

**Buncrana Harbour**  
**Dumping at Sea Permit S0011-03**  
Annual Environmental Report 2018



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## Table of Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>2</b>	<b>BACKGROUND .....</b>	<b>1</b>
<b>3</b>	<b>REGISTER/LOG OF DREDGING/LOADING &amp; DUMPING ACTIVITIES.....</b>	<b>3</b>
<b>4</b>	<b>OSPAR DUMPING REPORT .....</b>	<b>3</b>
<b>5</b>	<b>REPORTED INCIDENTS SUMMARY .....</b>	<b>4</b>
<b>6</b>	<b>COMPLAINTS SUMMARY .....</b>	<b>4</b>
<b>7</b>	<b>MONITORING SUMMARY .....</b>	<b>4</b>
<b>8</b>	<b>MARINE MAMMAL MONITORING.....</b>	<b>4</b>
<b>9</b>	<b>ACCIDENT PREVENTION PROCEDURE .....</b>	<b>5</b>
<b>10</b>	<b>EMERGENCY RESPONSE PROCEDURE.....</b>	<b>7</b>
<b>11</b>	<b>INVESTIGATION OF ALTERNATIVE RE-USES .....</b>	<b>8</b>

## List of Appendices

<b>Appendix 1</b>	Dredging/Dumping Logs
<b>Appendix 2</b>	OSPAR Report
<b>Appendix 3</b>	Incident Reporting and Investigation Procedure
<b>Appendix 4</b>	Hydrographic Surveys
<b>Appendix 5</b>	Marine Mammal Monitoring Report

## 1 INTRODUCTION

Donegal County Council (DCC) was granted a Dumping at Sea (DaS) Permit (Reg. No. S0011-03) by the EPA in July 2018. The Permits allow for maintenance dredging at Bunrana Harbour of up to 8,000 tonnes of material each year for eight years up to a maximum of 64,000 tonnes in total and subsequent disposal at sea by plough dredging.

Condition 6.7 of the Permit requires DCC to submit an Annual Environmental Report (AER) as follows: *“The permit holder shall submit electronically to the Agency, by the 31st March of each year an AER covering the previous calendar year. This report shall include as a minimum the information specified in Schedule D: Annual Environmental Report, of this permit, and shall be prepared in accordance with any relevant guidelines issued by the Agency or as otherwise prescribed by the Agency”.*

### SCHEDULE D: Content of Annual Environmental Report

#### Annual Environmental Report Content

- Register/log of dumping activities**
- OSPAR dumping report**
- Reported incidents summary**
- Complaints summary**
- Monitoring summary**
- Marine Mammal Monitoring Report**
- Accident Prevention Procedure**
- Emergency Response Procedure**
- Investigation of alternative re-uses summary**
- Any other items specified by the Agency**

Malachy Walsh and Partners (MWP) prepared and managed the Dumping at Sea Permit application on behalf of Donegal County Council and have also prepared this AER.

## 2 BACKGROUND

The purpose of dredging at Bunrana Pier is to re-establish and maintain a safe and navigable depth of water within the approach channel and main berths. The material to be dredged consists of clean sediment, which has recently deposited in the berthing area on the south face of Bunrana Pier and the approach channel to Bunrana Harbour. The method of dredging and disposal is by plough dredging the material out to a large area of deep channel located beyond the -2m CD contour, where it will settle out.

It is envisaged that dredging will be undertaken twice a year with each campaign lasting 7 to 10 days, subject to tides and weather.

The dredge/loading area and the disposal/dumping area are shown in **Figure 1** and **Figure 2**. The dredge area is approximately 1.45 ha, comprising the approach channel to the pier and slipway and the main berths at the pier. The dumping area is approximately 27.45ha, comprising the area surrounding the pier and slipway extending northwest, due west and southwest.



Figure 1 – Loading/Dredging Area



Figure 2 – Disposal/Dumping Area

### 3 REGISTER/LOG OF DREDGING/LOADING & DUMPING ACTIVITIES

Due to the timing of the permit issue (July 2018), only one dredging campaign was undertaken in 2018, over a period of 22 days. The dredging commenced at lunchtime on the 23<sup>rd</sup> July 2018 and finished at approximately 7pm on the 26<sup>th</sup> August 2018.

The vessel used was the Lough Swilly Marine Dredging Vessel – the *Trojan*. The work comprised the removal of dredged material from the Pier vicinity and dumping at a designated location approximately 160m from the end of the pier.

**Table 1** details the daily quantities dredged and disposed.

**Table 1 – Quantities Dredged 2018**

Date	Total Quantity Removed (MT)
23/07/18 13:30hrs	170
24/07/18	285
25/07/18	295
26/07/18	210
27/07/18	270
28/07/18	155
29/07/18	300
30/07/18	270
31/07/18	220
01/08/18	220
15/08/18	180
16/08/18	250
17/08/18	280
18/08/18	255
19/08/18	260
20/08/18	255
21/08/18	255
22/08/18	225
23/08/18	265
24/08/18	280
25/08/18	275
26/08/18 19:02hrs	160
<b>TOTAL</b>	<b>5,335</b>

The dredging/dumping logs are attached in **Appendix 1**. The logs include the location of the dump and timing of same at the dump area.

In accordance with Condition 2.2, dumping was undertaken during daytime hours to protect Otter.

### 4 OSPAR DUMPING REPORT

The OSPAR Dumping Report is included in **Appendix 2** of this report.

## 5 REPORTED INCIDENTS SUMMARY

There were no reported incidents during the dredge campaign. The Incident Reporting and Investigation procedure is detailed in Section 12.

A copy of the Incident Reporting and Investigation Procedure is included as **Appendix 3**.

## 6 COMPLAINTS SUMMARY

There were no complaints during the dredge campaign.

## 7 MONITORING SUMMARY

The monitoring requirements for the Dredging/Loading and Dumping Areas are set out in Condition 4 and Schedule C of the Permit. The following monitoring took place in 2018 as required by the Permit.

### Schedule C.1 Monitoring at Plough Dredging Area

Condition 4.4 and Schedule C.1 require Bathymetry Surveys and concurrent tide observations pre- and post dredging activities.

Survey reports and drawings are provided in **Appendix 4**.

### Schedule C.2 Sediment Monitoring

Condition 4.5 and Schedule C.2 set out the sediment monitoring requirements. Condition 4.5.1 requires *“the permit hold shall carry out chemical and granulometric analysis of sediments within the Plough Dredging Sites in 2021 and 2024 in accordance with Schedule C.2 Sediment Monitoring”*. The results must be reported to the Agency within a month and dredging cannot proceed without the agreement of the Agency.

Sediment monitoring was not required during the period of this AER (2018). Repeat granulometric and chemical sampling analysis of the sediment is required every three years, i.e. in 2021 and 2024.

## 8 MARINE MAMMAL MONITORING

### Schedule C.3 Marine Mammal Monitoring

Condition 4.6 and Schedule C.3 set out the marine mammal monitoring requirements. Condition 4.6.1 requires *“the permit holder shall appoint a Marine Mammal Observer who shall meet the monitoring and reporting requirements of the NPWS. Full reporting on Marine Mammal Observer operations and mitigation undertaken should be made to the Agency and [offshore@ahg.gov.ie](mailto:offshore@ahg.gov.ie) within 1 month of completion of each campaign”*.

Mr. Pat O’Sullivan was appointed by Donegal County Council to undertake the role of Marine Mammal Observer for the duration of the works. A copy of the monitoring report is included in **Appendix 5**. A mitigation zone of 100m from the dredging vessel was in place prior to starting each dredge.

## 9 ACCIDENT PREVENTION PROCEDURE

A Safety Statement for Buncrana Harbour was put in place by The Piers and Harbours Section of Donegal County Council. It was drafted to comply with Section 20 of the Safety, Health and Welfare at Work Act, 2005. It covers activities within the Harbour area as defined in the First Schedule of the "Donegal County Council (Certain Harbours) Bye-Laws 2010. It relates to the Buncrana Harbour Area and covers structures and equipment under the control of Donegal Co. Council, including piers, slipways, walkways, shared facilities, roads, etc. Employees of Donegal County Council engaged in activities within the Harbour area shall familiarise themselves with the safety measures when working in the Harbour area.

In order to safeguard the Safety, Health and Welfare of all those engaged in dredging operations the principles of prevention will be adopted as it is recognised that "prevention is the best cure". These principles include:

- The avoidance of risks
- The evaluation of unavoidable risks
- The combating of risks at source
- The adaptation of work to the individual especially in relation to the design of places of work.  
The choice of work equipment and the modification of systems of work
- The adaptation of the place of work to technical progress
- The replacement of dangerous articles, substances or systems of work by less dangerous alternatives
- Prioritising collective measures over individual measures
- The facilitation of training

However beyond this, it is essential that both employers and employees engaged in dredging operations are aware of their particular duties/responsibilities under the Safety, Health and Welfare at Work Act (SHWWA) 2005.

### 9.1 DUTIES OF THE EMPLOYER

There is a duty upon all employers engaged in dredging operations in Buncrana Harbour as well as those providing specialist sub-contracting work viz. monitoring etc. to ensure the health, safety and welfare at work of the employees so far as is reasonably practicable. In order to achieve this, employers shall:-

- Manage and conduct the work activities in a safe manner
- Manage and conduct the work activities so as to prevent improper conduct
- Ensure that the design, provision and maintenance of the place of work (insofar as they are able within the remit of the contract) is safe and without risk to health
- Ensure that there is safe access to and egress from the place of work
- Ensure that tools, equipment and machinery is properly maintained, certified where required and not used where it is unfit for purpose.
- Reduce exposure to noise, vibration, ionising or other radiation, and substances not conducive to good health
- Ensure that the systems of work to complete tasks are properly planned, organised performed, maintained and revised as appropriate.
- Provide and maintain welfare facilities at locations under its control.
- Provide appropriate training, information and supervision.
- Provide suitable personal protective equipment where risks cannot be eliminated.
- Make provisions for procedures to be adopted in the case of an emergency or serious and imminent danger.
- Report accidents and dangerous occurrences.

- Obtaining where necessary the services of a competent person in order to meet their obligations under the Safety, Health and Welfare at Work Act 2005.

## 9.2 DUTIES OF THE EMPLOYEE

As well as employers having to take responsibility to ensure dredging operations are carried out in a safe manner in order to ensure the safety and health of all those who are engaged in the operation, there is also a duty upon each and every employee to ensure that their actions or omissions do not give rise to a situation where health and safety are compromised. Their duties include the following:-

- Take reasonable care to protect their own health and safety as well as the health and safety of any other person affected by their acts or omissions.
- Ensure they are not under the influence of an intoxicant.
- Co-operate with their employer so far as is necessary to enable the employer to comply with the relevant statutory provisions.
- Not engage in improper conduct that is likely to endanger his or her own safety or that of any other person.
- Attend such training as requested by his/her employer.
- Having regard to training and instructions given by the employer, the employee shall make correct use of any article or substance provided for use by the employee
- Report to his/her employer or any other appropriate person as soon as is practicable the following:
  - Any work being carried out, or likely to be carried out in a manner which might endanger the safety, health or welfare at work of the employee or that of any other person
  - Any defect in the place of work, the systems of work, any article or substance which might endanger the safety, health or welfare at work of the employee or that of any other person
  - Any contravention of the relevant statutory provisions which may endanger the safety, health and welfare at work of the employee or that of any other person.
- Abide by their work conditions which are specific to the position they hold.
- Abide by site specific safety plans
- Take all reasonable steps to ensure their own safety and that of others when carrying out their tasks.
- Comply with all aspects of relevant statutory instruments whilst carrying out their tasks.
- Ensure all ongoing works are left in a safe secure state and where this is not possible to safeguard uninvited access.

Specific preventative measures involving dredging operations shall include:-

- Only going to sea when it is safe to do so
- Load the vessel evenly so as to not unduly exert it to forces which could render the vessel unstable in the water.
- Inform other sea farers of dredging operations in advance of commencement.
- Have on board a signalling system which can be easily deployed to the emergency services if danger looms
- Have on board a horn to warn off other vessels if they are encroaching too close to the dredging vessels
- Vessels carrying out dredging operations shall be well lit up when working during hours of darkness.
- Ensure that the material is deposited at the designated dumpsite only and does not leak during transport operations.

## 10 EMERGENCY RESPONSE PROCEDURE

The most likely scenarios from an environmental viewpoint where an emergency response would be required would be the following:-

- (1) Release of material whilst being transported to dump area/site**
- (2) Dredger going on fire**
- (3) Oil spill from dredging vessel**
- (4) Dredger sinking/going aground**

### **(1) Release of material whilst being transported to dump area/site**

In the event of release of material whilst going to sea operations will be halted until such time as the leak remains unresolved or until a suitable fully functioning replacement vessel is deployed to carry out the operation. The Department of Agriculture, Food and Marine and the Environmental Protection Agency are to be informed as is the Environmental Section of Donegal County Council. The response of the marine mammal observer will be taken into account. Following discussions with all parties, guidance will be taken as to what other stakeholders are to be notified.

### **(2) Dredger going on fire**

Should the dredger go on fire the emergency services will be called upon to save life. The environmental fallout of such an event should be minimised as the cargo is inert and the silt is encapsulated by water. Immediate fire fighting action will be undertaken by crew members for as long as possible. Depending on the scale of the fire the vessel ought to be brought back to port where the emergency services fire fighting services can tackle the blaze. The response of the marine mammal observer will be taken into account. In such an event guidance will be taken from the Chief Fire Officer of Donegal County Council and/or Department of Agriculture, Food and the Marine as to what is the best policy to save life and reduce the potential damage to the environment.

### **(3) Oil spill from dredging vessel**

An oil spill from the dredger is a possibility, albeit small, as any adjacent rock outcrops are well marked, they appear on all the navigational charts and the vessel should not be travelling where water depth is less than her draft. Should oil be released as a result of an accident, Donegal County Council has a range of equipment including booms to help contain and gather any oil spillages. Equipment will also be deployed from the council's stock from Greencastle Harbour with additional equipment maintained by the Coast Guard at Killybegs Harbour. The Coast Guard will also be contacted to provide assistance with clean up operations as well as making sure other vessels in the area are made aware of the problem. The Environmental Protection Agency and the Sea Fisheries Protection Authority will be notified and the response of the marine mammal observer will be taken into account. Guidance from these authorities in conjunction with that received from the emergency services will be followed to help alleviate the threat to the marine environment.

### **(4) Dredger sinking/going aground**

The likelihood of the dredging vessel going aground or sinking is very slight but has to be considered. Once again the rock outcrops are well marked, the vessel itself is fitted with the latest sonar, telecommunication and computerised system to assist it to readily detect any unknowns in the water and stay out of trouble. Following on from the deployment of the Coast Guard and emergency services to save life the threat to the environment is dependent on what damage has taken place to the structure of the vessel as well as the location of the sinking/grounding. The most likely source of a threat to the marine environment is from an oil spill and the procedures outlined above will be put into play.

In all the above, the advice from the vessels operators and insurers would also have to be considered when weighing up the optimum measures to reduce the impact on the marine environment.

## 11 INVESTIGATION OF ALTERNATIVE RE-USES

A number of alternative approaches to Disposal at Sea by means of plough dredging/bed levelling adjacent to Bunrana Pier were examined as part of the DaS permit application, namely;

- a) Disposal on land at a waste facility;
- b) Deposit within a marine structure;
- c) Land reclamation on the coast or inland;
- d) Re-use on land in combination with another activity, e.g. agriculture;
- e) Disposal at Sea – at existing permitted DAS sites within the estuary or further afield.

In some ports and depending on the tidal regime, currents and the volume, other approaches such as these may suit. Another limiting factor is the availability of suitable dump sites or facilities on land.

The situation at Bunrana Pier is ideally suited to the use of a plough dredger as it gives each of use, less risk in terms of weather and availability and it is a proven method of dredging that has and is being used within Lough Swilly and at Bunrana Bay.

Maintaining consistent navigable depths at the pier is essential in order to provide continuous access for the RNLI Lifeboat. A plough can be easily deployed and has greater flexibility in terms of the time frame for deployment at the harbour and in particular when a storm or flood event will have caused immediate accumulation of material within the harbour. The option of procuring a dredger to come to port from a distant location to remove small quantities of material in a swift and cost effective manner is very difficult.

It was concluded that the use of a plough dredger as has been used for many years has proven to be the optimal approach for dredging at Bunrana Harbour. This method ensures local deposition within the designated dump site area with no negative environmental effects.

# **Appendix 1**

## Dredging/Dumping Logs

## REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	26/08/18	1659	Inner Pier	B'crana Pier	1702	Dump Site					Dump Site	
2	Sand/Silt			1706		B'crana Pier	1709						Dump Site	
3	Sand/Silt	"		1713	"	B'crana Pier	1717	"					Dump Site	
4	Sand/Silt			1720		B'crana Pier	1725						Dump Site	
5	Sand/Silt	"		1729	"	B'crana Pier	1732	"					Dump Site	
6	Sand/Silt			1738		B'crana Pier	1741						Dump Site	
7	Sand/Silt			1746		B'crana Pier	1750						Dump Site	
8	Sand/Silt			1755		B'crana Pier	1757						Dump Site	
9	Sand/Silt			1801		B'crana Pier	1805						Dump Site	
10	Sand/Silt			1809		B'crana Pier	1812						Dump Site	
11	Sand/Silt			1816		B'crana Pier	1819						Dump Site	
12	Sand/Silt			1824		B'crana Pier	1827						Dump Site	
13	Sand/Silt			1832		B'crana Pier	1835						Dump Site	
14	Sand/Silt			1841		B'crana Pier	1845						Dump Site	
15	Sand/Silt			1850		B'crana Pier	1854						Dump Site	
16	Sand/Silt			1858		B'crana Pier	1902						Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 80 MT

Cumulative Total: \_\_\_\_\_ MT

G.H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging  
*Departure Dumping.*

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	25/06/18	1638	Inner Pier.	B'crana Pier	1642	Dump Site.	1926	Inner Pier	1930	Dump Site	Dump Site	
2	Sand/Silt			1646		B'crana Pier	1650	"	1935		1941		Dump Site	
3	Sand/Silt	"		1654	"	B'crana Pier	1659		1944	"	1951	"	Dump Site	
4	Sand/Silt			1702		B'crana Pier	1707	"					Dump Site	
5	Sand/Silt	"		1711	"	B'crana Pier	1715		0719	"	0726	"	Dump Site	
6	Sand/Silt			1719		B'crana Pier	1723	"	0730		0735		Dump Site	
7	Sand/Silt	"		1727	"	B'crana Pier	1731		<del>07</del>	"		"	Dump Site	
8	Sand/Silt			1736		B'crana Pier	1741	"	1507		1515		Dump Site	
9	Sand/Silt	"		1744	"	B'crana Pier	1748		1518	"	1524	"	Dump Site	
10	Sand/Silt			1752		B'crana Pier	1756	"	1527		1531		Dump Site	
11	Sand/Silt	"		1800	"	B'crana Pier	1804		1535	"	1539	"	Dump Site	
12	Sand/Silt			1810		B'crana Pier	1814	"	1543		1550		Dump Site	
13	Sand/Silt	"		1818	"	B'crana Pier	1822		1555	"	1600	"	Dump Site	
14	Sand/Silt			1827		B'crana Pier	1831	"	1604		1607		Dump Site	
15	Sand/Silt	"		1836	"	B'crana Pier	1840		1611	"	1615	"	Dump Site	
16	Sand/Silt			1844		B'crana Pier	1848	"	1619		1623		Dump Site	
17	Sand/Silt	"		1852	"	B'crana Pier	1856		1627	"	1631	"	Dump Site	
18	Sand/Silt			1900		B'crana Pier	1904	"	1635		1639		Dump Site	
19	Sand/Silt	"		1908	"	B'crana Pier	1912		1642	"	1647	"	Dump Site	
20	Sand/Silt			1917		B'crana Pier	1921	"	1651		1654		Dump Site	

Total: 200 MT

Cumulative Total: \_\_\_\_\_ MT

G.H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

*Departure*                      *Dumping Start*

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		<del>Dumping End</del>		<del>Return</del>			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	24-8-18	1830	Inner Pier	B'crana Pier	1834	Dump site	0900	Inner Pier	0904	Dump Site	Dump Site	
2	Sand/Silt			1838		B'crana Pier	1842		0909		0913		Dump Site	
3	Sand/Silt	"		1846	"	B'crana Pier	1850	"	0917		0922		Dump Site	
4	Sand/Silt			1854		B'crana Pier	1858		0925		0930		Dump Site	
5	Sand/Silt	"		1902	"	B'crana Pier	1906	"	0934		0939		Dump Site	
6	Sand/Silt			1910		B'crana Pier	1914		0944		0948		Dump Site	
7	Sand/Silt	"		1918	"	B'crana Pier	1922	"	0952		0956		Dump Site	
8	Sand/Silt			1926		B'crana Pier	1930		1000		1004		Dump Site	
9	Sand/Silt	"		1934	"	B'crana Pier	1938	"	1008		1012		Dump Site	
10	Sand/Silt		25-8-18	0716		B'crana Pier	0723		1016		1020		Dump Site	
11	Sand/Silt	"		0727	"	B'crana Pier	0732	"	1505		1509		Dump Site	
12	Sand/Silt			0736		B'crana Pier	0741		1505		1520		Dump Site	
13	Sand/Silt	"		0745	"	B'crana Pier	0750	"	1525		1533		Dump Site	
14	Sand/Silt			0754		B'crana Pier	0759		1536		1542		Dump Site	
15	Sand/Silt	"		0803	"	B'crana Pier	0809	"	1545		1550		Dump Site	
16	Sand/Silt			0814		B'crana Pier	0820		1555		1600		Dump Site	
17	Sand/Silt	"		0824	"	B'crana Pier	0829	"	1603		1608		Dump Site	
18	Sand/Silt			0833		B'crana Pier	0839		1611		1615		Dump Site	
19	Sand/Silt	"		0842	"	B'crana Pier	0846	"	1619		1624		Dump Site	
20	Sand/Silt			0851		B'crana Pier	0855		1628		1634		Dump Site	

Total: 200 MT

Cumulative Total: \_\_\_\_\_ MT

G.H.



REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		<del>Departure</del>		<del>Dumping</del>			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	23/08/18	1410	Inner Pier	B'crana Pier	1415	Dump Site.	1715	Inner Pier	1719	Dump site	Dump Site	
2	Sand/Silt			1419		B'crana Pier	1424		1723	~	1728	~	Dump Site	
3	Sand/Silt	"		1428	"	B'crana Pier	1432	"	1731	~	1735	~	Dump Site	
4	Sand/Silt			1436		B'crana Pier	1440		1740	~	1744	~	Dump Site	
5	Sand/Silt	"		1444	"	B'crana Pier	1450	"	1748	~	1751	~	Dump Site	
6	Sand/Silt			1454		B'crana Pier	1459		1756	~	1800	~	Dump Site	
7	Sand/Silt	"		1502	"	B'crana Pier	1508	"	1804		1808		Dump Site	
8	Sand/Silt			1512		B'crana Pier	1518		1811		1815		Dump Site	
9	Sand/Silt	"		1521	"	B'crana Pier	1525	"	1818		1823		Dump Site	
10	Sand/Silt			1531		B'crana Pier	1535		1827		1831		Dump Site	
11	Sand/Silt			1541		B'crana Pier	1545		1834		1838		Dump Site	
12	Sand/Silt			1551		B'crana Pier	1554		1842		1846		Dump Site	
13	Sand/Silt			1609		B'crana Pier	1612		1850		1855		Dump Site	
14	Sand/Silt			1615		B'crana Pier	1620	24/08	0712		0718		Dump Site	
15	Sand/Silt			1625		B'crana Pier	1630		0721		0725		Dump Site	
16	Sand/Silt			1635		B'crana Pier	1639		0730		0737		Dump Site	
17	Sand/Silt			1643		B'crana Pier	1647		0740		0746		Dump Site	
18	Sand/Silt			1652		B'crana Pier	1656		0750		0755		Dump Site	
19	Sand/Silt			1700		B'crana Pier	1703		0758		0803		Dump Site	
20	Sand/Silt			1708		B'crana Pier	1711		0807		0811		Dump Site	

Total: 200 MT

Cumulative Total: \_\_\_\_\_ MT

C. H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-02 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	23/08/18	0715	Luner Pier	B'crana Pier	0720	Dump Site					Dump Site	
2	Sand/Silt			0723		B'crana Pier	0728						Dump Site	
3	Sand/Silt	"		0732	"	B'crana Pier	0739	"					Dump Site	
4	Sand/Silt			0742		B'crana Pier	0747						Dump Site	
5	Sand/Silt	"		0751	"	B'crana Pier	0757	"					Dump Site	
6	Sand/Silt			0800		B'crana Pier	0806						Dump Site	
7	Sand/Silt	"		0810	"	B'crana Pier	0815	"					Dump Site	
8	Sand/Silt			0818		B'crana Pier	0825						Dump Site	
9	Sand/Silt	"		0828	"	B'crana Pier	0834	"					Dump Site	
10	Sand/Silt			0837		B'crana Pier	0842						Dump Site	
11	Sand/Silt	"		0846	"	B'crana Pier	0852	"					Dump Site	
12	Sand/Silt			0855		B'crana Pier	0901						Dump Site	
13	Sand/Silt	"		0905	"	B'crana Pier	0909	"					Dump Site	
14	Sand/Silt			0915		B'crana Pier	0927						Dump Site	
15	Sand/Silt	"		1319	"	B'crana Pier	1325	"					Dump Site	
16	Sand/Silt			1328		B'crana Pier	1334						Dump Site	
17	Sand/Silt	"		1337	"	B'crana Pier	1343	"					Dump Site	
18	Sand/Silt			1345		B'crana Pier	1351						Dump Site	
19	Sand/Silt	"		1356	"	B'crana Pier	1358	"					Dump Site	
20	Sand/Silt			1402		B'crana Pier	1407						Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

C.H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

~~Departure~~ Departure      ~~Dumping~~ Dumping

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		<del>Dumping End</del>		<del>Return</del>			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5		1600	Inner Pier	B'crana Pier	1604	Dump Site	1905	Inner Pier	1910	Dump Site	Dump Site	
2	Sand/Silt			1609		B'crana Pier	1614		1914		1919		Dump Site	
3	Sand/Silt			1619		B'crana Pier	1624		1923		1928		Dump Site	
4	Sand/Silt			1628		B'crana Pier	1632		1932		1937		Dump Site	
5	Sand/Silt			1635		B'crana Pier	1640		1940		1945		Dump Site	
6	Sand/Silt			1641		B'crana Pier	1648						Dump Site	
7	Sand/Silt			1652		B'crana Pier	1659						Dump Site	
8	Sand/Silt			1700		B'crana Pier	1704						Dump Site	
9	Sand/Silt			1707		B'crana Pier	1713						Dump Site	
10	Sand/Silt			1717		B'crana Pier	1723						Dump Site	
11	Sand/Silt			1720		B'crana Pier	1732						Dump Site	
12	Sand/Silt			1737		B'crana Pier	1742						Dump Site	
13	Sand/Silt			1748		B'crana Pier	1755						Dump Site	
14	Sand/Silt			1759		B'crana Pier	1805						Dump Site	
15	Sand/Silt			1809		B'crana Pier	1814						Dump Site	
16	Sand/Silt			1819		B'crana Pier	1824						Dump Site	
17	Sand/Silt			1828		B'crana Pier	1833						Dump Site	
18	Sand/Silt			1837		B'crana Pier	1843						Dump Site	
19	Sand/Silt			1847		B'crana Pier	1852						Dump Site	
20	Sand/Silt			1856		B'crana Pier	1902						Dump Site	

Total: 125 MT

Cumulative Total: \_\_\_\_\_ MT

G-H

REGISTER OF LOADS DUMPED AT SEA

L 10.26  
H 17.15

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	22/06/18	1245	Inner Dias	B'crana Pier	1251	Dump Site					Dump Site	
2	Sand/Silt	"		1254	"	B'crana Pier	1259	"					Dump Site	
3	Sand/Silt			1302		B'crana Pier	1306						Dump Site	
4	Sand/Silt	"		1312	"	B'crana Pier	1315	"					Dump Site	
5	Sand/Silt			1320		B'crana Pier	1325						Dump Site	
6	Sand/Silt	"		1327	"	B'crana Pier	1332	"					Dump Site	
7	Sand/Silt			1336		B'crana Pier	1342						Dump Site	
8	Sand/Silt	"		1346	"	B'crana Pier	1349	"					Dump Site	
9	Sand/Silt			1353		B'crana Pier	1358						Dump Site	
10	Sand/Silt	"		1402	"	B'crana Pier	1406	"					Dump Site	
11	Sand/Silt			1410		B'crana Pier	1415						Dump Site	
12	Sand/Silt	"		1419	"	B'crana Pier	1424	"					Dump Site	
13	Sand/Silt			1429		B'crana Pier	1434						Dump Site	
14	Sand/Silt	"		1438	"	B'crana Pier	1444	"					Dump Site	
15	Sand/Silt			1446		B'crana Pier	1452						Dump Site	
16	Sand/Silt	"		1457	"	B'crana Pier	1502	"					Dump Site	
17	Sand/Silt			1505		B'crana Pier	1511						Dump Site	
18	Sand/Silt	"		1515	"	B'crana Pier	1521	"					Dump Site	
19	Sand/Silt			1525		B'crana Pier	1531						Dump Site	
20	Sand/Silt	"		1536	"	B'crana Pier	1541	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

C.H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-02 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Departure      Dumping

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		<del>Dumping Start</del>		<del>Dumping</del>			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	24/08/18	1452	Inner Pier	B'crana Pier	1459	Dump Site	1757	Inner Pier	1802	Dump Site	Dump Site	
2	Sand/Silt			1502		B'crana Pier	1509		1805		1816		Dump Site	
3	Sand/Silt	"		1512	"	B'crana Pier	1518	"	1814		1819		Dump Site	
4	Sand/Silt			1521		B'crana Pier	1525		1823		1828		Dump Site	
5	Sand/Silt	"		1530	"	B'crana Pier	1535	"	1833		1838		Dump Site	
6	Sand/Silt			1539		B'crana Pier	1544		1843		1847		Dump Site	
7	Sand/Silt	"		1549	"	B'crana Pier	1553	"	1851		1856		Dump Site	
8	Sand/Silt			1558		B'crana Pier	1603		1859		1905		Dump Site	
9	Sand/Silt	"		1607	"	B'crana Pier	1612	"	1909		1914		Dump Site	
10	Sand/Silt			1617		B'crana Pier	1621		1918		1923		Dump Site	
11	Sand/Silt	"		1625	"	B'crana Pier	1630	"	1927		1933		Dump Site	
12	Sand/Silt			1636		B'crana Pier	1641						Dump Site	
13	Sand/Silt	"		1646	"	B'crana Pier	1650	"					Dump Site	
14	Sand/Silt			1654		B'crana Pier	1658						Dump Site	
15	Sand/Silt	"		1703	"	B'crana Pier	1708	"					Dump Site	
16	Sand/Silt			1712		B'crana Pier	1716						Dump Site	
17	Sand/Silt	"		1720	"	B'crana Pier	1724	"					Dump Site	
18	Sand/Silt			1729		B'crana Pier	1734						Dump Site	
19	Sand/Silt	"		1738	"	B'crana Pier	1744	"					Dump Site	
20	Sand/Silt			1748		B'crana Pier	1753						Dump Site	

