



**BEST PRACTICABLE ENVIRONMENTAL OPTION (BPEO) ASSESSMENT:
DREDGING APPLICATION FOR CAMPBELTOWN OLD QUAY
(Revision B February 2021)**

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1 INTRODUCTION

1.1 Background to application

This Best Practicable Environmental Option (BPEO) assessment supports an application for dredging under the Marine (Scotland) Act 2010, Part 4, Marine licensing.

Campbeltown Old Quay is currently used for berthing fishing vessels alongside the quay.

In 2012 the harbour entrance and the alongside New Quay were dredged to 9.0m below Chart Datum (CD). Since that time the dredged level has not been strictly maintained, however the charts show that the seabed levels have not significantly changed.

There are no historic chemical analysis records for the proposed area to be dredged. This area has not been dredged within the past 7 years, therefore it is a capital dredge.

Sampling and testing shows that material mainly consists of silt, sand, clay and some gravel around the berthing area. The sedimentation average is 20 mm/year for this area, considered low due to its location as an inshore quay. It is proposed to carry out dredging to a depth of 5.0m below Chart Datum to allow safe use by the vessels which operate from the quay.

The material to be dredged to -5.0m Chart Datum; up to 5m of material with a volume of around 28,500m³. The type of dredger used and the associated dredging methodology will be dependent on which contractor is successful in securing the contract to carry out the dredging and on availability of equipment.

1.2 Materials to be deposited

There will be approximately 28,500 m³ of material that will be generated through dredging that will require deposit.

1.3 Description (nature and volume) of materials

Sediment characteristics on site are as a whole consist of a mixture of sand, silt, clay and some gravel.

On the whole, the majority of the testing that took place at Campbeltown Harbour were below AL1.

1.3.1 Trace Metals and Organotins

The following results were above AL1 and below AL2:

- Chromium (Cr) – 2 out of 12 samples were found to be higher than AL1, with the highest concentration being 56.5 mg/kg (AL2 upper limit is 370 mg/kg)
- Copper (Cu) – 3 out of 12 samples were found to be higher than AL1, with the highest concentration being 63.8 mg/kg (AL2 upper limit is 300 mg/kg)
- Mercury (Hg) – 2 out of 12 samples were found to be higher than AL1, with the highest

concentration being 0.66 mg/kg (AL2 upper limit is 1.5 mg/kg)

- Lead (Pb) – 2 out of 12 samples were found to be higher than AL1, with the highest concentration being 58.7 mg/kg (AL2 upper limit is 400 mg/kg)
- Zinc (Zn) – 1 out of 12 samples were found to be higher than AL1, with the concentration being 142 mg/kg (AL2 upper limit is 600 mg/kg)
- Tributyltin (TBT) - 2 out 12 samples were found to be higher than AL1, with the highest concentration being 0.186 mg/kg (AL2 upper limit is 0.5 mg/kg)

No results were above AL2.

1.3.2 Poly Aromatic Hydrocarbons

It should be noted that Marine Scotland's guidance notes uses milligrams per kilogram and that Marine Scotland's spreadsheet uses micrograms per kilogram. The analysis below uses micrograms per kilogram in accordance with the spreadsheet.

- Of the 12 samples taken, 9 had no PAH's over the AL1 limit.
- 3 samples for the top 150mm layers were consistently over AL1 in nearly all tests.

1.3.3 Organohalogenes - Polychlorinated Biphenyls

- All samples of the PCBs from Campbeltown Harbour were below AL1.
- A single result for ICES7, in the top 150mm layer of Sample 4 was above AL1.

As the top (0 - 0.15m) data at sample point 4 showed higher PCB contamination than all other samples, Marine Scotland requested additional samples (3) around this point to determine the extent of this contamination. These samples required only PCB testing.

The new test results show:

- All samples of the PCBs from Campbeltown Harbour were below AL1.
- All results for ICES7 were below AL1.

1.4 Discussion about sampling and testing results

Campbeltown Old Quay was constructed during the early eighteenth century and has been the subject of repairs and extensions during its lifetime.

