Stranraer Harbour ~~Maintenance~~ Dredging
Best Practical Environmental Option Assessment

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1 Introduction

~~1.1~~ 1.1 Background

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Dumfries and Galloway Council is the Statutory Harbour Authority for Stranraer Harbour. The Authority is seeking permission to undertake~~e~~ dredging in the harbour basin to restore accessibility at all states of the tide~~on the shore to the West/North West of the Harbour to remove excess material which has built up at the base of the West Pier and is spilling over in to the marina causing silting.~~ . The material is the result of coastal drift.

In order to obtain a licence for the deposit of materials at sea it is necessary to undertake a detailed assessment of the alternative options, together with a statement setting out the reasons which have led to the conclusion that deposition of the materials back on the beach is the Best Practicable Environmental Option (BPEO).

~~In addition it is planned to remove excess beach material from the new slipway West of the West Pier. This material builds up again due to normal coastal drift and is restricting use of the new slipway which at present has to be cleared by hand. The work is required to maintain operational use of the slipway for boat owners.~~

~~In order to obtain a licence for the deposit of materials at sea it is necessary to undertake a detailed assessment of the alternative options, together with a statement setting out the reasons which have led to the conclusion that deposition of the materials back on the beach is the Best Practicable Environmental Option (BPEO).~~