Total: 155 MT

Cumulative Total: \_\_\_\_\_ MT

C.H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	2/08/18	1141	Inner Riv.	B'crana Pier	1147	Dump Site					Dump Site	
2	Sand/Silt			1150		B'crana Pier	1158						Dump Site	
3	Sand/Silt	"		1201	"	B'crana Pier	1205						Dump Site	
4	Sand/Silt			1209		B'crana Pier	1214	"					Dump Site	
5	Sand/Silt	"		1218		B'crana Pier	1224						Dump Site	
6	Sand/Silt			1228	"	B'crana Pier	1233						Dump Site	
7	Sand/Silt	"		1237		B'crana Pier	1241						Dump Site	
8	Sand/Silt			1246		B'crana Pier	1251	"					Dump Site	
9	Sand/Silt	"		1256		B'crana Pier	1301						Dump Site	
10	Sand/Silt			1310	"	B'crana Pier	1315						Dump Site	
11	Sand/Silt	"		1318		B'crana Pier	1324	"					Dump Site	
12	Sand/Silt			1328		B'crana Pier	1334						Dump Site	
13	Sand/Silt	"		1338		B'crana Pier	1346						Dump Site	
14	Sand/Silt			1349	"	B'crana Pier	1354	"					Dump Site	
15	Sand/Silt	"		1357		B'crana Pier	1402						Dump Site	
16	Sand/Silt			1406		B'crana Pier	1412						Dump Site	
17	Sand/Silt	"		1416	"	B'crana Pier	1422	"					Dump Site	
18	Sand/Silt			1426		B'crana Pier	1431						Dump Site	
19	Sand/Silt	"		1435		B'crana Pier	1440						Dump Site	
20	Sand/Silt			1443	"	B'crana Pier	1448	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

*C.H.*

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	20-8-18	1700	Inner Pier	B'crana Pier	1705	Dump site					Dump Site	
2	Sand/Silt			1709		B'crana Pier	1714						Dump Site	
3	Sand/Silt			1718		B'crana Pier	1723						Dump Site	
4	Sand/Silt			1727		B'crana Pier	1731						Dump Site	
5	Sand/Silt			1735		B'crana Pier	1740						Dump Site	
6	Sand/Silt			1744		B'crana Pier	1748						Dump Site	
7	Sand/Silt			1752		B'crana Pier	1756						Dump Site	
8	Sand/Silt			1801		B'crana Pier	1806						Dump Site	
9	Sand/Silt			1811		B'crana Pier	1816						Dump Site	
10	Sand/Silt			1820		B'crana Pier	1825						Dump Site	
11	Sand/Silt			1828		B'crana Pier	1836						Dump Site	
12	Sand/Silt					B'crana Pier							Dump Site	
13	Sand/Silt					B'crana Pier							Dump Site	
14	Sand/Silt					B'crana Pier							Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 55 MT

Cumulative Total: \_\_\_\_\_ MT

C. H.

REGISTER OF LOADS DUMPED AT SEA

L 0824  
H 1456  
L 2101

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5T	20/08/18	1357	Inner Pier	B'crana Pier	1403	Dump Site					Dump Site	
2	Sand/Silt			1406		B'crana Pier	1411						Dump Site	
3	Sand/Silt	"		1415	"	B'crana Pier	1421	"					Dump Site	
4	Sand/Silt			1425		B'crana Pier	1429						Dump Site	
5	Sand/Silt	"		1433	"	B'crana Pier	1440	"					Dump Site	
6	Sand/Silt			1442		B'crana Pier	1448						Dump Site	
7	Sand/Silt	"		1452	"	B'crana Pier	1455	"					Dump Site	
8	Sand/Silt			1500		B'crana Pier	1505						Dump Site	
9	Sand/Silt			1509		B'crana Pier	1515						Dump Site	
10	Sand/Silt			1519		B'crana Pier	1524						Dump Site	
11	Sand/Silt			1528		B'crana Pier	1535						Dump Site	
12	Sand/Silt			1538		B'crana Pier	1544						Dump Site	
13	Sand/Silt			1548		B'crana Pier	1553						Dump Site	
14	Sand/Silt			1557		B'crana Pier	1601						Dump Site	
15	Sand/Silt			1605		B'crana Pier	1610						Dump Site	
16	Sand/Silt			1615		B'crana Pier	1619						Dump Site	
17	Sand/Silt			1623		B'crana Pier	1629						Dump Site	
18	Sand/Silt			1633		B'crana Pier	1638						Dump Site	
19	Sand/Silt			1642		B'crana Pier	1647						Dump Site	
20	Sand/Silt			1651		B'crana Pier	1656						Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT G.H.

REGISTER OF LOADS DUMPED AT SEA

L 0824  
H 1456  
L 2101

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	20/06/18	10:51	Inner Har.	B'crana Pier	10:57	Dumpsite					Dump Site	
2	Sand/Silt			11:03		B'crana Pier	11:07						Dump Site	
3	Sand/Silt	"		11:13	"	B'crana Pier	11:18	"					Dump Site	
4	Sand/Silt			11:23		B'crana Pier	11:28						Dump Site	
5	Sand/Silt	"		11:31	"	B'crana Pier	11:37	"					Dump Site	
6	Sand/Silt			11:41		B'crana Pier	11:47						Dump Site	
7	Sand/Silt	"		11:51	"	B'crana Pier	11:56	"					Dump Site	
8	Sand/Silt			12:01		B'crana Pier	12:06						Dump Site	
9	Sand/Silt	"		12:10	"	B'crana Pier	12:14	"					Dump Site	
10	Sand/Silt			12:18		B'crana Pier	12:23						Dump Site	
11	Sand/Silt	"		12:27	"	B'crana Pier	12:33	"					Dump Site	
12	Sand/Silt			12:37		B'crana Pier	12:42						Dump Site	
13	Sand/Silt	"		12:45	"	B'crana Pier	12:50	"					Dump Site	
14	Sand/Silt			12:53		B'crana Pier	13:00						Dump Site	
15	Sand/Silt	"		13:03	"	B'crana Pier	13:09	"					Dump Site	
16	Sand/Silt			13:14		B'crana Pier	13:19						Dump Site	
17	Sand/Silt	"		13:22	"	B'crana Pier	13:27	"					Dump Site	
18	Sand/Silt			13:31		B'crana Pier	13:36						Dump Site	
19	Sand/Silt	"		13:39	"	B'crana Pier	13:43	"					Dump Site	
20	Sand/Silt			13:48		B'crana Pier	13:53						Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G. H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	19-8-18	1605	Inner Pier	B'crana Pier	1610	Dump Site					Dump Site	
2	Sand/Silt			1614		B'crana Pier	1619						Dump Site	
3	Sand/Silt			1622		B'crana Pier	1628						Dump Site	
4	Sand/Silt			1631		B'crana Pier	1636						Dump Site	
5	Sand/Silt			1640		B'crana Pier	1644						Dump Site	
6	Sand/Silt			1648		B'crana Pier	1653						Dump Site	
7	Sand/Silt			1657		B'crana Pier	1702						Dump Site	
8	Sand/Silt			1708		B'crana Pier	1709						Dump Site	
9	Sand/Silt			1714		B'crana Pier	1719						Dump Site	
10	Sand/Silt			1723		B'crana Pier	1728						Dump Site	
11	Sand/Silt			1733		B'crana Pier	1739						Dump Site	
12	Sand/Silt			1742		B'crana Pier	1748						Dump Site	
13	Sand/Silt					B'crana Pier							Dump Site	
14	Sand/Silt					B'crana Pier							Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 60 MT

Cumulative Total:                      MT

F.H.

REGISTER OF LOADS DUMPED AT SEA

L7-14  
H13-12  
L19-55

Permit No.: \_S0011-02\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	19/08/18	1303	Inner Pier	B'crana Pier	1307	Dump Site.					Dump Site	
2	Sand/Silt	"		1311	(Steps out)	B'crana Pier	1317						Dump Site	
3	Sand/Silt			1321	"	B'crana Pier	1326	"					Dump Site	
4	Sand/Silt	"		1330		B'crana Pier	1334						Dump Site	
5	Sand/Silt			1339	"	B'crana Pier	1343	"					Dump Site	
6	Sand/Silt	"		1347		B'crana Pier	1352						Dump Site	
7	Sand/Silt			1357	"	B'crana Pier	1401	"					Dump Site	
8	Sand/Silt	"		1406		B'crana Pier	1410						Dump Site	
9	Sand/Silt			1414		B'crana Pier	1418						Dump Site	
10	Sand/Silt			1422		B'crana Pier	1427						Dump Site	
11	Sand/Silt			1435		B'crana Pier	1439						Dump Site	
12	Sand/Silt			1444		B'crana Pier	1448						Dump Site	
13	Sand/Silt			1453		B'crana Pier	1457						Dump Site	
14	Sand/Silt			1501		B'crana Pier	1505						Dump Site	
15	Sand/Silt			1510		B'crana Pier	1514						Dump Site	
16	Sand/Silt			1519		B'crana Pier	1523						Dump Site	
17	Sand/Silt			1528		B'crana Pier	1533						Dump Site	
18	Sand/Silt			1536		B'crana Pier	1541						Dump Site	
19	Sand/Silt			1545		B'crana Pier	1551						Dump Site	
20	Sand/Silt			1555		B'crana Pier	1601						Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H.

L 7-14  
 H 13.12  
~~0-54~~  
 L 19.55

REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	19/08/18	0940	Inner Pier	B'crana Pier	0945	Dump Site					Dump Site	
2	Sand/Silt	"		0950	"	B'crana Pier	0956	"					Dump Site	
3	Sand/Silt			1000		B'crana Pier	1006						Dump Site	
4	Sand/Silt	"		1011	"	B'crana Pier	1017	"					Dump Site	
5	Sand/Silt			1022		B'crana Pier	1027						Dump Site	
6	Sand/Silt	"		1032	"	B'crana Pier	1038	"					Dump Site	
7	Sand/Silt			1042		B'crana Pier	1044						Dump Site	
8	Sand/Silt	"		1053	"	B'crana Pier	1054	"					Dump Site	
9	Sand/Silt			1103		B'crana Pier	1106						Dump Site	
10	Sand/Silt	"		1113	"	B'crana Pier	1114	"					Dump Site	
11	Sand/Silt			1123		B'crana Pier	1124						Dump Site	
12	Sand/Silt	"		1133	"	B'crana Pier	1145	"					Dump Site	
13	Sand/Silt			1144		B'crana Pier	1155						Dump Site	
14	Sand/Silt	"		1154	"	B'crana Pier	1205	"					Dump Site	
15	Sand/Silt			1206		B'crana Pier	1213						Dump Site	
16	Sand/Silt	"		1217	"	B'crana Pier	1221	"					Dump Site	
17	Sand/Silt			1228		B'crana Pier	1232						Dump Site	
18	Sand/Silt	"		1236	"	B'crana Pier	1241	"					Dump Site	
19	Sand/Silt			1246		B'crana Pier	1250						Dump Site	
20	Sand/Silt	"		1254	"	B'crana Pier	1259	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G. H.

### REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	18-9-18	1449	Inner Pier	B'crana Pier	1453	Dump site					Dump Site	
2	Sand/Silt		-	1457		B'crana Pier	1501						Dump Site	
3	Sand/Silt		--	1505		B'crana Pier	1509						Dump Site	
4	Sand/Silt		--	1513		B'crana Pier	1518						Dump Site	
5	Sand/Silt		--	1522		B'crana Pier	1525						Dump Site	
6	Sand/Silt		--	1529		B'crana Pier	1534						Dump Site	
7	Sand/Silt		--	1538		B'crana Pier	1543						Dump Site	
8	Sand/Silt		--	1547		B'crana Pier	1550						Dump Site	
9	Sand/Silt		--	1555		B'crana Pier	1559						Dump Site	
10	Sand/Silt		--	1603		B'crana Pier	1608						Dump Site	
11	Sand/Silt		--	1611		B'crana Pier	1616						Dump Site	
12	Sand/Silt					B'crana Pier							Dump Site	
13	Sand/Silt					B'crana Pier							Dump Site	
14	Sand/Silt					B'crana Pier							Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 55 MT

Cumulative Total: \_\_\_\_\_ MT

G-H-

REGISTER OF LOADS DUMPED AT SEA

L 2606 1.5  
H 1208 3.7  
L 1840 1.8

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		<del>Departure</del>		<del>Dumping</del>			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.	18/08/18	0845	Inner Pier	B'crana Pier	0852	Dumpsite		Inner Pier.		Dumpsite	Dump Site	
2	Sand/Silt			0855	"	B'crana Pier	0859	"	1210	"	1215	"	Dump Site	
3	Sand/Silt	"		0904	"	B'crana Pier	0911	"	1220	"	1225	"	Dump Site	
4	Sand/Silt			0914	"	B'crana Pier	0922	"	1228	"	1232	"	Dump Site	
5	Sand/Silt	"		0924	"	B'crana Pier	0932	"	1237	"	1241	"	Dump Site	
6	Sand/Silt			0936	"	B'crana Pier	0943	"	1246	"	1249	"	Dump Site	
7	Sand/Silt	"		0948	"	B'crana Pier	0953	"	1254	"	1257	"	Dump Site	
8	Sand/Silt			0958	"	B'crana Pier	1004	"	1304	"	1307	"	Dump Site	
9	Sand/Silt	"		1007	"	B'crana Pier	1015	"	1312	"	1315	"	Dump Site	
10	Sand/Silt			1019	"	B'crana Pier	1024	"	1320	"	1324	"	Dump Site	
11	Sand/Silt	"		1028	"	B'crana Pier	1035	"	1328	"	1334	"	Dump Site	
12	Sand/Silt			1039	"	B'crana Pier	1046	"	1341	"	1344	"	Dump Site	
13	Sand/Silt			1052	"	B'crana Pier	1056	"	1349	"	1351	"	Dump Site	
14	Sand/Silt	"		1100	"	B'crana Pier	1105	"	1355	"	1359	"	Dump Site	
15	Sand/Silt			1109	"	B'crana Pier	1115	"	1402	"	1407	"	Dump Site	
16	Sand/Silt	"		1119	"	B'crana Pier	1125	"	1411	"	1414	"	Dump Site	
17	Sand/Silt			1129	"	B'crana Pier	1135	"	1419	"	1422	"	Dump Site	
18	Sand/Silt	"		1139	"	B'crana Pier	1146	"	1427	"	1430	"	Dump Site	
19	Sand/Silt			1149	"	B'crana Pier	1155	"	1434	"	1437	"	Dump Site	
20	Sand/Silt	"		1158	"	B'crana Pier	1205	"	1440	"	1445	"	Dump Site	

Total: 200 MT

Cumulative Total: \_\_\_\_\_ MT

C.H.

## REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	12-8-18	1318	Inner Pier	B'crana Pier	1322	Dumpsite					Dump Site	
2	Sand/Silt			1327	-	B'crana Pier	1329	-					Dump Site	
3	Sand/Silt			1335	-	B'crana Pier	1337	-					Dump Site	
4	Sand/Silt			1341	-	B'crana Pier	1345	-					Dump Site	
5	Sand/Silt			1348	-	B'crana Pier	1352	-					Dump Site	
6	Sand/Silt			1355	-	B'crana Pier	1359	-					Dump Site	
7	Sand/Silt			1404	-	B'crana Pier	1407	-					Dump Site	
8	Sand/Silt			1410	-	B'crana Pier	1414	-					Dump Site	
9	Sand/Silt			1417	-	B'crana Pier	1420	-					Dump Site	
10	Sand/Silt			1424	-	B'crana Pier	1428	-					Dump Site	
11	Sand/Silt			1431	-	B'crana Pier	1434	-					Dump Site	
12	Sand/Silt			1437	-	B'crana Pier	1440	-					Dump Site	
13	Sand/Silt			1443	-	B'crana Pier	1446	-					Dump Site	
14	Sand/Silt			1449	-	B'crana Pier	1453	-					Dump Site	
15	Sand/Silt			1457		B'crana Pier	1500						Dump Site	
16	Sand/Silt			1507		B'crana Pier	1510						Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 80 MT

Cumulative Total: \_\_\_\_\_ MT

C. H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-03\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt		17/08/18	1035	Inner Har.	B'crana Pier	1040	Dump Area					Dump Site	
2	Sand/Silt			1043	"	B'crana Pier	1047	"					Dump Site	
3	Sand/Silt			1050	"	B'crana Pier	1055	"					Dump Site	
4	Sand/Silt			1057	"	B'crana Pier	1102	"					Dump Site	
5	Sand/Silt			1106		B'crana Pier	1110						Dump Site	
6	Sand/Silt			1114		B'crana Pier	1118						Dump Site	
7	Sand/Silt			1123		B'crana Pier	1126						Dump Site	
8	Sand/Silt			1132		B'crana Pier	1037						Dump Site	
9	Sand/Silt			1141		B'crana Pier	1145						Dump Site	
10	Sand/Silt			1149		B'crana Pier	1153						Dump Site	
11	Sand/Silt			1157		B'crana Pier	1201						Dump Site	
12	Sand/Silt			1205		B'crana Pier	1208						Dump Site	
13	Sand/Silt			1213		B'crana Pier	1217						Dump Site	
14	Sand/Silt			1220		B'crana Pier	1225						Dump Site	
15	Sand/Silt			1229		B'crana Pier	1233						Dump Site	
16	Sand/Silt			1237		B'crana Pier	1242						Dump Site	
17	Sand/Silt			1246		B'crana Pier	1251						Dump Site	
18	Sand/Silt			1254		B'crana Pier	1259						Dump Site	
19	Sand/Silt			1304		B'crana Pier	1307						Dump Site	
20	Sand/Silt			1311		B'crana Pier	1314						Dump Site	

Total: \_\_\_\_\_ MT

Cumulative Total: \_\_\_\_\_ MT

REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	17/08/18	0748	Inner Pier	B'crana Pier	0754	Dump site.					Dump Site	
2	Sand/Silt	"		0758	(steps out)	B'crana Pier	0803	"					Dump Site	
3	Sand/Silt	"		0807	"	B'crana Pier	0811	"					Dump Site	
4	Sand/Silt	"		0815	"	B'crana Pier	0820	"					Dump Site	
5	Sand/Silt	"		0824	"	B'crana Pier	0829	"					Dump Site	
6	Sand/Silt	"		0831	"	B'crana Pier	0836	"					Dump Site	
7	Sand/Silt	"		0839	"	B'crana Pier	0843	"					Dump Site	
8	Sand/Silt	"		0847	"	B'crana Pier	0850	"					Dump Site	
9	Sand/Silt	"		0855	"	B'crana Pier	0857	"					Dump Site	
10	Sand/Silt	"		0903	"	B'crana Pier	0907	"					Dump Site	
11	Sand/Silt	"		0913	"	B'crana Pier	0916	"					Dump Site	
12	Sand/Silt	"		0918	"	B'crana Pier	0924	"					Dump Site	
13	Sand/Silt	"		0928	"	B'crana Pier	0932	"					Dump Site	
14	Sand/Silt	"		0935	"	B'crana Pier	0940	"					Dump Site	
15	Sand/Silt	"		0945	"	B'crana Pier	0949	"					Dump Site	
16	Sand/Silt	"		0953	"	B'crana Pier	0957	"					Dump Site	
17	Sand/Silt	"		1001	"	B'crana Pier	1006	"					Dump Site	
18	Sand/Silt	"		1009	"	B'crana Pier	1014	"					Dump Site	
19	Sand/Silt	"		1018	"	B'crana Pier	1024	"					Dump Site	
20	Sand/Silt	"		1027	"	B'crana Pier	1032	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

C.H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	16-8-18	1301	Inner Pier	B'crana Pier	1305	Dump site					Dump Site	
2	Sand/Silt	"		1309	"	B'crana Pier	1313	"					Dump Site	
3	Sand/Silt	"		1317	"	B'crana Pier	1321	"					Dump Site	
4	Sand/Silt	"		1325	"	B'crana Pier	1329	"					Dump Site	
5	Sand/Silt	"		1333	"	B'crana Pier	1337	"					Dump Site	
6	Sand/Silt	"		1341	"	B'crana Pier	1345	"					Dump Site	
7	Sand/Silt	"		1350	"	B'crana Pier	1355	"					Dump Site	
8	Sand/Silt	"		1359	"	B'crana Pier	1402	"					Dump Site	
9	Sand/Silt	"		1407	"	B'crana Pier	1411	"					Dump Site	
10	Sand/Silt	"		1416	"	B'crana Pier	1419	"					Dump Site	
11	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
12	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
13	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
14	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
15	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
16	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
17	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
18	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
19	Sand/Silt	"			"	B'crana Pier		"					Dump Site	
20	Sand/Silt	"			"	B'crana Pier		"					Dump Site	

Total: 50 MT

Cumulative Total: \_\_\_\_\_ MT

G.H.

### REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	16/08/16	10.12	Inner Pier	B'crana Pier	10.15	Dump Site					Dump Site	
2	Sand/Silt	"		10.19	"	B'crana Pier	10.25	"					Dump Site	
3	Sand/Silt	"		10.29	"	B'crana Pier	10.36	"					Dump Site	
4	Sand/Silt	"		10.38	"	B'crana Pier	10.45	"					Dump Site	
5	Sand/Silt	"		10.47	"	B'crana Pier	10.53	"					Dump Site	
6	Sand/Silt	"		10.56	"	B'crana Pier	10.59	"					Dump Site	
7	Sand/Silt	"		11.04	"	B'crana Pier	11.07	"					Dump Site	
8	Sand/Silt	"		11.13	"	B'crana Pier	11.19	"					Dump Site	
9	Sand/Silt	"		11.23	"	B'crana Pier	11.26	"					Dump Site	
10	Sand/Silt	"		11.29	"	B'crana Pier	11.34	"					Dump Site	
11	Sand/Silt	"		11.38	"	B'crana Pier	11.42	"					Dump Site	
12	Sand/Silt	"		11.47	"	B'crana Pier	11.51	"					Dump Site	
13	Sand/Silt	"		11.55	"	B'crana Pier	12.00	"					Dump Site	
14	Sand/Silt	"		12.05	"	B'crana Pier	12.09	"					Dump Site	
15	Sand/Silt	"		12.13	"	B'crana Pier	12.17	"					Dump Site	
16	Sand/Silt	"		12.21	"	B'crana Pier	12.25	"					Dump Site	
17	Sand/Silt	"		12.29	"	B'crana Pier	12.33	"					Dump Site	
18	Sand/Silt	"		12.36	"	B'crana Pier	12.41	"					Dump Site	
19	Sand/Silt	"		12.44	"	B'crana Pier	12.48	"					Dump Site	
20	Sand/Silt	"		12.52	"	B'crana Pier	12.57	"					Dump Site	

Total: \_\_\_\_\_ MT

Cumulative Total: \_\_\_\_\_ MT

G. H.

REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5	16/04/18	0707	Innes Pier	B'crana Pier	0711	Dumpsite.					Dump Site	
2	Sand/Silt	"		0716	"	B'crana Pier	0723	"					Dump Site	
3	Sand/Silt	"		0726	"	B'crana Pier	0731	"					Dump Site	
4	Sand/Silt	"		0735	"	B'crana Pier	0741	"					Dump Site	
5	Sand/Silt	"		0744	"	B'crana Pier	0750	"					Dump Site	
6	Sand/Silt	"		0753	"	B'crana Pier	0759	"					Dump Site	
7	Sand/Silt	"		0802	"	B'crana Pier	0809	"					Dump Site	
8	Sand/Silt	"		0812	"	B'crana Pier	0817	"					Dump Site	
9	Sand/Silt	"		0820	"	B'crana Pier	0827	"					Dump Site	
10	Sand/Silt	"		0830	"	B'crana Pier	0836	"					Dump Site	
11	Sand/Silt	"		0839	"	B'crana Pier	0844	"					Dump Site	
12	Sand/Silt	"		0849	"	B'crana Pier	0854	"					Dump Site	
13	Sand/Silt	"		0859	"	B'crana Pier	0903	"					Dump Site	
14	Sand/Silt	"		0908	"	B'crana Pier	0913	"					Dump Site	
15	Sand/Silt	"		0917	"	B'crana Pier	0922	"					Dump Site	
16	Sand/Silt	"		0927	"	B'crana Pier	0933	"					Dump Site	
17	Sand/Silt	"		0936	"	B'crana Pier	0942	"					Dump Site	
18	Sand/Silt	"		0947	"	B'crana Pier	0951	"					Dump Site	
19	Sand/Silt	"		0955	"	B'crana Pier	1000	"					Dump Site	
20	Sand/Silt	"		1003	"	B'crana Pier	1008	"					Dump Site	

Total: \_\_\_\_\_ MT

Cumulative Total: \_\_\_\_\_ MT

C-11

REGISTER OF LOADS DUMPED AT SEA

L 03:40 0.2m  
 H 09:44 4.5m  
 L 15:56 0.7m  
 H 21:59 4.5m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	15/08/18	12:46	INNER PIER	B'crana Pier	12:49	DUMP SITE		<del>DUMP SITE</del>			Dump Site	
2	Sand/Silt	"	"	12:53	"	B'crana Pier	12:57	"					Dump Site	
3	Sand/Silt	"	"	13:00	"	B'crana Pier	13:04	"					Dump Site	
4	Sand/Silt	"	"	13:08	"	B'crana Pier	13:14	"					Dump Site	
5	Sand/Silt	"	"	13:17	"	B'crana Pier	13:20	"					Dump Site	
6	Sand/Silt	"	"	13:27	"	B'crana Pier	13:34	"					Dump Site	
7	Sand/Silt	"	"	18:10	Inner Pier	B'crana Pier	18:18	Dump Site					Dump Site	
8	Sand/Silt	"	"	18:25	"	B'crana Pier	18:32	"					Dump Site	
9	Sand/Silt	"	"	18:35	"	B'crana Pier	18:42	"					Dump Site	
10	Sand/Silt	"	"	18:46	"	B'crana Pier	18:53	"					Dump Site	
11	Sand/Silt	"	"	18:58	"	B'crana Pier	19:07	"					Dump Site	
12	Sand/Silt	"	"	19:09	"	B'crana Pier	19:18	"					Dump Site	
13	Sand/Silt	"	"	19:21	"	B'crana Pier	19:28	"					Dump Site	
14	Sand/Silt	"	"	19:32	"	B'crana Pier	19:37	"					Dump Site	
15	Sand/Silt	"	"	19:41	"	B'crana Pier	19:46	"					Dump Site	
16	Sand/Silt	"	"	19:50	"	B'crana Pier	19:55	"					Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 80 MT

Cumulative Total: \_\_\_\_\_ MT

CH

REGISTER OF LOADS DUMPED AT SEA

L 03:40 6.2m  
 H 09:44 4.5m  
 L 15:56 0.7m  
 H 21:59 4.5m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5 T	15/08/18	08:51	SHIP/HEADWAY/PIER	B'crana Pier	08:57	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	09:00	"	B'crana Pier	09:08	"					Dump Site	
3	Sand/Silt	"	"	09:15	INNER PIER	B'crana Pier	09:24	"					Dump Site	
4	Sand/Silt	"	"	09:32	"	B'crana Pier	09:38	"					Dump Site	
5	Sand/Silt	"	"	09:43	"	B'crana Pier	09:49	"					Dump Site	
6	Sand/Silt	"	"	09:54	"	B'crana Pier	10:00	"					Dump Site	
7	Sand/Silt	"	"	10:04	"	B'crana Pier	10:10	"					Dump Site	
8	Sand/Silt	"	"	10:13	"	B'crana Pier	10:21	"					Dump Site	
9	Sand/Silt	"	"	10:26	"	B'crana Pier	10:33	"					Dump Site	
10	Sand/Silt	"	"	10:37	"	B'crana Pier	10:45	"					Dump Site	
11	Sand/Silt	"	"	10:49	"	B'crana Pier	10:56	"					Dump Site	
12	Sand/Silt	"	"	11:00	"	B'crana Pier	11:06	"					Dump Site	
13	Sand/Silt	"	"	11:14	"	B'crana Pier	11:18	"					Dump Site	
14	Sand/Silt	"	"	11:22	"	B'crana Pier	11:28	"					Dump Site	
15	Sand/Silt	"	"	11:35	"	B'crana Pier	11:39	"					Dump Site	
16	Sand/Silt	"	"	11:43	"	B'crana Pier	11:46	"					Dump Site	
17	Sand/Silt	"	"	11:50	"	B'crana Pier	11:53	"					Dump Site	
18	Sand/Silt	"	"	11:57	"	B'crana Pier	12:01	"					Dump Site	
19	Sand/Silt	"	"	12:10	"	B'crana Pier	12:15	"					Dump Site	
20	Sand/Silt	"	"	12:38	"	B'crana Pier	12:42	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

## REGISTER OF LOADS DUMPED AT SEA

L 03:41 0-9m  
 H 09:47 3-9m  
 L 15:53 1-2m  
 H 21:53 4.0m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5 . T	02/08/18	12:50	INNER PIER	B'crana Pier	12:55	DUMP SITE					Dump Site	
2	Sand/Silt	''	''	13:00	''	B'crana Pier	13:05	''					Dump Site	
3	Sand/Silt	''	''	13:10	''	B'crana Pier	13:15	''					Dump Site	
4	Sand/Silt			13:15		B'crana Pier	13:20						Dump Site	
5	Sand/Silt					B'crana Pier							Dump Site	
6	Sand/Silt					B'crana Pier							Dump Site	
7	Sand/Silt					B'crana Pier							Dump Site	
8	Sand/Silt					B'crana Pier							Dump Site	
9	Sand/Silt					B'crana Pier							Dump Site	
10	Sand/Silt					B'crana Pier							Dump Site	
11	Sand/Silt					B'crana Pier							Dump Site	
12	Sand/Silt					B'crana Pier							Dump Site	
13	Sand/Silt					B'crana Pier							Dump Site	
14	Sand/Silt					B'crana Pier							Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 20 MT      Cumulative Total: \_\_\_\_\_ MT      G.H

