CessCon Decom

Best Practicable Environmental Option (BPEO) Assessment

Capital Dredge and Maintenance Dredge at Quay 2
Revision A

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Environmental Consultants

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Energy Park Fife
Quay 2 – Capital and Maintenance Dredge
Best Practicable Environmental Option Assessment

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1.0 INTRODUCTION

1.1 Purpose of the Report

Ironside Farrar Ltd was commissioned by CessCon Decom Ltd to undertake a Best Practicable Environmental Option (BPEO) assessment of the disposal options for material dredged at Quay 2, Energy Park, Methil, Fife. The site location is illustrated in Drawing 50711_001.

Under the provisions of the Marine (Scotland) Act 2010, (M(S)A), a licence issued by Marine Scotland is required for the deposit of substances or articles within waters adjacent to Scotland. Applications for a M(S)A licence require supporting information, including a BPEO assessment, demonstrating that alternatives to sea disposal have been investigated and that sea disposal does not pose an unacceptable risk to the marine environmental and other legitimate users.

This report was prepared in support of an application to Marine Scotland for disposal of the dredged material at sea under M(S)A and compares the various options for dredge material disposal and identifies the BPEO.

Revision A updates the report to support an extended license application period of 6 months, to build in a time contingency element in case of any delays to the planned programme dates.

Fife Energy Park CGI of CessCon Decom Facility (New decom slab complete and buildings consented behind existing quays. Existing BiFAB yard to east)

1.2 The Need for Dredging

The Energy Park Fife is to become home to one of the most important centres in Scotland for decommissioning of Oil and Gas infrastructure from the North Sea. Phase 1 landside infrastructure works were completed in early December 2020 including preparation of a 7,000m^3 concrete laydown area and drainage. An advanced water treatment system and welfare facilities will be installed in Q1 2021 to complete the facility. SEPA has granted both a Waste Management License and a Controlled Activities Licence for Discharge for the site. The project involves grant funding from the

Scottish Government (VDLF/ DCF) and is in collaboration with both Scottish Enterprise and Fife Council.

New extended quayside decommissioning area

Capital dredging is required in order to allow creation of a dredge pocket for decommissioning vessels to access the quayside. The works are required to dredge below the existing seabed by approximately 3.2m to achieve a nett depth of approximately -8.2m Chart Datum (CD). An average over-dig of 0.5m below this is assumed due to the lower part of the excavation being in weathered bedrock. Part of the proposed dredge site was last subject to a maintenance dredge in March 2015. However, this did not include the full area currently requiring dredging. It also did not extend deep enough for the current project requirements, which includes excavation into the weathered bedrock by some 1.3m to 2.0m.

Historically, material dredged from the seabed adjacent to Energy Park Fife was disposed of at the Methil Spoil Ground, situated to the south east of the harbour (56°09.80'N 002°58.80'W Easting 339235 Northing 697172). This is shown on Drawing 50711-003.

Timing of the operation and the security of the selected option is critical to the project, to ensure works can be completed in time to allow the first infrastructure to be brought ashore in Q2 2021. Planned dates are a 3 or 4 week dredge programme starting in late February 2021 with a 6-month license period being applied for to allow for any potential delays.

1.3 Description of Material Dredged

Dredging is proposed in the dredge pockets both perpendicular and parallel to Quay 2 as shown in Drawing 50711-002. A net excavation of 80,794 m^3 of material will require to be dredged to lower the seabed to -8.2m CD, which will be approximately 85,000m^3

in total once over dig is accounted for to ensure the design depths are achieved. The upper layer of material to be dredged is naturally occurring silt, sand and gravels. The lower layer contains extremely weak, weathered sandstones with some mudstones. Based on the most recent volume calculations provided and assuming that the material at the dredge level is rock across the dredge area, this may result in gross dredge volumes in the region of 55,656m^3 of sands, silts and gravels and 29,344m^3 of weathered rock.

Site investigation (SI) borehole records, both current and from 2016 are presented in the accompanying *Sediment Sampling Report* (Ironside Farrar, December 2020). As agreed with Marine Scotland, the current SI sampled and tested the upper superficial deposits only and did not extend into the weathered bedrock, as contamination of this layer was considered highly unlikely. Physical and chemical testing was undertaken on 21 samples of the sediments recovered and are reported on in the *Sediment Sampling Report*. Moisture contents ranged from 26.6% to 43.1% for the materials sampled. Sediments sampled within the proposed dredge area are reported as being predominantly sand with variable silt content and minimal gravel content. One sample (BH-P01 0.15-0.5m) is reported to contain 20.0% gravel, although the predominant fraction is sand. One sample (BH-P05 1.75-2.25m) is reported to be predominantly silt (60.7%). Mean Particle Size Analysis data is presented below.

Mean Particle Size Analysis Data

Gravel (%)	Sand (%)	Silt (%)
1.4	66.7	31.8

Total Organic Carbon concentrations ranged between 1.11% (BH-P04 0.0-0.15m) and 17.10% (BH-P05 1.1-1.6m) with a mean concentration of 7.02%.

Particle Density ranged between 2.26 mg/m^3 (BH-P06 1.6-2.1m) and 2.65 mg/m^3 (BH-P04 0.0-0.15m) with a mean of 2.50 mg/m^3. Specific gravity can be estimated as 2.5x10^{-9}. This is the ratio of the density of the material compared to the density of pure water.

Asbestos was not identified in any of the samples.

Dredge Methodology

The works will be undertaken via a large backhoe loading material into two split hopper barges. The barges would either be towed or sail under their own power to the proposed disposal site – "*Methil Spoil Ground*". The works would be supported by a tug for towing the barges and repositioning the dredger, and a survey launch, which will carry out daily multibeam surveys. It is anticipated that the works will be of 3 to 4 weeks duration.

No blasting work will be undertaken.

Chemical Analysis

Marine Scotland requires that samples of the material to be disposed of be analysed for potential contaminants prior to disposal. A series of samples were collected on the 24th and 25th November 2020 and are reported on in the *Sediment Sampling Report*, December 2020. All 21 samples were analysed for metals, organotins, polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), asbestos, total organic carbon and sediment particle size distribution. The sampling plan and the results of the analysis are provided in the *Sediment Sampling Report*.

Chemical analysis results have been compared with the Action Levels adopted by Marine Scotland. The results are summarised below.

Metals

- Arsenic: All 21 samples recorded arsenic concentrations below the AL1 (range 10.0-18.6 mg/kg).
- Cadmium: 14 of 21 samples recorded cadmium concentrations greater than AL1 (range 0.18-0.69 mg/kg). No concentrations were above AL2.
- Chromium: 1 of 21 samples recorded chromium concentrations greater than AL1 (range 26.0-60.7 mg/kg). No concentrations were above AL2.
- Copper: 20 of 21 samples recorded copper concentrations greater than AL1 (range 25.7-103.0 mg/kg). No concentrations were above AL2.
- Mercury: 2 of 21 samples recorded mercury concentrations greater than AL1 (range 0.08-0.28 mg/kg). No concentrations were above AL2.
- Nickel: 12 of 21 samples recorded nickel concentrations greater than AL1 (range 19.5-78.7 mg/kg). No concentrations were above AL2.
- Lead: All 21 samples recorded lead concentrations below the AL1 (range 20.8-49.7 mg/kg).
- Zinc: 19 of 21 samples recorded zinc concentrations greater than AL1 (range 106-366 mg/kg). No concentrations were above AL2.