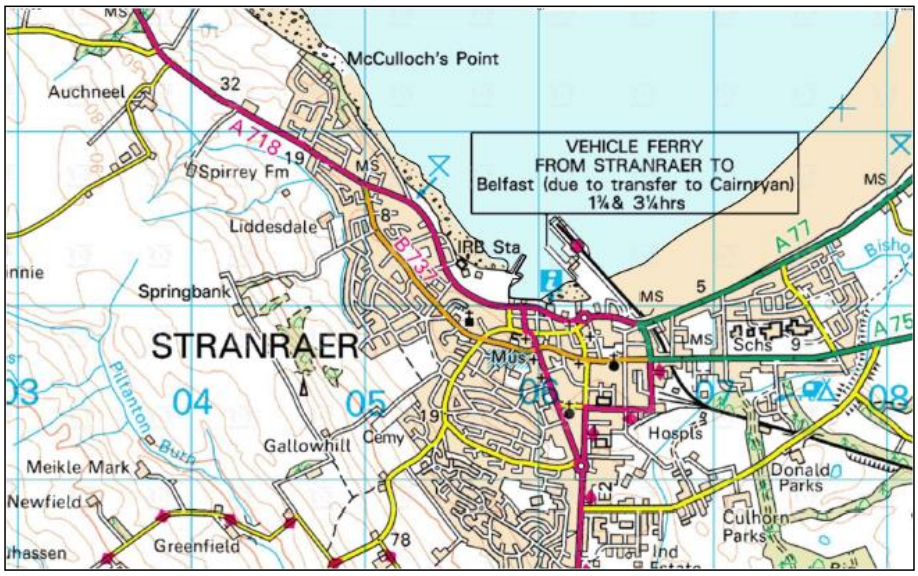

Figure 1 - Location Plan

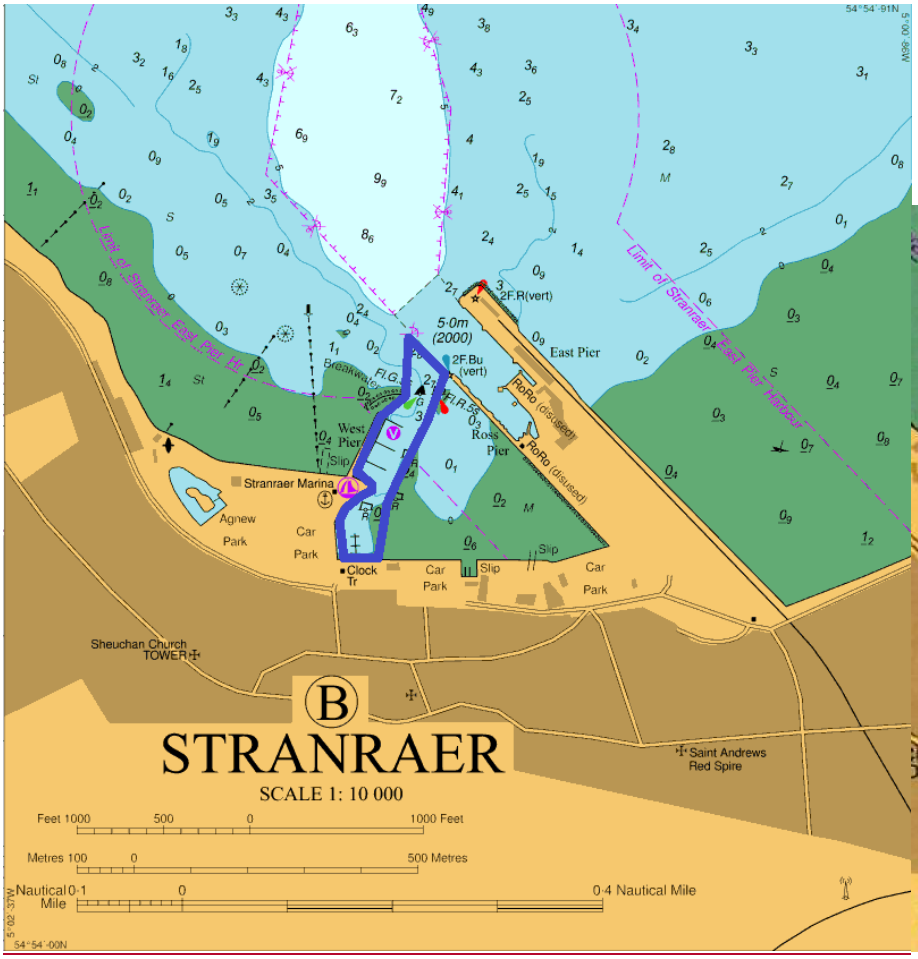

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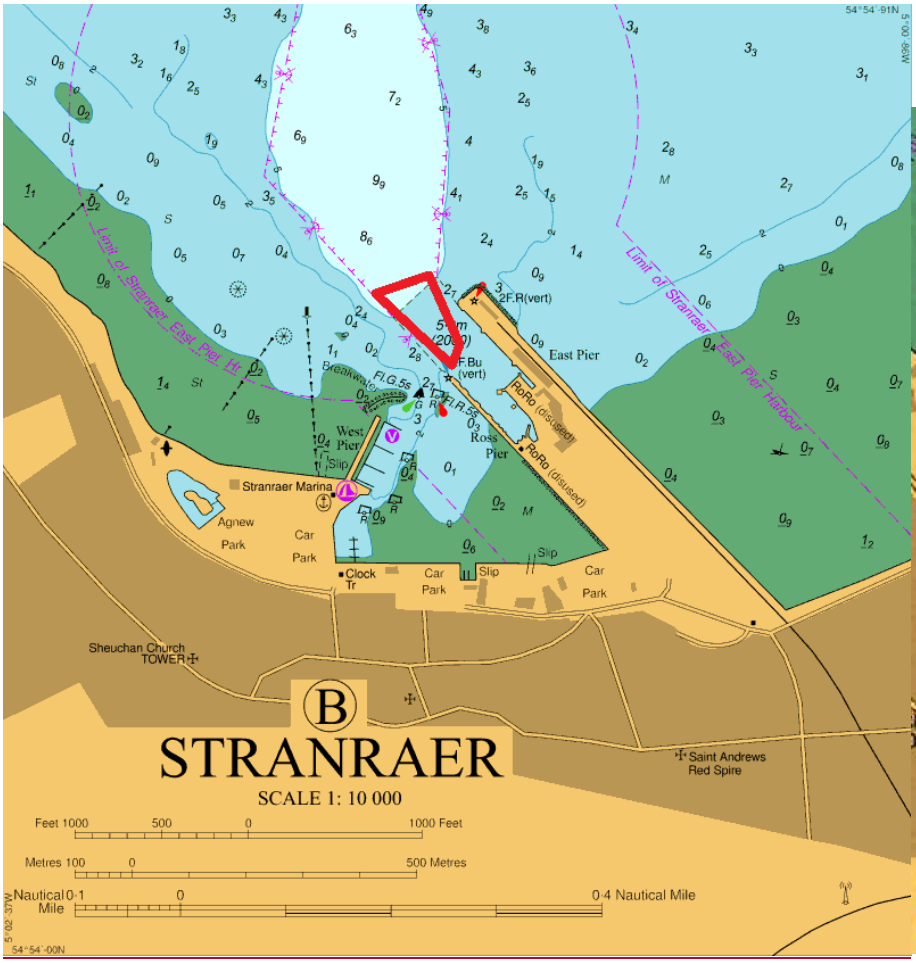
Figure 2 - Dredge Site Location



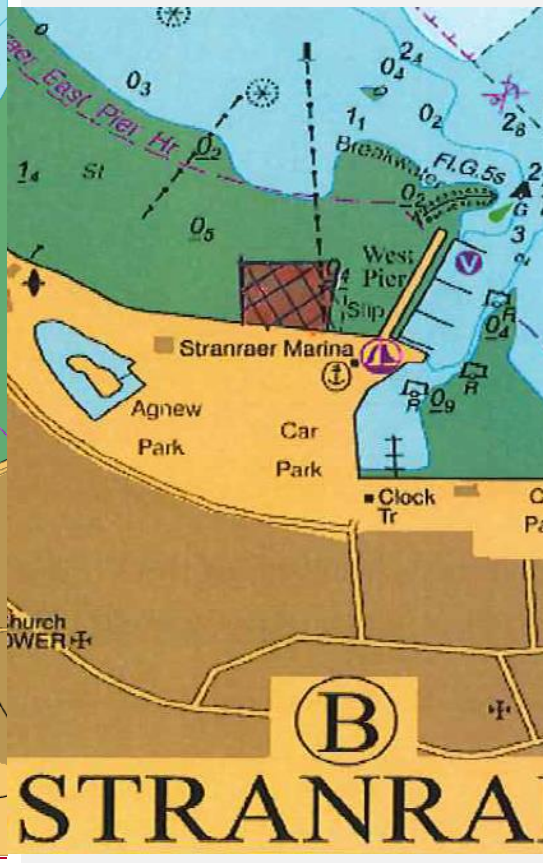


Figure 3 - Disposal Site Location

~~1.2~~ 1.2 Previous Dredging Works

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The harbour was last dredged in 2012 when 6,305 cubic metres of deposits in the main harbour basin consisting mainly of clay with some sand, silt and gravel were removed under Licence number: 04649/13/1 valid from 23 January 2013 to 6 January 2014.