REGISTER OF LOADS DUMPED AT SEA

L 03:41 0.9m  
 H 09:47 3.9m  
 L 15:53 1.2m  
 H 21:53 4.0m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	01/08/18	09:40	INNER PIER	B'crana Pier	09:46	Dump SITE					Dump Site	
2	Sand/Silt	11	11	09:51	11	B'crana Pier	09:55	11					Dump Site	
3	Sand/Silt	11	11	10:00	11	B'crana Pier	10:05	11					Dump Site	
4	Sand/Silt	11	11	10:10	11	B'crana Pier	10:15	11					Dump Site	
5	Sand/Silt	11	11	10:20	11	B'crana Pier	10:24	11					Dump Site	
6	Sand/Silt	11	11	10:29	11	B'crana Pier	10:32	11					Dump Site	
7	Sand/Silt	11	11	10:36	11	B'crana Pier	10:40	11					Dump Site	
8	Sand/Silt	11	11	10:46	11	B'crana Pier	10:51	11					Dump Site	
9	Sand/Silt	11	11	10:55	11	B'crana Pier	11:01	11					Dump Site	
10	Sand/Silt	11	11	11:05	11	B'crana Pier	11:11	11					Dump Site	
11	Sand/Silt	11	11	11:15	11	B'crana Pier	11:20	11					Dump Site	
12	Sand/Silt	11	11	11:25	11	B'crana Pier	11:30	11					Dump Site	
13	Sand/Silt	11	11	11:36	11	B'crana Pier	11:40	11					Dump Site	
14	Sand/Silt	11	11	11:45	11	B'crana Pier	11:50	11					Dump Site	
15	Sand/Silt	11	11	11:55	11	B'crana Pier	12:00	11					Dump Site	
16	Sand/Silt	11	11	12:05	11	B'crana Pier	12:10	11					Dump Site	
17	Sand/Silt	11	11	12:15	11	B'crana Pier	12:20	11					Dump Site	
18	Sand/Silt	11	11	12:24	11	B'crana Pier	12:29	11					Dump Site	
19	Sand/Silt	11	11	12:33	11	B'crana Pier	12:37	11					Dump Site	
20	Sand/Silt	11	11	12:43	11	B'crana Pier	12:47	11					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

L 03:41 09m  
 H 09:47 3.9m  
 L 15:53 1.2m  
 H 21:53 4.0m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	01/08/18	07:07	PIER HEAD / Slip WAY	B'crana Pier	07:10	DUMPSITE					Dump Site	
2	Sand/Silt	11	11	07:14	11	B'crana Pier	07:16	11					Dump Site	
3	Sand/Silt	11	11	07:20	11	B'crana Pier	07:23	11					Dump Site	
4	Sand/Silt	11	11	07:27	11	B'crana Pier	07:30	11					Dump Site	
5	Sand/Silt	11	11	07:33	11	B'crana Pier	07:37	11					Dump Site	
6	Sand/Silt	11	11	07:40	11	B'crana Pier	07:43	11					Dump Site	
7	Sand/Silt	11	11	07:46	11	B'crana Pier	07:50	11					Dump Site	
8	Sand/Silt	11	11	07:53	11	B'crana Pier	07:56	11					Dump Site	
9	Sand/Silt	11	11	08:00	11	B'crana Pier	08:04	11					Dump Site	
10	Sand/Silt	11	11	08:06	11	B'crana Pier	08:10	11					Dump Site	
11	Sand/Silt	11	11	08:13	11	B'crana Pier	08:17	11					Dump Site	
12	Sand/Silt	11	11	08:20	11	B'crana Pier	08:24	11					Dump Site	
13	Sand/Silt	11	11	08:27	11	B'crana Pier	08:30	11					Dump Site	
14	Sand/Silt	11	11	08:33	11	B'crana Pier	08:36	11					Dump Site	
15	Sand/Silt	11	11	08:40	11	B'crana Pier	08:43	11					Dump Site	
16	Sand/Silt	11	11	08:47	11	B'crana Pier	08:49	11					Dump Site	
17	Sand/Silt	11	11	08:53	11	B'crana Pier	08:56	11					Dump Site	
18	Sand/Silt	11	11	09:15	INNER PIER	B'crana Pier	09:20	11					Dump Site	
19	Sand/Silt	11	11	09:23	11	B'crana Pier	09:28	11					Dump Site	
20	Sand/Silt	11	11	09:32	11	B'crana Pier	09:36	11					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

**REGISTER OF LOADS DUMPED AT SEA**

L 03:05 0.8m  
 H 09:18 4.0m  
 L 15:16 1.0m  
 H 21:24 4.0m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5 T	31/07/18	18:11	HEAD PIER / SLIP WAY	B'crana Pier	18:15	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	18:18	"	B'crana Pier	18:20	"					Dump Site	
3	Sand/Silt	"	"	18:24	"	B'crana Pier	18:30	"					Dump Site	
4	Sand/Silt	"	"	18:31	"	B'crana Pier	18:36	"					Dump Site	
5	Sand/Silt	"	"	18:38	"	B'crana Pier	18:40	"					Dump Site	
6	Sand/Silt					B'crana Pier							Dump Site	
7	Sand/Silt					B'crana Pier							Dump Site	
8	Sand/Silt					B'crana Pier							Dump Site	
9	Sand/Silt					B'crana Pier							Dump Site	
10	Sand/Silt					B'crana Pier							Dump Site	
11	Sand/Silt					B'crana Pier							Dump Site	
12	Sand/Silt					B'crana Pier							Dump Site	
13	Sand/Silt					B'crana Pier							Dump Site	
14	Sand/Silt					B'crana Pier							Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 25 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

L 03:05 0.8m  
 H 09:18 4.0m  
 L 15:16 2.1m  
 H 21:24 4.1m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5+	31/07/18	10:06	INNER PIER	B'crana Pier	10:12	DUMPSITE					Dump Site	
2	Sand/Silt		"	10:16	"	B'crana Pier	10:21	"					Dump Site	
3	Sand/Silt		"	10:25	"	B'crana Pier	10:30	"					Dump Site	
4	Sand/Silt		"	10:34	"	B'crana Pier	10:38	"					Dump Site	
5	Sand/Silt		"	10:44	"	B'crana Pier	10:48	"					Dump Site	
6	Sand/Silt		"	10:51	"	B'crana Pier	10:57	"					Dump Site	
7	Sand/Silt	"	"	11:01	"	B'crana Pier	11:08	"					Dump Site	
8	Sand/Silt		"	11:11	"	B'crana Pier	11:15	"					Dump Site	
9	Sand/Silt		"	11:21	"	B'crana Pier	11:25	"					Dump Site	
10	Sand/Silt		"	11:31	"	B'crana Pier	11:36	"					Dump Site	
11	Sand/Silt		"	11:40	"	B'crana Pier	11:44	"					Dump Site	
12	Sand/Silt		"	11:48	"	B'crana Pier	11:55	"					Dump Site	
13	Sand/Silt		"	11:58	"	B'crana Pier	12:02	"					Dump Site	
14	Sand/Silt		"	12:07	"	B'crana Pier	12:12	"					Dump Site	
15	Sand/Silt		"	12:17	"	B'crana Pier	12:21	"					Dump Site	
16	Sand/Silt		"	12:27	"	B'crana Pier	12:31	"					Dump Site	
17	Sand/Silt		"	12:36	"	B'crana Pier	12:40	"					Dump Site	
18	Sand/Silt		"	12:45	"	B'crana Pier	12:50	"					Dump Site	
19	Sand/Silt		"	12:53	"	B'crana Pier	13:01	"					Dump Site	
20	Sand/Silt	"				B'crana Pier							Dump Site	

Total: 10095 MT

Cumulative Total: \_\_\_\_\_ MT G.H

REGISTER OF LOADS DUMPED AT SEA

L 03:05 0.8 M  
 H 09:18 4.0 M  
 L 15:16 1.1 M  
 H 21:24 4.1 M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	31/07/18	07:12	HEAD OF PIER	B'crana Pier	07:15	DUMP SITE					Dump Site	
2	Sand/Silt	11	"	07:20	"	B'crana Pier	07:23	"					Dump Site	
3	Sand/Silt	11	"	07:27	"	B'crana Pier	07:30	"					Dump Site	
4	Sand/Silt	11	"	07:34	"	B'crana Pier	07:36	"					Dump Site	
5	Sand/Silt	11	"	07:41	"	B'crana Pier	07:44	"					Dump Site	
6	Sand/Silt	11	"	07:49	"	B'crana Pier	07:50	"					Dump Site	
7	Sand/Silt	11	"	07:54	"	B'crana Pier	07:57	"					Dump Site	
8	Sand/Silt	11	"	08:01	"	B'crana Pier	08:05	"					Dump Site	
9	Sand/Silt	11	"	08:08	"	B'crana Pier	08:11	"					Dump Site	
10	Sand/Silt	11	"	08:15	"	B'crana Pier	08:17	"					Dump Site	
11	Sand/Silt	11	"	08:22	"	B'crana Pier	08:24	"					Dump Site	
12	Sand/Silt	11	"	08:29	"	B'crana Pier	08:32	"					Dump Site	
13	Sand/Silt	11	"	08:36	INNER PIER	B'crana Pier	08:40	"					Dump Site	
14	Sand/Silt	11	"	08:59	"	B'crana Pier	09:04	"					Dump Site	
15	Sand/Silt	11	"	09:08	"	B'crana Pier	09:12	"					Dump Site	
16	Sand/Silt	11	"	09:18	"	B'crana Pier	09:21	"					Dump Site	
17	Sand/Silt	11	"	09:27	"	B'crana Pier	09:31	"					Dump Site	
18	Sand/Silt	11	"	09:37	"	B'crana Pier	09:41	"					Dump Site	
19	Sand/Silt	11	"	09:47	"	B'crana Pier	09:52	"					Dump Site	
20	Sand/Silt	11	"	09:57	"	B'crana Pier	10:02	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

**REGISTER OF LOADS DUMPED AT SEA**

L 02:29 0.8M  
 H 08:48 4.0M  
 L 14:41 1.0M  
 H 20:56 4.2M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.1	30/07/18	17:50	HEAD OF PIER	B'crana Pier	17:50	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	17:55	"	B'crana Pier	17:57	"					Dump Site	
3	Sand/Silt	"	"	18:05	INNER PIER	B'crana Pier	18:10	"					Dump Site	
4	Sand/Silt	"	"	18:12	HEAD OF PIER	B'crana Pier	18:14	"					Dump Site	
5	Sand/Silt	"	"	18:20	INNER PIER	B'crana Pier	18:24	"					Dump Site	
6	Sand/Silt	"	"	18:30	"	B'crana Pier	18:33	"					Dump Site	
7	Sand/Silt	"	"	18:40	"	B'crana Pier	18:44	"					Dump Site	
8	Sand/Silt	"	"	18:50	"	B'crana Pier	18:53	"					Dump Site	
9	Sand/Silt	"	"	19:00	"	B'crana Pier	19:02	"					Dump Site	
10	Sand/Silt	"	"	19:08	"	B'crana Pier	19:12	"					Dump Site	
11	Sand/Silt	"	"	19:18	"	B'crana Pier	19:23	"					Dump Site	
12	Sand/Silt	"	"	19:28	"	B'crana Pier	19:33	"					Dump Site	
13	Sand/Silt	"	"	19:38	"	B'crana Pier	19:43						Dump Site	
14	Sand/Silt	"	"	19:52		B'crana Pier	19:57						Dump Site	
15	Sand/Silt	"				B'crana Pier							Dump Site	
16	Sand/Silt	"				B'crana Pier							Dump Site	
17	Sand/Silt	"				B'crana Pier							Dump Site	
18	Sand/Silt	"				B'crana Pier							Dump Site	
19	Sand/Silt	"				B'crana Pier							Dump Site	
20	Sand/Silt	"				B'crana Pier							Dump Site	

Total: 100.70 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

L 02:29 0.8M  
 H 09:48 4.0M  
 L 14:41 1.0M  
 H 20:56 4.2M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	30/07/19	10:10	INNER PIER	B'crana Pier	10:15	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	10:20	"	B'crana Pier	10:24	"					Dump Site	
3	Sand/Silt	"	"	10:32	"	B'crana Pier	10:35	"					Dump Site	
4	Sand/Silt	"	"	10:40	"	B'crana Pier	10:45	"					Dump Site	
5	Sand/Silt	"	"	10:50	"	B'crana Pier	10:54	"					Dump Site	
6	Sand/Silt	"	"	11:00	"	B'crana Pier	11:05	"					Dump Site	
7	Sand/Silt	"	"	11:10	"	B'crana Pier	11:15	"					Dump Site	
8	Sand/Silt	"	"	11:20	"	B'crana Pier	11:25	"					Dump Site	
9	Sand/Silt	"	"	11:29	"	B'crana Pier	11:32	"					Dump Site	
10	Sand/Silt	"	"	11:38	"	B'crana Pier	11:41	"					Dump Site	
11	Sand/Silt	"	"	11:47	"	B'crana Pier	11:50	"					Dump Site	
12	Sand/Silt	"	"	11:55	"	B'crana Pier	12:00	"					Dump Site	
13	Sand/Silt	"	"	12:05	"	B'crana Pier	12:10	"					Dump Site	
14	Sand/Silt	"	"	12:15	"	B'crana Pier	12:20	"					Dump Site	
15	Sand/Silt	"	"	17:05	HEAD OF PIER	B'crana Pier	17:10	"					Dump Site	
16	Sand/Silt	"	"	17:15	"	B'crana Pier	17:18	"					Dump Site	
17	Sand/Silt	"	"	17:20	"	B'crana Pier	17:23	"					Dump Site	
18	Sand/Silt	"	"	17:27	"	B'crana Pier	17:30	"					Dump Site	
19	Sand/Silt	"	"	17:33	"	B'crana Pier	17:37	"					Dump Site	
20	Sand/Silt	"	"	17:40	"	B'crana Pier	17:45	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

GH

REGISTER OF LOADS DUMPED AT SEA

L 02:29 0.8M  
 H 08:48 4.0M  
 L 14:41 1.0M  
 H 20:56 4.2M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5 .T	30/07/18	07:15	INNER PIER	B'crana Pier	07:16	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	07:25	"	B'crana Pier	07:28	"					Dump Site	
3	Sand/Silt	"	"	07:32	"	B'crana Pier	07:35	"					Dump Site	
4	Sand/Silt	"	"	07:40	HEAD OF PIER	B'crana Pier	07:42	"					Dump Site	
5	Sand/Silt	"	"	07:46	"	B'crana Pier	07:50	"					Dump Site	
6	Sand/Silt	"	"	07:53	"	B'crana Pier	07:56	"					Dump Site	
7	Sand/Silt	"	"	08:00	"	B'crana Pier	08:05	"					Dump Site	
8	Sand/Silt	"	"	08:07	"	B'crana Pier	08:10	"					Dump Site	
9	Sand/Silt	"	"	08:15	"	B'crana Pier	08:17	"					Dump Site	
10	Sand/Silt	"	"	08:21	"	B'crana Pier	08:23	"					Dump Site	
11	Sand/Silt	"	"	08:28	"	B'crana Pier	08:30	"					Dump Site	
12	Sand/Silt	"	"	08:36	"	B'crana Pier	08:38	"					Dump Site	
13	Sand/Silt	"	"	08:44	"	B'crana Pier	08:47	"					Dump Site	
14	Sand/Silt	"	"	08:53	"	B'crana Pier	08:56	"					Dump Site	
15	Sand/Silt	"	"	09:13	INNER PIER	B'crana Pier	09:16	"					Dump Site	
16	Sand/Silt	"	"	09:22	"	B'crana Pier	09:27	"					Dump Site	
17	Sand/Silt	"	"	09:31	"	B'crana Pier	09:36	"					Dump Site	
18	Sand/Silt	"	"	09:42	"	B'crana Pier	09:46	"					Dump Site	
19	Sand/Silt	"	"	09:52	"	B'crana Pier	09:55	"					Dump Site	
20	Sand/Silt	"	"	10:00	"	B'crana Pier	10:06	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

C.M

### REGISTER OF LOADS DUMPED AT SEA

L 01:54 0.8M  
 H 08:15 4.0M  
 L 14:08 1.0M  
 H 20:25 4.0M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.1	29/07/13	17:00	PIER HEAD	B'crana Pier	17:03	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	17:06	"	B'crana Pier	17:08	"					Dump Site	
3	Sand/Silt	"	"	17:12	"	B'crana Pier	17:15	"					Dump Site	
4	Sand/Silt	"	"	17:18	"	B'crana Pier	17:21	"					Dump Site	
5	Sand/Silt	"	"	17:25	"	B'crana Pier	17:27	"					Dump Site	
6	Sand/Silt	"	"	17:31	"	B'crana Pier	17:34	"					Dump Site	
7	Sand/Silt	"	"	17:41	INNER PIER	B'crana Pier	17:45	"					Dump Site	
8	Sand/Silt	"	"	17:50	"	B'crana Pier	17:55	"					Dump Site	
9	Sand/Silt	"	"	18:00	"	B'crana Pier	18:07	"					Dump Site	
10	Sand/Silt	"	"	18:11	"	B'crana Pier	18:15	"					Dump Site	
11	Sand/Silt	"	"	18:20	"	B'crana Pier	18:25	"					Dump Site	
12	Sand/Silt	"	"	18:32	"	B'crana Pier	18:36	"					Dump Site	
13	Sand/Silt	"	"	18:42	"	B'crana Pier	18:47	"					Dump Site	
14	Sand/Silt	"	"	18:55	"	B'crana Pier	18:58	"					Dump Site	
15	Sand/Silt	"	"	19:02	"	B'crana Pier	19:08	"					Dump Site	
16	Sand/Silt	"	"	19:12	"	B'crana Pier	19:17	"					Dump Site	
17	Sand/Silt	"	"	19:22	"	B'crana Pier	19:26	"					Dump Site	
18	Sand/Silt	"	"	19:31	"	B'crana Pier	19:36	"					Dump Site	
19	Sand/Silt	"	"	19:40	"	B'crana Pier	19:43	"					Dump Site	
20	Sand/Silt	"	"	19:47	"	B'crana Pier	19:51	"					Dump Site	

Total: 166 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

L 01:54  
H 08:15  
L 14:08  
H 20:25

0.8m  
4.0m  
1.0m  
4.2m

Permit No.: \_S0011-03\_Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5. T.	29/07/19	10:13	HEAD OF PIER	B'crana Pier	10:16	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	10:20	"	B'crana Pier	10:23	"					Dump Site	
3	Sand/Silt	"	"	10:27	"	B'crana Pier	10:31	"					Dump Site	
4	Sand/Silt	"	"	10:36	"	B'crana Pier	10:41	"					Dump Site	
5	Sand/Silt	"	"	10:45	"	B'crana Pier	10:50	"					Dump Site	
6	Sand/Silt	"	"	10:55	"	B'crana Pier	10:57	"					Dump Site	
7	Sand/Silt	"	"	11:00	"	B'crana Pier	11:04	"					Dump Site	
8	Sand/Silt	"	"	11:07	"	B'crana Pier	11:11	"					Dump Site	
9	Sand/Silt	"	"	11:15	"	B'crana Pier	11:19	"					Dump Site	
10	Sand/Silt	"	"	11:21	"	B'crana Pier	11:23	"					Dump Site	
11	Sand/Silt	"	"	11:28	"	B'crana Pier	11:30	"					Dump Site	
12	Sand/Silt	"	"	11:35	"	B'crana Pier	11:38	"					Dump Site	
13	Sand/Silt	"	"	11:41	"	B'crana Pier	11:45	"					Dump Site	
14	Sand/Silt	"	"	11:50	"	B'crana Pier	11:52	"					Dump Site	
15	Sand/Silt	"	"	11:57	"	B'crana Pier	11:59	"					Dump Site	
16	Sand/Silt	"	"	16:25	"	B'crana Pier	16:32	"					Dump Site	
17	Sand/Silt	"	"	16:35	"	B'crana Pier	16:38	"					Dump Site	
18	Sand/Silt	"	"	16:41	"	B'crana Pier	16:44	"					Dump Site	
19	Sand/Silt	"	"	16:47	"	B'crana Pier	16:55	"					Dump Site	
20	Sand/Silt	"	"	16:55	"	B'crana Pier	16:57	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

### REGISTER OF LOADS DUMPED AT SEA

L 01:54    0.8m  
 H 08:15    4.0m  
 L 14:08    1.0m  
 H 20:25    4.2m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	29/7/19	07:12	INNER PIER	B'crana Pier	07:15	DUMPSITE					Dump Site	
2	Sand/Silt	//	"	07:20	"	B'crana Pier	07:25	"					Dump Site	
3	Sand/Silt	//	"	07:30	"	B'crana Pier	07:31	"					Dump Site	
4	Sand/Silt	//	"	07:37	"	B'crana Pier	07:41	"					Dump Site	
5	Sand/Silt	//	"	07:45	"	B'crana Pier	07:50	"					Dump Site	
6	Sand/Silt	//	"	07:56	"	B'crana Pier	08:00	"					Dump Site	
7	Sand/Silt	//	"	08:05	"	B'crana Pier	08:10	"					Dump Site	
8	Sand/Silt	//	"	08:13	"	B'crana Pier	08:17	"					Dump Site	
9	Sand/Silt	//	"	08:21	"	B'crana Pier	08:24	"					Dump Site	
10	Sand/Silt	//	"	08:30	"	B'crana Pier	08:34	"					Dump Site	
11	Sand/Silt	//	"	08:38	"	B'crana Pier	08:42	"					Dump Site	
12	Sand/Silt	//	"	08:45	"	B'crana Pier	08:50	"					Dump Site	
13	Sand/Silt	//	"	08:53	"	B'crana Pier	08:56	"					Dump Site	
14	Sand/Silt	//	"	09:04	"	B'crana Pier	09:08	"					Dump Site	
15	Sand/Silt	//	"	09:15	"	B'crana Pier	09:20	"					Dump Site	
16	Sand/Silt	//	"	09:24	"	B'crana Pier	09:30	"					Dump Site	
17	Sand/Silt	//	"	09:36	"	B'crana Pier	09:40	"					Dump Site	
18	Sand/Silt	//	"	09:45	"	B'crana Pier	09:50	"					Dump Site	
19	Sand/Silt	//	"	09:53	"	B'crana Pier	10:00	"					Dump Site	
20	Sand/Silt	//	"	10:05	"	B'crana Pier	10:10	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

L 01:18 0.2M  
 H 07:42 4.0M  
 L 13:33 1.1M  
 H 14:52 4.2M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	28/07/14	09:57	INNER PIER	B'crana Pier	10:00	DUMP SITE					Dump Site	
2	Sand/Silt	"	"	10:06	"	B'crana Pier	10:11	"					Dump Site	
3	Sand/Silt	"	"	10:16	"	B'crana Pier	10:19	"					Dump Site	
4	Sand/Silt	"	"	10:26	"	B'crana Pier	10:31	"					Dump Site	
5	Sand/Silt	"	"	10:36	HEAD OFF PIER	B'crana Pier	10:40	"					Dump Site	
6	Sand/Silt	"	"	10:45	"	B'crana Pier	10:50	"					Dump Site	
7	Sand/Silt	"	"	10:52	"	B'crana Pier	10:55	"					Dump Site	
8	Sand/Silt	"	"	11:00	"	B'crana Pier	11:02	"					Dump Site	
9	Sand/Silt	"	"	11:05	"	B'crana Pier	11:08	"					Dump Site	
10	Sand/Silt	"	"	11:12	"	B'crana Pier	11:16	"					Dump Site	
11	Sand/Silt	"	"	11:22	"	B'crana Pier	11:27	"					Dump Site	
12	Sand/Silt	"				B'crana Pier							Dump Site	
13	Sand/Silt	"				B'crana Pier							Dump Site	
14	Sand/Silt	"				B'crana Pier							Dump Site	
15	Sand/Silt	"				B'crana Pier							Dump Site	
16	Sand/Silt	"				B'crana Pier							Dump Site	
17	Sand/Silt	"				B'crana Pier							Dump Site	
18	Sand/Silt	"				B'crana Pier							Dump Site	
19	Sand/Silt	"				B'crana Pier							Dump Site	
20	Sand/Silt	"				B'crana Pier							Dump Site	

Total: 55 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

L 07:18 0.9M  
 H 07:42 4.0M  
 L 13:33 1.1M  
 H 14:52 4.2M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	28/07/18	07:05	PIER HEAD/WAY	B'crana Pier	07:10	DUMP SITE					Dump Site	
2	Sand/Silt	''	''	07:15	''	B'crana Pier	07:17	''					Dump Site	
3	Sand/Silt	''	''	07:21	''	B'crana Pier	07:24	''					Dump Site	
4	Sand/Silt	''	''	07:28	''	B'crana Pier	07:32	''					Dump Site	
5	Sand/Silt	''	''	07:36	''	B'crana Pier	07:38	''					Dump Site	
6	Sand/Silt	''	''	07:43	''	B'crana Pier	07:46	''					Dump Site	
7	Sand/Silt	''	''	07:50	''	B'crana Pier	07:51	''					Dump Site	
8	Sand/Silt	''	''	07:56	''	B'crana Pier	08:00	N					Dump Site	
9	Sand/Silt	''	''	08:03	''	B'crana Pier	08:05	N					Dump Site	
10	Sand/Silt	''	''	08:10	''	B'crana Pier	08:12	''					Dump Site	
11	Sand/Silt	''	''	08:17	''	B'crana Pier	08:20	''					Dump Site	
12	Sand/Silt	''	''	08:23	''	B'crana Pier	08:27	''					Dump Site	
13	Sand/Silt	''	''	08:31	''	B'crana Pier	08:35	''					Dump Site	
14	Sand/Silt	''	''	08:40	''	B'crana Pier	08:43	''					Dump Site	
15	Sand/Silt	''	''	08:47	''	B'crana Pier	08:51	''					Dump Site	
16	Sand/Silt	''	''	08:58	INNER PIER	B'crana Pier	09:02	''					Dump Site	
17	Sand/Silt	''	''	09:10	''	B'crana Pier	09:15						Dump Site	
18	Sand/Silt	''	''	09:22		B'crana Pier	09:27						Dump Site	
19	Sand/Silt	''	''	09:34		B'crana Pier	09:39						Dump Site	
20	Sand/Silt	''	''	09:43		B'crana Pier	09:50						Dump Site	

Total: 160 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

**REGISTER OF LOADS DUMPED AT SEA**

L 00:43 1.5M  
 H 07:09 3.4M  
 L 12:57 1.2  
 H 19:18 4.2M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	27/07/18	17:35	INNER PIER	B'crana Pier	17:40	DUMPSITE					Dump Site	
2	Sand/Silt	''	''	17:45	''	B'crana Pier	17:50	''					Dump Site	
3	Sand/Silt	''	''	18:00	''	B'crana Pier	18:05	''					Dump Site	
4	Sand/Silt	''	''	18:15	''	B'crana Pier	18:20	''					Dump Site	
5	Sand/Silt	''	''	18:25	''	B'crana Pier	18:30	''					Dump Site	
6	Sand/Silt	''	''	18:38	''	B'crana Pier	18:44	''					Dump Site	
7	Sand/Silt	''	''	18:50	''	B'crana Pier	18:55	''					Dump Site	
8	Sand/Silt	''	''	19:01	''	B'crana Pier	19:05	''					Dump Site	
9	Sand/Silt	''	''	19:11	''	B'crana Pier	19:16	''					Dump Site	
10	Sand/Silt	''	''	19:22	''	B'crana Pier	19:28	''					Dump Site	
11	Sand/Silt	''		19:31	PIER HEAD	B'crana Pier	19:35	''					Dump Site	
12	Sand/Silt	''		19:40	''	B'crana Pier	19:42	''					Dump Site	
13	Sand/Silt	''		19:45	''	B'crana Pier	19:48	''					Dump Site	
14	Sand/Silt	''		19:51	''	B'crana Pier	19:54	''					Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 70 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

**REGISTER OF LOADS DUMPED AT SEA**

L 00:43 1.1m  
 H 07:09 3.9m  
 L 12:57 1.2m  
 H 19:18 4.2m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	27/07/18	10:06	PIER HEAD / SILENT WAY	B'crana Pier	10:10	DUMP SITE					Dump Site	
2	Sand/Silt	"	"	10:13	"	B'crana Pier	10:16	"					Dump Site	
3	Sand/Silt	"	"	10:20	"	B'crana Pier	10:23	"					Dump Site	
4	Sand/Silt	"	"	10:27	"	B'crana Pier	10:29	"					Dump Site	
5	Sand/Silt	"	"	10:34	"	B'crana Pier	10:36	"					Dump Site	
6	Sand/Silt	"	"	10:40	"	B'crana Pier	10:43	"					Dump Site	
7	Sand/Silt	"	"	15:31	"	B'crana Pier	15:35	"					Dump Site	
8	Sand/Silt	"	"	15:40	"	B'crana Pier	15:43	"					Dump Site	
9	Sand/Silt	"	"	15:47	"	B'crana Pier	15:50	"					Dump Site	
10	Sand/Silt	"	"	15:55	"	B'crana Pier	15:58	"					Dump Site	
11	Sand/Silt	"	"	16:02	"	B'crana Pier	16:06	"					Dump Site	
12	Sand/Silt	"	"	16:10	"	B'crana Pier	16:13	"					Dump Site	
13	Sand/Silt	"	"	16:18	"	B'crana Pier	16:22	"					Dump Site	
14	Sand/Silt	"	"	16:26	"	B'crana Pier	16:29	"					Dump Site	
15	Sand/Silt	"	"	16:33	"	B'crana Pier	16:36	"					Dump Site	
16	Sand/Silt	"	"	16:41	"	B'crana Pier	16:45	"					Dump Site	
17	Sand/Silt	"	"	16:50	"	B'crana Pier	16:53	"					Dump Site	
18	Sand/Silt	"	"	16:58	"	B'crana Pier	17:00	"					Dump Site	
19	Sand/Silt	"	"	17:07	INNER PIER	B'crana Pier	17:12	"					Dump Site	
20	Sand/Silt	"	"	17:18	"	B'crana Pier	17:24	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G. H