Tributyl Tin: All 21 samples recorded TBT concentrations below the AL1. All samples were below the laboratory limit of detection (<0.005 mg/kg) with the exception of sample BH-P01 0.15-0.5m, which recorded a concentration of 0.0212 mg/kg.

Polyaromatic Hydrocarbons: 19 of 21 samples recorded concentrations of one or more polyaromatic hydrocarbons above the AL1. The maximum concentration recorded was 2.9 mg/kg naphthalene in sample BH-P05 1.1-1.6m.

Polychlorinated Biphenyls: All 21 samples recorded total PCB (ICES7) concentrations below the AL1. The maximum concentration recorded was 0.00979 mg/kg in sample BH-P05 1.75-2.25m.

Hydrocarbons: 17 of 21 samples recorded total hydrocarbons concentrations greater than the AL1. The range was 45.3 mg/kg – 1290 mg/kg.

A summary of the chemical analysis screening against AL1 and AL2 is presented in the Table below.

Summary of Samples Exceeding Action Levels

Sample ID	Metals		TBT		PAHs	THCs	PCBs	
Action Level	AL1	AL2	AL1	AL2	AL1	AL1	AL1	AL2
BH-P01 0.15-0.5m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P01 0.5-1.0m	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass
BH-P01 1.0-1.5m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P02A 0.0-0.15m	Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass
BH-P02A 0.45-0.95m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P02A 0.95-1.45m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P03 0.0-0.15m	Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass
BH-P03 0.2-0.7m	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass
BH-P03 0.7-1.2m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P04 0.0-0.15m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P04 0.5-1.0m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P04 1.0-1.5m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P05 0.0-0.15m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P05 1.1-1.6m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P05 1.75-2.25m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P06 0.0-0.15m	Pass	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P06 1.1-1.6m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P06 1.6-2.1m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P07 0.0-0.15m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P07 1.0-1.5m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass
BH-P07 1.5-2.0m	Fail	Pass	Pass	Pass	Fail	Fail	Pass	Pass

Comparison with Historic Data

A comparison with analytical results from previous sediment investigations at the same site has been made. The sampling was carried out in December 2010 and November 2014 and the historic data is included in the *Sediment Sampling Report*. The following observations have been made.

Maximum metal concentrations are generally lower in the 2020 dataset when compared with the 2010 and 2014 datasets. Only nickel recorded a higher maximum concentration in 2020, with a maximum concentration of 78.7mg/kg compared with 71.0 mg/kg in 2014.

The maximum concentration of TBT recorded in 2020 (0.0212 mg/kg) was slightly elevated when compared with the maximum concentration from 2014 (0.0123 mg/kg), but was lower than the maximum concentration recorded in 2010.

The range of polyaromatic hydrocarbon concentrations recorded in 2020 are generally consistent with those recorded in 2014, although maximum concentrations of most PAHs are marginally greater in 2020.

Laboratory detection limits for polychlorinated biphenyls have improved since 2010 and 2014 meaning direct comparison with the 2020 dataset is not possible.

Summary

Although concentrations of some contaminants exceed Marine Scotland Action Level 1, the concentrations across the whole sampling area do not indicate significant contamination of the sediments. Levels are comparable with levels of materials historically deposited at the Methil Spoil Ground from dredging at the Energy Park and therefore the material is considered suitable for marine disposal.

1.4 Scope of Report

This report provides an appraisal of available disposal options and short-lists those which are considered to be practicable. The practical options are then reviewed against a series of strategic, environmental, and cost considerations. The options are then compared and the BPEO identified. The remainder of this report is structured as follows:

- Section 2 describes the BPEO assessment method.
- Section 3 describes each of the available disposal options and summarises their respective advantages and disadvantages.
- Section 4 provides an assessment of the short-listed disposal options for the material dredged.
- Section 5 provides a summary of the assessment and identifies the BPEO.
- Appendix A contains a summary of consultee comments.
- Appendix B contains a description of the sediment sampling and analytical results plus previous SI data which included geotechnical cores of the weathered bedrock.

2.0 BPEO METHOD

2.1 Introduction

The BPEO study has been undertaken using the following method.

- Identification of potential options.
- Assessment of these options based on:
  - strategic considerations;
  - environmental, health and safety considerations i.e. what the environmental impacts would be; and
  - cost in terms of capital and maintenance/ operational costs.
- Comparison of the performance of the options and identification of the BPEO.

These stages are discussed in more detail below. Information was obtained through literature review, review of websites (including SEPA) and consultation with a range of agencies/organisations including Fife Council, Scottish Enterprise (who in turn contacted Forth Ports), Marine Scotland, NatureScot, I+H Brown and Realm Construction. Comments and copies of significant correspondence are provided in Appendix A.

2.2 Identification of Options

Seven treatment/ disposal options have been identified:

- beach nourishment;
- coastal reclamation and construction fill;
- spreading on agricultural land;
- sacrificial landfill;
- incineration;
- disposal at sea; and
- aggregate production.

2.3 Assessment of Options

The parameters which are used to assess the options are discussed below.

Strategic Considerations
Strategic considerations include the following:

- Operational feasibility - focusing on whether the option is technically and operationally feasible.
- Availability of sites/ facilities - considering whether there are any sites or facilities which can take the dredge spoil.
- Security of option - examining whether Cesscon Decom Ltd will have control over all stages of the disposal as required by the Environmental Protection (Duty of Care) Regulations 1991.
- Established practice - considering whether technologies and techniques proposed are established and therefore performance and potential difficulties of the technologies and techniques can be anticipated.
- General public acceptability - gauging whether the public are likely to object to or support the proposals.
- Likely agency acceptability - gauging whether public agencies are likely to have any major concerns when consulted on the M(S)A application.
- Legislative implications - assessing compliance with relevant legislation and the potential management control required.

Environmental and Health and Safety Considerations

The factors used to assess the environmental performance of the options are summarised below.

- Safety - considering potential sources of hazard and probability that there would be any risk to the general public or workers.
- Public health - assessing whether there would be any risk of a detrimental effect on public health based on predicted pathways and receptors.
- Pollution/ contamination - evaluating whether there is potential for pollution or contamination which could result in failure to meet Environmental Quality Standards (EQSs - amount or concentration of a substance that should not be exceeded in an environmental system).
- Ecological impact - assessing the significance of potential impact on important habitats or species.
- Interference - considering whether there are likely to be impacts on other activities, such as users of the firth, harbour or roads.
- Amenity/ aesthetic - assessing whether there is likely to be a visual impact resulting from the disposal or any impact on local amenity.

Cost Considerations

Cost is considered in terms of:

- capital cost (site costs, transport hire costs, equipment hire/ purchase costs); and
- maintenance/ operating cost (disposal costs including site operation and transport and ongoing costs including monitoring).

2.4 Comparison of Options

The performance of each option was assessed on a scale from High to Low according to the definitions presented in Table 2.1. Intermediate grades (Medium to High, Low to Medium) are also used where the assessment is marginal between High, Medium or Low. The full results of the appraisal are included in Sections 3 and 4 below and are summarised in Section 5.