In 2008 dredging was also undertaken prior to the construction of Stranraer Marina. Dredging was to a level of 2.0 m below Chart Datum in the main harbour area adjacent to the west wall. Licence Number 03535/07/0 – 2530 valid from 14 January 2008 to 13 January 2009 was issued to Dumfries and Galloway Regional Council. A volume of 20,035 m^3 of dredged materials was taken to Beaufort's dyke. The previous year dredging was carried out prior to construction of a rock breakwater. Licence Number 03356/07/0 - 22370 valid from 23 April 2004 to 1 May 2008 was issued to Dumfries and Galloway Regional Council. A capital dredge of the harbour was carried out between December 2004 and May 2005 to a depth of 2.0m below Chart Datum. Licence Number 03130/04/0 - 2132 valid from 19 November 2004 to 18 November 2005 was issued to Dumfries and Galloway Regional Council. A volume of 20,810 m^3 of dredged materials was also taken to Beaufort's dyke. Prior to this the harbour was dredged to a depth of 2.0 m below Chart Datum in July 1992 and 1.6m below Chart Datum in 1979.

~~1.3~~ 1.3 Dredging Works

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It is proposed to use a plough dredger to move material from the dredging area into the deep void situated off the old Stena Line terminal between the East Pier and the Ross Pier. Water injection will be used to liquefy and move any material under the marina pontoons which are inaccessible to the plough dredger; this material will then also be moved by plough dredging.~~remove material up to a depth of 1m at the landward end of the West Pier, grading the level away from the pier to normal beach level. It is anticipated that this work will be conducted once during the licencing period.~~

~~On the slipway there is a mound approximately 40cm deep which forms at the high water mark and is particularly prevalent during strong North or North Westerly winds when the mound can form over the period of 24 hours.~~

~~1.4~~ 1.4 Source of Materials

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The movement and accretion of shingle, sand and finer sediments is prevalent along the shore to the West and North West of the harbour.

The build-up of material in the harbour basin is as a result of longshore drift where natural beach material is moved in an easterly direction and swept around the West Pier and breakwater into the harbour and prevented from being moved further along the shore by the East Pier.

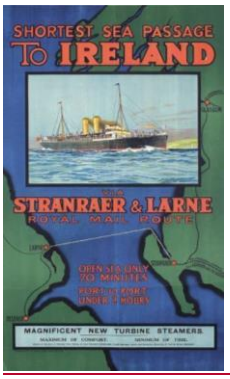
~~1.5 The area involved has not required dredging previously, but has become necessary following the opening of the new slipway in 2015~~

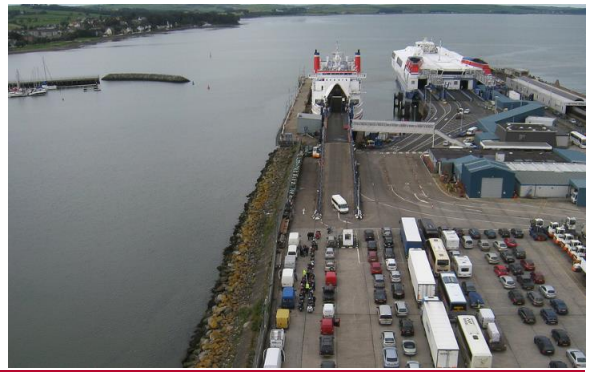
The deposits within the harbour at the beach area consist mainly of very fine soft material sandy gravel or gravelly sand. The current programme of work involves the removal of 13,300~~750~~ metric tonnes.

The deposits to be dredged have been tested by IKM Consulting Ltd in line with the requirements of Marine Scotland and their report is being submitted as part of the overall application.

The area to be dredged by the West Pier was previously the site of the Seacat ferry terminal which operated ferries to Larne between 1992 and 2000.

The area that the dredged material is intended to be deposited in is by the East Pier where ferries to Ireland operated from 1861 to 2011.





Having such a long history of ferry operations it was expected that there would be some contamination, especially of hydrocarbons, and that as the dredge site and the deposit site were in such close proximity it would be expected that both sites would show levels of contamination that were comparable.