REGISTER OF LOADS DUMPED AT SEA

L 00:43 1.1M  
 H 07:09 3.9M  
 L 12:52 1.2M  
 H 19:18 4.2M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	S.T.	27/07/18	07:14	INNER PIER	B'crana Pier	07:18	DUMP SITE					Dump Site	
2	Sand/Silt	"/	"/	07:22	"/	B'crana Pier	07:26	"/					Dump Site	
3	Sand/Silt	"/	"/	07:30	"/	B'crana Pier	07:34	"/					Dump Site	
4	Sand/Silt	"/	"/	07:37	"/	B'crana Pier	07:41	"/					Dump Site	
5	Sand/Silt	"/	"/	07:45	"/	B'crana Pier	07:50	"/					Dump Site	
6	Sand/Silt	"/	"/	07:53	"/	B'crana Pier	07:58	"/					Dump Site	
7	Sand/Silt	"/	"/	08:02	"/	B'crana Pier	08:06	"/					Dump Site	
8	Sand/Silt	"/	"/	08:10	"/	B'crana Pier	08:14	"/					Dump Site	
9	Sand/Silt	"/	"/	08:17	"/	B'crana Pier	08:21	"/					Dump Site	
10	Sand/Silt	"/	"/	08:25	"/	B'crana Pier	08:30	"/					Dump Site	
11	Sand/Silt	"/	"/	08:33	"/	B'crana Pier	08:36	"/					Dump Site	
12	Sand/Silt	"/	"/	08:41	"/	B'crana Pier	08:45	"/					Dump Site	
13	Sand/Silt	"/	"/	08:48	"/	B'crana Pier	08:51	"/					Dump Site	
14	Sand/Silt	"/	"/	09:09	"/	B'crana Pier	09:14	"/					Dump Site	
15	Sand/Silt	"/	"/	09:20	"/	B'crana Pier	09:25	"/					Dump Site	
16	Sand/Silt	"/	"/	09:30	HEAD/SUP PIER/WAY	B'crana Pier	09:32	"/					Dump Site	
17	Sand/Silt	"/	"/	09:36	"/	B'crana Pier	09:40	"/					Dump Site	
18	Sand/Silt	"/	"/	09:43	"/	B'crana Pier	09:46	"/					Dump Site	
19	Sand/Silt	"/	"/	09:50	"/	B'crana Pier	09:53	"/					Dump Site	
20	Sand/Silt	"/	"/	09:57	"/	B'crana Pier	10:00	"/					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

L 00:06 1.3 M  
 H 06:34 3.8 M  
 L 12:20 1.4 M  
 H 18:44 4.0 M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5 T	26/07/19	19:35	INNER PIER	B'crana Pier	19:46	DUMP SITE					Dump Site	
2	Sand/Silt	5 T		19:43		B'crana Pier	19:55						Dump Site	
3	Sand/Silt					B'crana Pier							Dump Site	
4	Sand/Silt					B'crana Pier							Dump Site	
5	Sand/Silt					B'crana Pier							Dump Site	
6	Sand/Silt					B'crana Pier							Dump Site	
7	Sand/Silt					B'crana Pier							Dump Site	
8	Sand/Silt					B'crana Pier							Dump Site	
9	Sand/Silt					B'crana Pier							Dump Site	
10	Sand/Silt					B'crana Pier							Dump Site	
11	Sand/Silt					B'crana Pier							Dump Site	
12	Sand/Silt					B'crana Pier							Dump Site	
13	Sand/Silt					B'crana Pier							Dump Site	
14	Sand/Silt					B'crana Pier							Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 10 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

**REGISTER OF LOADS DUMPED AT SEA**

L 00:06 1.3M  
 H 06:34 3.8M  
 L 12:20 1.4M  
 H 18:44 4.0M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.1	26/07/18	09:55	INNER PIER	B'crana Pier	10:00	DUMP SITE					Dump Site	
2	Sand/Silt	"	"	10:03	"	B'crana Pier	10:07	"					Dump Site	
3	Sand/Silt	"	"	15:10	PIER HEAD / SHIP WAY	B'crana Pier	15:13	"					Dump Site	
4	Sand/Silt	"	"	15:17	"	B'crana Pier	15:20	"					Dump Site	
5	Sand/Silt	"	"	15:24	"	B'crana Pier	15:28	"					Dump Site	
6	Sand/Silt	"	"	17:16	"	B'crana Pier	17:20	"					Dump Site	
7	Sand/Silt	"	"	17:25	"	B'crana Pier	17:29	"					Dump Site	
8	Sand/Silt	"	"	17:32	"	B'crana Pier	17:35	"					Dump Site	
9	Sand/Silt	"	"	17:40	"	B'crana Pier	17:43	"					Dump Site	
10	Sand/Silt	"	"	17:47	"	B'crana Pier	17:51	"					Dump Site	
11	Sand/Silt	"	"	17:55	"	B'crana Pier	17:57	"					Dump Site	
12	Sand/Silt	"	"	18:01	"	B'crana Pier	18:04	"					Dump Site	
13	Sand/Silt	"	"	18:09	INNER PIER	B'crana Pier	18:14	"					Dump Site	
14	Sand/Silt	"	"	18:20	"	B'crana Pier	18:25	"					Dump Site	
15	Sand/Silt	"	"	18:30	"	B'crana Pier	18:35	"					Dump Site	
16	Sand/Silt	"	"	18:40	"	B'crana Pier	18:47	"					Dump Site	
17	Sand/Silt	"	"	18:52	"	B'crana Pier	19:00	"					Dump Site	
18	Sand/Silt	"	"	19:03	"	B'crana Pier	19:08	"					Dump Site	
19	Sand/Silt	"	"	19:13	"	B'crana Pier	19:19	"					Dump Site	
20	Sand/Silt	"	"	19:23	"	B'crana Pier	19:28	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G. H

## REGISTER OF LOADS DUMPED AT SEA

\*  
 L 00:06 1.3m  
 H 06:34 3.6m  
 L 12:20 1.4m  
 H 18:44 4.0m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	25/07/19	07:03	INNER/HEAD PIER / PIER	B'crana Pier	07:06	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	07:09	"	B'crana Pier	07:11	"					Dump Site	
3	Sand/Silt	"	"	07:14	"	B'crana Pier	07:17	"					Dump Site	
4	Sand/Silt	"	"	07:17	"	B'crana Pier	07:23	"					Dump Site	
5	Sand/Silt	"	"	07:25	HEAD PIER / SHIP WAY	B'crana Pier	07:30	"					Dump Site	
6	Sand/Silt	"	"	07:32	"	B'crana Pier	07:35	"					Dump Site	
7	Sand/Silt	"	"	07:40	"	B'crana Pier	07:42	"					Dump Site	
8	Sand/Silt	"	"	07:45	"	B'crana Pier	07:50	"					Dump Site	
9	Sand/Silt	"	"	07:56	"	B'crana Pier	08:00	"					Dump Site	
10	Sand/Silt	"	"	08:01	"	B'crana Pier	08:05	"					Dump Site	
11	Sand/Silt	"	"	08:08	"	B'crana Pier	08:10	"					Dump Site	
12	Sand/Silt	"	"	08:14	"	B'crana Pier	08:17						Dump Site	
13	Sand/Silt	"	"	08:20		B'crana Pier	08:22						Dump Site	
14	Sand/Silt	"	"	08:26		B'crana Pier	08:28						Dump Site	
15	Sand/Silt	"	"	08:31		B'crana Pier	08:33						Dump Site	
16	Sand/Silt	"	"	08:37		B'crana Pier	08:42						Dump Site	
17	Sand/Silt	"	"	08:44		B'crana Pier	08:48						Dump Site	
18	Sand/Silt	"	"	08:50		B'crana Pier	08:53						Dump Site	
19	Sand/Silt	"	"	09:00		B'crana Pier	09:05						Dump Site	
20	Sand/Silt	"	"	09:12	Inner Pier	B'crana Pier	9:51						Dump Site	

Total: 160 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

H 05:57 3.6m  
 L 11:42 1.6M  
 H 18:09 3.9m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	''	25/07/18		<del>PIER</del> <del>HEADWAY</del> <del>INNER</del> <del>PIER</del>	B'crana Pier		DUMP SITE					Dump Site	
2	Sand/Silt	''		16:36		B'crana Pier	16:41						Dump Site	
3	Sand/Silt	''		16:46		B'crana Pier	16:51						Dump Site	
4	Sand/Silt	''		16:55		B'crana Pier	17:00						Dump Site	
5	Sand/Silt	''		17:09		B'crana Pier	17:12						Dump Site	
6	Sand/Silt	''		17:17		B'crana Pier	17:16						Dump Site	
7	Sand/Silt	''		17:28		B'crana Pier	17:32						Dump Site	
8	Sand/Silt	''		17:48		B'crana Pier	17:52						Dump Site	
9	Sand/Silt	''		17:57		B'crana Pier	18:04						Dump Site	
10	Sand/Silt	''		18:09		B'crana Pier	18:14						Dump Site	
11	Sand/Silt	''		18:21		B'crana Pier	18:28						Dump Site	
12	Sand/Silt	''		18:30		B'crana Pier	18:35						Dump Site	
13	Sand/Silt	''		18:40		B'crana Pier	18:45						Dump Site	
14	Sand/Silt	''		18:57		B'crana Pier	18:56						Dump Site	
15	Sand/Silt	''		19:07		B'crana Pier	19:06						Dump Site	
16	Sand/Silt	''		19:10		B'crana Pier	19:15						Dump Site	
17	Sand/Silt	''		19:20		B'crana Pier	19:25						Dump Site	
18	Sand/Silt	''		19:30		B'crana Pier	19:35						Dump Site	
19	Sand/Silt	''		19:40		B'crana Pier	19:45						Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 95 MT

Cumulative Total:                      MT

G.H

REGISTER OF LOADS DUMPED AT SEA

H 05:57 3.6m  
L 11:42 1.5m  
H 18:08 3.9m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	25/07/18	09:31	PIER HEAD / SHIP WAY	B'crana Pier	09:34	DUMPSITE					Dump Site	
2	Sand/Silt	''	''	14:11	''	B'crana Pier	14:25	''					Dump Site	
3	Sand/Silt	''	''	14:22	''	B'crana Pier	14:25	''					Dump Site	
4	Sand/Silt	''	''	14:30	''	B'crana Pier	14:33	''					Dump Site	
5	Sand/Silt	''	''	14:37	''	B'crana Pier	14:41	''					Dump Site	
6	Sand/Silt	''	''	14:45	''	B'crana Pier	14:46	''					Dump Site	
7	Sand/Silt	''	''	14:50	''	B'crana Pier	14:53	''					Dump Site	
8	Sand/Silt	''	''	14:56	''	B'crana Pier	15:00	''					Dump Site	
9	Sand/Silt	''	''	15:02	''	B'crana Pier	15:05	''					Dump Site	
10	Sand/Silt	''	''	15:10	''	B'crana Pier	15:14	''					Dump Site	
11	Sand/Silt	''	''	15:17	''	B'crana Pier	15:21	''					Dump Site	
12	Sand/Silt	''	''	15:25	''	B'crana Pier	15:28	''					Dump Site	
13	Sand/Silt	''	''	15:31	''	B'crana Pier	15:35	''					Dump Site	
14	Sand/Silt	''	''	15:40	''	B'crana Pier	15:42	''					Dump Site	
15	Sand/Silt	''	''	15:47	''	B'crana Pier	15:50	''					Dump Site	
16	Sand/Silt	''	''	15:54	''	B'crana Pier	15:57	''					Dump Site	
17	Sand/Silt	''	''	16:03	''	B'crana Pier	16:07	''					Dump Site	
18	Sand/Silt	''	''	16:11	''	B'crana Pier	16:15	''					Dump Site	
19	Sand/Silt	''	''	16:18	''	B'crana Pier	16:21	''					Dump Site	
20	Sand/Silt	''	''	16:27	INNER PIER	B'crana Pier	16:31	''					Dump Site	

Total: 106 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

H 05:57 3.6m  
L 11:42 1.5m  
H 18:08 3.9m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	S.T.	25/07/18	07:05	Pier/Sloping	B'crana Pier	07:10	Dumpsite					Dump Site	
2	Sand/Silt	"	"	07:14	"	B'crana Pier	07:17	"					Dump Site	
3	Sand/Silt	"	"	07:21	"	B'crana Pier	07:24	"					Dump Site	
4	Sand/Silt	"	"	07:27	"	B'crana Pier	07:30	"					Dump Site	
5	Sand/Silt	"		07:34		B'crana Pier	07:38						Dump Site	
6	Sand/Silt	"		07:41		B'crana Pier	07:45						Dump Site	
7	Sand/Silt	"		07:50		B'crana Pier	07:53						Dump Site	
8	Sand/Silt	"		07:56		B'crana Pier	08:00						Dump Site	
9	Sand/Silt	"		08:10		B'crana Pier	08:15						Dump Site	
10	Sand/Silt	"		08:20		B'crana Pier	08:22						Dump Site	
11	Sand/Silt	"		08:25		B'crana Pier	08:29						Dump Site	
12	Sand/Silt	"		08:32		B'crana Pier	08:37						Dump Site	
13	Sand/Silt	"		08:41		B'crana Pier	08:43						Dump Site	
14	Sand/Silt	"		08:45		B'crana Pier	08:50						Dump Site	
15	Sand/Silt	"		08:53		B'crana Pier	08:55						Dump Site	
16	Sand/Silt	"		09:01		B'crana Pier	09:05						Dump Site	
17	Sand/Silt	"		09:07		B'crana Pier	09:10						Dump Site	
18	Sand/Silt	"		09:13		B'crana Pier	09:16						Dump Site	
19	Sand/Silt	"		09:19		B'crana Pier	09:22						Dump Site	
20	Sand/Silt	"		09:25		B'crana Pier	09:28						Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

45-14 3-5m

L10-57 1.7m

#17-36 3-7m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	24/07/19	17:10	INNER PIER	B'crana Pier	17:13	DUMPSITE					Dump Site	
2	Sand/Silt	11	11	17:18	11	B'crana Pier	17:23	11					Dump Site	
3	Sand/Silt	11	11	17:27	11	B'crana Pier	17:32	11					Dump Site	
4	Sand/Silt	11	11	17:36	11	B'crana Pier	17:42	11					Dump Site	
5	Sand/Silt	11	11	17:46	11	B'crana Pier	17:50	11					Dump Site	
6	Sand/Silt	11	11	17:59	11	B'crana Pier	18:00						Dump Site	
7	Sand/Silt	11	11	18:02	11	B'crana Pier	18:11						Dump Site	
8	Sand/Silt	11	11	18:15	11	B'crana Pier	18:20						Dump Site	
9	Sand/Silt	11	11	18:25	11	B'crana Pier	18:28						Dump Site	
10	Sand/Silt	11	11	18:32	11	B'crana Pier	18:37						Dump Site	
11	Sand/Silt	11	11	18:47	11	B'crana Pier	18:46						Dump Site	
12	Sand/Silt	11	11	18:51	11	B'crana Pier	18:56						Dump Site	
13	Sand/Silt	11	11	19:00	HEAD OF PIER	B'crana Pier	19:03						Dump Site	
14	Sand/Silt	11	11	19:06	11	B'crana Pier	19:10						Dump Site	
15	Sand/Silt	11	11	19:13	11	B'crana Pier	19:16						Dump Site	
16	Sand/Silt	11	11	19:20	11	B'crana Pier	19:22						Dump Site	
17	Sand/Silt	11	11	19:29	11	B'crana Pier	19:28						Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 85 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

H 5.14 3.5m  
L 10.57 1.7m  
H 17.30 3.7m

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	24/07/18	14:03	SLIP/PIER	B'crana Pier	14:07	DUMPSITE					Dump Site	
2	Sand/Silt	"	"	14:12	"	B'crana Pier	14:15	"					Dump Site	
3	Sand/Silt	"	"	14:18	"	B'crana Pier	14:22	"					Dump Site	
4	Sand/Silt	"	"	14:25	"	B'crana Pier	14:28	"					Dump Site	
5	Sand/Silt	"	"	14:33	"	B'crana Pier	14:36	"					Dump Site	
6	Sand/Silt	"	"	14:40	"	B'crana Pier	14:46	"					Dump Site	
7	Sand/Silt	"	"	14:50	"	B'crana Pier	14:54	"					Dump Site	
8	Sand/Silt	"	"	14:58	"	B'crana Pier	15:03	"					Dump Site	
9	Sand/Silt	"	"	15:06	"	B'crana Pier	15:20	"					Dump Site	
10	Sand/Silt	"	"	15:24	"	B'crana Pier	15:28	"					Dump Site	
11	Sand/Silt	"	"	15:31	"	B'crana Pier	15:35	"					Dump Site	
12	Sand/Silt	"	"	15:40	"	B'crana Pier	15:42	"					Dump Site	
13	Sand/Silt	"	"	15:47	INNER PIER	B'crana Pier	15:51	"					Dump Site	
14	Sand/Silt	"	"	15:55	"	B'crana Pier	16:01	"					Dump Site	
15	Sand/Silt	"	"	16:10	"	B'crana Pier	16:14	"					Dump Site	
16	Sand/Silt	"	"	16:18	"	B'crana Pier	16:25	"					Dump Site	
17	Sand/Silt	"	"	16:31	"	B'crana Pier	16:36	"					Dump Site	
18	Sand/Silt	"	"	16:40	"	B'crana Pier	16:45	"					Dump Site	
19	Sand/Silt	"	"	16:50	"	B'crana Pier	16:55	"					Dump Site	
20	Sand/Silt	"	"	17:00	"	B'crana Pier	17:05	"					Dump Site	

Total: 106 MT

Cumulative Total: \_\_\_\_\_ MT

G. H

H) 5.14 3.5m  
 L) 10.57 1.7m  
 H) 17.30 3.7m

REGISTER OF LOADS DUMPED AT SEA

Permit No.: \_S0011-03\_ Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	''	26/7/16	07:05	Slip/Pier	B'crana Pier	07:09	Dumpsite					Dump Site	
2	Sand/Silt	''	''	07:14	head.	B'crana Pier	07:17	''					Dump Site	
3	Sand/Silt	''	''	07:21	''	B'crana Pier	07:26	''					Dump Site	
4	Sand/Silt	''	''	07:30	''	B'crana Pier	07:33	''					Dump Site	
5	Sand/Silt	''		07:37		B'crana Pier	07:41						Dump Site	
6	Sand/Silt	''		07:44		B'crana Pier	07:48						Dump Site	
7	Sand/Silt	''		07:52		B'crana Pier	07:56						Dump Site	
8	Sand/Silt	''		08:02		B'crana Pier	08:06						Dump Site	
9	Sand/Silt	''		08:09		B'crana Pier	08:12						Dump Site	
10	Sand/Silt	''		08:16		B'crana Pier	08:20						Dump Site	
11	Sand/Silt	''		08:25		B'crana Pier	08:28						Dump Site	
12	Sand/Silt	''		08:31		B'crana Pier	08:36						Dump Site	
13	Sand/Silt	''		08:41		B'crana Pier	08:45						Dump Site	
14	Sand/Silt	''		08:48		B'crana Pier	08:52						Dump Site	
15	Sand/Silt	''		08:56		B'crana Pier	13:14						Dump Site	
16	Sand/Silt	''		13:17		B'crana Pier	13:22						Dump Site	
17	Sand/Silt	''		13:26		B'crana Pier	13:30						Dump Site	
18	Sand/Silt	''		13:34		B'crana Pier	13:37						Dump Site	
19	Sand/Silt	''		13:41		B'crana Pier	13:45						Dump Site	
20	Sand/Silt	''		15:51		B'crana Pier	13:56						Dump Site	

Total: 106 MT

Cumulative Total: \_\_\_\_\_ MT

G-H

H-46:44 3.6m

REGISTER OF LOADS DUMPED AT SEA

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.7	23/07/18	17:25	PIER	B'crana Pier	17:30	DUMPSITE		DUMPSITE			Dump Site	
2	Sand/Silt	''	''	17:35	''	B'crana Pier	17:40	''					Dump Site	
3	Sand/Silt	''	''	17:45	''	B'crana Pier	17:50	''					Dump Site	
4	Sand/Silt	''	''	17:55		B'crana Pier	18:00	''					Dump Site	
5	Sand/Silt	''		18:05		B'crana Pier	18:10						Dump Site	
6	Sand/Silt	''		18:15		B'crana Pier	18:21						Dump Site	
7	Sand/Silt	''		18:26		B'crana Pier	18:31						Dump Site	
8	Sand/Silt	''		18:35		B'crana Pier	18:40						Dump Site	
9	Sand/Silt	''		18:45		B'crana Pier	18:50						Dump Site	
10	Sand/Silt	''		18:55		B'crana Pier	19:00						Dump Site	
11	Sand/Silt	''		19:02		B'crana Pier	19:05						Dump Site	
12	Sand/Silt	''		19:09		B'crana Pier	19:13						Dump Site	
13	Sand/Silt	''		19:20		B'crana Pier	19:25						Dump Site	
14	Sand/Silt	''		19:30		B'crana Pier	19:35						Dump Site	
15	Sand/Silt					B'crana Pier							Dump Site	
16	Sand/Silt					B'crana Pier							Dump Site	
17	Sand/Silt					B'crana Pier							Dump Site	
18	Sand/Silt					B'crana Pier							Dump Site	
19	Sand/Silt					B'crana Pier							Dump Site	
20	Sand/Silt					B'crana Pier							Dump Site	

Total: 70 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

REGISTER OF LOADS DUMPED AT SEA

H-04:21 3.4M  
 L-10:03 1.8M  
 H-16:44 3.6M

Permit No.: S0011-03 Vessel Name: Trojan Type of Soil: Sand/Silt Method of Positioning: Plough Dredging

Load No.	Material Source	Quantity on board MT	Date	Departure			Dumping Start		Dumping End		Return			Signed
				Time	Position	Place	Time	Position	Time	Position	Time	Position	Place	
1	Sand/Silt	5.5	23/07/19	13:30	PIER	B'crana Pier	13:33	DumpSite					Dump Site	
2	Sand/Silt	"	"	13:37	"	B'crana Pier	13:42	"					Dump Site	
3	Sand/Silt	"	"	13:47	"	B'crana Pier	13:52	"					Dump Site	
4	Sand/Silt	"	"	13:57	"	B'crana Pier	14:04	"					Dump Site	
5	Sand/Silt	"	"	14:08	"	B'crana Pier	14:15	"					Dump Site	
6	Sand/Silt	"	"	14:19	"	B'crana Pier	14:26	"					Dump Site	
7	Sand/Silt	"	"	14:31	"	B'crana Pier	14:40	"					Dump Site	
8	Sand/Silt	"	"	14:38	"	B'crana Pier	14:48	"					Dump Site	
9	Sand/Silt	"	"	14:53	"	B'crana Pier	14:57	"					Dump Site	
10	Sand/Silt	"	"	15:00	"	B'crana Pier	15:08	"					Dump Site	
11	Sand/Silt	"	"	15:12	"	B'crana Pier	15:20	"					Dump Site	
12	Sand/Silt	"	"	15:23	"	B'crana Pier	15:31	"					Dump Site	
13	Sand/Silt	"	"	15:36	"	B'crana Pier	15:42	"					Dump Site	
14	Sand/Silt	"	"	15:59	"	B'crana Pier	16:00	"					Dump Site	
15	Sand/Silt	"	"	16:03	"	B'crana Pier	16:10	"					Dump Site	
16	Sand/Silt	"	"	16:25	"	B'crana Pier	16:37	"					Dump Site	
17	Sand/Silt	"	"	16:46	"	B'crana Pier	16:50	"					Dump Site	
18	Sand/Silt	"	"	16:56	"	B'crana Pier	17:02	"					Dump Site	
19	Sand/Silt	"	"	17:06	"	B'crana Pier	17:11	"					Dump Site	
20	Sand/Silt	"	"	17:15	"	B'crana Pier	17:20	"					Dump Site	

Total: 100 MT

Cumulative Total: \_\_\_\_\_ MT

G.H

## **Appendix 2**

### OSPAR Dumping Report

S0011 - 03 OSPAR RETURN 2018

Additional comments

Permit No.	S0011-03	
Date of issue	06/07/2018	
Amount permitted (tonnes)	64,000	
Capital or maintenance?	Maintenance	
Method of dredging	Plough dredging	
Dumpsite	Buncrana Harbour deep channel >-2m CD contour	

WASTES DUMPED

If permit relates to dredge sediments please complete section A. Otherwise, complete section B

A. DREDGED SEDIMENTS

(a)	Specification of waste (e.g. mud, silt, sand etc.)	sand
(b)	Derived from harbour, estuary or open water?	From within the harbour area adjacent to berth
(c)	Total quantity of wastes dumped (tonnes)?	5335
(d)	Details of any chemical, toxicity and/or other testing carried out on these sediments. (Reports to be attached as separate documents. Include report references, date of analysis, contractors.)	Sediment sampling was completed in Dec 2017 for the permit application. Grab sampling was undertaken by Aquafact and samples were analysed for an agreed suite of parameters. The parameters were agreed with Margot Cronin in the Marine Institute and they were reviewed as part of the application process. All results are on file with the EPA.
(e)	Please provide a map of the area dredged with chemical analysis sampling stations indicated. Please include details of quantities dredged from specific areas.	See AER Section 1 for map and Section 1/Appendix 1 for quantities and logs.
(g)	What monitoring has taken place and by whom? Please attach report.	Marine mammal monitoring by Pat O'Sullivan (Atlantic Towage) and bathymetric surveys by Inishowen Technology.
(f)	Other relevant information	n/a

B. OTHER WASTES

(a)	Specification of waste	n/a
(b)	Derived from harbour, estuary, open water or other (please specify)?	n/a
(c)	Total quantity of wastes dumped (tonnes)	n/a
(d)	Details of any chemical, toxicity and/or other testing carried out on this waste (reports to be attached as separate documents)	n/a
(e)	Please provide a map of the area dredged with chemical analysis sampling stations indicated. Please provide details of specific areas and quantities dredged.	n/a
(f)	What monitoring has taken place and by whom? Please attach report.	n/a
	Other relevant information	n/a

C. DUMPING AREA :

Note: EACH INDIVIDUAL DUMPSITE REQUIRES SEPARATE ENTRY

Dumpsite 1

(a)	Location	Buncrana Pier and Harbour - As shown on Licence application drawings
	Co-ordinates (minimum of 4):	
	Latitude (decimal degrees - WGS 84)	Longitude (decimal degrees - WGS 84)
	55 07.502	7 27.698
	55 07.359	7 28.044
	55 07.501	7 28.202
	55 07.692	7 28.262
	55 07.739	7 27.828
(b)	Quantity of material dumped here	5335
(c)	Origin of material (eg berths, fairway etc)	The material consists of clean sand which has recently deposited in the berthing area on the south face of Buncrana Pier and the approach channel to the harbour. The material is dredged out to a large area of deep channel located beyond the -2m CD contour.
(d)	Depth (metres)	-2
(e)	Distance from coast (km)	160m
(f)	Tidal flows	varies
	Direction (degrees)	varies with tides and current
	Maximum speed (m/s knots)	
(g)	Method of dumping (if more than one vessel involved, give the range of loads and discharge conditions)	Plough dredging by Trojan
(i)	Vessel(s) load (tonnes)	Varies on each trip between 45 and 200 tonnes. See Appendix 1 Dredging/Dumping Logs.
(ii)	Manner of discharge from vessel	Bottom opening doors on the vessel
(iii)	Rate of discharge (te/day)	Varies per day due to weather, tides, volume dredged etc, but outlined on Dredging/Dumping Logs Appendix 1.
(iv)	Speed of vessel while dumping (m/s or knots)	varies
(h)	Other relevant information (e.g. residual water movements):	

## **Appendix 3**

### Incident Reporting and Investigation Procedure

## Donegal County Council Policy and Procedure for the Management of Incident Reporting and Investigation

<b>Document reference number</b>	SMP 005	<b>Document ratified by</b>	Health and safety Officers
<b>Revision number</b>	001	<b>Responsibility for implementation</b>	Line Management
<b>Document reviewed by</b>	Heath and Safety Officers and Safety Monitoring Committee	<b>Next review date</b>	April 2019
<b>Date document ratified</b>	April 2016	<b>Responsibility for review</b>	SMC
<b>Assigned review period</b>	3 Years	<b>Original issued by</b>	SMT

<b>Amendment history</b>
--------------------------

<b>Date</b>	<b>Revision level</b>	<b>Details of amendment</b>	<b>Approval signature</b>

## Contents

1.0 Policy statement	3
2.0 Purpose	3
3.0 Scope	3
4.0 Legislation, codes of practice, standards and guidance documents	3
5.0 Objectives	4
6.0 Definitions	4
6.1 Incident:	4
6.2 Accident:	4
6.3 Dangerous occurrence:	4
6.4 HSA notifiable accident:	6
6.5 Non-notifiable:	7
7.0 Key hazards	7
8.0 Roles and responsibilities	7
8.1 Directors of Service / Heads of Function and equivalent grades shall:	7
8.2 Line Managers and Supervisors shall ensure:	7
8.3 Employees shall ensure:	8
8.4 Health and Safety Officer shall:	8
9.0 Procedure	8
9.1 Incident Reporting	8
9.2 Incident Investigation	9
9.3 Incident Follow up	9
10.0 Training	10
Appendix 1	11
Appendix 2	12
Appendix 3	13

## **1.0 Policy statement**

It is policy of Donegal County Council so far as is reasonably practicable to eliminate the hazards that give rise to safety, health and welfare (SH&W) risks for employees and those who may be affected by their activities, where this is not possible, implement control measures that will manage the hazards and risks, that may arise, so as to prevent injuries at work.

It is policy that all incidents shall be reported and investigated.

## **2.0 Purpose**

To provide guidance and a series of actions, on how to manage incident reporting and investigation and to ensure that all legal obligations are met in this regard.

To ensure that all accidents in the workplace are, systematically investigated, in order to take corrective action.

To ensure that appropriate particular corrective action is taken, in relation to all accident causes identified, in priority order, so as to avoid recurrence of a similar accident as far as is reasonably practicable.

To ensure that accidents in the workplace are systematically analysed over time, in order that trends and patterns can be identified, with a view to prioritising corrective action so that resources are committed most effectively.

To have procedures in place for the protection of all Donegal County Council employees and members of the public.

## **3.0 Scope**

Applicable to all employees of the Donegal County Council.

## **4.0 Legislation, codes of practice, standards and guidance documents**

- Safety Health & Welfare at Work Act, 2005
- Safety Health & Welfare at Work (General Applications) Regulations, 1993, S.I. 44, Part X, Notification of Accidents and Dangerous Occurrences.
- Opinion and Guidance on steps to be taken in the event of Criminal Investigation. Luán O Braonáin SC; IPB 2010.
- Donegal County Council Procedure for the Management of Serious Incidents where there is a Risk of Criminal Investigation

Donegal County Council Policy and Procedure for the Management of Incident Reporting and Investigation SMS 005	Revision 001
	Page 3 of 15

## 5.0 Objectives

- Demonstrate compliance with legislation
- Document roles and responsibilities
- Manage incident reporting and investigation in a timely manner
- Determine underlying deficits by applying a system analysis methodology so that deficits can be identified, corrected and incidents prevented
- Reduce the number of workplace incidents
- Gather statistical evidence of all incidents and utilise this information to ensure continual improvement
- Provide appropriate training
- Provide evidence of required record keeping.