There are no historic chemical analysis records for the proposed area to be dredged. This area has not been dredged within the past 7 years, therefore it is a capital dredge. There is not any historical data of the proposed dredging area to compare with.

The testing results show that sediment characteristics on site as a whole consist of a mixture of sand, silt, clay and some gravel. The licenced marine disposal site MA060 is opened and according to MS Dredge Returns Data: EIR release (<https://www.gov.scot/publications/foi-18-02986/>) has a licenced quantity of 90,000 wet tonnes and it was a disposal quantity of 0

wet tonnes from 2013 to 2017. The materials at this disposal site are clay and silt as per MS Dredge Returns Data: EIR release report and silt and sand as per Technical Report On the Other Users of the Sea 7 Area

(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/197043/SEA7_OtherUsers_Metoc.pdf) which matches with the sediment characteristics of the proposed dredged material. Furthermore, the proposed amount of the dredge material is 50,400 wet tonnes which is smaller than the licenced deposit site quantity.

The pier has been used by many vessels in this time, which is believed to be the cause for some of the testing results being above AL1 – in particular the Poly Aromatic Hydrocarbons, Metals and Organotins.

Sources such as anti-fouling from fishing vessels, as well as the paint on these vessels could have contributed to these increased levels. Removal of anti-fouling or painting vessels in the vicinity of the harbour are not permitted activities.

Sources such as fuel spills and engine oil may also be a contributing factor to the cause for some of the tests to have shown higher than AL1 levels. The fishing vessels owners are required to ensure that their vessels meet the environmental and safety guidelines to prevent this from happening in the future.

Argyll and Bute Council acknowledge these results, and will take the best course of action by following Marine Scotland's guidelines to minimize any potential for environmental impact on any dredge deposit location.

2 OPTIONS

In this section the different available options will be looked into and if necessary will be described in more detail if the option is found to be feasible.

2.1 Do nothing approach

The seabed level is currently such that a purely 'do nothing' option would not allow berthing to the fishing vessels along the full length of Wall A, therefore this wall would not be fully utilized. Berthing along Wall A at low tides would become impractical, hence the requirement to dredge the surrounding area.

In order for the Wall A to remain accessible along its full length to vessels a 'do nothing approach' is **not considered a viable option** and therefore will not be considered any further.

2.2 Beach Replenishment

Re-purposing dredged material at a relevant coastal site would initially appear to be allowable from the results of the Analysis of Sediment Samples carried out by Holequest Limited (see attached documents "19-88772-1.pdf" and "Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx"). Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2.

2.3 Sea Deposit – Plough Dredging only

Plough dredging would initially appear to be allowable from the results of the Analysis of Sediment Samples carried out by Holequest Limited (see attached documents "19-88772-1.pdf" and "Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx"). Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2.

The depth of the seabed gradually increases from around -5m CD at the dredge site in Campbeltown Harbour to approximately -24m CD at the open disposal site MA060, greatly increasing the complexity of the plough dredging operation.

Any plough dredged material would be ploughed to a location at a suitable distance from Campbeltown Old Quay to reduce the risk of the same material returning to the berthing envelope through drift.

Due to the complexity and distance from between the dredge site and disposal location, it is assumed that there will be an increase in fuel usage and greater impact to the local marine environment.

Due to the distance of the closest open disposal site MA060 being approximately 6 Km away, it is understood that plough dredging to a location of this distance from the dredge site would be considered unsuitable.

Due to this, ploughing the material to a suitable deposit distance would **not appear to be achievable** through this method due to the large volume of material to be dredged, therefore this option would be considered unsuitable.

2.4 Sea Deposit below -100m Chart Datum

Deposit at sea would appear to be allowable from the results of the Analysis of Sediment Samples carried out by Holequest Limited (see attached documents “19-88772-1.pdf” and “Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx”). Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2.

The proposed deposit area is below the -100m Chart Datum. This would involve a number of round trips of more than 12 km, this would be expected to increase costs over the sea deposit at licenced site option, and would involve additional fuel use and environmental impact, therefore this option would be considered unsuitable.