Table 2.1 Definitions of Performance

Consideration	High	Medium	Low
Strategic Considerations			
Operational Feasibility	Practical, easy to operate and achievable as process is robust and established. Low number of stages and each stage easy to control	Some practical difficulties. Moderate number of stages with some difficulties	Major practical difficulties. Large number of steps with some major difficulties
Availability of Sites/ Facilities	Suitable site/ facility available within 1 km of the landing site by road and 10 km by sea	Suitable site/ facility available within 10 km of the landing site by road and 20 km by sea	No suitable sites/ facilities within the vicinity (over 10 km by road and 20 km by sea)
Security of Option	Option in complete operational control of Cesscon Decom Ltd	Option is mainly in control of Cesscon Decom Ltd with some outside involvement for which there are alternative sources of supply	Option has elements which are out of Cesscon Decom Ltd control for which there are no practical alternative sources of supply
Established Practice	Technology and techniques are clearly established with no foreseeable significant problems	Technology and techniques have been tested but not applied to dredge material	Technologies and techniques are untested and unforeseen problems are likely
General Public Acceptability	Option likely to be generally acceptable to the public based on professional experience of reaction to similar developments	Option unlikely to provoke a strong negative reaction based on reaction to similar developments	Option is likely to provoke a strong negative reaction based on reaction to similar operations
Likely Agency Acceptability	Relevant public agencies are likely to have no concerns based on consultation	Relevant public agencies may have some concerns which can be overcome through consultation	Relevant public agencies have major concerns which are unlikely to be overcome through consultation
Legislative Implications	Option would easily comply with legislation. Level of necessary management and physical control is low	Option will require some control/ intervention to achieve compliance	Option requires a high level of management control and intervention to achieve compliance
Environmental, Health and Safety Considerations			
Pollution/ Contamination	Option will be compliant with emission standards and water quality objectives.	Environmental quality objectives may be approached or breached	Environmental quality objectives may be breached regularly and there is a

Consideration	High	Medium	Low
	Low risk of harm from substances released to environment	occasionally. Some risk of harm to environment	moderate or high risk of harm to environment
Ecological Impact	Priority species under the UK Biodiversity Action Plan and habitats will not be affected	Priority species and habitats may be slightly affected	Priority species and habitats are likely to be significantly affected
Amenity/ Aesthetic	There will be no significant impact on local amenity or aesthetic qualities	There is potential for impacts of moderate significance on local amenity or aesthetic qualities	There is potential for impacts of high significance on local amenity or aesthetic qualities
Interference with other legitimate activities	There is very low potential for interference with other activities	There is moderate potential for interference with other activities	There is high potential for interference with other activities
Public Health	Option will not cause workers or general public to be exposed to any substances potentially hazardous to health	Option may cause some low level intermittent exposure to substances potentially hazardous to health	Option carries the risk of exposing workers and general public to substances potentially hazardous to health
Safety	Option has no significant risk to workers and the general public	Option has a low risk to workers and the general public which is easily controlled	Option has moderate to high risk to workers and general public
Cost Consideration			
Capital	Capital costs are £0 - 1m	Capital costs are between £1 -2m	Capital costs are > £2m

3.0 DESCRIPTION OF DISPOSAL OPTION AND INITIAL ASSESSMENT

3.1 Introduction

This section describes the seven identified disposal options, reviewing the steps required for each option. There are a number of steps which are common to some of the land-based options and these are described in Section 3.2 to avoid repetition. The identified disposal options are described and issues/ requirements associated with each option are discussed. The section concludes by identifying those options which are short-listed for further consideration.

3.2 Common Steps to Land-Based Disposal Options

There are a number of steps which are common to many of the land-based disposal options. These are set out below.

- Beach nourishment (if material transported by road).
- Coastal reclamation and construction fill (if material transported by road).
- Spreading on agricultural land.
- Sacrificial landfill.
- Incineration.
- Aggregate production.

The steps involved are:

- landing the dredge material;
- storage of dredge material;
- dewatering the dredge material; and
- loading onto vehicles and transport.

These steps are described below along with some discussion of the practicalities of undertaking these steps at Energy Park Fife.

Landing the Dredged Material

All of the land based disposal options require transfer to an on-shore facility. Methods available include pumped discharge, conveyor or grab. In this case it is assumed that the material would be landed using a grab or excavator to a suitable location on the Energy Park or potentially at the Methil Dock Area

Dewatering the Dredged Material

The land disposal options will require dewatering of the dredged material; either to make transport more feasible, or to create a material which is suitable for disposal to land or incineration i.e. disposal of solid sludge rather than a liquid. It is anticipated at Energy Park that the superficial layer would contain a higher water content than the lower weathered bedrock component. There are two approaches which are typically used for dewatering marine sediments; construction of settling lagoons and/or use of a mobile centrifuge or hydrocyclone units, as described below.

Settling Lagoons
Settling lagoons are likely to be large, ring-dammed structures into which the dredgings would be pumped. The material would be piled up in the lagoon and the water drained out under gravity. The lagoons would have a drainage system to collect the water and watery sludge from the dredged material for further treatment (usually by hydrocyclone) or to be transported offsite for disposal. The lagoons must be of sufficient size to contain the dredged material prior to transport. They must also be accessible by road and must

have facilities to load the dredged material into tankers or sealed heavy goods vehicles (HGVs) for movement to the disposal/ treatment centre. To minimise the distance the wet dredge material has to be transported from the dredger, they should be located as near to the landing site as possible.

Centrifuge or Hydrocyclone System
The use of a centrifuge or hydrocyclone system to dewater the material to a level suitable for disposal to landfill (approximately 10% water content) may be required, depending on the final water content of the recovered material. Mobile units can treat up to 450 m^3hr-1 (1) depending on unit size and material solids content. This is typically the only option for firmer sediments made up of fines, fine sands and muds.

Dewatering of Dredged Material
There is not space for settling lagoons within the control of Cesscon at Energy Park near the quayside or at Methil Docks therefore this method of dewatering is not considered further. Cesscon's own site is subject to a Decom Waste Management License (WML) issued by SEPA which does not allow, by legislation, the materials to be deposited/ stored/ treated as they are not included in the wastes permitted at the site. A centrifuge system would be a more suitable method for dewatering. If material can be dried at a rate of 450 m^3hr-1, to dewater a total volume of 85,000 m^3 would require a minimum process duration of 190 hours. This would increase to 19 days if works were restricted to a ten hour working day.

Storage of Dredge Materials

Once the dredge material has been landed, it may require storage prior to onward transport for final disposal. A storage facility would therefore have to be constructed at the site which was capable of retaining the dredged material and associated run-off and dust.

Accepting that the dredged material can be dried to a water content of 10% (by volume), the volume requiring storage would be up to 76,500 m^3 (assuming a mean solids content of 80% for the total volume of dredged material plus an additional 10% water content i.e., 90% of total dredge). Storage of 76,500 m^3 of material would require an area of land approximately 175 metres x 175 metres (30,000 m^2) if stored on average 2.5m high including shallow side slopes, required due to the soft nature of the material.

Loading and Transport for Disposal

A loading facility would be required adjacent to the storage or dewatering area to load the material into covered HGVs for transport to disposal/ treatment sites. The required infrastructure would include hard standing to allow HGVs to be loaded by mechanical excavators. This would require upgrade/ maintenance of the informal access roads across the south eastern part of the Energy Park which are not suitable as a heavy haul route in their current condition.

The significance of the number of vehicle movements will be dependent upon the distance to the disposal/ treatment site and the existing volume of HGVs on the haulage routes. Assuming 20T covered/ sealed wagons are used, this means approximately 10m^3 of material could be transported by each wagon, this would equate to some 7,650 trips or 15,300 vehicle movements (there and back) which is considered of high significance.