## 6.0 Definitions

**6.1 Incident:** Work related event(s) in which an injury or ill health (regardless of severity) or fatality occurred, or could have occurred inclusive of any accident, dangerous occurrence or near miss

**6.2 Accident:** is an incident which has given rise to injury, ill health or fatality. (S.R. OHSAS18001:2007) The Safety, Health and Welfare at Work Act, 2005 defines an accident as arising out of or in the course of employment which, in the case of a person carrying out work, results in personal injury. A very serious incident in this context includes:

- Death or serious injury of an employee/s in the course of work
- Death or serious injury of third party/ies as a result of a Donegal County Council work activity
- Accident involving injury to multiple parties (employees and/or third parties) as a result of LA activities

### 6.3 Dangerous occurrence:

- The collapse, overturning, or failure of any load-bearing part of:
  - any lift, hoist, crane, derrick or mobile powered access platform any excavator
  - any pile-driving frame or rig having an overall height, when operating, of more than seven metres
- The explosion, collapse or bursting of any closed vessel, including a boiler or boiler tube, in which the internal pressure was above or below atmospheric pressure
- Electrical short circuit or overload attended by fire or explosion which results in the stoppage of the plant involved for more than 24 hours
- An explosion or fire occurring in any plant or place which resulted in the stoppage of that plant or suspension of normal work in that place for more than 24 hours, where

Donegal County Council Policy and Procedure for the Management of Incident Reporting and Investigation SMS 005	Revision 001
	Page 4 of 15

such explosion or fire was due to the ignition of process materials, their by-products (including waste) or finished products

- The sudden uncontrolled release of one tonne or more of highly flammable liquid, liquified flammable gas, flammable gas or flammable liquid above its boiling point from any system plant or pipe-line
- The collapse or partial collapse of any scaffold more than five metres high which results in a substantial part of the scaffold falling or overturning, including, where the scaffold is slung or suspended, a collapse or part collapse of the suspension arrangements (including an outrigger) which causes a working platform or cradle to fall more than five metres
- Any unintended collapse or partial collapse of:
  - any building or structure under construction, reconstruction alteration or demolition, or of any false-work, involving a fall of more than five tonnes of material
  - any floor or wall of any building being used as a place of work, not being a building under construction, reconstruction, alteration or demolition
- The uncontrolled or accidental release or the escape of any substance or pathogen from any apparatus, equipment, pipework, pipe-line, process plant, storage vessel, tank, in-works conveyance tanker, land-fill site, or exploratory land-drilling site, which, having regard to the nature of the substance or pathogen and the extent and location of the release or escape, might have been liable to cause serious injury to any person
- Any unintentional ignition or explosion of explosives
- The failure of any container or of any load-bearing part thereof while it is being raised, lowered or suspended
- Either of the following incidents in relation to a pipe-line:
  - the bursting, explosion or collapse of a pipe-line or any part thereof
  - the unintentional ignition of anything in a pipe-line, or of anything which immediately before it was ignited was in a pipeline
- Any incident in which a container, tank, tank vehicle, tank semi-trailer, tank trailer or tank-container being used for conveying a dangerous substance by road:
  - overturns
  - suffers damage to the package or tank in which the dangerous substance is being conveyed
- Any incident involving a vehicle carrying a dangerous substance by road, where there is:

- an uncontrolled release or escape from any package or container of the dangerous substance or dangerous preparation being conveyed
- a fire which involves the dangerous substance or dangerous preparation being conveyed
- Any incident where breathing apparatus while being used to enable the wearer to breathe independently of the surrounding environment malfunctions in such a way as to be likely either to deprive the wearer of oxygen or, in the case of use in a contaminated atmosphere, to expose the wearer to the contaminant to the extent in either case of posing a danger to his health, but excluding such apparatus while it is being used in a mine or is being maintained or tested
- Any incident in which plant or equipment either comes into contact with an overhead electric line in which the voltage exceeds 200 volts, or causes an electrical discharge from such electric line by coming into close proximity to it, unless in either case the incident was intentional, or any incident involving a live conductor accidentally falling due to breakage or otherwise
- Any accidental collision between a locomotive or a train and any other vehicle at a factory or at dock premises
- The bursting of a revolving vessel, wheel, grindstone, or grinding wheel moved by mechanical power

**6.4 HSA notifiable accident:**

- an accident at work resulting in death
- an accident at work resulting in an employee not being able to perform normal duties for more than three consecutive days, excluding the day of the accident following the accident even if some of the days are days where the employee is not scheduled to work (e.g. weekends)
- a road traffic / vehicle accident involving employees if the person was injured while driving or riding in the vehicle in the course of work, and cannot perform their normal work for more than 3 consecutive days, not including the day of the accident
- accidents resulting in general injuries to members of the public where a person requires treatment from a medical practitioner. Accidents related to medical treatment or a pre-existing medical condition are not reportable. Road traffic accidents relating to members of the public are only notifiable if they relate to vehicle loads or to the construction or maintenance of roads or structures adjacent to roads
- a dangerous occurrence which may or may not result in injury or death but poses a serious danger to safety (see definition of Dangerous Occurrence).

**6.5 Non-notifiable:**

- An incident which is not notifiable to the HSA.

**7.0 Key hazards**

- Failure to report incidents
- Failure to report incidents in a timely manner
- Failure to undertake an incident investigation
- Failure to identify and implement preventive or corrective actions.
- Reoccurrence of the same or similar type of incident with potentially serious consequences

**8.0 Roles and responsibilities**

The following roles and responsibilities are specific to this policy and procedure and are in addition to the other roles and responsibilities assigned to the post-holder.

**8.1 Directors of Service / Heads of Function and equivalent grades shall:**

- Ensure the objectives specified in section 5 of this policy and procedure are delivered
- Participate in carrying out serious incident investigations
- Monitor Incident Data on quarterly bases to :
  - Examine Incident Trends
  - Ensure control measures are adequate and implemented
  - Ensure control measures are communicated to all areas of their Directorate

**8.2 Line Managers and Supervisors shall ensure:**

- Employees under their control are familiar with and comply with this policy and procedure
- Implementation of this policy and procedure for all area under their control
- Incidents are reported in a timely manner
- Carry out incident investigations
- Implement corrective and preventive actions
- Support audit and inspection of this policy and procedure
- Provision of training
- Relevant records are maintained
- Access to incident reporting forms for employees
- Forward copy of completed incident report forms by e-mail to [accident@donegalcoco.ie](mailto:accident@donegalcoco.ie).

- Forward copy of incident report to relevant Area Manager and Director of Service

### **8.3 Employees shall ensure:**

- That they are familiar with and comply with the requirements of this policy and procedure
- Report any incident (accident, near miss or dangerous occurrence) to their immediate supervisor/Line Manager
- Co-operate with all internal incident investigations

### **8.4 Health and Safety Officer shall:**

- Coordinate the safety management system
- Advise on the implementation of this policy and procedure
- Undertake inspections of this policy and procedure
- Undertake audits of this policy and procedure
- Notify the HSA of notifiable accidents and dangerous occurrences
- Carry out serious incident investigations and support other relevant staff and line management
- Collate the information, findings and recommendations from all investigations
- Provide incident reports and statistics to senior management
- Monitor and review incident trends.
- Inform relevant Safety Representative of incident

## **9.0 Procedure**

### **9.1 Incident Reporting**

- Complete an incident report form for all incidents.
- Forward completed forms to:
  - Relevant line manager
  - Health and safety officer
  - Safety representative
  - Director of Service
  - [accident@donegalcoco.ie](mailto:accident@donegalcoco.ie)
- Incident reporting and investigation forms are available on the intranet and Appendix 1 of this document
- Incidents involving a fatality or a serious injury shall be notified immediately by telephone to the relevant Director of Service and the Health and Safety Officer.
- Incidents involving a fatality shall be notified to the Gardai and the Health and safety authority by the health and safety officer.

Donegal County Council Policy and Procedure for the Management of Incident Reporting and Investigation SMS 005	Revision 001
	Page 8 of 15

- Notifiable accidents shall be reported to the HSA on the IR1 form (either on line or hardcopy by registered post) by the Health and Safety Officer as soon as is reasonably practicable
- Dangerous occurrences shall be reported to the HSA on the IR3 form by the Health and Safety Officer as soon as is reasonably practicable
- Update incident register
- Section line manager to notify the insurance section of any incident that could potentially result in a claim
- Where an incident may/will result in a criminal investigation by the enforcing authorities i.e. Gardaí, H.S.A., etc. Donegal County Council Procedure for The Management of Serious Incidents where there is a Risk of Criminal Investigation must be followed.

## **9.2 Incident Investigation**

- Line managers / supervisors shall investigate all incidents
- The health and safety officer shall carry out serious incident investigations and support other relevant staff and line managers
- Investigation shall identify all contributing factors such as organisational and human factors, etc.
- Investigation shall identify root cause/s
- Investigation shall Identify underlining cause/s
- Investigation shall Identify corrective and preventive actions
- Communicate relevant corrective and preventive actions to other sections
- Line Managers/Supervisors to monitor and review the effectiveness of the corrective and preventive actions
- Review risk assessments and other relevant documents as required
- Maintain records

## **9.3 Incident Follow up**

- All incidents will be submitted on an internal database which will keep a record of the details of all incidents and the control measures that are necessary to prevent a re-occurrence.
- Every quarter a detailed report will be issued to Safety Monitoring Committee.
- This report will contain the following
  - A copy of each incident and its appropriate control measure
  - Incident statistical graphs detailing

Donegal County Council Policy and Procedure for the Management of Incident Reporting and Investigation SMS 005	Revision 001
	Page 9 of 15

- Total Incidents with HSA Notifiable Incidents
- HSA Notifiable Incidents per 100 Employees per year
- Incident Classification
- Total Incidents per Directorate
- Incident Frequency Trend

Documented corrective actions for

- Notifiable incidents to the HSA.
- Near Miss incidents that pose serious risk of injury.
- Incidents that caused injury and that are not notifiable to HSA
- Serious Incidents Involving Sub-Contractors

**10.0 Training**

Appropriate training on this policy and procedure shall be provided to all relevant employees  
 Incident investigation training to be provided to line management and all relevant employees

**Donegal County Council**

**Incident Report Form**

**NB:** If completing this form electronically, entries can only be made in the shaded areas. Shaded rectangles will expand to fit the text entered. Clicking on a tick box will enter an "x" in the box.

**Type of incident:**

- |  |   |
|--|---|
| <input type="checkbox"/> Health complaint due to work activity | <input type="checkbox"/> Accident causing injury          |
| <input type="checkbox"/> Damage to property or equipment       | <input type="checkbox"/> Dangerous Occurrence             |
| <input type="checkbox"/> Near Miss                             | <input type="checkbox"/> Violent or threatening behaviour |

**Location of Incident:**

**Date of incident:**

**Time:**

**Complaint/Description of incident: (Give a brief account of what was happening before the incident/accident and what went wrong)**

**PLEASE DO NOT IDENTIFY INDIVIDUALS INVOLVED BY NAME**

**Details of Injury: (If someone was injured, please provide the following details if known)**

**Were they**

- An Employee
- A Contractor
- A Member of Public

**Did they**

- Require medical treatment
- Are likely to be unable to return to work for:**
  - Less than 3 days
  - More than 3 days

**Directorate:**

**Reported by (Supervisor) :**

**Date Reported:**

Save this form on your local drive, complete, and email to: [accident@donegalcoco.ie](mailto:accident@donegalcoco.ie) Photographs may be attached to the document and email to the above address

**Appendix 2**

<b>Donegal LA Incident Investigation Form</b>		
<b>A. Appropriate Line Manager carrying out investigation in conjunction with Safety Officer</b>		
Line Manager:		Safety Officer:
Date of Incident:	Incident Number:	
Name of Witnesses that were spoken to and any other relevant personnel (attach statements & photographs as necessary)		
<b>B. Accident / Incident Findings</b>		
<b>After a review of all facts, what was the unsafe work practice, unsafe plant /equipment or unsafe system of work or other factors i.e. People and Environment that contributed to the incident</b>		
<b>C. Corrective Actions:</b>		
<b>Identify corrective actions that need to be taken to prevent similar incidents</b>		
<b>Corrective Actions</b>	<b>Responsible Person</b>	<b>Date Implemented</b>
<b>D. Communication of Incident</b>		
<b>This Incident can only be concluded when corrective actions are implemented and communicated to all relevant employees in the relevant Directorates</b>		
Concluded <input type="checkbox"/> Yes		
<b>E. Signature of Appropriate Line Manager:</b>		
<b>Date</b>		

## Appendix 3

### **1 General injuries involving employees and self-employed**

#### **If I get injured on a Wednesday and return to work on Monday is it reportable?**

Yes, because the person is absent from work for more than 3 consecutive days, the accident is reportable (even if the employee does not normally work on a week-end, the Saturday and Sunday are counted).

#### **If I hurt my back on a Monday and return to work on Thursday but am given light duties for the next week is it reportable?**

Yes, even though you were not absent for more than 3 days you could not perform your normal work for more than 3 days.

#### **If I get injured on Monday and return to work on Friday is it reportable?**

No, you must be absent for more than 3 days, not including the day of the injury.

#### **If I hurt my back on a Monday and return to work on Thursday but am unable to work on Friday is it reportable?**

No, you were not out of work for more than 3 consecutive days

### **2 Road traffic/ vehicle accidents involving employees and self-employed**

#### **If I am a driver or a passenger and am involved in a road traffic accident and am out of work for more than 3 days is it reportable?**

Yes, if you were injured while driving or riding in the vehicle in the course of work

#### **If I am at work and am injured by part of the load on a lorry is it reportable?**

Yes, provided that you could not perform your normal work for more than 3 days.

#### **If I am at work and am injured as the result of the loading or unloading of a lorry is it reportable?**

Yes, provided that you could not perform your normal work for more than 3 days.

#### **If I am a driver who is injured when my lorry rolls over my foot in the yard of a customer, is it reportable?**

Yes, provided that you could not perform your normal work for more than 3 days.

#### **If I am at work and am injured as a result of roadway construction or maintenance activities is it reportable?**

Yes, provided that you could not perform your normal work for more than 3 days.

### **3 General injuries involving members of the public**

Donegal County Council Policy and Procedure for the Management of Incident Reporting and Investigation SMS 005	Revision 001
	Page 13 of 15

**If a piece of plywood is blown off a construction site and injured me as I walked along the footpath is it reportable?**

Yes, provided you required medical treatment. The injury was related to a place of work.

**If I slip on a grape in a supermarket is it reportable?**

Yes, provided you required medical treatment. Where it is the policy of the supermarket to advise everyone who suffers an accident to “see a doctor” but you do not actually require treatment, it is not reportable.

**If I am injured in a fall out of a bed in a hospital is it reportable?**

Yes, provided you required medical treatment as a result of the fall and the fall was not related to medical treatment or a pre-existing medical condition

**If I am a hospital patient and suffer an injury due to adverse reaction to drugs is it reportable?**

No, injuries to patients related to a medical treatment or a pre-existing medical condition are not reportable

**If I am injured by inappropriate treatment by a medical practitioner is it reportable?**

No, injuries to patients related to a medical treatment or a medical condition are not reportable

**4 Road traffic/vehicle accidents involving members of the public**

**If I am a member of the public who is injured by a work vehicle, including a bus, is it reportable?**

No, unless you are riding in the vehicle in the course of work

**If I am driving and I lose control on loose gravel is it reportable?**

No, unless the loose gravel on the road is the result of the activities of a person who was working on the construction or maintenance of the road at the time of the injury.

**Who is responsible for notifying accidents to the Health and Safety Authority?**

In the case of an accident involving an employee at work, the employer is responsible for reporting the accident.

In any other case (if the injured person is self-employed or a member of the public), the person responsible for reporting the accident is the person having control of the place of work at which the accident occurred.

If a self-employed person is fatally injured, the person who is the owner or tenant in the place of work is responsible for reporting the accident. If the fatally injured person is the tenant or owner of the place of work, the next of kin has responsibility for reporting the accident.

**What is the procedure for notifying a fatal accident to the Health and Safety Authority?**

Donegal County Council Policy and Procedure for the Management of Incident Reporting and Investigation SMS 005	Revision 001
	Page 14 of 15

The responsible person is required to:

- Supply the Authority with the name of the deceased, location of the accident and brief particulars of the accident, by the quickest practicable means.

Send a written report of the incident, in the approved form, to the Authority as soon as practicable.

The responsible person should ensure that no person disturbs the accident scene before: the scene has been examined by an inspector

three clear days after notification of the accident

If an injured person dies within a year of the accident, the responsible person is required to notify the Authority in writing as soon as possible after the death comes to their knowledge, even if the incident has not previously been notified to the Authority.

The Gardaí should be notified immediately of all workplace accidents resulting in death.

# **Appendix 4**

## Hydrographic Surveys



## *Inishowen Technology Limited*

Umricam,  
Buncrana,  
County Donegal,  
Republic of Ireland.

VAT number: IE6591695S

Cathal,

Over July and August four surveys were carried out in support of the dredging campaign.

19 <sup>th</sup> July	Pre-dredge survey of pier and spoil area.
9 <sup>th</sup> August	Survey after first phase, before second phase, of pier and spoil area.
22 <sup>nd</sup> August	Survey of pier area only to assess efficacy
29 <sup>th</sup> August	End of campaign survey of pier and spoil area.

Attached find an analysis of the campaign and an estimation of dredge volumes as requested. An analysis of the spoil area is also provided.

Regards

John O'Raw  
17<sup>th</sup> September 2018

*Inishowen Technology Limited is incorporated in the Republic of Ireland.  
Company Number 191695*

Telephone : +353 74 9363104  
E-Mail: sales@iotech.ie

# Report on the Buncrana Pier Area Dredge Campaign July-August 2018

## Contents

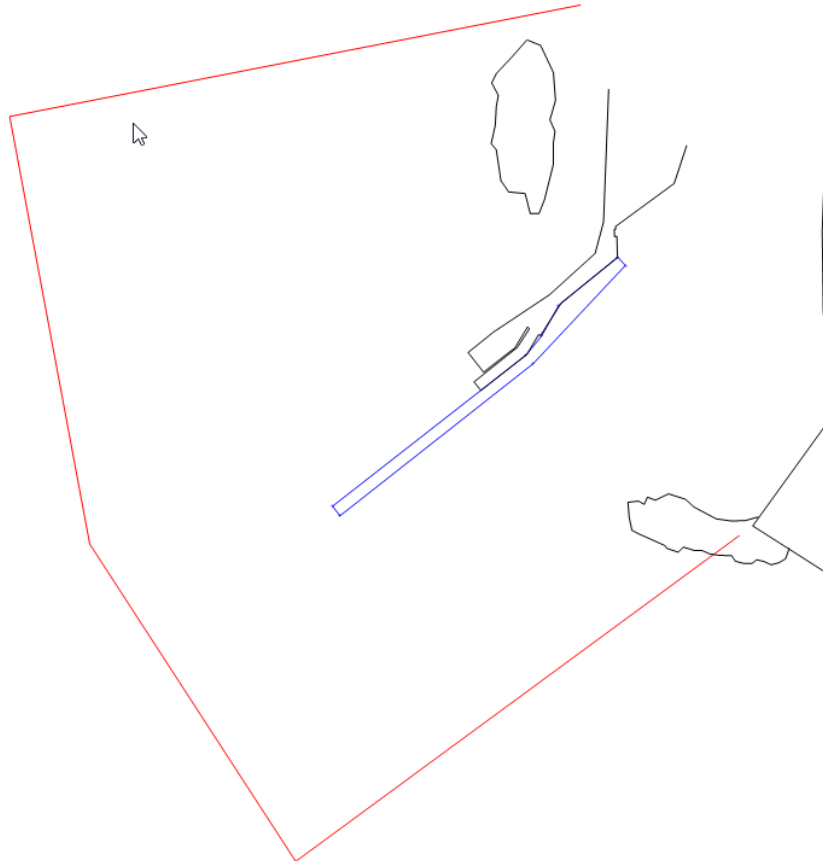
Summary.....	2
Survey of 19 <sup>th</sup> July 2018 .....	3
Survey of 9 <sup>th</sup> August 2018 .....	4
Survey of 22 <sup>nd</sup> August 2018.....	5
Survey of 29 <sup>th</sup> August 2018 .....	6

## Summary

The dredging campaign in July-August 2018 concentrated on the south channel, primarily for use by the lifeboat (marked in blue). The target was for a clear channel of -1.5m to CD along the pier from the lifeboat berth to the -1.5m contour. The red area marks the box where deposits were expected from the dredging operation.

In the pier area, single beam bathymetry was carried out with line spacing of 10m.

Tidal compensation was to local chart datum, which is +54.73m to ETRS89 and -2.7m to OD MSL Malin Head, diagrams are geodetic in decimal degrees.



Over July and August, four surveys were carried out in support of the dredging campaign.

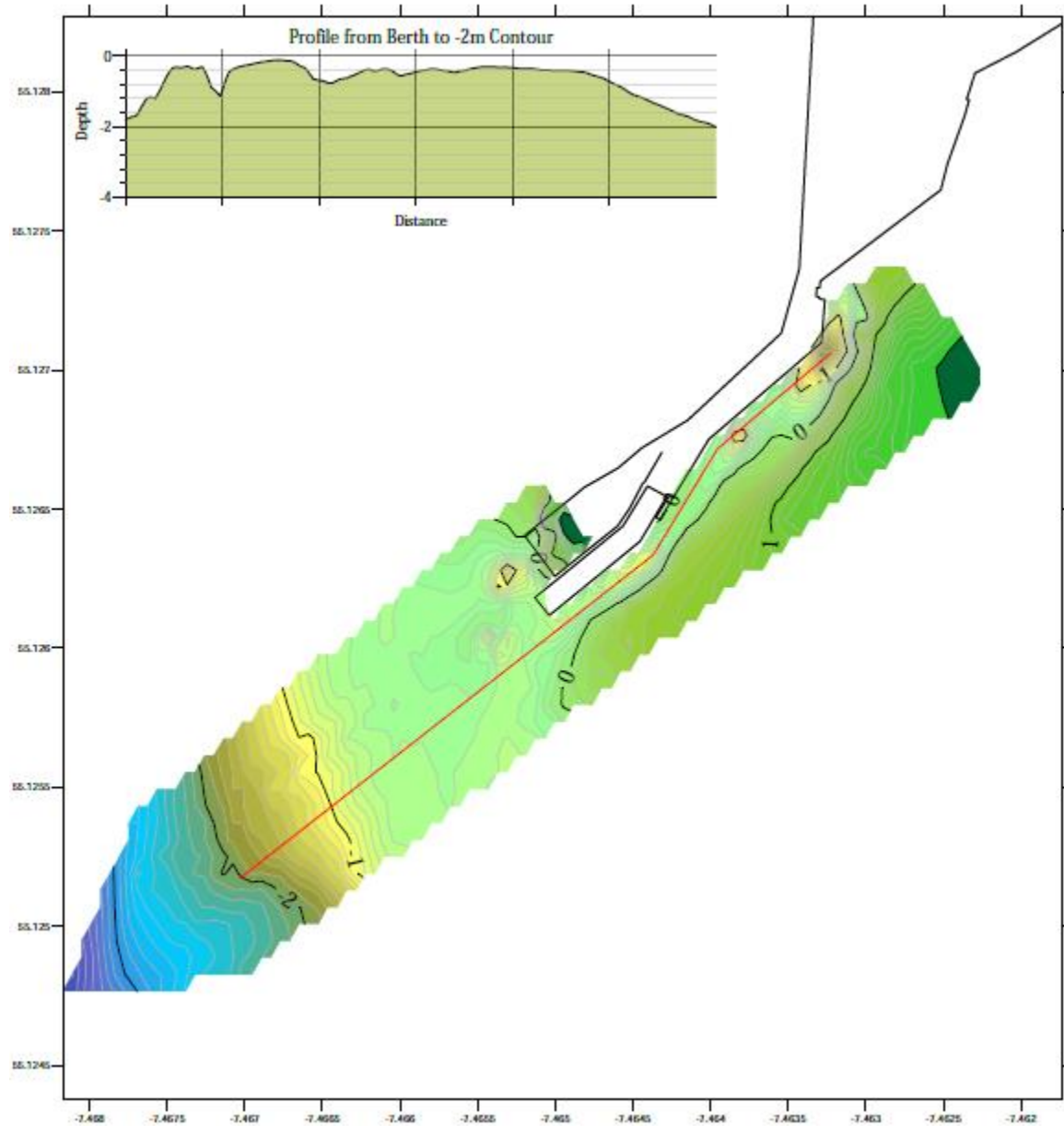
19 <sup>th</sup> July	Pre-dredge survey of pier and spoil area.
9 <sup>th</sup> August	Survey after first phase, before second phase, of pier and spoil area.
22 <sup>nd</sup> August	Survey of pier area only to assess efficacy
29 <sup>th</sup> August	End of campaign survey of pier and spoil area.

This report only considers the south channel. The spoil area is analysed in a separate report.

The total volume difference in the south channel between 19<sup>th</sup> July and 29<sup>th</sup> August is estimated at **1,828 m<sup>3</sup>**.

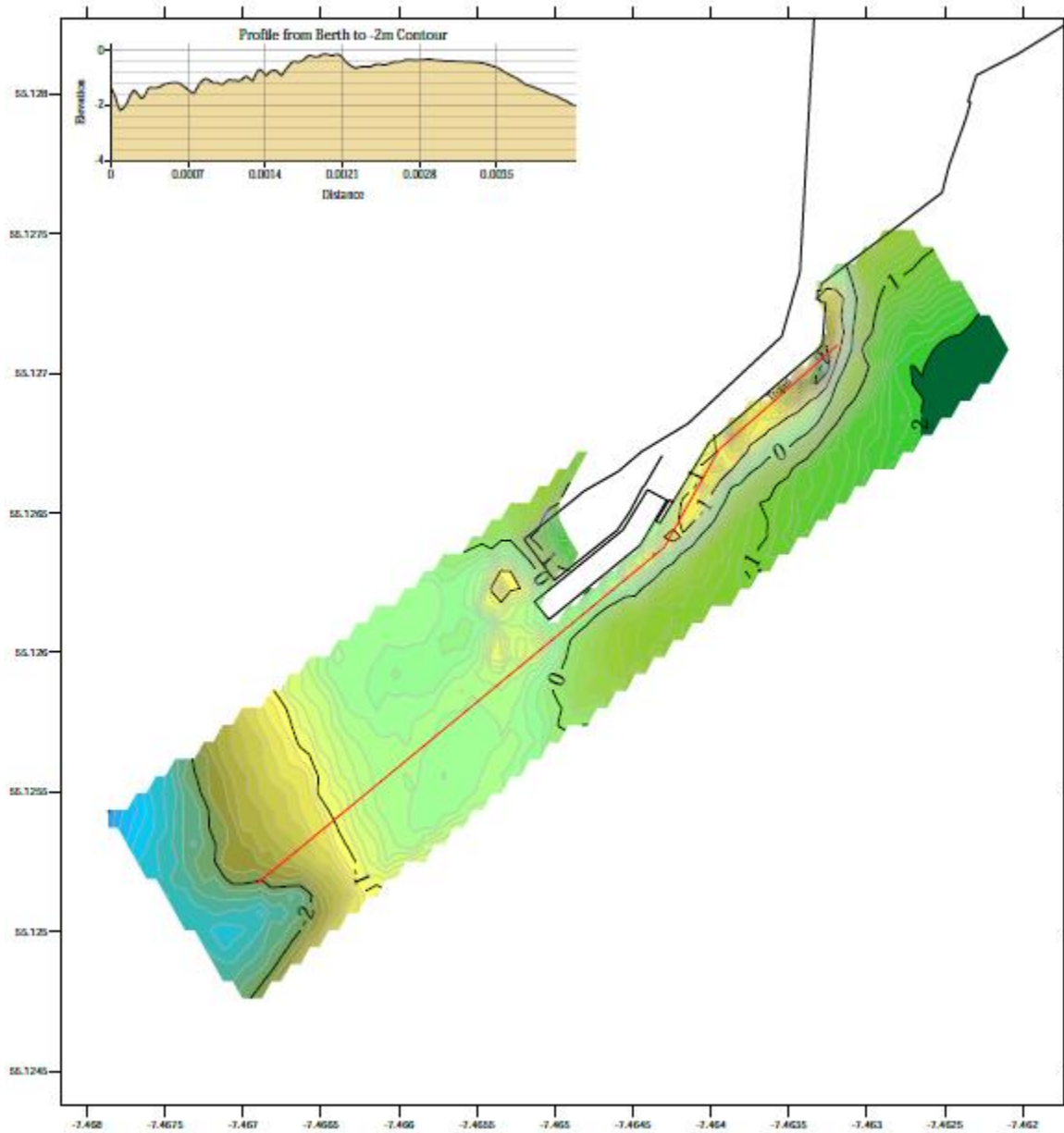
## Survey of 19<sup>th</sup> July 2018

Data was taken on 19<sup>th</sup> July prior to the commencement of dredging. At the lifeboat berth, the water jets have caused an excavation to -2m where the life boat manoeuvres. A similar anomaly can be seen alongside the pier where the ferry moors and off the slip, due to the ferry holding station. These are all normal and expected. The channel is very shallow close to the berth and less than -0.4m over almost 200m.