2.5 Sea Deposit at Licenced Site

Deposit at sea would appear to be allowable from the results of the Analysis of Sediment Samples carried out by Holequest Limited (see attached documents “19-88772-1.pdf” and “Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx”). Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2.

The site proposed for deposit of material is Campbeltown (MA060) which location is shown on drawing 00040-27-005. This would involve a number of round trips of around 12km, achieved via a combination of trailer suction hopper, grab hopper and back-hoe as appropriate. Plough dredging is only being considered in the localised dredge area within the harbour, supplemented by trailer suction hopper dredging for transportation and deposition at the Licenced Site. This option would likely involve minimal movement of material comparing to other options, resulting in reduced fuel use, would have a minimised environmental impact and be of a lower cost when compared to other considered methods. This option will be taken forward for consideration under Section 3.

2.6 Landfill Deposit – at Licenced Site

Deposit to landfill would appear to be allowable from the results of the Analysis of Sediment Samples carried out by Holequest Limited (see attached documents “19-88772-1.pdf” and “Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx”). Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2.

2.7 Other beneficial uses

Currently no viable recipient for the material has been identified. Neither using a partial amount nor the total volume of the dredged material have been considered due any recipient option for the material would involve additional fuel use and a higher environmental pollution impact.

Due to the large volume of material and any associated transportation cost to anywhere other than the proposed licenced site, it is assumed the material will have a limited capacity for reuse and therefore other beneficial uses are **not considered further**.

3 OPTION UNDER CONSIDERATION

3.1 Beach Replenishment

3.1.1 Strategic Consideration

3.1.1.1 Operational aspects, including handling, transport, etc.

Disposal to beach replenishment would require around 28,500m³/ 50,400 tonnes of dredged material to be transported from the dredged site to an appropriate area. No area has been identified for beach replenishment neither using a partial amount nor the total volume of the dredged material.

Since the location of Campbeltown Harbour is very remote, using locations further afield has not been considered viable, since this would involve a number of round trips of more than 12 km, this would be expected to involve additional fuel use and environmental pollution impact over the sea deposit at licenced site option.

3.1.1.2 Availability of suitable sites/facilities

Due to the weight of material to be disposed of being 50,400 tonnes, this option has been discounted at this stage neither using a partial amount nor the total volume of the dredged material. It does not appear to be financially viable to transport the dredged material for beach replenishment, since the location of Campbeltown Harbour is very remote and it would be very expensive to transport the dredged material to a suitable location. This would drastically increase fuel use and environmental pollution, therefore this option would be considered unsuitable.

3.1.1.3 Legislative implications, both national and international

Marine Licence sought.

3.1.1.4 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

The proposed dredging is primarily to avoid any disruption to third parties going forwards; therefore no discussions at this stage as dredging is expected to avoid any impact on third parties.

3.1.2 Environmental Considerations

3.1.2.1 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.1.2.2 Public health implications

If beach replenishment was used then it would involve a number of round trips of substantially more than the 12 km from harbour to MA060 and back for deposit at licensed site. This would involve additional fuel use and environmental pollution impact. These reasons are applicable for the use of a partial amount or the total volume of the dredged material.

3.1.2.3 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Chemical Analysis of seabed has been carried out and results can be seen on attached documents “19-88772-1.pdf” and “Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx”.

Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2. Any results above limits have been further discussed in Section 1.3 above.

Beach replenishment comprises the placement of large quantities of good quality sand in the nearshore system. In this case, due to the nature of beach replenishment, these contaminated materials may contaminate the marine environment which is deemed not suitable. Also, this may affect plant and animal life in the area, furthermore this would require constant maintenance or armour the shoreline to prevent erosion. Also, discharging the dredged material may require operations only on particular states of the tide which will increase pollution by required additional trips. These reasons are applicable for the use of a partial amount or the total volume of the dredged material– which is deemed not suitable.

3.1.2.4 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

Beach replenishment would be managed in such a way as to minimise disruption with the fishing vessels using the Old Quay and overall Campbeltown Harbour.