Accepting drying as noted above, 76,500m^3 of dried materials would require transport for disposal, either to an incinerator, to agricultural land, to landfill or to a reclamation project.

The length of journey required would depend on the location of the disposal site but it is noted that all trips out of the Energy Park require to pass through a component of existing residential development which are sensitive to vehicle movements. Previous discussions with Fife Council planners have noted the sensitivity of the adjacent residential properties to noise and there are strict requirements for noise reduction and mitigation on operations at the WML site itself including a 350m long, 3.0m high acoustic barrier.

One HGV with operator will transport 20 tonnes of material at approximately £50/hr. Considering the locations of possible disposal sites (e.g. Baldovie incinerator Dundee, Lochhead and Lower Melville Wood landfill sites) a likely scenario is that one vehicle movement would take one hour. Working on this basis and on an average 50 HGV trips per day over a 10-hour working day, it would take 153 working days to transport the material to a location at one hours travelling time from the storage site.

3.3 Beach Nourishment

Process Description

Beach nourishment involves either the deposit of the dredged material on a beach directly from the dredging vessel or, if dewatering is required, the spoil would be brought ashore and dewatered prior to transport or placement on the beach using earth moving plant.

Suitable Sites for Beach Nourishment

Beach nourishment requires the use of materials of a similar composition and colour to those existing on the receiving beach. This usually involves clean, coarse sands or gravels which are free from high levels of contamination.

The volume requiring disposal is large relative to usual scheme requirements. The high percentage of silts in the materials identify that the material would not be suitable for deposition at a beach. No sites requiring beach nourishment have been identified in the Firth of Forth through consultation with Fife Council (Appendix A).

3.4 Coastal Reclamation and Construction Fill

Process Description

This section considers the use of the dredge spoil in coastal reclamation projects or as fill material inland. Depending on the potential site, reclamation could involve landing, storage, dewatering, transport and possibly desalination. Coastal use directly from the dredging vessel would be preferable. This would involve pumping or spraying the material directly from the dredger or barge to the site where it was needed.

Suitable Sites for Reclamation/ Fill

Fife Council have confirmed that no sites for coastal reclamation have been identified as requiring any of the dredged material at a time that fits with the dredging programme. No sites requiring material for reclamation have been identified by Fife Council. In discussion with Scottish Enterprise, there may be a requirement to upfill a site at the former Longannet Power station near Kincardine, however the need is not yet

confirmed and, even if it were to go ahead, the timing would not be suitable for the programmed late February/ March 2021 disposal.

3.5 Spreading for Agriculture

It is possible to obtain an exemption from waste management licensing for treatment of land, usually by land spreading, with certain non-agricultural wastes such as paper waste, food waste or sewage sludge.

The disposal of marine spoil to agricultural land would involve landing, dewatering, possibly storage, desalination and transport to suitable sites.

Dewatering the materials in lagoons or in a centrifugal drier would remove some of the salt, however it is likely that desalination would still be required. Desalination could be achieved by placing the spoil in lagoons, layering it with a large quantity of sharp sand, spraying water over the material and allowing leaching of the salt back into the Firth of Forth through a suitable treatment facility.

The material would then be de-watered for a second time and loaded into HGVs and transported to suitable agricultural land. Finding a suitable site would be difficult as the organic content of the material is assumed to be low for much of the material, weathered bedrock is likely to be unsuitable and it is anticipated that few farms would want it. The large volumes, low organic/ high weathered rock content and lack of suitable sites coupled with the complexities of desalinating the dredged material make spreading on agricultural land an unsuitable disposal option in this case and is not considered further.

3.6 Sacrificial Landfill/ Landfill Capping

Process Description

This option would involve landing the material, storing, dewatering, loading and transport to a suitable landfill site via HGVs. Whilst there are a number of difficulties and large costs associated with these steps, as discussed in Sections 3.2.1 to 3.2.4, this option is possible nonetheless.

Landfill Sites

There are three operational landfills within one hour of Energy Park Fife which may be able to accept some of the waste. Deposition at a landfill as waste is likely to attract the higher rate landfill tax (currently £94.15/T) for the superficial materials due to the high silt content and its ability to emit carbon dioxide and methane. Weathered rock components would probably be Standard Rate (£3.00/T) although they would require to be kept separate from the silts, which would place additional constraints on the dredging operation.

As part of this assessment, I+H Brown, who are a major Fife based earthworks contractor and site/ landowners were contacted regarding potential reuse for landfill capping/ restoration, which doesn't attract landfill tax. They commented that reuse of this material would generally be problematic:

- *As it will be wet, would need to be spread thin, say 500mm max. So needs an area of 176,000m^2 as an example.*
- *Much like with peat, SEPA will not allow it to be placed in any great thickness if it's too wet/ soft and consider it a waste disposal.*

- *Water within the dredgings will be saline, not likely that anything will grow in it. So again not suitable for landfill restoration. Risk of saline water run off killing vegetation it runs off site, also a risk to fresh water environment – so even if it were placed as a layer below a topsoil it would still be an environmental risk.*
- *On a slope, likely risk of slippage both when its wet and then dries up and cracks/ shrinks.*

Whilst they noted there was a potential project they were aware of that could take the material next year, the above plus road haulage (and timing) issues would need to be overcome.

3.7 Incineration

Process Description

Incineration would involve landing the dredged material, dewatering, possibly storing it and transporting it to either an existing incinerator or a newly constructed incinerator. The resultant residue and ash would then require disposal. Options for disposal of ash include landfill, reclamation and spreading on agricultural land.

Given that the majority of the arisings are either weathered bedrock or sands and gravels, it is predicted that the dredged material will have a maximum organic content of 10% by weight based on its origin. There is therefore only a small combustible component within the material and it is anticipated that incineration would result in a reduction in volume of dry matter of only 20%, i.e. 10% organics plus 10% water content. Combustion would not be suitable or reduce the weathered bedrock, sands or gravels.

Available Incineration Sites

The only incinerator in Scotland that accepts the volume required is in Dundee, 35 miles north. This facility accepts 150,000 tonnes of waste per year. Transport to this facility would be costly given the volume of material requiring disposal and is unlikely to be practicable.

Use of Dredged Materials from Energy Park

Incineration would reduce the dried solids (76,500m^3 at 10% water content) to around 61,000m^3 of weathered rock and ash which would then require disposal. Due to the energy required to evaporate the water and the assumed low organic content of the material (hence the low decrease in volume), incineration as a disposal method is not practicable and is not considered further.

3.8 Disposal at Sea

Process Description

Disposal at sea involves the dredge material being transported to a licensed marine disposal site in a self-propelled grab dredge vessel. The capacity of the vessel is to be confirmed but would typically be approximately 500m^3 and the vessel used would have a bottom door dumping system which allows the dredge material to be quickly discharged over the dump site. This approach takes place at sea and does not require the landing of any materials. Given the volume of material to be dredged (85,000m^3), 170 trips would be required to the disposal site.

There are several actively used marine deposition sites in the Forth Estuary, the nearest being:

- Methil Spoil Ground: 56°09.80'N 002°58.80'W Easting 339235 Northing 69717
- Kirkaldy Spoil Ground: 56°05.80'N 003°07.40'W Easting 329953 Northing 69088
- Narrow Deep B Soil Ground: 56°01.30'N 003°05.95'W Easting 330932 Northing 681899

The site locations are illustrated in Drawing 50711_003. In this instance, it is proposed to use the Methil Spoil Ground located 1.1 nautical miles to the southeast of Energy Park Quay 2. This is because the site has previously been used for disposal of dredge spoil from Energy Park and it is the site closest to the dredge location thus minimising the distance for transport. Depth at the spoil ground is approximately 15 m below Chart Datum.