The Stranraer results were generally ~~all~~ below Marine Scotland's action level AL1. However exceedances of the ~~,~~ AL1 threshold for cadmium, copper, nickel, zinc, 19 polycyclic aromatic hydrocarbons and total hydrocarbon content were recorded none exceeded the AL2 threshold. ~~With the exception of chromium and nickel compounds in the samples, but were below the AL2 threshold~~ These were recorded in the samples and ~~these are~~ summarised below:

Compound	Range of concentrations	Average concentration	Revised AL1 Threshold	Revised AL2 Threshold
Units	mg/kg	mg/kg	mg/kg	mg/kg
Arsenic (As)	8.1-12	10.3	20	70
Cadmium (Cd)	0.24-0.49	0.33	0.4	4
Chromium (Cr)	44.7-49.2	46.9	50	370
Copper (Cu)	26.6~~34~~ - 48.6	36.4	30	300
Mercury (Hg)	0.05-0.14	0.09	0.25	1.5
Nickel (Ni)	47 – 54.7	50.7	30	150
Lead (Pb)	18-34.7	26.8	50	400
Zinc (Zn)	87.3-169~~168.5~~	125.1	130	600
Units	ug/kg		ug/kg	ug/kg
Anthracene	28.2-111	71.1	100	-
Benz(a)anthracene	86.5~~247~~ - 253	195.5	100	-
Benzo(a)pyrene	103 - 314	230.3	100	-
Benzo(b)fluoranthene	106 - 373	242	100	-
Benzo(e)pyrene	88.3~~216~~ - 302	202.1	100	-
Benzo(ghi)perylene	77~~200~~ - 291	189.3	100	-
Benzo(K)fluoranthene	39.8~~120~~ - 163	107.6	100	-
C1-naphthalenes	44.2-192	109.2	100	-
C1-phenanthrene	112 - 234	192.3	100	-
C2-naphthalenes	67.3~~122~~ - 187~~3~~	125.4	100	-
C3-naphthalenes	81.3~~148~~ - 168	132.4	100	-
Chrysene	116 - 340	235	100	-
Diben(ah)anthracene	16.9 – 65.9	39.7	10	-
Fluoranthene	166 - 467	362	100	-
Indeno(1,2,3-cd)pyrene	77.3~~204~~ - 309	196.8	100	-

Naphthalene	22.5-115	65.9	100	-
Perylene	41.6-315	151.6	100	-
Phenanthrene	160 - 304	232	100	-
Pyrene	150 - 464	327.7	100	-
Total Hydrocarbon Content	139,000 – 1,110,000	513,000	100,000	-

~~Compound~~	~~Range of concentrations (mg/kg)~~	~~Revised AL1 threshold (mg/kg)~~	~~Revised AL2 threshold (mg/kg)~~
~~Chromium~~	~~57.4 - 110.1~~	~~50~~	~~370~~
~~Nickel~~	~~32.3 – 99.6~~	~~30~~	~~150~~

~~1.6~~

~~It is considered that the concentrations reported for chromium and nickel may be representative of natural background concentrations for these compounds in the southwest of Scotland.~~

~~1.11~~ Scope of the report

The purpose of this document is to review the available techniques for disposal of the dredged material, to assess the practicality of those methods and to determine the Best Practicable Environmental Option (BPEO). Methods will be considered against their environmental suitability, strategic benefit, health and safety, and cost. The report will be structured as below:

Section 2 – Available Options

Section 3 – Options under consideration

Section 4 – Conclusion and rankings

Section 5 – BPEO

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2 Available Options

This section outlines the methods that will be considered as part of the BPEO assessment. Where a method is deemed impractical, justification for this will be provided and the method will not be progressed further.

Due to the location of the harbour any option involving the removal of the material by road would have an impact on the town centre of Stranraer. Many of the town's hotels and bed and breakfast businesses are located along the seafront.

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Due to the inert nature of the dredged material this option for disposal has been discounted. ~~The material removed is anticipated to be mainly course sediment and have a very low volume amount of organic content.~~ The ma~~jority~~terial would not be combustible and would not result in an appreciable loss of volume prior to disposal, therefore this approach is not considered to be practical and will not be considered further.

2.2 Landfill

Disposal to landfill would require material to be transported from the dredged area to a landfill site at Galdenoch 7 miles west of Stranraer. If the dredged material was to be disposed of at Galdenoch it would require several processes before being suitable. It may be necessary to open a new cell which would be prohibitively expensive. ~~The other option would be to use the dredged material, after dewatering, as capping material for the landfill site~~. Th~~ese~~is operation~~s~~ would add additional cost to the work~~operation~~ and involve the removal of material through the town creating noise and disturbance. It would also involve additional fuel consumption and air pollution. This option is therefore discounted.

2.3

Due to the high saline content of the dredged material it is not considered suitable for agricultural use. With some treatment it might be suitable for treatment of brown field sites. As with the landfill option 2.1.2 additional movement of lorries would create additional pollution and nuisance. This option for disposal has~~,~~ therefore~~,~~ been discounted.

2.4 Beach Replenishment

The material could~~may~~ be placed on the beach immediately to the east~~NW~~ of the harbour [illegible] disposal area is close~~immediately adjacent~~ to the dredging area so traffic movement, noise and air pollution levels would~~ill~~ be kept relatively low although traffic would need to drive through Stranraer so the impact would be high~~to the lowest levels possible~~.