3.1.2.5 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.1.2.6 Best practice guidance and mitigation measures

Chemical Analysis has been carried out in accordance with Marine Scotland guidelines. For dredging activities, companies will be vetted for suitability and competence as part of Argyll & Bute Council’s tender process.

3.2 Sea Deposit – Plough Dredging

3.2.1 Strategic Consideration

3.2.1.1 Operational aspects, including handling, transport, etc.

Dredging and deposit can be carried out with no effect on the public. Suitable vessel(s) & equipment will be obtained through a tender process.

Plough dredging will not be permitted for the works at Campbeltown Harbour.

3.2.1.2 Availability of suitable sites/facilities

Open dredge deposit site MA060 is located approximately 6 km from the proposed dredge location.

3.2.1.3 Legislative implications, both national and international

Marine Licence sought.

3.2.1.4 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

Dredging is proposed primarily to avoid any disruption to third parties although no discussions as yet as dredging will negate any issues.

3.2.2 Environmental considerations

3.2.2.1 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.2.2.2 Public health implications

No Public Health implications identified.

3.2.2.3 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Chemical Analysis of seabed has been carried out and results can be seen on attached documents "19-88772-1.pdf" and "Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx".

Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2. Any results above limits have been further discussed in Section 1.3 above.

It is believed that the reason that some of these results are above AL1 is due to the previous use of Campbeltown Harbour over the decades. Historically Campbeltown harbour has been used by fishing vessels – which can explain the increased levels of PAH's and metals found in the samples.

Due to the nature of plough dredging, these contaminated materials would contaminate the marine environment between the dredge site at Campbeltown harbour and the Deposit site MA060 – which is deemed not suitable.

3.2.2.4 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

Sea deposit by Plough Dredging will be managed in such a way as to minimise disruption with the fishing vessels using the Old Quay and overall Campbeltown Harbour.

3.2.2.5 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.2.2.6 Best practice guidance and mitigation measures

Chemical Analysis has been carried out in accordance with Marine Scotland guidelines. For dredging activities, companies will be vetted for suitability and competence as part of Argyll and Bute Council's tender process.

3.3 Sea Deposit at Licenced Site- Campbeltown (MA060)

3.3.1 Strategic Consideration

3.3.1.1 Operational aspects, including handling, transport, etc.

Dredging and deposit can be carried out with no effect on the public. Suitable vessel(s) and equipment will be obtained through a tender process.

3.3.1.2 Availability of suitable sites/facilities

Suitable Licenced Deposit Site is available at Campbeltown – multiple journeys required of a round trip in the region of approximately 12km.

3.3.1.3 Legislative implications, both national and international

Marine Licence sought.

3.3.1.4 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

The proposed dredging is primarily to avoid any disruption to third parties going forwards; therefore no discussions at this stage as dredging is expected to avoid any impact on third parties.

3.3.2 Environmental Considerations

3.3.2.1 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.3.2.2 Public health implications

It is expected that there will be minimal public health implications as a result of the dredging works proposed at Campbeltown Old Quay.

If sea deposit at Licensed Site was used then it would be an approximately 12 km round trip to Campbeltown (MA060) licenced site. This would be require multiple journeys that could potentially be a danger to other users within the loch and sea. This option would likely involve minimal movement of material, resulting in reduced fuel use, would have a minimised environmental impact and be of a lower cost when compared to other considered methods.

3.3.2.3 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Chemical Analysis of seabed has been carried out and results can be seen on attached documents “19-88772-1.pdf” and “Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx”.

Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2. Any results above limits have been further discussed in Section 1.3 above.

3.3.2.4 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

Sea deposit at Licensed Site will be managed in such a way as to minimise disruption with the fishing vessels using the Old Quay and overall Campbeltown Harbour.

3.3.2.5 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.3.2.6 Best practice guidance and mitigation measures

Chemical Analysis has been carried out in accordance with Marine Scotland guidelines. For dredging activities, companies will be vetted for suitability and competence as part of Argyll & Bute Council's tender process.