3.9 Aggregate Production

The upper layer of material to be dredged is naturally occurring silt, sand and gravels. The lower layer contains extremely weak, weathered sandstones with mudstones. Based on the most recent volume calculations provided and assuming that the material at the dredge level is rock across the dredge area, this may result in gross dredge volumes in the region of 55,656m^3 of sands, silts and gravels and 29,344m^3 of weathered rock.

The level of contamination contained in the spoil is confirmed to be acceptable for many reuse options, subject to risk assessment. The particle size of proportions of the material is suitable for reuse for a number of reuse applications although silts and mudstones are not suitable for use in engineering specifications. A proportion of the material may be of interest to companies dealing in aggregate, or any commercial business with the facilities to sort and grade the material. The resulting product could be of use to the construction/ roads industry or building trades.

3.10 Conclusion

The above initial review allows options which are evidently impracticable to be ruled out. This is summarised in Table 3.4.

Table 3.4. Short-listing of Options

Option	Assessment of disposal of material from Quay 2 Energy Park Fife	Result
Beach Nourishment	This option is not practicable for the majority of materials due to high silt content. No suitable sites have been identified.	Discard
Coastal Reclamation and Construction Fill	This option is practicable. However, no suitable sites have been identified.	Short-List
Spreading on Agricultural Land	The material is not desirable for disposal of on agricultural land being of unsuitable size with a proportion being of low organic content and weathered rock unlikely to be suitable. Furthermore desalination, storage, dewatering and transport of this volume of material means that this option is not practicable.	Discard
Sacrificial Landfill/ Landfill capping	This option is practicable and there are a few possible local sites. There are many steps involved in storage, dewatering and transport. Landfill site operators may be unwilling to accept the material due to the sediment composition and large volume. Costs are high for disposal as waste and security of timing is a key issue for the reuse as capping.	Short- List
Incineration	The material is not suited for incineration due to the assumed low organic content. If incinerated, volume would only slightly reduce, and the energy taken to evaporate the water content is large. This option is not practicable.	Discard
Disposal at Sea	This option is practicable.	Short-list
Aggregate Production	The lowered weathered bedrock has some reuse potential as an aggregate as long as the silts in the upper superficial layers and the mudstones could be screened out. There are many steps involved in processing the material however this method is possible although not likely to be commercially viable relative to other sources of aggregate production.	Short-list

4.0 ASSESSMENT OF DISPOSAL OPTIONS

4.1 Introduction

The following section provides an analysis of the shortlisted options based on Strategic, H+S, Environmental and Cost considerations.

4.2 Coastal Reclamation and Use as Construction Fill

Strategic Considerations

No sites have been identified that could take the volume of materials required to a certainty of time scale.

Health, Safety and Environmental Considerations

Transport of material by road of this volume of material would require a large number of vehicle movements creating noise, dust, pollution and potentially health and safety issues.

Public perception of running this amount of material via road would not be favourable.

Residential properties in the Methil area have known sensitivities to these issues and it is considered unlikely that the Planning/ EHO Departments at Fife Council would allow this as an option unless all other alternatives were completely non-viable.

Cost Considerations

Costs for this option include to dewater the materials and load, haul, unload and deposit materials at budget costs of:

Off load and dewater = £7.5/m^3
load and transport/ haul =£15.0/m^3
Offload and place = £4.0/m^3

Total for =76,500 m^3 = £2,027,250

4.3 Sacrificial Landfill/ Landfill Capping and Restoration

Strategic Considerations

Landfill sites exist that could accept a proportion/ all of the materials as waste. Although there are a number of sites that could use materials importation, no sites have been identified that could take the volume of materials as capping or restoration material required to a certainty of time scale. Significant issues exist relative to processing the materials to allow their use as capping including offloading, storage, drying and desalination.

Agency acceptability in question for this option – use of public roads for large volumes of materials and deposition at landfill as waste.

Health, Safety and Environmental Considerations

Drying and subsequent degradation of the silt-based components of the dredge materials would release significant amounts of greenhouse gases, carbon dioxide and methane, to the atmosphere.

Deposition of the large dredge volumes of materials at landfill sites as waste would reduce subsequent capacity in the sites for materials that have no other viable disposal option and is not considered to be in line with Best Practice or SEPA guidance when other viable options exist.

Use of the materials as capping/ restoration would serve a useful environmental purpose.

Transport of material by road of this volume of material would require a large number of vehicle movements creating noise, dust, pollution and potentially health and safety issues.

Public perception of running this amount of material via road would not be favourable. Residential properties in the Methil area have known sensitivities to these issues and it is considered unlikely that the Planning/ EHO Departments at Fife Council would allow this as an option unless all other alternatives were completely non-viable.

Cost Considerations

Capping/ restoration
Costs for this option include to dewater the materials and load, haul, unload and deposit materials for capping or restoration material at budget costs of:

Off load and dewater = £7.5/ m^3
load and transport/ haul =£15.0/ m^3
Offload and place = £2.0/ m^3

Total for =76,500 m^3 = £1,874,250

Deposition as Waste
Costs for this option include to dewater the materials and load, haul, unload and deposit materials plus landfill tax and tipping fees at budget costs of:

Off load and dewater/ separate silts = £10.0/ m^3
load and transport/ haul =£15.0/m^3
Offload = £0.5/ m^3
Total for 76,500 m^3 = £1,950,750

Landfill Tax plus tipping fees for 33% of materials with high % silt content @ assumed unit weight 1.7t/m^3 = 76,500 x 0.33 x 1.7 x (£94.15/t higher rate tax + £1.5/t Tipping fees) = £4,105,173

Landfill Tax plus tipping fees for 67% of materials with low % silt content @ assumed unit weight 1.7T/m^3 = 76,500 x 0.67 x 1.7 x (£3.0/t standard rate tax = £1.5/t Tipping fees)) = £392,084

Total for all activities = £6,448,007

4.4 Sea Disposal

Strategic Considerations

This option would provide certainty of deposition at the required timescale which is key to this current operation which is critically time sensitive.

Option would provide straight forward logistics given:

- Material already on barge
- No storage/ dewatering/ processing required
- Short haul distance to proposed deposition area

Local authority and SEPA acceptability of this option subject to securing appropriate approvals via Marine Scotland.

Health, Safety and Environmental Considerations

Option minimises haul distances and load/ unload operations which reduces greenhouse gas emissions.

Noise, traffic pollution and H+S issues for the public minimised via marine disposal although planning required to avoid impact to marine vessels in the area including those using Methil Docks and fishing vessels.

Contamination testing identifies no Action Level 2 materials present so impact on marine environment at deposition sites minimised

Cost Considerations

Lowest cost option given: dredge materials already loaded on barges, shortest haul distance, cheaper haulage charges due to barge capacity, no landfill tax payable.

Allow £2.0/m^3 for both superficial and weather rock material, therefore:

Total for =76,500 m^3 = £153,000

4.5 Aggregate Production

Strategic Considerations

The lowered weathered bedrock has some reuse potential as an aggregate as long as the silts in the upper superficial layers and the mudstones could be screened out. There are many steps involved in processing the material including drying, road haulage, separation, disposal of silts and mudstones, storage and subsequent transport to site of use.