It is noteworthy that there is a significant population of cockles and sand gapers recorded along this shore and also eelgrass beds which provides feeding grounds for waders and wildfowl throughout the year

Due to the probable disturbance to the natural environment this option for disposal has been discounted.

2.5 In addition this option will provide the lowest cost option particularly as the slipway dredging will be a regular operation.

The nature of the dredged material and the presence of significant oyster beds (which are sensitive to suspended solids) make the material unsuitable for coastal protection or inter-tidal recharge within the Loch.

There are areas on the Inner Solway where the fine material could be used to protect habitat such as salt marshes etc. However, this is too far away to be financially viable and there would be issues regarding the source of the material which is not contiguous with the Solway. This option for disposal has been discounted.

2.6 Sea Disposal

Historically this has been the method of disposal for capital and maintenance dredging with Beaufort's Dyke the preferred spoil site. It is the accepted method of disposal for large volumes of material and is unlikely to cause any conflict locally.

It is noted that the AL2 thresholds are not exceeded although AL1 thresholds for cadmium, copper, nickel, zinc, 19 polycyclic hydrocarbons and total hydrocarbon content were exceeded. As all of the levels are below AL2 but some are above AL1, if the material was deposited in Beaufort's Dyke, the material would be spread over a wide area at depth and it would be impossible to investigate the material if there were any future concerns there would be difficulties in future monitoring of the material and therefore this method of disposal is not thought suitable.

This type of operation would be weather dependant.

2.7 Sea Disposal (local)

option for large amounts of material removed from Stranraer harbour has been the method of disposal for capital and maintenance dredging with Beaufort's Dyke the preferred spoil site. However this type of operation can be weather dependent.

Until 2011 Stena used to operate ferries to Ireland from the East Pier at the Eastern side of the harbour. Manoeuvring by the ferries to the north of the East Pier resulted in a large

depression being formed in the seabed. Ferry operations have now relocated to a new location at Loch Ryan Port however the large depression remains.

This large depression formed by the ferries is in very close proximity to the area to be dredged and is easily capable of accommodating the volume of material to be removed from the harbour basin.

It is noted that the AL2 thresholds are not exceeded although AL1 thresholds for cadmium, copper, nickel, zinc, 19 polycyclic hydrocarbons and total hydrocarbon content were exceeded. As ~~all of~~all the levels are below AL2 but some are above AL1, disposal in the immediate vicinity of the dredge site will ensure the minimum disturbance of the material. As the dredge site and the proposed disposal site have experienced ferry traffic over many years and are in such close proximity, the material being dredged and the material at the disposal site will be very similar in composition. Although there are no plans to monitor the material once it has been deposited, because the material will be deposited in a very precise area, close to the harbour, if there are any future concerns it will be relatively easy to investigate the material. ~~and ensure that the material is at a location where it can be easily monitored.~~.

Deposit of the material in this large man-~~-~~made depression is a viable option.

~~2~~

The current build-up of material in the harbour is leading to reduced depths alongside the quayside and under the pontoons in the marina. If nothing is done to remove the sediment in the harbour the material will continue to accrete and will lead to the marina and quayside no longer being accessible to certain vessels.

As attempts are being made to promote Stranraer as a marine leisure destination it is imperative that the harbour is accessible to a wide range of vessels and therefore to allow the harbour depths to be reduced further is not an option. ~~by the West Pier is already finding its way in to the marina which in turn will require more challenging dredging work to be undertaken in and amongst the pontoons if the immediate works are not undertake to address this problem.~~

3 Options under Consideration

3.1 Introduction

This section of the report considers the options judged to be practicable in Section 2 – Sea Disposal~~Beach Replenishment~~ (local) and Sea Disposal:~~Disposal at Sea.~~

~~3.2~~ 3.2 Sea Disposal (local)~~Beach Replenishment~~

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Overview

Sea disposal of the dredgings in an adjacent artificial depression caused by the previous ferry operations is a viable option as the material would be being moved a minimal distance and to an area where the material on the sea bed would be very similar, in terms of contaminant levels, to the dredged material.

~~3.2.1.1~~ 3.2.1 Pollution/contamination implications

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Contamination testing of the dredging area was undertaken by IKM Consulting Ltd and found that all sample results were found to be below the action level AL2 concentrations however AL1 thresholds for cadmium, copper, nickel, zinc, 19 polycyclic hydrocarbons and total hydrocarbon content were exceeded.

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~~were found to be below the action level AL1 concentration with the exception of chromium and nickel compounds and these were less than the AL2 thresholds.~~

~~3.2.1.2~~ 3.2.2 Public health and safety implications

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Tested samples show that sediment samples in the dredged area do not have high levels of contamination, therefore there is low risk to public health due to sediment quality. It is likely that deposit~~use~~ of the dredgings in this manner would be acceptable and be available for any future monitoring if required.

Operations to dredge and deposit the material could be a risk to vessels in the harbour area but this would be controlled by issuing notices to mariners and ensuring all vessels were aware of the works and the working vessels were showing appropriate lights or signals.