3.4 Sea Deposit below- 100m Chart Datum

3.4.1 Strategic Consideration

3.4.1.1 Operational aspects, including handling, transport, etc.

Dredging and deposit can be carried out with no effect on the public. Suitable vessel(s) and equipment will be obtained through a tender process.

3.4.1.2 Availability of suitable sites/facilities

Suitable deposit areas below -100m Chart Datum are available at Campbeltown further than 6 km of Campbeltown Harbour.

3.4.1.3 Legislative implications, both national and international

Marine Licence sought.

3.4.1.4 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

The proposed dredging is primarily to avoid any disruption to third parties going forwards; therefore no discussions at this stage as dredging is expected to avoid any impact on third parties.

3.4.2 Environmental Considerations

3.4.2.1 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.4.2.2 Public health implications

If sea deposit below -100m chart datum was used then it would be higher than 12km round trip to deposit site. This would require multiple journeys that could potentially be a danger to other users within the loch and sea.

Air pollution, fuel use and environmental impact all increased.

3.4.2.3 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Chemical Analysis of seabed has been carried out and results can be seen on attached documents "19-88772-1.pdf" and "Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx".

Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2. Any results above limits have been further discussed in Section 1.3 above.

It is assumed that there would be minimal impacts, due to the relatively low concentrations of contaminants in the dredge material and the dispersal of material which would take place if deposited at -100CD. However, the licenced site Campbeltown (MA060) is the chosen option.

3.4.2.4 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

Sea deposit at Licensed Site will be managed in such a way as to minimise disruption with the fishing vessels using the Old Quay and overall Campbeltown Harbour.

3.4.2.5 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.4.2.6 Best practice guidance and mitigation measures

Chemical Analysis has been carried out in accordance with Marine Scotland guidelines. For dredging activities, companies will be vetted for suitability and competence as part of Argyll & Bute Council's tender process.

3.5 Landfill Deposit at Licensed Site

3.5.1 Strategic Consideration

3.5.1.1 Operational aspects, including handling, transport, etc.

Deposit to landfill would require around 28,500 m³ / 50,400 tonnes of dredged material to be transported 50 miles by road from the dredged site to a landfill site at Lochgilphead. Assuming 25 tonnes of material can be loaded onto a 40 tonne truck, this would require 2,016 lorry loads to be transported. This would drastically increase cost and environmental pollution, as well as impacting the local roads and communities, therefore this option would be considered unsuitable.

In order to make the sediment suitable for landfill deposit, several processes would need to be undertaken. Dredged material would require offloading to shore and undergo a dewatering process, ideally prior to transportation to minimise the weight to be transported. It is unlikely that the harbour would have sufficient space available to undertake the dewatering processes on site and hence another area would need to be found for this process to take place.

Due to the rural nature of the site, the dewatering process is likely to be technically challenging and could result in significant disruption to the area. Full methods have not yet been provided by a contractor, the following assessments are made using potential working methods. It is considered that undertaking dewatering will in reality be impractical, disruptive to local residents and traffic and ultimately cost prohibitive. Dredged material from Campbeltown Harbour would need transporting by HGV's. The transportation alone would increase the cost substantially and add to significant disruption to locals on roads and ferries.

Suitable vessel(s) and equipment will be obtained through a tender process.

3.5.1.2 Availability of suitable sites/facilities

Due to the weight of material to be disposed of being 50,400 tonnes, this option has been discounted at this stage. Assuming 25 tonnes of material can be loaded onto a 40 tonne truck, this would require 2,016 lorry loads to be transported. This would drastically increase cost and environmental pollution, as well as impacting the local roads and communities, therefore this option would be considered unsuitable.

3.5.1.3 Legislative implications, both national and international

Marine Licence sought.

3.5.1.4 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

The proposed dredging is primarily to avoid any disruption to third parties going forwards; therefore no discussions at this stage as dredging is expected to avoid any impact on third parties.

3.5.2 Environmental Considerations

3.5.2.1 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.5.2.2 Public health implications

If landfill deposit of the contaminated material was the option taken forward, there is no site with capacity for such material. The material would have to be transported on up to 2,016 vehicle movements.