The reuse of such materials is largely market driven and the ability to undertake the operations, find the storage/ market for such a volume of materials to a timescale to suit the works is considered highly unlikely and would not provide the security of timescale this project requires.

A land-based disposal site would be required to deal with the remaining silts and mudstones, which inevitably would include some component of sands/ weathered rock as complete screening at reasonable price is difficult to achieve.

Based on a silt content of 31.8% of the upper superficial layers, it is estimated that approximately 25,000m^3 (post dewatering) of silts and mudstone mixed with smaller quantities of sands/ weathered rock would require disposal elsewhere to land with attendant issues as discussed above.

Health, Safety and Environmental Considerations

Similar issues exist for this option regarding road haulage as discussed above in Sections 4.2 and 4.3. Split disposal sites for the aggregates and silt/ mudstone materials is anticipated, increasing these issues.

Cost Considerations

Costs include offloading, dewatering, hauling, separating and disposal of silts (either as waste or capping) with a positive return anticipated from the sale of aggregates. This method is not commercially viable relative to other sources of aggregate production. Costs below assume that separation and disposal of silts as waste is undertaken at the same site as the separation to minimise costs.

Off load and dewater = £7.5/ m^3
Load and transport/ haul =£15.0/m^3
Separate silts/ mudstones = £3.0/ m^3

Total for 76,500 m^3 = £1,950,750

Disposal to landfill capping for 25,245 m^3 @£4.0/ m^3 to load/ haul/ spread = £100,980

or

Disposal to landfill as waste at higher rate tax for 25,245 m^3 = @ assumed unit weight 1.7t/m^3 = 25,245 m^3 x 1.7 x (£94.15/t higher rate tax + £1.5/t Tipping fees) = £4,104,963

Resource value of 51,255 m^3 of aggregate @ £20/ m^3 = £1,025,100

Total cost of activities = £1,026,630 to £5,030,613

5.0 SUMMARY OF BPEO

5.1 Introduction

This section summarises the full assessment of options against the criteria described in Table 2.1 and identifies the BPEO. Seven options were initially considered for the disposal of the dredged materials. A graphic summary of the results of the BPEO assessment is provided in Table 5.1.

A summary of the key considerations with regard to each of the four short-listed options is provided below.

5.2 Coastal Reclamation and Use as Construction Fill

No suitable sites have been identified that could accept the volumes of materials generated offering security of project delivery. Operationally, the reuse of the material for reclamation/ construction would be difficult as it would involve landing, drying and transporting the material. The option is likely to be acceptable to the public and agencies given the high volume of road traffic it would generate and known sensitivities from residents in Methil, which offers the nearest landing sites at Energy Park or Methil Docks. Other than concerns around transport, there are unlikely to be any serious public health or safety risks and there is little potential for pollution or adverse ecological impacts. Compared with other options, costs are relatively high, due to the costs associated with landing drying and transport. If transported by vessel and pumped ashore costs are more favourable.

Costs are high relative to the overall cost of the project and would add the order of £2m to a dredge project in the overall range of £1m to £1.5m.

5.3 Sacrificial Landfill/ Landfill Capping and Restoration

There are a number of landfills undergoing restoration within one hour of the site which could potentially use a proportion of the material, however none have been identified that could accept the volume of material within the security of timescale required.

Operationally, disposal to landfill would require a number of steps. The dredged materials would require landing and drying in specially constructed facilities and would then require road haulage with the attendant issues noted above (noise/ traffic volume/ agency objection).

Costs for disposal at landfill as waste would be prohibitively high (£5.5m) and costs for disposal as landfill capping/ restoration high (£1.9m).

5.4 Sea Disposal

The Methil Spoil Ground appears to offer the most operationally advantageous method for disposal. The site was previously used for deposition of materials dredged from adjacent to Energy Park so it is a known quantity and tested operation. It would provide security of disposal option to the tight timescale required which is critical for this particular project and CessCon and their selected contractor would have control over all stages of disposal.

This option is anticipated to be acceptable to both the public and government agencies. There may be some local and transient effect on water quality during disposal operations and there is the potential for smothering of benthic fauna at the disposal

site. There may be temporary conflict with other legitimate activities around Methil and some minor impact on local amenity. This option will pose little risk to public health or safety and will not result in significant pollution. Capital and operational costs associated with this option are favourable compared with alternatives.

5.5 Aggregate Production

The lowered weathered bedrock has some reuse potential as an aggregate as long as the silts and the mudstones could be screened and disposed of appropriately. There are many steps involved in processing the material. The reuse of such materials is largely market driven and would not provide the security of timescale this project requires.

Environmental issues associated with road haulage also exist.

Although there is a market value for aggregate, the process is not commercially viable with total cost of activities estimated at = £1,026,630 to £5,030,613. The higher end figure assumes that silts were disposed of as waste at a landfill, the lower end assumes use as landfill capping.

5.6 Best Practicable Environmental Option (BPEO)

The assessment undertaken identifies that there are major practical difficulties associated with the land based beneficial reuse disposal options of beach nourishment, coastal reclamation and construction fill, spreading on agricultural land, sacrificial landfill, incineration and aggregate production.

The composition of the sediment, the number of steps involved including landing, storage, and transport, road transport issues and the costs involved mean that these options are less practicable than the best practicable environmental option. Security of option to the required timescale cannot be guaranteed with any of the land based options other than potentially deposition as waste at a landfill site, which would be prohibitively expensive and make the project unviable.

The best practicable environmental option is identified as disposal at a licensed sea disposal site. The preferred site for this is the Methil Spoil Ground.

Table 5.1 Summary of Results of BPEO Study

	Disposal at Sea	Sacrificial Landfill/ Landfilled as Waste	Coastal Reclamation and Construction Fill	Beach Nourishment	Aggregate Production
Operational Feasibility					
Availability					
Security of Option					
Established Practice					
General Public Acceptability					
Agency Acceptability					
Legislation					
Public Health					
Safety					
Pollution/ Contamination					
Ecological Impacts					
Interference					
Amenity/ Aesthetic					
Capital					
Maintenance/ Operating					