## Survey of 9<sup>th</sup> August 2018

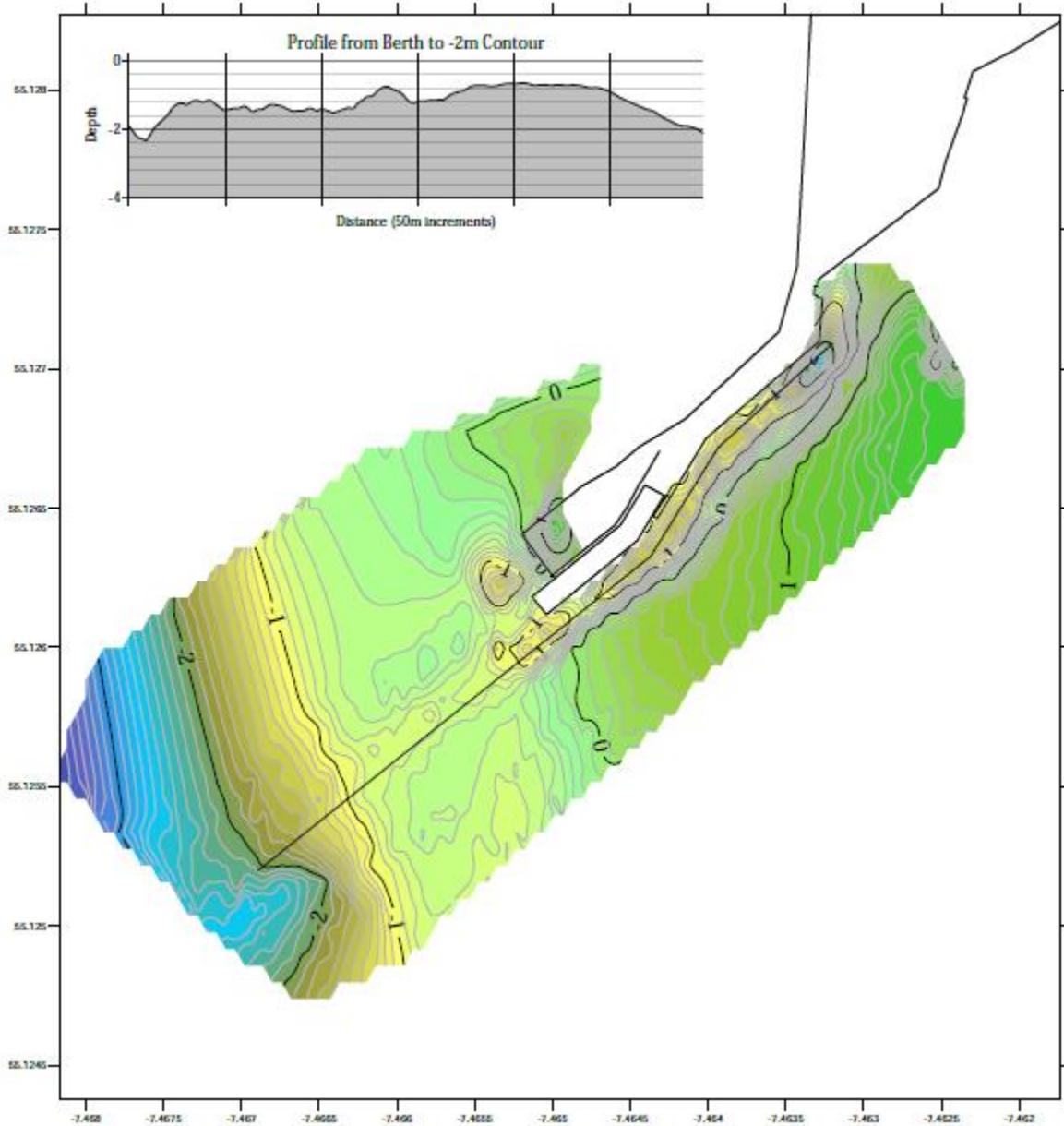
The first 100m of the channel to the lifeboat berth meets the target depth as far as the steps. Once level with the slipway, there is little noticeable improvement for the rest of the channel west.



It is estimated that 1,243 m<sup>3</sup> of material was removed between 19<sup>th</sup> July and 9<sup>th</sup> August 2018.

## Survey of 22<sup>nd</sup> August 2018

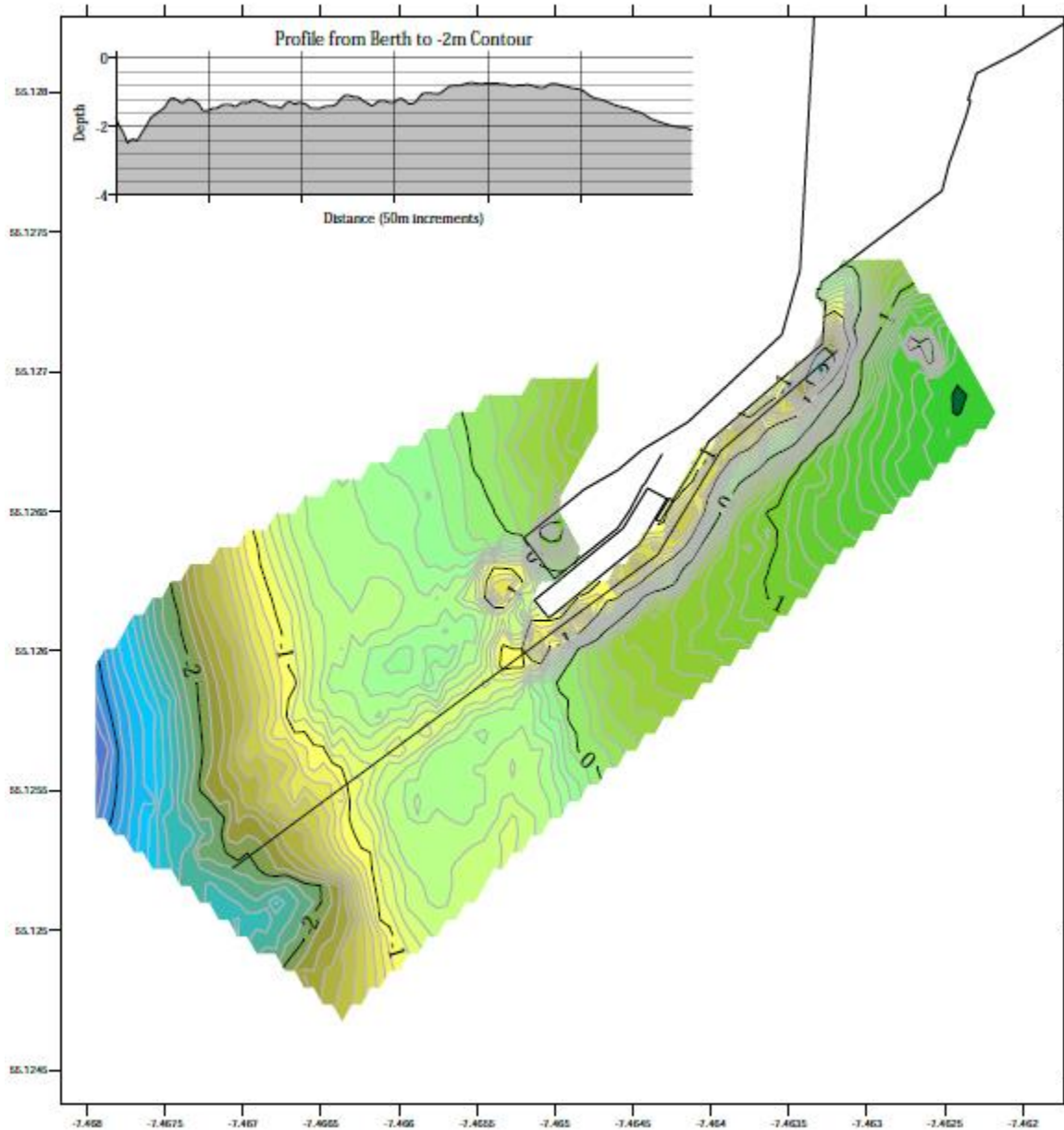
An interim survey of the south channel only was requested in the middle of the second phase of dredging. In this phase, the dredge operator concentrated from the steps westwards and there is an improvement over c.75m additional. The entire channel is now clear to almost -0.8m.



It is estimated that 415 m<sup>3</sup> of material was removed between 9<sup>th</sup> and 22<sup>nd</sup> August 2018.

## Survey of 29<sup>th</sup> August 2018

A survey was taken after the dredge campaign. Some of the shallow areas have been cleared and a channel exists to -1.2m for c. 160m from the lifeboat berth. There is little improvement from 160m to 250m from the berth.



It is estimated that 170 m<sup>3</sup> of material was removed west of the pier between 22<sup>nd</sup> and 29<sup>th</sup> August 2018, although there was also some infill further east in the channel.

# Report on the Buncrana Spoil Area Dredge Campaign July-August 2018

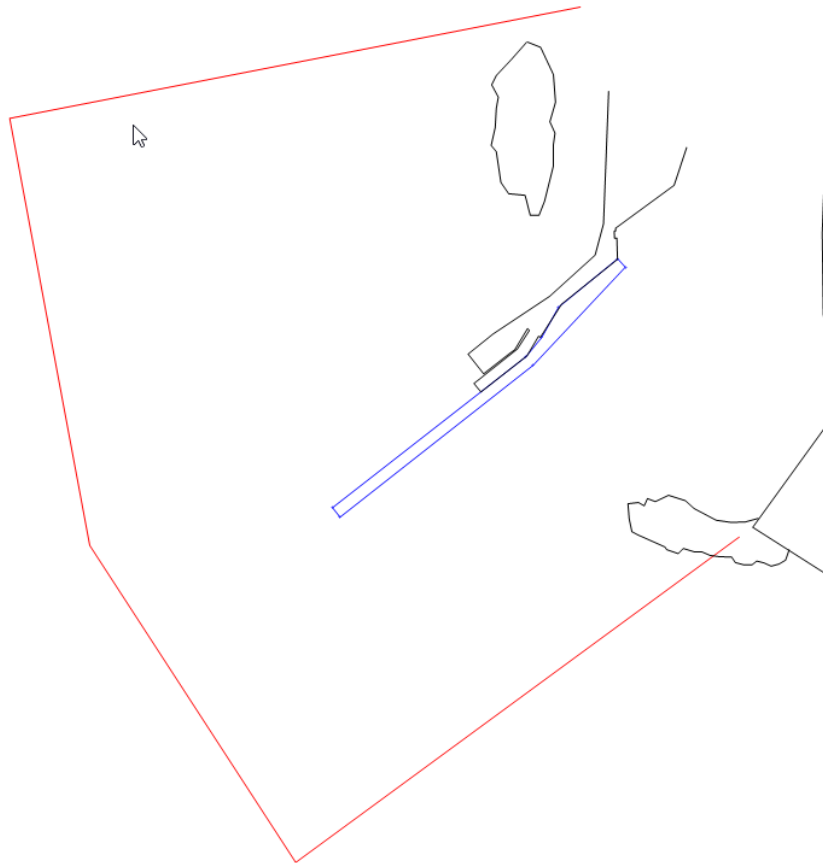
## Contents

Summary.....	2
Survey of 19 <sup>th</sup> July 2018 .....	3
Analysis .....	4
Survey of 9 <sup>th</sup> August 2018 .....	5
Analysis .....	6
Morphology .....	6
Survey of 29 <sup>th</sup> August 2018 .....	7
Analysis .....	8
Morphology .....	8

## Summary

The dredging campaign in July-August 2018 concentrated on the south channel, primarily for use by the lifeboat (marked in blue). The target was for a clear channel of -1.5m to CD along the pier from the lifeboat berth to the -1.5m contour. The red area marks the box where deposits were expected from the dredging operation. In this area, single beam bathymetry was carried out with line spacing of 25m. In the contour maps, the higher resolution data (10m) from the south channel surveys is also included. Diagrams are to Irish grid.

Tidal compensation was to local chart datum, which is +54.73m to ETRS89 and -2.7m to OD MSL Malin Head.



Over July and August, four surveys were carried out in support of the dredging campaign.

19 <sup>th</sup> July	Pre-dredge survey of pier and spoil area.
9 <sup>th</sup> August	Survey after first phase, before second phase, of pier and spoil area.
22 <sup>nd</sup> August	Survey of pier area only to assess efficacy
29 <sup>th</sup> August	End of campaign survey of pier and spoil area.

This report only considers the spoil area. The south channel is analysed in a separate report.

The total volume difference in the south channel between 19<sup>th</sup> July and 29<sup>th</sup> August is estimated at **1,828 m<sup>3</sup>**.

Survey of 19<sup>th</sup> July 2018

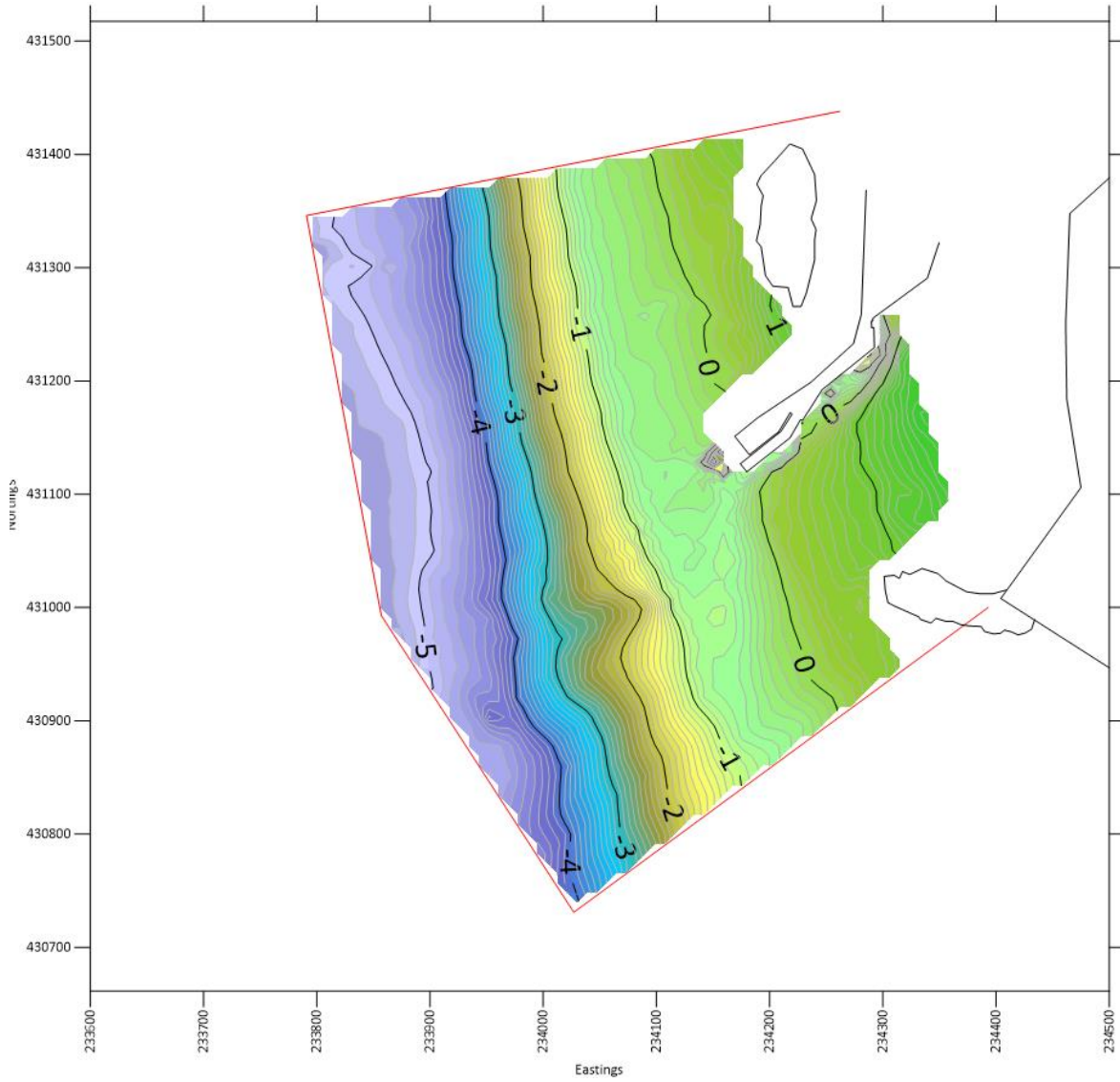


Figure 1. Contour map of spoil area, 19<sup>th</sup> July 2018

## Analysis

1. The passage of the ferry or lifeboat may have caused a discernible north-south track. One of the ferries reverses to the north to turn and the small excavation to the north and off the slip are most likely caused by wash.
2. There is an anomaly in the north of the area. After the phenomenal floods of 22<sup>nd</sup> August 2017, a channel was cut in the north of the survey area, this was still apparent in surveys in 2017 but has now almost disappeared.
3. The remains of the south channel used by the lifeboat is visible, however it is off-line. This was also probably caused by the floods of 2017.
4. There is an anomaly at -4.5m, this is persistent across surveys. It is close to the channel, around 100m south of the RNLI buoy. The nature of this anomaly is unknown, it is 100m or so from the RNLI buoy and around the same distance from the charted position of the diffuser.

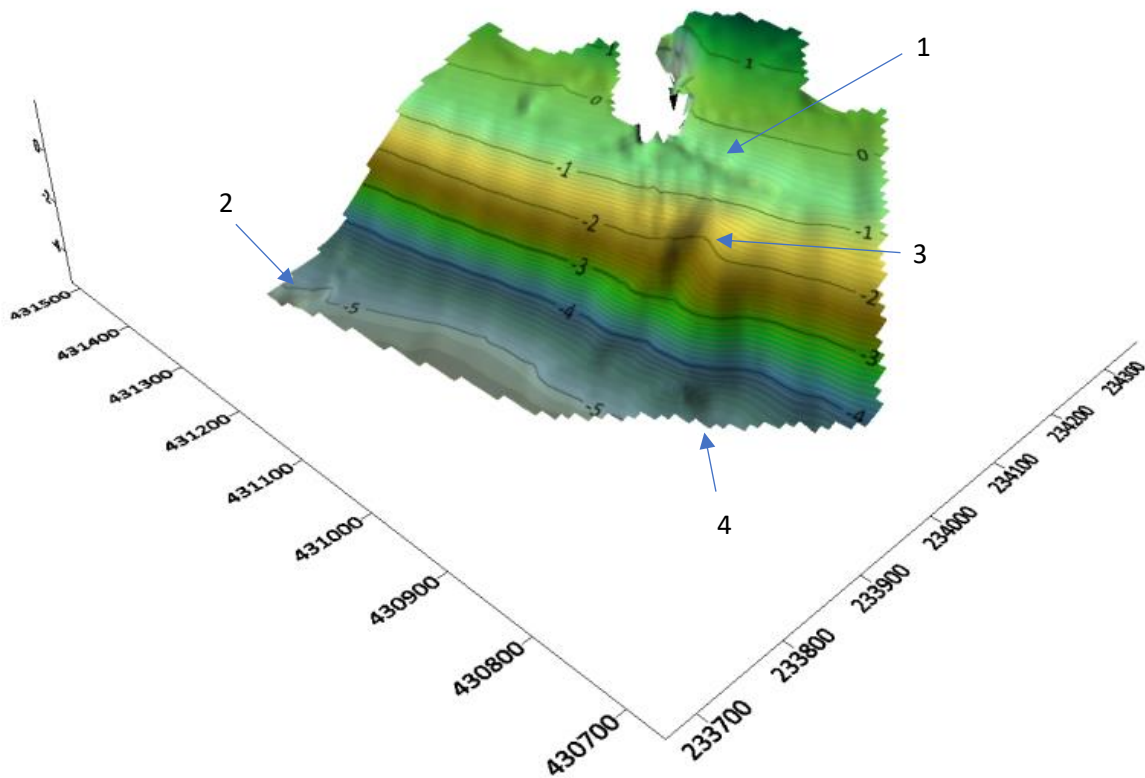


Figure 2. 3D representation of spoil area, 19<sup>th</sup> July 2018

Survey of 9<sup>th</sup> August 2018

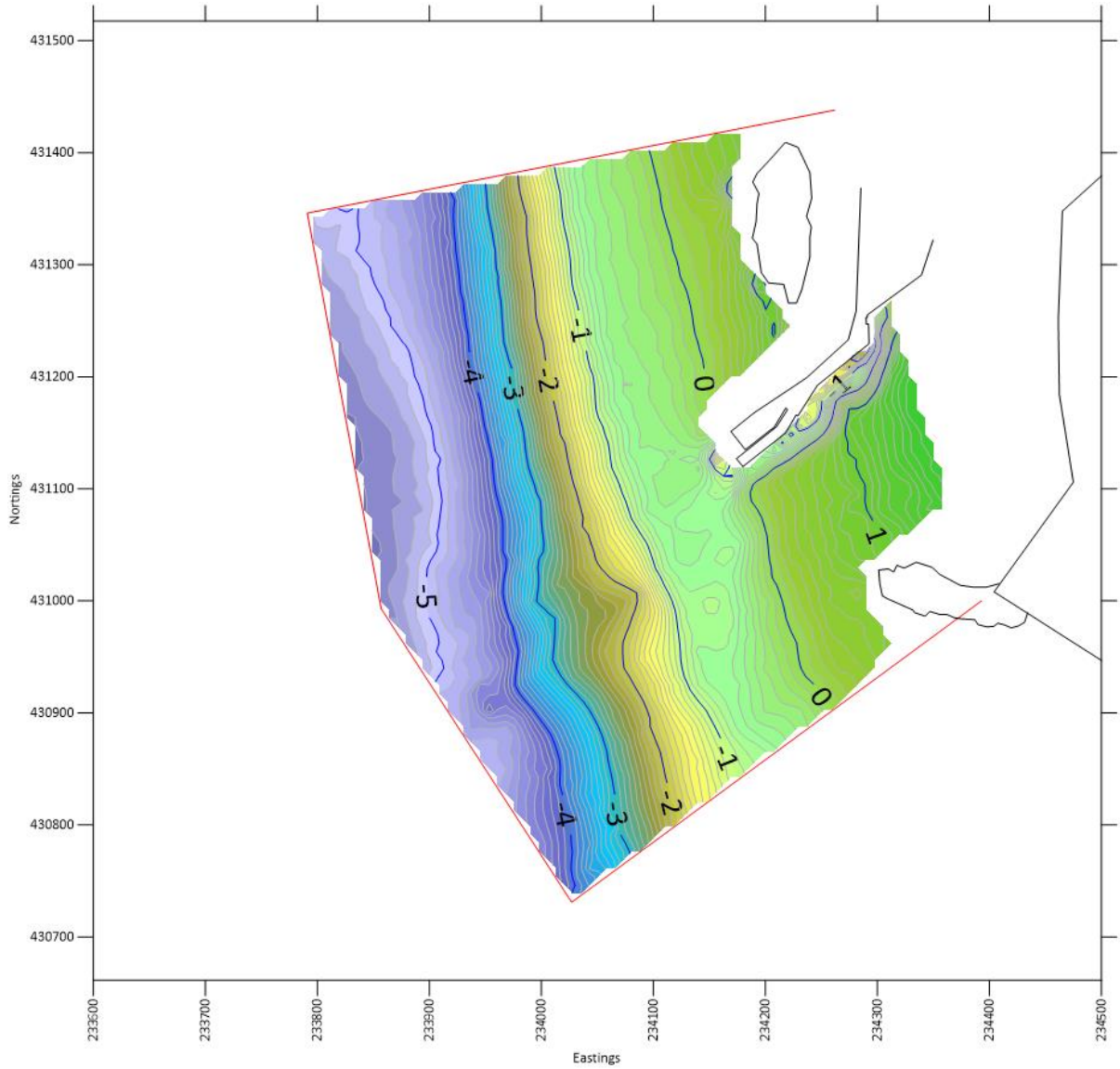


Figure 3. Contour map of spoil area, 9<sup>th</sup> August 2018

### Analysis

In this phase of the dredge campaign, the concentration of the operator was in the channel south of the pier, little dredging work was done in open water west of the pier. At this resolution, this work cannot be seen.

### Morphology

For clarity, the minor contour lines have been removed and the 1m contours of the survey of 9<sup>th</sup> August (blue) have been overlaid on the contours of 19<sup>th</sup> July (black), any difference in the contours from 0m to -4m is negligible.

It is estimated that 1,243 m<sup>3</sup> of material was removed between 19<sup>th</sup> July and 9<sup>th</sup> August 2018; the overall area enclosed by the box is c. 275,000m<sup>2</sup>. If this volume of material was deposited evenly across this area is not measurable and will be indistinguishable from noise. There are no heaps of material or new anomalies. The only contour showing measurable difference is the -5m contour, with a difference of c. 20cm across several hundred meters. There is no ready explanation for this variation.

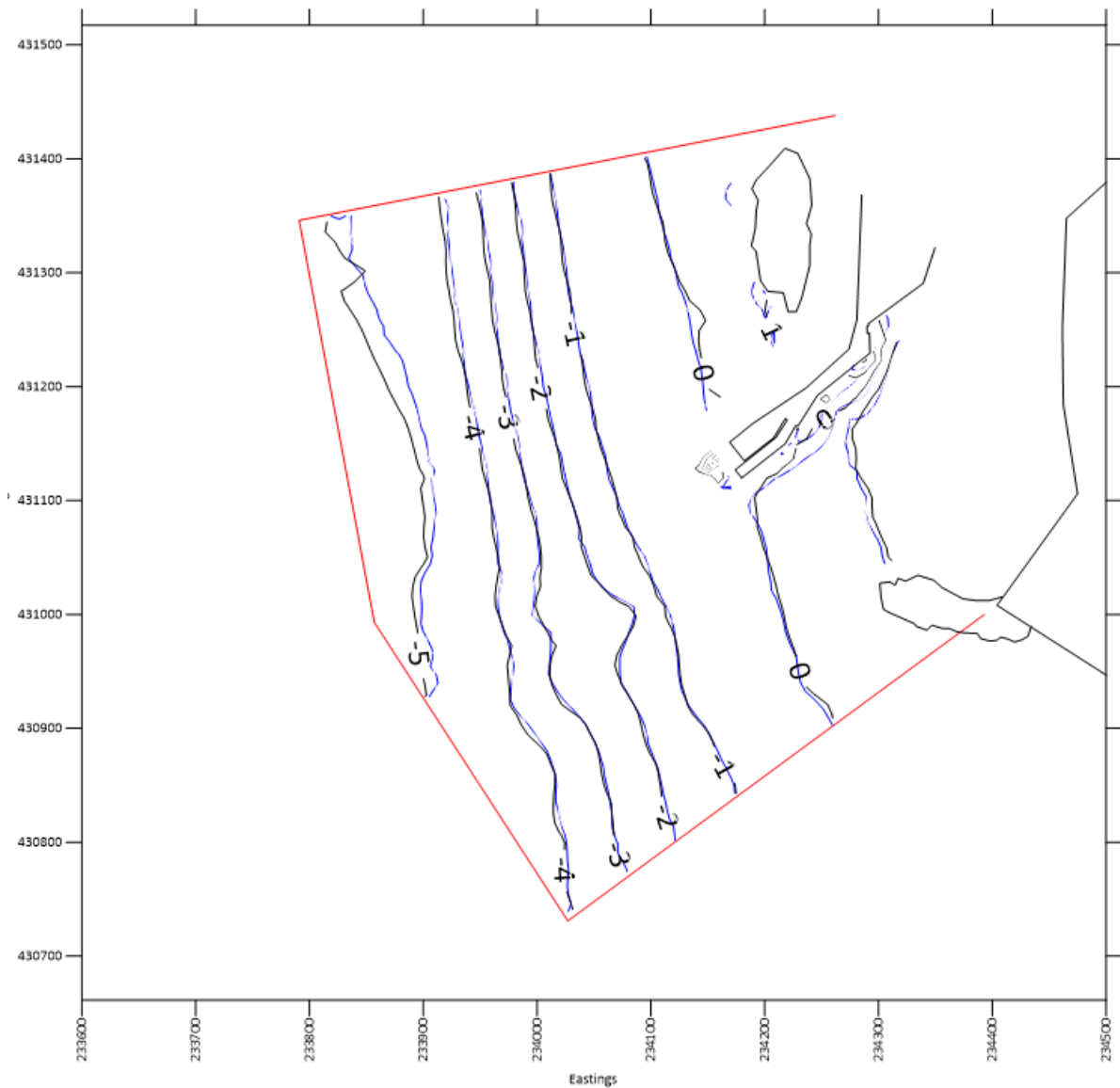


Figure 4. Morphology map of spoil area, 9<sup>th</sup> August 2018

Survey of 29<sup>th</sup> August 2018

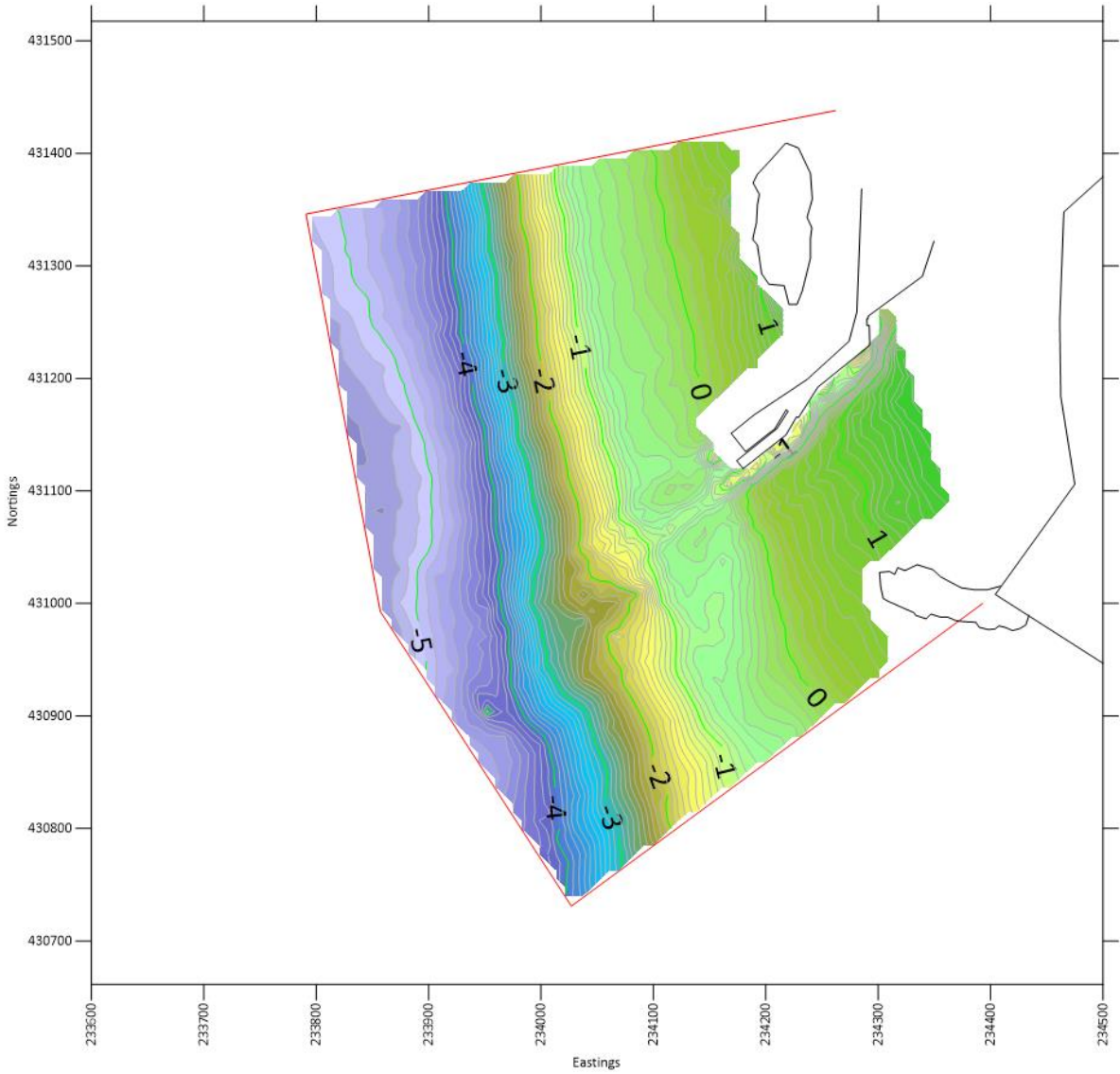


Figure 5. Contour map of spoil area, 29<sup>th</sup> August 2018

## Analysis

The second dredge campaign concluded in mid-August and a post-dredge survey was completed. The dredge operator in this case was instructed to concentrate on the south channel, the end of the pier westwards. At this resolution, this channel is discernible.