3.5.2.3 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Chemical Analysis of seabed has been carried out and results can be seen on attached documents "19-88772-1.pdf" and "Pre-disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx".

Test results were generally below Action Level 1; with some above Action Level 1 but below Action Level 2; none were above Action Level 2. Any results above limits have been further discussed in Section 1.3 above.

3.5.2.4 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

The expected requirement of 2,016 movements to transport the material along Campbeltown's road network would interfere with local traffic and would involve an increased burden on the local roads.

3.5.2.5 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.5.2.6 Best practice guidance and mitigation measures

Chemical Analysis has been carried out in accordance with Marine Scotland guidelines. For dredging activities, companies will be vetted for suitability and competence as part of Argyll & Bute Council's tender process.

4 APPROXIMATE COSTS

4.1 Capital / Revenue costs

Estimated cost for Plough Dredging and deposit of material below -5m Chart Datum is estimated at **£280,000**.

Estimated cost for Dredging and deposit of material below -100m Chart Datum is estimated at **£500,000**.

Estimated cost for Dredging and deposit of material at Licensed Site (MA060) is estimated at **£400,000**.

Tender for deposit of material on land is estimated at **£820,000**

Estimated costs are based on actual costs for previous schemes at this harbour.

5 CONCLUSIONS

5.1 Summary of available options

Only one option is considered to be suitable to dredge Campbeltown Harbour. Although it is not the cheapest option it is the preferred solution. This is after close consideration of the costs and the environmental impact that all options may incur.

5.2 Summary of Options

The following table summarizes aspects of each scenario:

OPTION	VIABILITY	JUSTIFICATION
Do Nothing Approach	Not viable	To do nothing would make the pier unusable which is not a viable option.
Beach Replenishment	Not viable	Contaminated materials may contaminate the marine environment which is deemed not suitable. Would require constant maintenance or armour the shoreline to prevent erosion. Also, discharging the dredged material may require operations only on particular states of the tide which will increase pollution by required additional trips. These reasons are applicable for the use of a partial amount or the total volume of the dredged material.
Plough Dredging Only	Not viable	Ploughing the material to a suitable distance would not appear to be achievable through this method due to the large volume of material to be dredged
Sea Deposit at a Licenced Site	Feasible, lower cost and environmental impact than the other options. Chosen option.	Deposit would be at only licenced site in Campbeltown. Lower environmental impact due to multiple sea journeys to licenced site than the other options.
Sea Deposit below -100m Chart Datum	Not viable	High environmental impact due to multiple sea journeys to -100m CD site. Higher cost and environmental impact than Sea Deposit at a Licenced Site due longer sea journeys

Landfill Deposit	Not viable	The process is majorly impractical due to the transport of many vehicles and plant on an already congested local roads network which would have unnecessary additional wear and tear. Higher cost and environmental impact than Sea Deposit at a Licenced Site due longer sea journeys.
Other Beneficial Use	Not viable	Currently no viable recipient for the material has been identified. It is assumed the material will have a limited capacity for reuse and therefore other beneficial uses are not considered further.

5.3 Identification of BPEO

The “Deposit of material at Licensed Site (MA060)” option has been chosen as the Best Practicable Environmental Option due to a number of factors:

- Minimising use of the local road network and the trunk road network on the mainland.
- Minimising fuel use.
- Minimising Environmental impact.
- Avoiding unnecessary journeys to allow deposit of material in licenced site on land.

Overall, based on this report we believe that Deposit of material at Licensed Site (MA060) provides the best practicable and environmental option for deposit. This report was based on environmental and strategic considerations.

6 APPENDIX

Appendix C – Analytical Chemistry Data

- 19-88772-1.pdf
- Pre- disposal Sampling Results Form Excel - Campbeltown Harbour Dredge GI 2019.xlsx
- Campbeltown Dredge GI Prelim Logs 19.12.2019.pdf

Additional samples required by Marine Scotland:

- 541771 Campbeltown Letter Report final.pdf
- Campeltown MS-LOT spreadsheet
- Combined Lab Results Campbeltown.xlsx