Key Performance indicators

Low	Medium	High

FIGURES

50711_001
LOCATION PLAN

IronsideFarrar

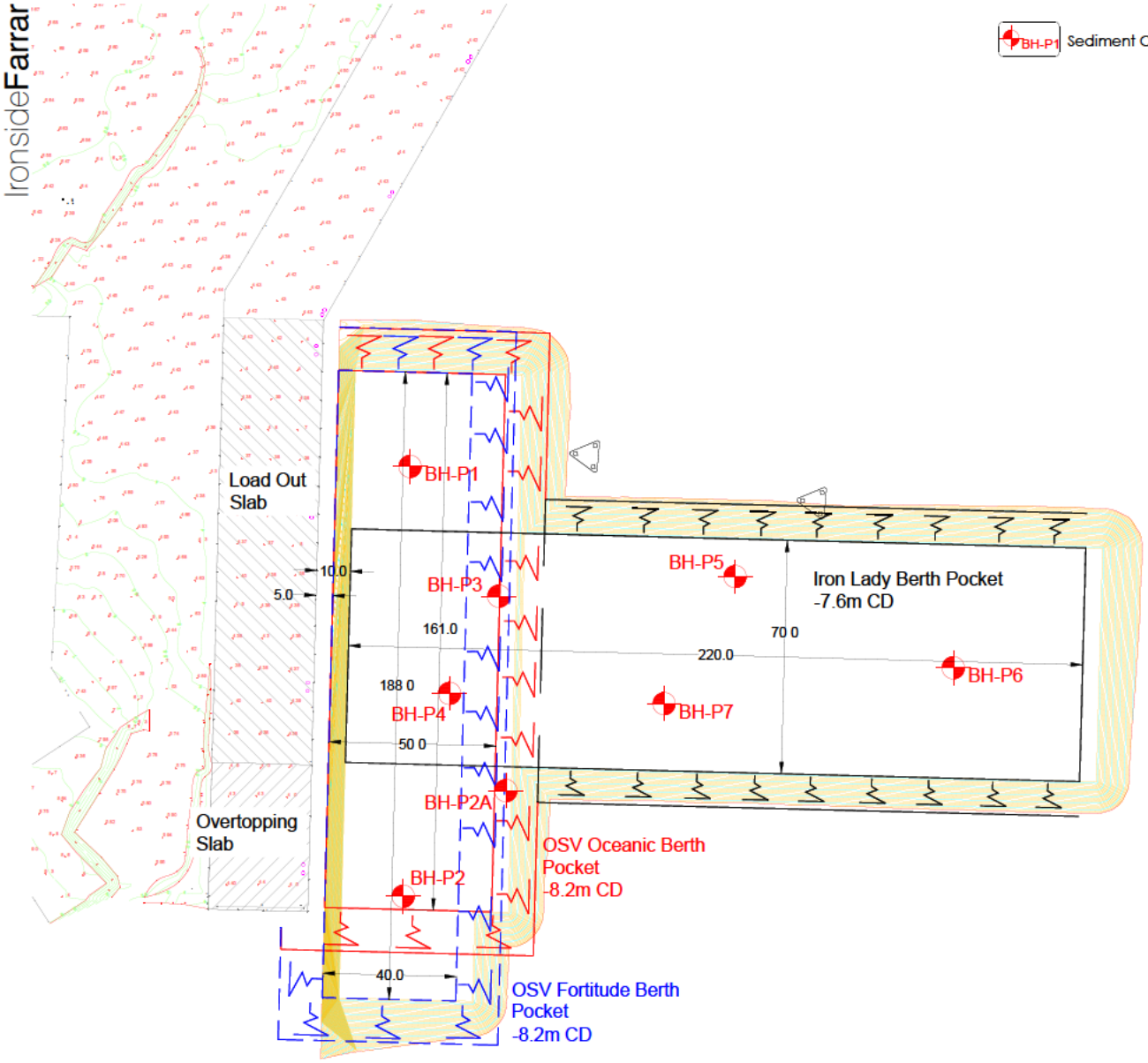
Job No. 50711

N

0 2.0km

50711_002
PROPOSED DREDGE POCKETS

IronsideFarrar



	Eastings	Northings	Nat. Grid Ref.	Latitude	Longitude
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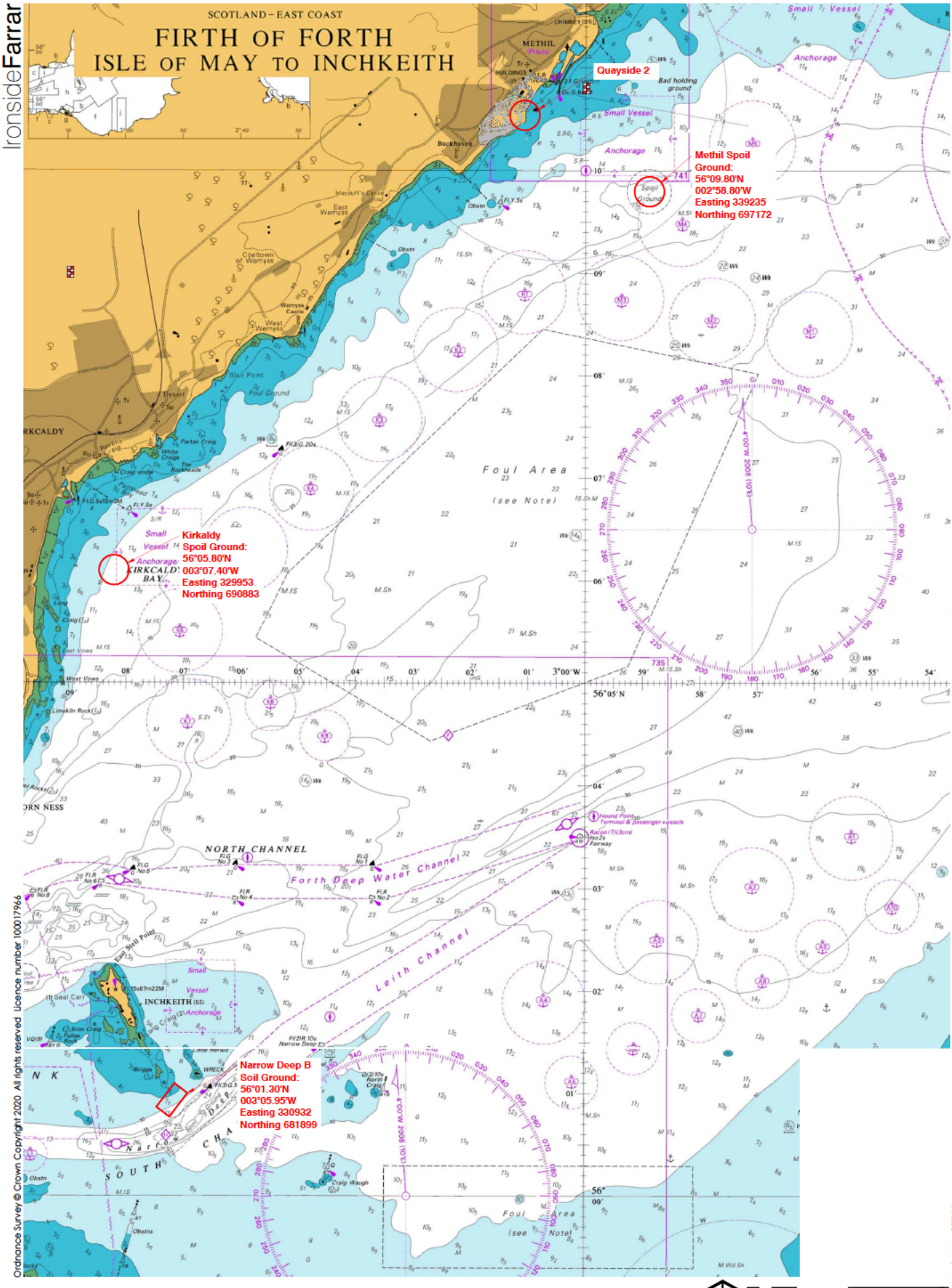
BH-P02	336946.98	698451.26	NT 33695 69845	56°10.47603'	-003°00.94131'
BH-P02A	336977.70	698482.91	NT 33698 69848	56°10.49333'	-003°00.91208'
BH-P03	336975.61	698541.18	NT 33698 69854	56°10.52472'	-003°00.91493'
BH-P04	336960.83	698512.05	NT 33696 69851	56°10.50890'	-003°00.92879'
BH-P05	337046.40	698547.04	NT 33705 69856	56°10.52844'	-003°00.84660'
BH-P06	337111.76	698519.73	NT 33711 69852	56°10.51424'	-003°00.78305'
BH-P07	337025.11	698508.96	NT 33703 69851	56°10.50775'	-003°00.86663'

Job No. 50711

N 0 100m

50711_003
PROPOSED DREDGE DISPOSAL LOCATIONS



APPENDIX A

Consultation Responses

Neil Brown

To: Mark Chapman
Subject: Energy Park Fife, Dredge Material

HI Mark, good to hear from you. Yes all good here thanks, keeping busy which is good in these uncertain times…..we had a couple of thoughts on your query below, predominantly around why reuse of this material on land would generally be problematic

Problems with using for landfill restoration:

- As it will be wet, would need to be spread thin, say 500mm max. So needs an area of 176,000m2 as an example.
- Much like with peat, SEPA will not allow it to be placed in any great thickness if it's too wet/soft and consider it a waste disposal.
- Water within the dredgings will be saline, not likely that anything will grow in it. So again not suitable for landfill restoration. Risk of saline water run off killing vegetation it runs off site, also a risk to fresh water environment – so even if it were placed as a layer below a topsoil it would still be an environmental risk.
- On a slope, likely risk of slippage both when its wet and then dries up and cracks/shrinks.