In certain weather the sea state in Loch Ryan can be challenging but as the proposed deposit site is in such close proximity to the sheltered conditions in the harbour, exposure to risk can be minimised.

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The spoil is being disposed of in its natural environment and it is not anticipated that there will be any significant impacts on ecology (flora and fauna) as the material would be deposited in an already disturbed area with similar contamination levels.. At worst some plants and weeds growing wild on the beach may be buried under the deposited material.

There are significant native oyster beds within the Loch (see Figure 4), however it is not anticipated that the material would impact upon these given the small movement to the disposal site and the natural coastal drift direction.

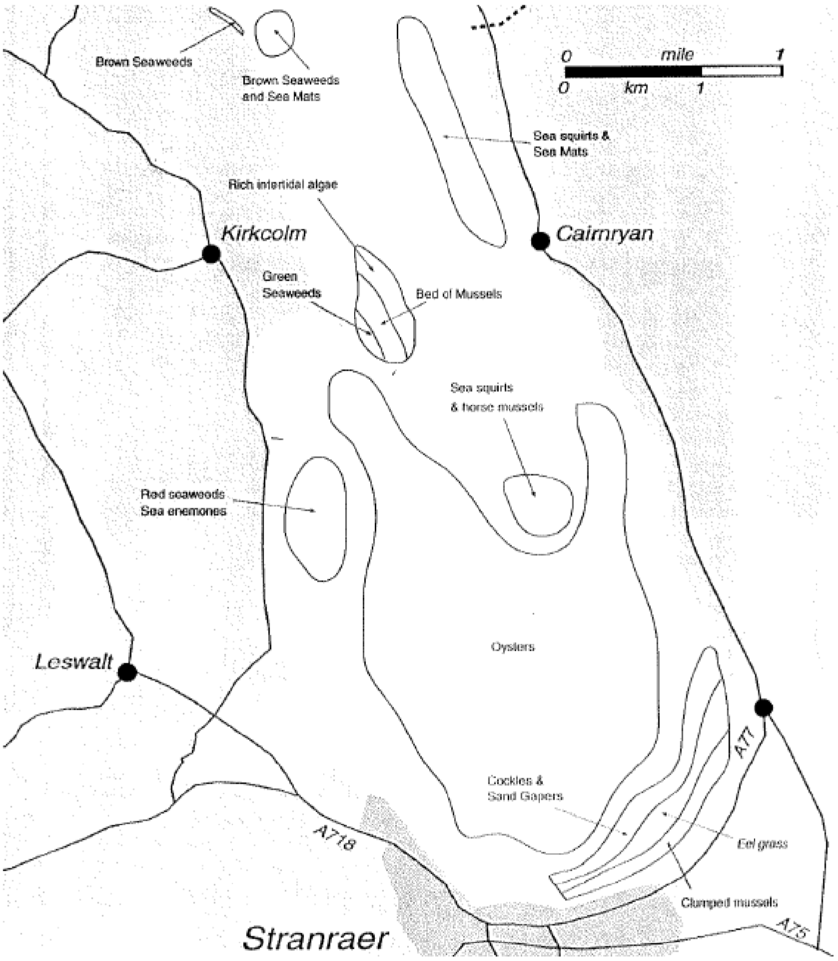

Figure 4

~~3.2.1.8~~ 3.2.4 Interference with existing activities

There will be some interference with the marina and other harbour operations due to the dredging and the deposit of the material as these works will be taking place in the harbour and its approach therefore there might be a need for some vessels to be temporarily relocated within the harbour or marina for works to progress. Notices to mariners will be issued to alert other vessels to the activities and appropriate lights and signals will be shown in accordance with collision regulations.

~~3.2.1.9~~ Without the dredging works being progressed the usable harbour depths will be reduced leading to some vessels no longer being able to use the marina or quayside.

~~3.2.1.10~~ By depositing the material into the depression north of the marina the amount of time that the dredging equipment will be on site will be minimised so that visitors to the seafront are not confronted with these works over an extended period

~~3.2.6 While the dredgings dry out there may be minor complaints regarding smell and the visual impact of the material although being of the same nature they should blend in very quickly.~~

This is the lowest impact option available. There is minimal impact through contamination, low levels of temporary disruption from the removal and transportation of the material to the disposal area and low impact on members of the public using ~~what is a quiet part of~~ the waterfront. ~~The impact could be reduced further if the initial dredging including the West Pier was undertaken in the winter months.~~

The disposal of the dredgings to the disposal site in the depression ~~on the beach~~ presents minimal environmental risk as the dredged material and the material at the disposal site will have very similar contamination levels.

Strategic considerations

3.2.7 Availability of suitable sites

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Local sea disposal sites are limited due to the generally shallow nature of Loch Ryan. There are several alternative places in Loch Ryan where depths would be suitable for depositing material however these are either in the northern loch and used by ferries or near areas used for raising oysters.

The proposed area for depositing the material is suitable due to its close proximity to the area to be dredged, its similar composition and contamination, its unusual depth and its distance from shellfish beds.

