cover to assist with manoeuvrability.

4/ The area to be dredged at the EML pontoon shall be reduced in level by a maximum of 1.00m and the total volume of mud removed shall not exceed 4,999 wet tonnes per year. A daily record of the volume of mud removed, the location of the dredge, and the hours of dredger operation shall be kept in the dredger log book.

RFYC
8th August 2020


DREDGING AREA
A
NW: 55.59.11N/03.13.330W
NE: 55.59.11N/03.13.310W
SW: 55.59.05N/03.13.354W
SE: 55.59.05N/03.13.328W
B
EXCLUSION ZONE
9.050N / 003 13.354W
9.050N / 003 13.350W
9.230N / 003 13.366W
9.230N / 003 13.351W
3m ZONE - NO DREDGER HEAD DEPLOYMENT
3m ZONE - NO DREDGER HEAD DEPLOYMENT
GRANTON HARBOUR DREDGING CHART
North End EML Pontoon to Railway Slip
Scale: 1:1250 December 2019