Also the issue of moving such a volume by road through Methil would probably not be too popular, especially if the material was still wet when loaded to wagons and I'm imagining there would be limited space to allow it to be dried out quayside?

We are aware of a restoration project where this sort of volume of material may be required, over the course of next year. It is located further upstream, but material would need to be relatively dry (e.g. so plant could run on it without sinking!) and we would need to overcome the logistical issues

Happy to discuss further if you think the final point merits

Regards

[redacted]

P Please consider the environment before printing this email

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Neil Brown

From: [redacted]

Subject: RE: Energy Park Fife, Decom Works - Dredging Materials. BPEO

Mark

There are no sites that I am aware of, either SE owned or that we have an interest in, that would be seeking material of these types. From discussion with Forth Ports, they are similarly not aware of any requirements in local ports. I'm sorry, but I am not aware of anything that could provide a demand o receive this material

Regards

Stuart

[redacted]

Sent: 25 November 2020 13:06

[redacted]

Subject: Energy Park Fife, Decom Works - Dredging Materials. BPEO

Stuart

As you are aware, the works at the site involve creating a dredge pocket to allow decom vessels such as the Iron Lady barge to access the quayside. We are currently undertaking a Best Practical Environmental Option BPEO for disposal of dredgings from the Quay 2 area (see attached drawing which shows the location/extent and SI works – that are happening today) . This needs to be completed for Marine Scotland in order to allow them to issue a dredging license and also authorise disposal at sea, should the latter be proved to be BPEO. We anticipate approximately 88,000m3 of dredged arisings split into 51,000m3 sands/silts/gravels and 37,000m3 of extremely weak weathered sandstone and mudstone.

I'd be grateful if you could provide any information that you think relevant and would support the BPEO study that we could include in reporting to MS including:

- Any active sites that Scottish Enterprise own in the vicinity requiring these types of materials
- Any sites that Scottish Enterprise are aware of requiring these types of materials
- Any reuse requirements identified for ports and harbours in the vicinity that you are aware of
- Any other land or sea based disposal options you are aware of that may benefit or be able to accommodate these materials.
- Any other relevant issues you are aware of

Given our current involvement, I have considered potential reuse at Longannet but have discounted on the basis of timing, silt content, water content and certainty of project

Anything you have would be of use. We are under a tight timescale to move this forward as you are aware so your earliest possible response would be appreciated, I've contacted FC separately and will see what their thoughts are. I'd be happy to talk it through with you if it would help.

Many thanks

Regards

[redacted]

[redacted]

[redacted]

Scottish Enterprise
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Atrium Court
50 Waterloo Street
Glasgow
G2 6HQ
Tel: +44(0)300 013 3385

Neil Brown

From: [redacted]
Sent: 16 December 2020 13:58
To: [redacted]
Subject: Energy Park Fife, Decom Works - Dredging Materials

[redacted]
Subject: Re: Energy Park Fife, Decom Works - Dredging Materials

Mark,
In terms of your BPEO Assessment I can't think of any locations in Fife at the moment where this material could be put to beneficial reuse, and we don't have any reclamation / beach nourishment projects or plans on the coast at this time. In regard to the disposal of the dredged spoil at one of the Marine Scotland approved spoil grounds in the Forth we can confirm we don't have any objections to this. If you require any further information, please do not hesitate to contact us.
Regards Nicholas

Consultant Engineer
Flooding, Shoreline, & Harbours
Fife Council
Assets, Transportation and Environment
Bankhead Central
Bankhead Park
Glenrothes
KY7 6GH

[redacted]

Fr[redacted]
Subject: RE: Energy Park Fife, Decom Works - Dredging Materials

Rick

Thanks for your quick initial response. Dredging works require to be completed by Mid-March 2020 with a 3 to 4 week dredge programme – so not too much time. It appears at the moment that sea disposal at the Methil spoil ground offers the most realistic option but we need to review all alternatives for MS.

Noted re timescales and appreciate you trying to expedite. Even some initial bullet points would help. We are trying to produce a draft report by 7th December with submission by around 16th.

Regards

[redacted]

From: [redacted]
Sent: 25 November 2020 13:03
To: [redacted]
Subject: RE: Energy Park Fife, Decom Works - Dredging Materials

[redacted]

Thanks for the email. What sort of timescales are you considering at this time? It would give me an idea of what sort of options exist.

I've copied in Nicholas Williamson who is the Consultant Engineer for Shoreline / Coasts. He's been in the Council longer than I and will be better placed to provide input. He is back from leave next week, so we won't be able to schedule anything before then unfortunately. Whether there is capacity next week remains to be seen; we have an extensive schedule of works on our desks at the moment, but we'll try.

Regards,

[redacted]

From: [redacted]
Sent: 25 November 2020 12:52
To: [redacted]
Cc: [redacted]
Subject: Energy Park Fife, Decom Works - Dredging Materials

Rick

I've been given your name by Ian McCrory as someone who may be able to help. We are working with Cesscon at the Energy Park Fife in Methil to construct a major North Sea infrastructure Decommissioning centre. The project has been progressed with Ian/Anne and others at the council together with Scottish Enterprise and the Scottish

Government over the past few years to secure funding and consents. The project landside yard area is nearing completion at the moment.

The works involve creating a dredge pocket to allow decom vessels such as the Iron Lady barge to access the site. I'm currently undertaking a Best Practical Environmental Option BPEO for disposal of dredgings from the Quay 2 area (see attached drawing which shows the location/extent and SI works – that are happening today) . This needs to be completed for Marine Scotland in order to allow them to issue a dredging license and also authorise disposal at sea, should the latter be proved to be BPEO. We anticipate approximately 88,000m3 of dredged arisings split into 51,000m3 sands/silts/gravels and 37,000m3 of extremely weak weathered sandstone and mudstone.

I'd be grateful if you could provide any information that you think relevant and would support the BPEO study including:

- Potential reuse as beach nourishment/repair
- Any reuse requirements identified for ports and harbours in the vicinity
- Any reuse requirements for coastal reclamation/construction fill
- Any potential land based reuse options in Fife
- Any other relevant issues you are aware of

Anything you have would be of use. We are under a tight timescale to move this forward so your earliest possible response would be appreciated, sorry about this. I'd be happy to talk it through with you if it would help and Ian/Anne have offered support from their side as it's an important project for the Region.

Many thanks

Regards

[redacted]

[redacted]

[redacted]