3.2.8 Public Acceptability

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~~3.2.1.15~~ The dredging and disposal operations will all take place in the harbour area or its approaches. There might be some disruption to harbour users as there could be a requirement to move vessels while dredging is taking place but notices to mariners will be issued so all users are aware of the programme of dredging. There is expected to be little impact outwith the immediate harbour area.

~~The movement of the dredgings would cause noise, smell and dust nuisances during the contract period. The area concerned is on the foreshore well away from any properties. There would be no impact on public roads as the material would only require moving a very short distance along the beach. Hours of working for the contract would be during daytime hours only and would avoid any hours deemed to be socially unacceptable. The area affected is confined to the site itself, but there may be very minimal impact on residential properties and to the public who have access along the seafront promenade~~.

3.2.9 Legislative implications

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~~3.2.1.15~~

Disposal of the dredged material to the ~~to~~ deep depression north of the harbour ~~beach replenishment wo~~would be relatively straightforward ~~with a suitable site immediately adjacent to the dredged area~~. This method is likely to attract minimal concern from the public and overall is viewed as the lowest impact option across all factors.

~~3.3~~ 3.3 Sea Disposal ~~Disposal to sea~~

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Overview

Disposal to sea would require the transportation of dredged material from the dredged site to an identified disposal site at Beauforts Dyke. The disposal operation would have to be undertaken by a separate supporting vessel due to the lack of depth at the dredging area. Spoil would have to be moved by mechanical means to the barge/vessel.

Environmental considerations

~~3.3.1.1~~ 3.3.1 Pollution/contamination implications

Sample tests indicate that all samples are below ~~either AL1 or~~ AL2 levels although AL1~~,~~ thresholds are exceeded for cadmium, copper, nickel, zinc, 19 polycyclic hydrocarbons and total hydrocarbon content and might require future monitoring. Any material deposited at Beaufort's Dyke would be impossible~~difficult~~ to monitor.

Disposal at sea has been the historic disposal method at Stranraer and is a generally accepted form of disposal for marine material provided it is contaminant free. The dredged material has levels all less than the AL2 thresholds.

There will be additional environmental costs in transporting the large quantity of dredged material by boat to Beaufort's Dyke for disposal rather than disposing locally. ~~bringing in a vessel to dispose of the waste material. The nearest available vessels would require to be steamed from either Northern Ireland or the Clyde adding to the environmental footprint of this operation.~~

~~3.3.1.2~~ 3.3.2 Public Health and safety implications

Tested samples show that sediment samples in the dredged area do not exceed AL2 action levels, therefore there is low risk to public health due to sediment quality. It is likely that deposit of the dredgings in this manner would be acceptable but might require monitoring. Monitoring of the material if disposed of at Beaufort's Dyke would be problematic.

Operations to dredge and deposit the material could be a risk to vessels in the harbour area but this would be controlled by issuing notices to mariners and ensuring all vessels were aware of the works and the working vessels were showing appropriate lights or signals.

In certain weather the sea state in Loch Ryan and the north-channel where Beuafort's Dyke is situated can be challenging. If the dredgings were to be deposited in Beaufort's Dyke the vessel could be exposed to hazardous sea conditions.

In addition the vessel would need to transit through the northern half of Loch Ryan in close proximity to Port of Cairnryan and Loch Ryan Port where ferries from P&O and Stena Line are operating on a very regular basis and therefore there would be a greatly~~n~~ increased risk of collision if this option was taken, not only with ferries but any vessel transiting to Stranraer.

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Disposal at Beauforts Dyke would be ~~be the preferred option being~~ the closest sea disposal location outwith Loch Ryan and is a tried and accepted method from previous dredging

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operations at Stranraer harbour. Given the depths and topography of the disposal site it is unlikely that smothering of the seabed adjacent to the disposal site would occur.

The journey by vessel to the disposal site is not expected to result in ecological impacts unless there is an accidental spillage. The following of standard prevention guidelines wouldill ensure that this risk is reduced to ALARP. Spillage could, if it occurred, impact on the natural oyster beds previously identified at Figure 4.

3.3.1.8 3.3.4 Interference with existing activities

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There will be some interference with the marina and other harbour operations due to the dredging and the deposit of the material as these works will be taking place in the harbour and its approach therefore there might be a need for some vessels to be temporarily relocated within the harbour or marina for works to progress. Notices to mariners will be issued to alert other vessels to the activities and appropriate lights and signals will be shown in accordance with collision regulations.

As the vessel will have to make numerous trips between Stranraer harbour and the disposal area at Beaufort's Dyke there will be some interference with ferry operations by Stena and P&O, and also with other vessels transiting to Stranraer and with vessels operating to manage the oysters..

3.3.5 The use of a disposal vessel would increase disturbance levels and impact further on the enjoyment of the West Pier and promenade. Without the dredging works being progressed the usable harbour depths will be reduced leading to some vessels no longer being able to use the marina or quayside.

By depositing the material in Beaufort's Dyke the amount of time that the dredging equipment will be on site will be extended so that visitors to the seafront will be confronted with these works over a longer period than if the local disposal site was used.