## Morphology

The 1m contours of the survey of 19<sup>th</sup> August (green) and 9<sup>th</sup> August (blue) have been overlaid on the contours of 19<sup>th</sup> July (black) and any difference in the contours from 0m to -4m is negligible. The only contour showing measurable difference is the -5m contour, with a difference of c. 10cm from the previous two surveys across several hundred meters. There is no ready explanation for this variation.

There is some small variation around the south channel around the -2m mark, this was expected as this is the area where the dredge operator was pulling to in this campaign. It is estimated that 415 m<sup>3</sup> of material was removed between 9<sup>th</sup> and 22<sup>nd</sup> August and that 170 m<sup>3</sup> of material was removed west of the pier between 22<sup>nd</sup> and 29<sup>th</sup> August 2018, although there was also some infill further east in the channel. These are very small volumes and are no heaps of material or new anomalies.

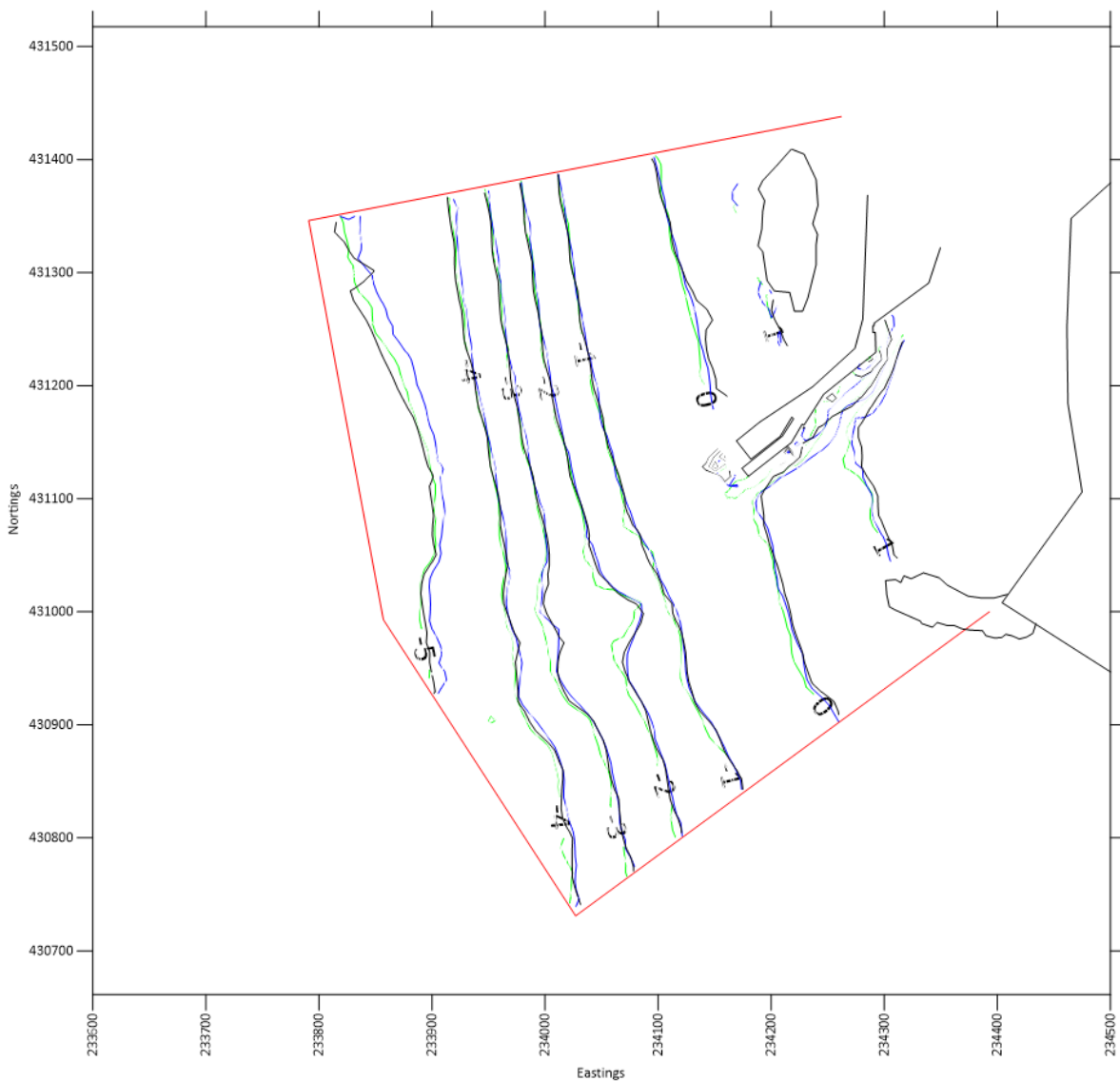
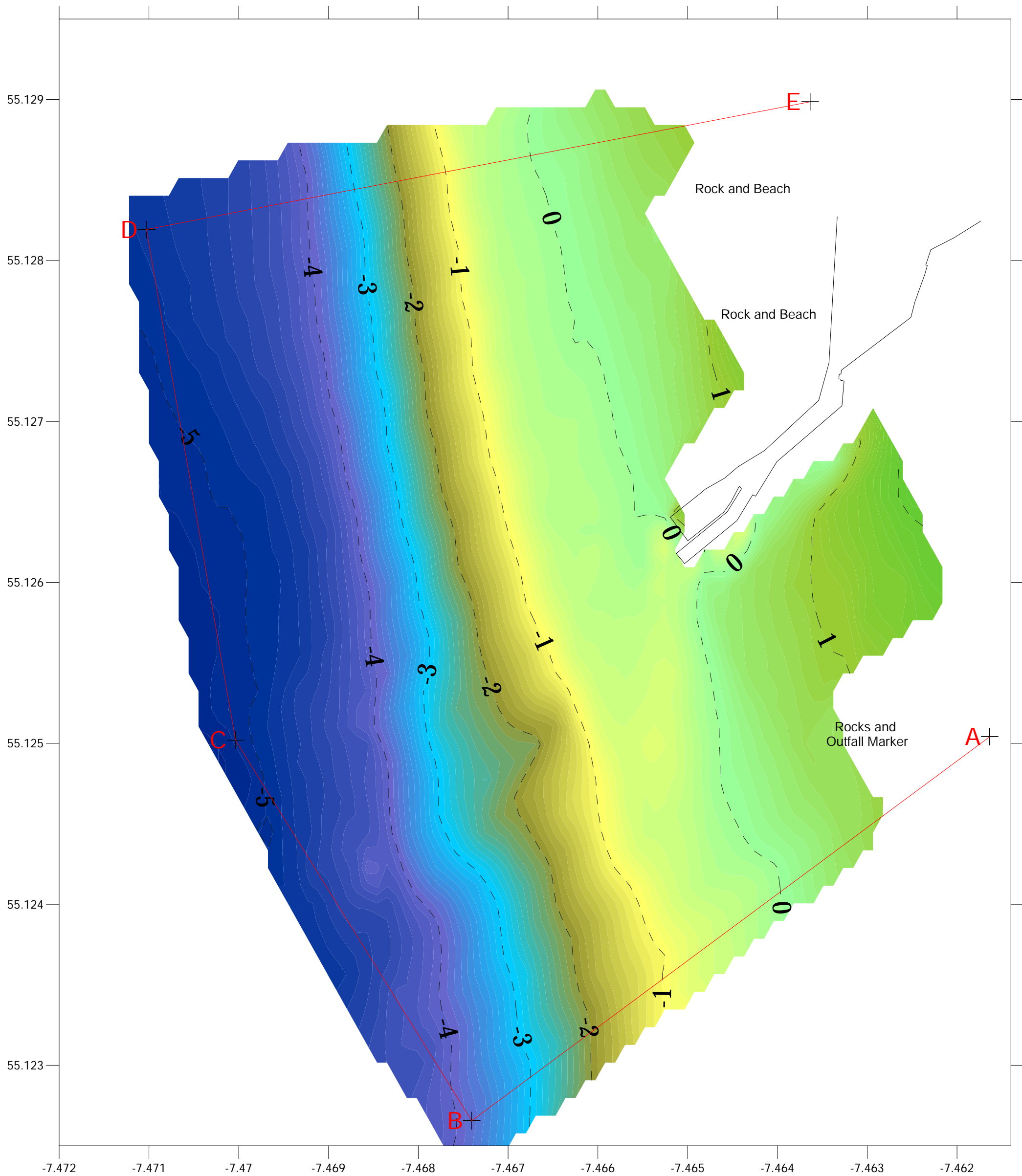


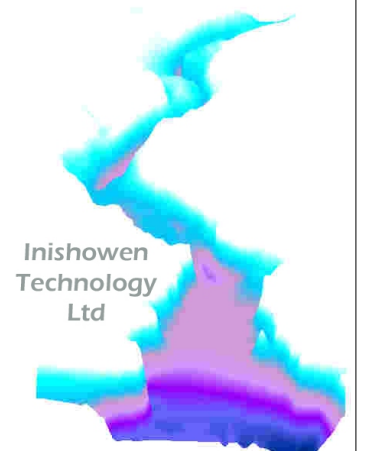
Figure 6. Morphology map of spoil area, 19<sup>th</sup> July and 9<sup>th</sup> and 19<sup>th</sup> August 2018



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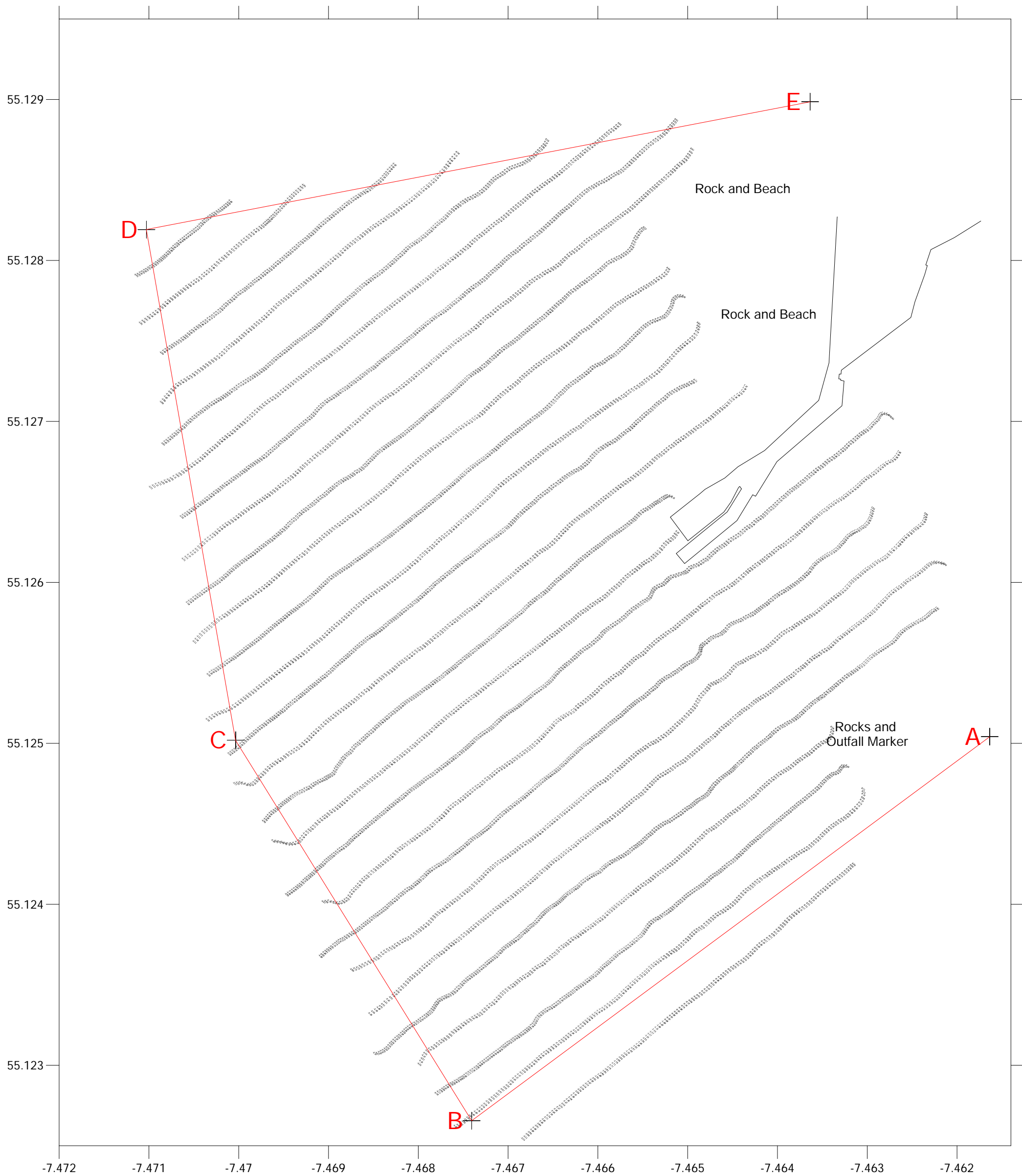


Survey: Buncrana Spoil Area

19JUL18

Depth Datum: Tidal Gauge (CD)

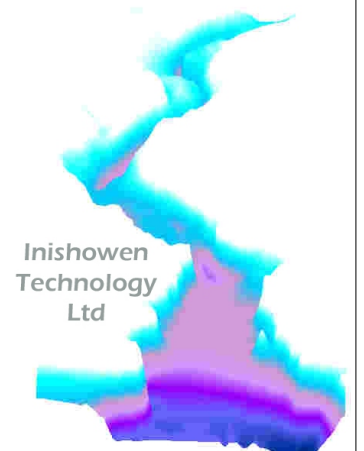
Datum: WGS84



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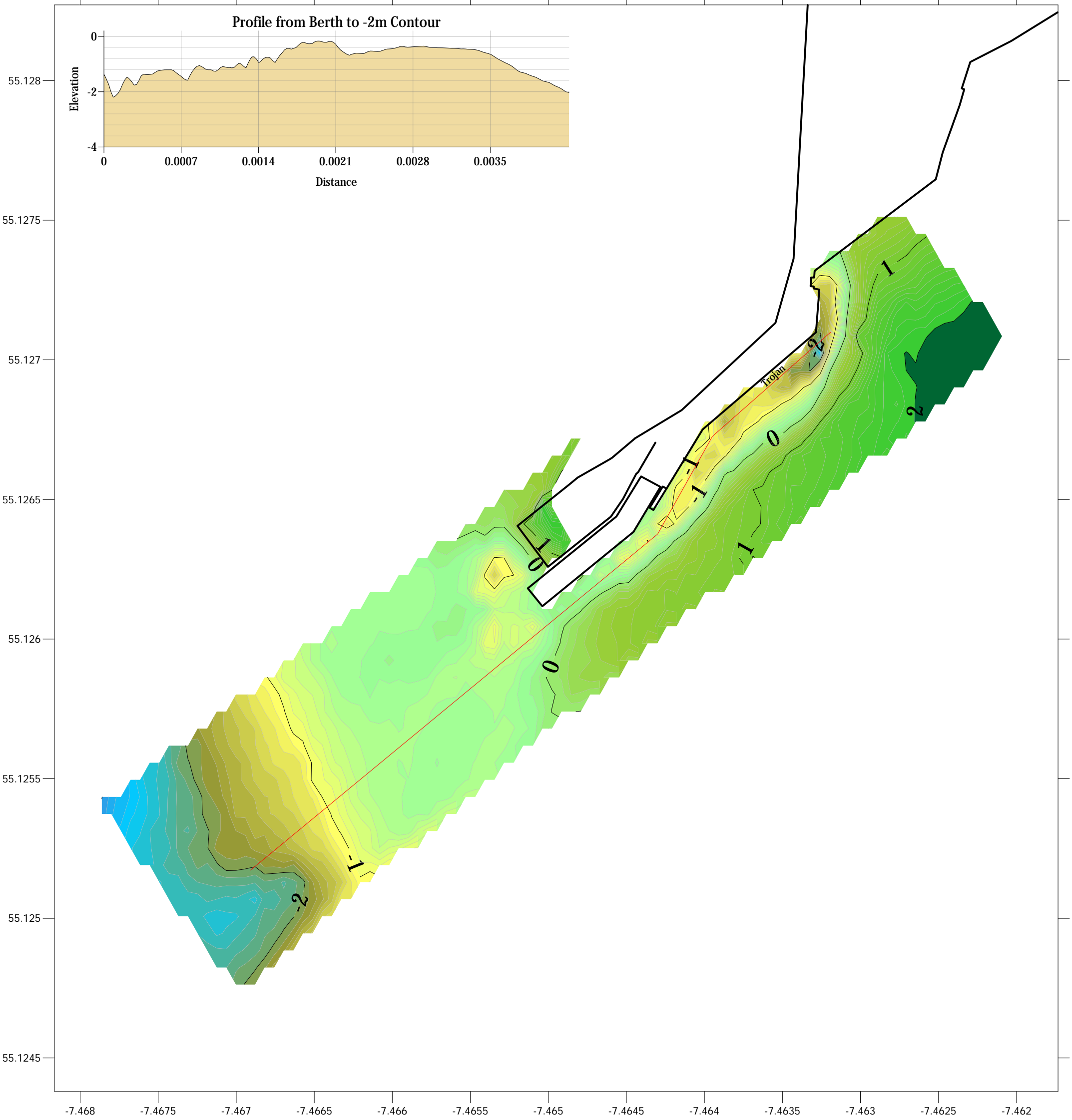



Survey: Buncrana Spoil Area

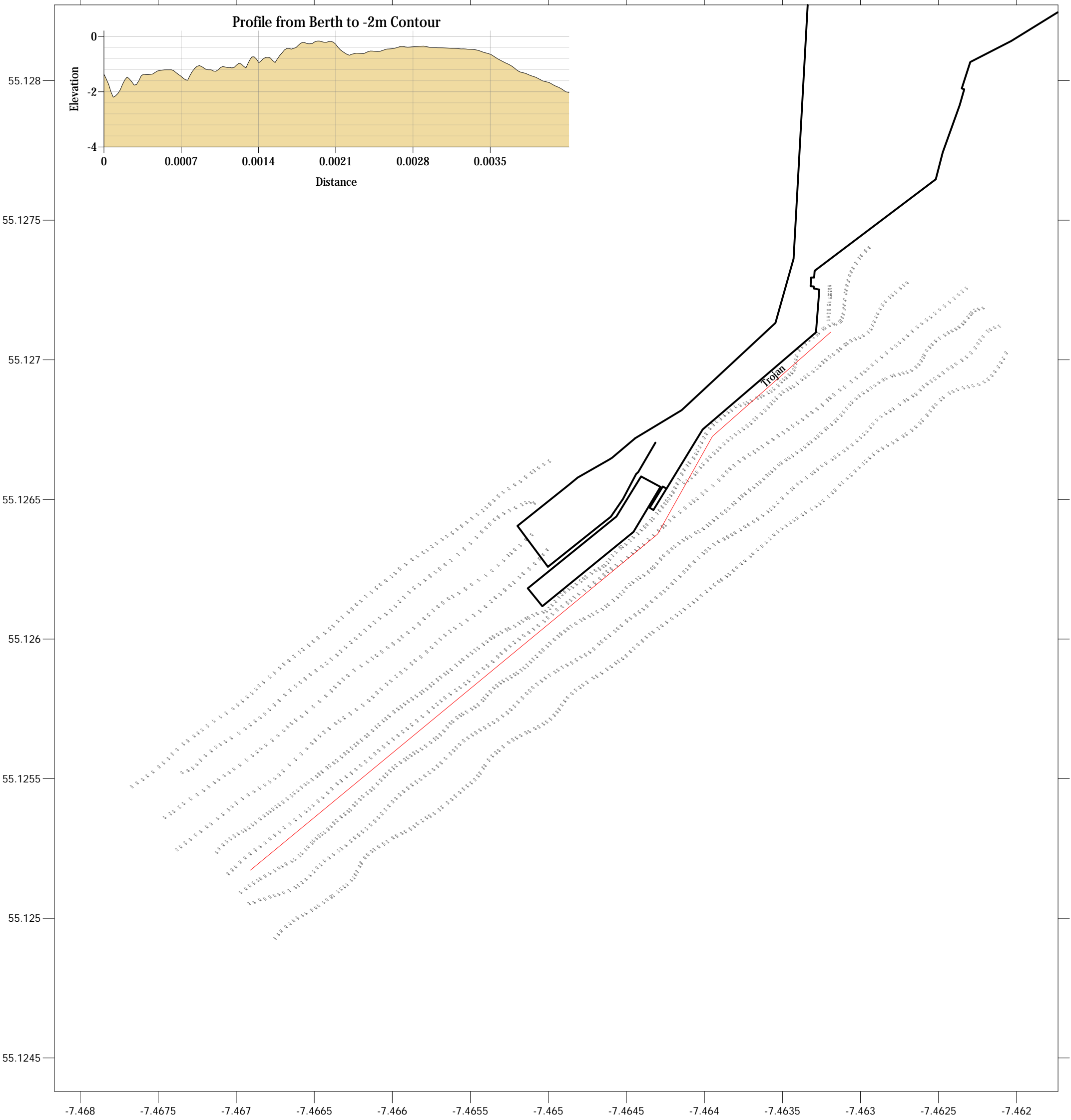
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Depth Datum: Tidal Gauge (CD)

Datum: WGS84



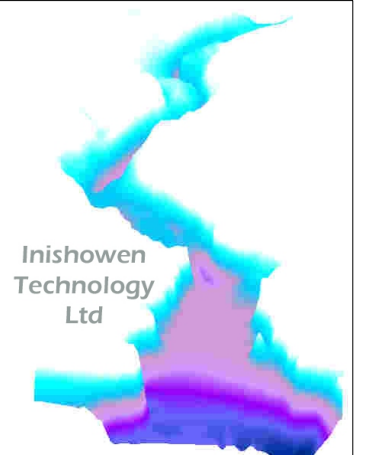
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<p>Survey: Buncrana Pier</p>	<p>09AUG18</p>	
<p>Depth Datum: Tidal Gauge</p>	<p>Datum: WGS84</p>	



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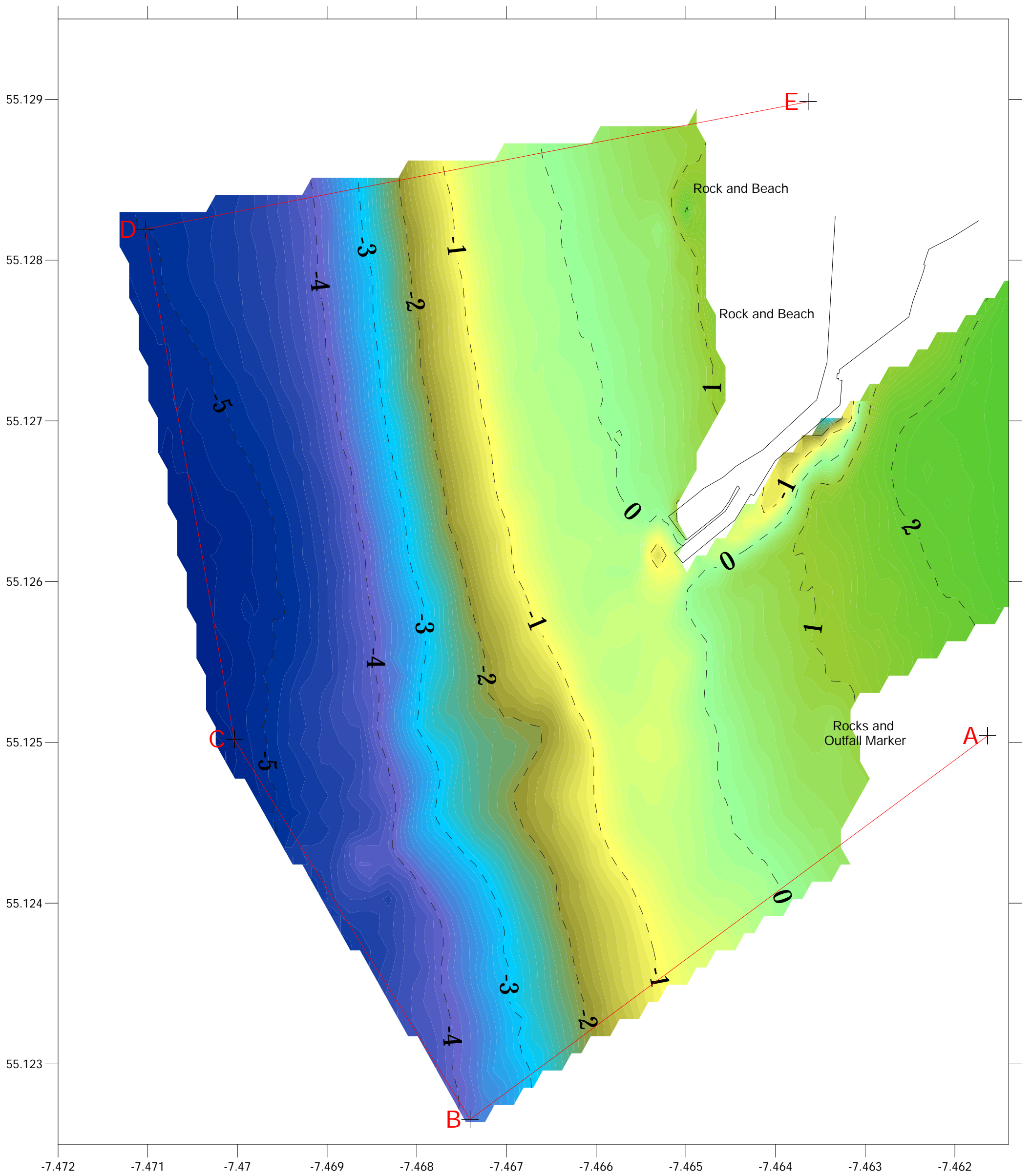


Survey: Bunrana Pier

09AUG18

Depth Datum: Tidal Gauge

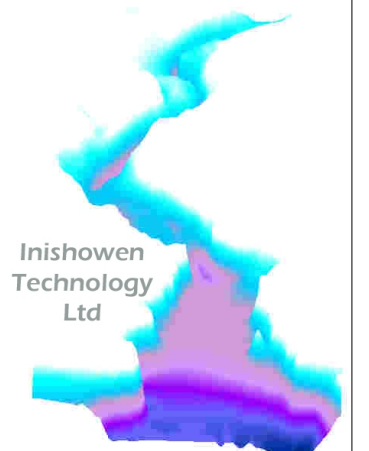
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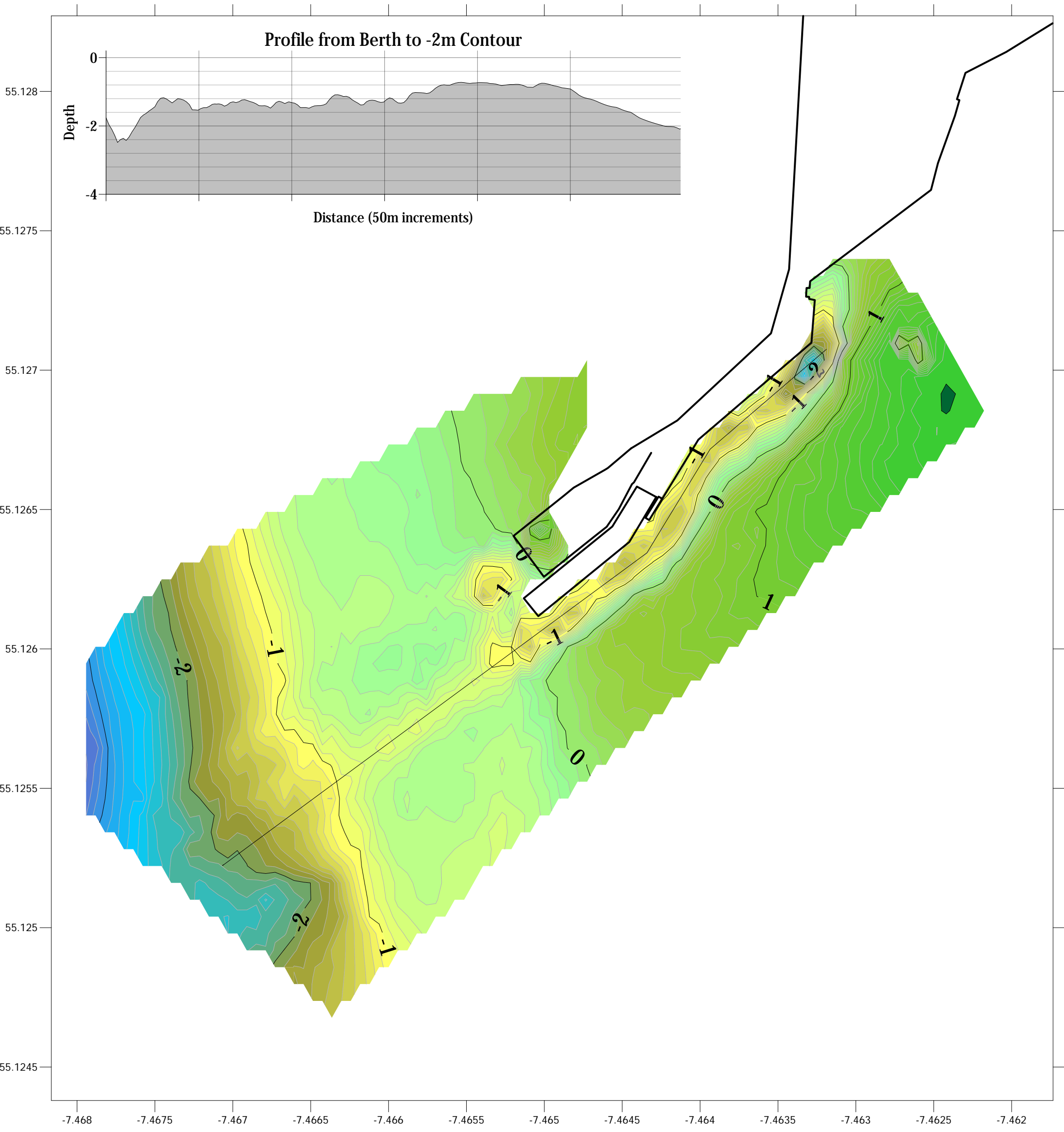