3.3.6 This method would be a preferable option as it would remove the spoil from the area rather than merely moving it along the beach to re-deposit at a later date. Levels of contaminants within the dredged material are below the AL2 action level that which would result in ecological impacts. Smothering at the disposal site is unlikely and although impacts and risks during the loading and transportation phases of the operation are thought to be higher than if the material is deposited more locally they are not thought to be significantthere is not expected to be any significant impacts or risks during the loading or transportation phases of the operation.

Strategic considerations

~~3.3.1.16~~ 3.3.7 Availability of suitable sites

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Creation of a new disposal site outwith Loch Ryan would be a complex and expensive operation and out of line with the amount of material involved. The use of the nearest ~~site~~ existing site at Beauforts Dyke is the logical approach if the local~~is~~ option of depositing the material in the large void adjacent to the East Pier was not possible~~were to be used~~.

3.3.8 Public Acceptability

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~~3.3.1.17~~ The dredging operations will all take place in the harbour area or its approaches. There might be some disruption to harbour users as there could be a requirement to move vessels while dredging is taking place but notices to mariners will be issued so all users are aware of the programme of dredging. There is expected to be little impact outwith the immediate harbour area.

The movement of the dredgings would cause issues as a disposal vessel would need to travel to the entrance of Loch Ryan and out to the disposal site in the North Channel and back; there might be some conflict with vessel movements from Loch Ryan Port and Port of Cairnryan affecting Stena ferries and P&O ferries respectively, both of which operate numerous passages to Northern Ireland.

There is a possibility that as the vessel transporting the dredgings will need to travel over the native oyster beds when moving up and down Loch Ryan, concerns might be raised about the possibility of an incident which might adversely affect the only commercial native oyster fishery in Scotland.

~~[illegible]~~

Disposal at sea is common practice but requires a Marine Licence. As part of the Marine Licence application all other available options must be considered to determine the most suitable method. This is the purpose of this document.

Strategic summary

This method is likely to cause only minor disruption to the public and be unlikely to attract strong criticism as this method has been used in the past to dispose of dredgings from Stranraer however following the cessation of ferry operations from the East Pier and the existence of a large void off the East Pier which is thought to have been caused by these ferry operations the deposit of the material adjacent to the dredge site would be preferable.

~~[illegible]~~

4 Conclusions – Best Practicable Environmental Option.

4.1 Summary of available options

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Eight~~Seven~~ options were initially considered for the disposal of the dredged material from the marina and harbour basin~~beach~~ area ~~W/NW~~ of Stranraer Harbour. However due to the ~~inert~~ nature of the material, operational and environmental considerations, landfill, agricultural use, incineration, beach replenishment and coastal protection were considered impractical. The do nothing approach does not solve the immediate operational issues and does not support the operation of Stranraer Marina as a developing marine destination with a recently constructed slipway, boat crane and boat yard and due to host the world championship for the St Ayles Skiff class of coastal rowing boat in 2019.

~~major project to redevelop and regenerate the waterfront at Stranraer, the new slipway being an initial part of this work.~~

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Aspect (Acceptability rating)	**~~Beach replenishment~~Sea Disposal (local)**	**Sea Disposal**
Environmental Acceptability		
Pollution contamination	4~~5~~	3~~3~~
Public health and safety	5	3~~4~~
General ecological implications	5~~4~~	4
Interference-existing activities	5	4
Amenity/aesthetic	5~~4~~	5
Strategic Acceptability		
Availability of suitable sites	5	~~4~~5
Public acceptability	5~~4~~	4~~5~~
Legislative implications	4~~5~~	5~~3~~
SCORED RATING	3~~8~~7	3~~3~~2

4.2 Rankings

Rank 1: Sea disposal (local) ~~Beach replenishment~~ due to the following reasons:

- The method is likely to be the most environmentally acceptable option with fewest risks of significant impacts.
- This method is least likely to result in disruption or nuisance to members of the public and is unlikely to cause any public concern.
- All operations would take place either in or in the approaches to the sheltered harbour
- No operations would take place in the vicinity of the native oyster beds
- Dredged material will be of similar composition to material at the deposit site
- Dredged material will be deposited in a confined area which can be monitored
- ~~Dredged material would require no additional treatments prior to disposal.~~

Rank 2: Disposal at sea due to the following reasons:

- Whilst still deemed as environmentally acceptable this method, due to the requirement of a disposal vessel will result in more environmental impact and public health and safety risk than the local sea disposal~~beach replenishment~~.
- Disposal vessel would need to venture into the north channel and could put vessel at risk.
- Disposal vessel would need to travel over the native oyster beds
- This method is likely to result in slightly more disruption or nuisance to members of the public, however, it is unlikely to cause any public concern.
- Dredged material will not be available for future monitoring
- ~~Dredged material would be removed from site improving aesthetics.~~

5 BEST PRACTICABLE AND ENVIRONMENTAL OPTION

Based on the discussion provided above, we consider that local sea disposal in the immediate vicinity of the East Pier~~Beach Replenishment~~ represents the most viable option in terms of minimal ecological, environmental and strategic considerations and that such a disposal operation is considered an acceptable option under the terms of the Marine (Scotland) Act 2010.