Survey: Buncrana Spoil Area

09AUG18

Depth Datum: Tidal Gauge (CD)

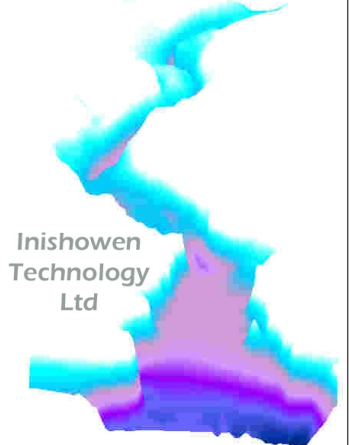
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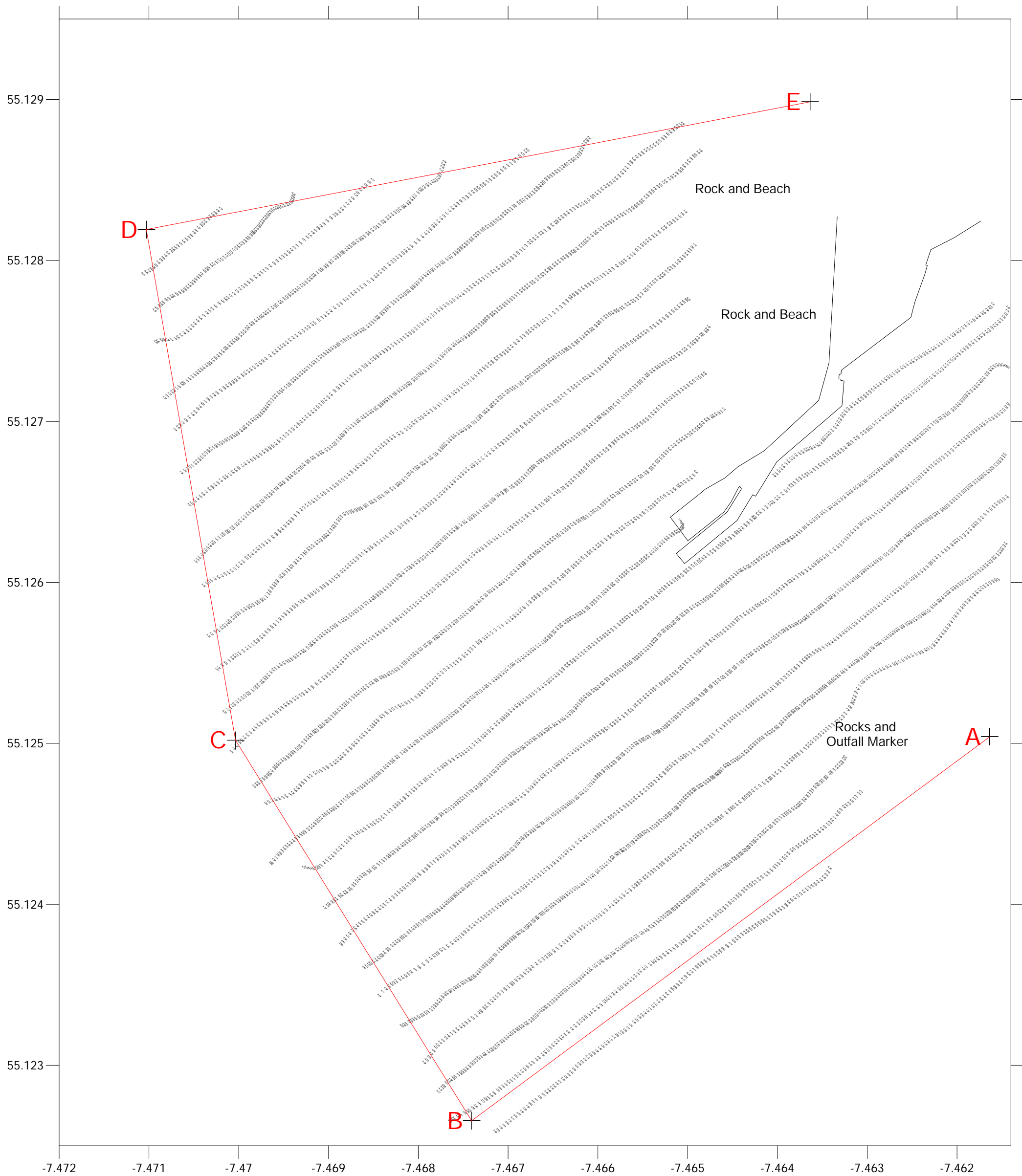
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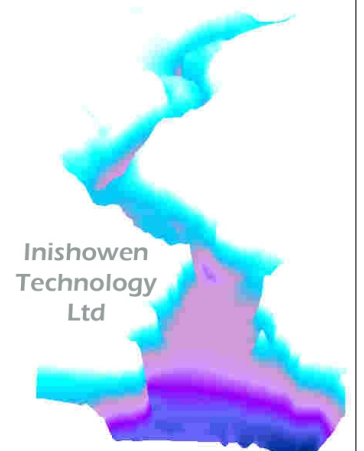
Survey: Buncrana Pier	29AUG18
Depth Datum: Tidal Gauge	Datum: WGS84



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Survey: Buncrana Spoil Area

09AUG18

Depth Datum: Tidal Gauge (CD)

Datum: WGS84

# Appendix 5

## Marine Mammal Monitoring Report

Marine Mammal Observations Report  
Buncrana Harbour Dredging Operations



September 2018



## Contents

1.0	Executive Summary .....	3
2.0	Introduction .....	4
2.1	Marine Mammal Observations.....	4
2.2	Dredging at Buncrana Harbour.....	4
2.3	Marine Management Risk Assessment.....	5
2.4	Legislation and Regulations.....	6
2.5	Favourable Conservation Status .....	6
2.6	Environmental Protection Agency (EPA) Dumping at Sea Permit .....	7
2.7	Appropriate Assessment Screening .....	8
2.8	Marine Mammal Risk Assessment Report Mitigation .....	8
2.9	Pre-start Monitoring .....	9
2.10	Objective of the Marine Mammal Observations at Buncrana Harbour .....	9
3.0	The Receiving Environment.....	9
3.1	Location .....	9
3.2	Lough Swilly SAC and SPA .....	10
4.0	Marine Mammal Observation Objectives .....	12
5.0	Methods .....	12
5.1	Data Search, Historical Records .....	12
5.2	MMO Personal Records (Lough Swilly) .....	12
5.3	JNCC Methods and Recording Forms .....	12
5.4	Observation and Recording Equipment .....	12
6.0	Results .....	14
6.1	Desk Study.....	14
6.2	Timing .....	16
6.3	Weather Conditions .....	16
6.4	Marine Mammal Observations.....	17

7.0 Conclusion ..... 18

Appendix A ..... 19

Appendix B..... 20

Appendix C..... 27

## List of Figures

Figure 1: Buncrana Harbour Location .....	10
Figure 2: Lough Swilly SAC and Observer Location .....	11
Figure 3: Dredger Route and 500m Monitoring Zone .....	13
Figure 4: Locations of Marine Mammal Observations at Buncrana Harbour .....	17

## List of Tables

Table 1: List of IWDG Cetacean Sightings .....	10
Table 2: Lough Swilly SAC and Observer Location .....	11
Table 3: Dredger Route and 500m Monitoring Zone .....	13
Table 4: Locations of Marine Mammal Observations at Buncrana Harbour .....	17
Table A1: Daily Record of Marine Mammal Observations and Activity .....	19

## List of Plates

Plate 1: Lough Swilly Marine Dredging Vessel, the Trojan .....	4
Plate 2: Dredger at dump site location approximately 160m from Buncrana Harbour .....	5

## **1.0 Executive Summary**

Pat O'Sullivan (Atlantic Towage) was employed by Donegal County Council to complete Marine Mammal Observations during dredging operations at Buncrana Harbour 2018 in Co. Donegal.

Buncrana Harbour is located on the eastern shore of Lough Swilly (Lat: 55.126683 Long: -7.4642015).

Maintenance dredging was carried out to allow safe access to the RNLI Lifeboat, Local Ferry and other vessels that use Buncrana Harbour. The eight year dredging permit will allow annual dredging to aid access to the Harbour. The permit will allow up to 64,000 tons of dredged material to be removed from the Pier vicinity and dumped at an appropriate location approximately 150m from the end of the pier.

Marine Mammal Observations were carried out by an individual trained in JNCC methods of Marine Mammal Observation.

Results of the observations recorded only one species of marine mammal (harbour seal) on 2 sightings through the observation period. No marine mammals were detected prior to start-up of marine dredging operations and all sighting were recorded during on-going vessel operation. No mitigation was necessary during the observation period

## 2.0 Introduction

### 2.1 Marine Mammal Observations

Pat O'Sullivan was tasked by Donegal County Council to complete Marine Mammal Observations during dredging operations at Buncrana Harbour in Co. Donegal. Observations were carried out to adhere to Condition 4 (4.6) of the Environmental Protection Agency (EPA) dumping at sea permit to allow dredging within the Lough Swilly SAC area and adjacent to Buncrana Harbour. Observations were carried out in July and August 2018 in accordance with JNCC Marine Mammal Observation guidelines (JNCC 2010).

Pat O'Sullivan completed all marine mammal observations and is trained to JNCC level in Marine Mammal Observer methods.

### 2.2 Dredging at Buncrana Harbour

Maintenance dredging is to be carried out over an eight year period to allow safe access to the RNLI Lifeboat and other vessels that use Buncrana Harbour. An eight year dumping at sea permit was obtained to allow dredging and dumping of recently deposited material alongside Buncrana Harbour. The eight year dredging permit allows annual dredging to aid access to the Harbour. The permit will allow up to 64,000 tonnes of dredged material to be removed from the Pier vicinity and dumped at an appropriate location approximately 160m from the end of the pier.

Photo 1  
Lough Swilly Marine Dredging Vessel, the Trojan



The dump site, located approximately 160m from the end of the pier is a large deep channel with enough capacity to hold the dredged material. Lough Swilly has strong tidal currents that are associated with its relatively shallow sections and tide flow; this will aid dispersal of the dredged material evenly within the Lough Swilly area.

Photo 1  
Trojan making it way to the Dump Site:



It was proposed that that the following method will be put into place for each maintenance dredging campaign:

- A plough dredger will be employed annually on an "as required" basis, to remove recently deposited sand from the harbour approach and berthing area.
- An average of approximately 6,000 to 8,000 tonnes of recently deposited sand will be removed annually.
- The material will be plough dredged to the agreed dump site.
- Pre and post dredge surveys of the dredge and dump sites will be undertaken and details submitted to the Environmental protection Agency (EPA), in addition to dredging logs detailing the co-ordinates of the dump site and the quantity removed.

The following figures are based on previous plough dredging campaigns at Buncrana Harbour:

- Per shift - approximately 125m<sup>3</sup>/day based on 2t/m<sup>3</sup> = 250 tonnes;
- Per week - approximately 560m<sup>3</sup>/week based on 2t/m<sup>3</sup> = 1120 tonnes and;
- Per month - approximately 2,000m<sup>3</sup>/month based on 2t/m<sup>3</sup> = 4,000 tonnes.

### 2.3 Marine Mammal Risk Assessment

This report and accompanying Marine Mammal Observations were carried out to adhere to condition 6.2 of the Buncrana Harbour Marine Mammal Risk Assessment (July 2018 DCC) which stated:

*For dredging, the guidance requires that a qualified Marine Mammal Observer (MMO) be appointed to monitor for marine mammals and to log all relevant events using standardized forms. Unless information specific to the location and/or plan/project is otherwise available to inform the mitigation process (e.g. specific sound propagation and/or attenuation data) and a distance modification has been agreed with the Regulatory Authority, dredging activity shall not commence if marine mammals are detected within a 500m radial distance of the dredging sound source, i.e., within the Monitored Zone.*

## 2.4 Legislation and Regulations

Legal protection for marine mammals in Ireland began with the enactment of the Whale Fisheries Act in 1937, which gave effect in this jurisdiction to the International Convention for the Regulation of Whaling (1931). Thereafter the Wildlife Act, 1976 provided a legal framework for the conservation of Irish wildlife and their habitats, conferring specific protection on seals, whales, dolphins and porpoises. Under the 1976 Wildlife Act and its subsequent Amendments (2000, 2005, 2010 and 2012), it is an offence to hunt (except in some instances under license or Ministerial permit), injure (except when hunting under such license) or willfully interfere with, disturb or destroy the resting or breeding place of a protected species. With regard to the marine environment, the Wildlife Acts 1976 to 2012 currently extend in scope to waters within Ireland's Territorial Sea (i.e., within the 12 nautical mile limit from the baselines).

Lough Swilly is designated as an SAC (Special Area of Conservation) and SPA (Special Protection Area) under the EU Habitats Directive 92/43/EC and the Birds Directive 2009/147/EC. The purpose of these Directives is to promote the maintenance of biodiversity within the designated site and maintain biodiversity at and where necessary to a favorable conservation status of flora, fauna and habitats of European importance. Marine mammals are subject to special conditions because of their status as Annex II species under the Habitats Directive. Activities have complied with section 5 of the Dumping at Sea Acts 1996 to 2009.

## 2.5 Favorable Conservation Status

The concept of *favorable conservation status* is central to the EC Habitats Directive. Article 2 within the directive sets out the aim and states that:

*"Measures taken pursuant to this Directive shall be designed to maintain or restore, at favorable conservation status, natural habitats and species of wild flora and fauna of community interest."*

Habitats and species of '*Community Interest*' are the habitats listed on Annex 1 and the species listed on Annex I, IV and V of the directive. These species include selected marine mammal species.

The objective of the Habitats Directive and the species and habitats that are defined within the Directive to achieve favorable conservation status.

Definitions of Conservation Status and Favorable Conservation Status:

'Conservation status' for habitats is defined in Article 1(e) as:

*Conservation status of natural habitats means the sum of influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical*

*Species within the territory referred to in Article 2. It will be seen from this definition that 'Conservation Status' is seen as the result of influences which include the present state of the habitat, together with current environmental and human influences (both positive and negative), that may influence its long-term survival.*

The conservation status of natural habitats will be taken as 'favorable' when:

- *its natural range and areas it covers within that range are stable or increasing, and*
- *the species structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future, and*
- *The conservation status of its typical species is favorable as defined in Article 1(i).*

The emphasis here has moved to the contemporary state of the habitat together with a supporting environment capable of maintaining it in the long-term.

Conservation status for species is defined in Article 1(i) as:

- *Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article*
- *Similar remarks apply here as to habitats above. Attention is drawn to the reference to populations of a species, implying that more than one population is likely to be concerned here. This is, potentially, an important point.*
- The conservation status of species will be taken as 'favorable' when:
  - a. population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
  - b. the natural range of the species is neither being reduced for the foreseeable future, and*
  - c. There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

## **2.6 Environmental Protection Agency (EPA) Dumping at Sea Permit**

A permit was granted by the EPA to allow the dumping at sea of dredged material arising from maintenance dredging at Buncrana Harbour by Donegal County Council over an eight year period. Under the permit a maximum of 8,000 tonnes of dredged material may be dumped by plough dredging annually, up to a total maximum of 64,000 tons over the eight years. The material shall be plough dredged out to a large area of deep channel located 160m from the end of Buncrana Harbour. The permit holder is required to manage the permitted activities to ensure the protection of the marine environment and to submit reports on the dumping activities and monitoring results to the Agency.

## **2.7 Appropriate Assessment Screening**

A screening for Appropriate Assessment (AA) was undertaken to assess, in view of best scientific knowledge and conservation objectives of the designated sites, if the proposed activity, individually or in combination with other plans or projects is likely to have an effect on a European site(s). Attention was paid to Lough Swilly SAC and Lough Swilly SPA.

The Agency (EPA) considered that the proposed activity is not directly connected with or necessary to the management of the site conservation objectives and thus cannot be excluded from Appropriate Assessment.

A Natura Impact Statement (NIS) was submitted to the Agency in February 2018 which assessed the impact of the proposed activities on the Lough Swilly SAC and SPA having specific regard to the conservation objectives of the qualifying habitats and species for which the sites are designated. The NIS noted that the proposed plough/dredging/dumping activities is small scale and will be undertaken within the close confines of the harbour, the material being removed is uncontaminated and the clean dredged sand will disperse evenly within Lough Swilly in accordance with natural sediment transport processes. No significant impacts are predicted to habitats within the SAC. The NIS notes that the Crana and Mill rivers that run into the harbour area are likely to hold populations of Otter (*Lutra Lutra*) and they may use the area around the harbour for foraging. The NIS states that if dredging is to be carried out during daylight hours then disturbance to Otter must be avoided and impacts are predicted to be unlikely. The NIS predicted no impact to qualifying features of the Lough Swilly SPA due to the distance of the proposed activity from the various habitats supporting the protected bird species and the clean nature of the material to be plough dredged and its even dispersal within Lough Swilly.

The Agency was satisfied that the Appropriate Assessment had identified all aspects of the proposed activity which can, by themselves or in combination with other plans or projects affect the conservation objectives of a European Site, in particular Lough Swilly SAC and SPA.

## **2.8 Marine Mammal Risk Assessment Report Mitigation (15 December 2017)**

Further to the AA a Marine Mammal Risk Assessment (MMRA) was carried out. The aim of the assessment was to evaluate the risk to marine mammals from the proposed plough/dredging/dumping at sea activities. The risk assessment was completed in accordance with the approach outlined in 'Guidance to Manage Risk to Marine mammals from Man-made Sound sources in Irish Waters' (2014 Department of Heritage, Culture and the Gaeltacht). Mitigation measures were provided in section 6.2 of the report, as detailed in section 1.2.

*For dredging, the guidance requires that a qualified and experienced Marine Mammal Observer (MMO) shall be appointed to monitor for marine mammals and to log all relevant events using standardized data forms. Unless information specific to the location and/or plan/projects is otherwise available to inform the mitigation process (e.g., specific sound propagation and/or attenuation data) and a distance modification has been agreed with the Regulatory Authority, dredging activity shall not commence if marine mammals are detected within a 500m radial distance of the dredging sound source, i.e. within the Monitored Zone.*

## **2.9 Pre-start Monitoring**

*Dredging activities shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where affective visual monitoring, as determined by the MMO is not possible, the sound producing activities shall be postponed until effect visual monitoring is possible.*

*An agreed and clear on-site communication signal must be used between the MMO and the Works Superintendant as to whether the relevant activity may or may not proceed, or resume following a break. It shall only proceed on positive conformation with the MMO.*

*In waters up to 200m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30minutes have elapsed with no marine mammals detected in the Monitored Zone by the MMO.*

*The prescribed Pre-Start Monitoring shall subsequently be followed immediately by the normal dredging operations. The delay between the end of Pre-Start Monitoring and the necessary full dredging output must be minimised.*

## **2.10 Objective of the Marine Mammal Observations at Buncrana Harbour**

The objectives of the Marine Mammals Observations and report is to document marine mammals in compliance with conditions detailed above (EPA and MMRA). The Marine Mammal Observations and report has been completed in accordance with approach and methods outlined in Guidance to Manage Risk to Marine Mammals from Man-Made Sound Sources in Irish waters (2014 Department of heritage, Culture and Gaeltacht) and JNCC Guidelines for Minimising the Risk of Injury and Disturbance to Marine Mammals from Seismic Surveys (August 2010).

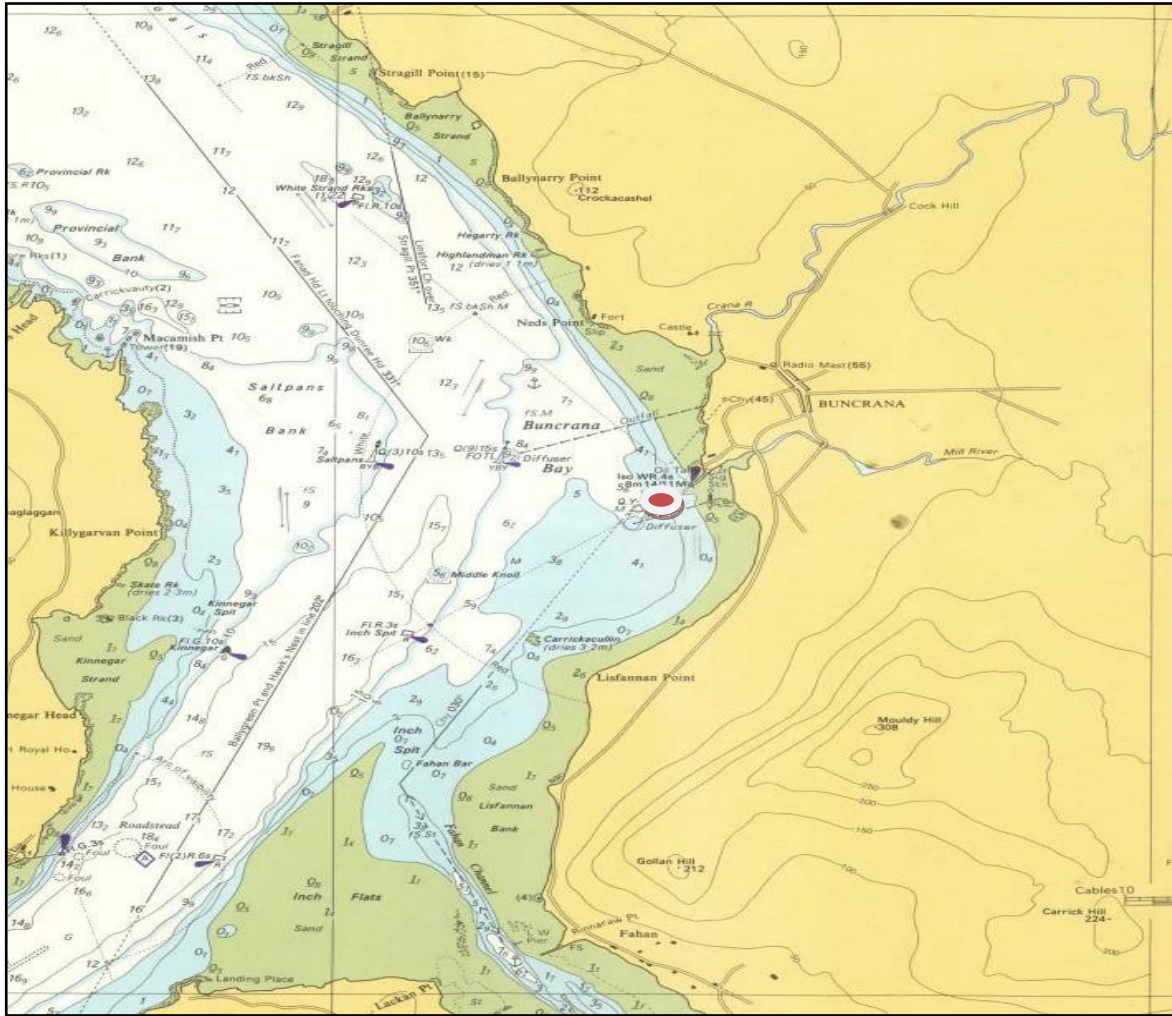
## **3.0 The Receiving Environment**

### **3.1 Location**

Buncrana Harbour is located on the eastern shore of Lough Swilly (Lat: 55.126683 Long: -7.4642015). The Harbour is located at the mouth of the river Mill. The pier is used as a RNLI berth for the Lough Swilly Life boat and has also been used in the Buncrana to Rathmullan passenger/car ferry. The car ferry has been operational during the dredging and the dredging has had no impact on the timetable of the ferry.

Buncrana harbour is affected by strong currents and sedimentation that builds up around the harbour over time from deposition from Lough Swilly and the Mill River during times of flooding. Strong currents that flow within the Lough Swilly catchment move sand and sediment within the berthing area in and around the harbour. There is also a large sand bank adjacent to the berthing area and approach channel that can be seen at low tide.

Figure 1 Buncrana Harbour Location



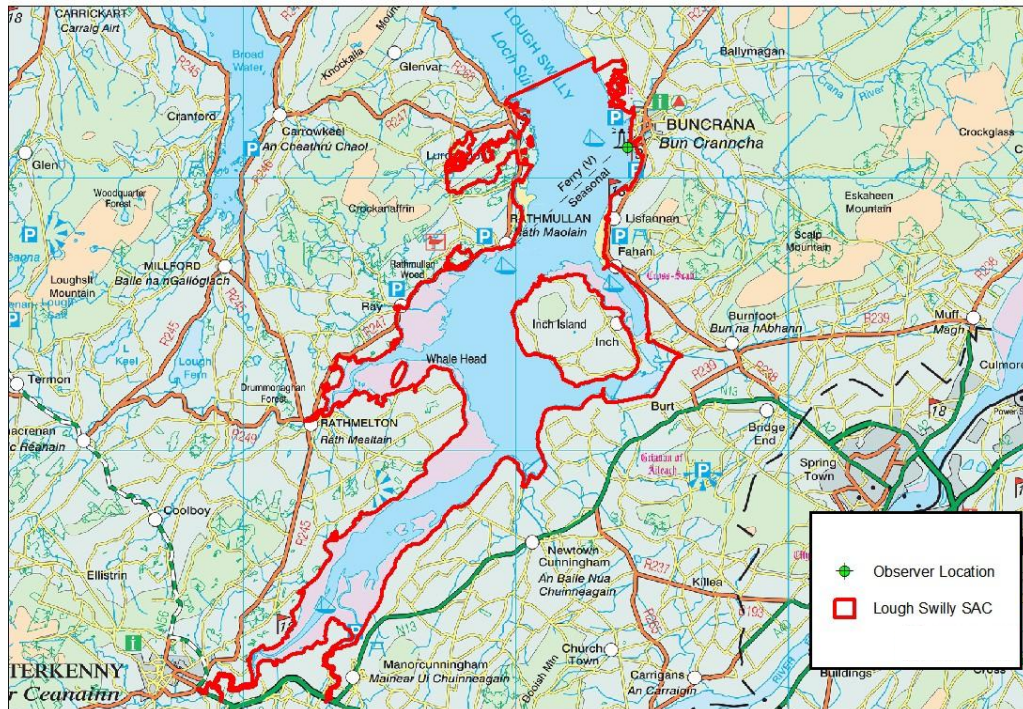
### 3.2 Lough Swilly SAC and SPA

Lough Swilly is an estuarine sea inlet situated in north Co. Donegal. It borders the Inishowen Peninsula to the West and encompasses Inch Island. The extent of the SAC/SPA from South of Letterkenny to slightly North of Buncrana (central Lat 55.072471 Long -7.5462341). The site at low tide has extensive sand and mudflats are exposed, especially at the mouths of the Swilly and Lennan rivers. The site is estuarine in character, with shallow water and intertidal sand and mudflats being the dominant habitats.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive:

- [1130] Estuaries
- [1150] Coastal Lagoons
- [1330] Atlantic Salt Meadows
- [91A0] Old Oak Woodlands
- [1355] Otter (*Lutra lutra*)

Figure 2 Lough Swilly SAC and Observer Location



The Lough Swilly Special Protection Area (SPA) comprises the inner part of The Lough Swilly SPA (overlapping SAC boundary) and extends from just below Letterkenny north to Rathmullin and, except in the area between Farsetmore and Blanket Nook on the southern side of Lough Swilly, the site is bounded by the High Water Mark; its seaward boundary is the Low Water Mark. Between Farsetmore and Blanket Nook a series of improved pasture and arable fields of importance to geese and swans are included. The site includes sections of the estuaries of the River Swilly, the River Leannan and the Isle Burn and the predominant habitat is a series of extensive sand and mud flats which are exposed at low tide – both estuaries and sand/mud flats are listed on Annex I of the E.U. Habitats Directive. Other habits represented on the site are salt marshes, lakes which are lagoonal in character (at Blanket Nook), rivers and streams, sand and shingle beaches, lowland wet, dry and improved grasslands, arable land, drainage ditches, reed beds and scrub. The adjacent Inch Lough and Levels are included in a separate SPA.

Lough Swilly is an important site for waterfowl in autumn and winter. The shallow waters provide suitable habitat for grebes and diving duck, while the intertidal flats are used by an excellent diversity of wildfowl and waders. At high tide, the duck and wader species roost on the salt marshes and shorelines, with some species moving to the adjacent pasture and arable fields. In the three winters 1994/95 to 1996/97, 16 species occurred in nationally important numbers as follows (figures are average maximum counts for the 3 winters): Great Crested Grebe (274), Shelduck (646), Wigeon (1,673), Teal (1,381), Mallard (1,155), Shoveler (58), Scaup (143), Goldeneye (169), Red-breasted Merganser (103), Coot (335), Oystercatcher (1,459), Knot (327), Dunlin (7,995), Curlew (1,716), Redshank (1,080) and Greenshank (30). Other species which occur in regionally or locally important numbers, and at times may exceed the threshold for national importance, include Brent Goose, Pochard, Tufted Duck, Lapwing, Ringed Plover, Grey Plover, Bar-tailed Godwit (a species that is listed on Annex I of the E.U. Birds Directive) and Turnstone. The site is also an important area for the Great Northern Diver and the rare Slavonian Grebe, both Birds Directive Annex I species. Golden Plover, a species that is listed on Annex I of the E.U. Birds Directive, used the site regularly during winter (4 year mean of winter maximum 1994/95-1997/98 was 1,001 individuals). Source: Lough Swilly SPA Site Synopsis.

## **4.0 Marine Mammal Observation Objectives**

1. Marine mammal observations to be carried out to mitigate against any potential disturbance to Marine Mammals within the Buncrana Pier dredging operations area and within a 500m mitigation zone of dredging works.
2. Marine mammal observations to be undertaken by an experienced Marine Mammal Observers during daylight hours and all observations of Marine Mammals documented.
3. Document the number of animals of each species present in the vicinity of dredging being carried out within a 500m mitigation zone and no start to works if marine mammals are observed prior to works commencing within a 30 minute pre-start period.
4. Complete marine mammal observer report documenting timeframes, list of marine mammals observed and any mitigation measures carried out during operations.

## **5.0 Methods**

### **5.1 Data Search, Historical Records**

Baseline data of records of marine mammals has been sourced from the Joint Nature Conservation Committee (JNCC) 1980-2003 cetacean sightings dataset, Atlas of Cetacean distribution in the north-west European waters, the Atlas of mammals in Ireland and the NPWS seals database, held by the National Biodiversity Data Centre. Personal records from each MMO were also included within the results. Online records were sourced from the IWDG (Irish Whale and Dolphin Group) [www.iwdg.ie](http://www.iwdg.ie). Each MMO has previously completed casual and structured surveys of marine mammals and recorded Cetacean sightings while completing bird surveys of Lough Swilly.

### **5.2 MMO Personal Records (Lough Swilly)**

Personal records of Pat o Sullivan were also included. The author of this report Pat o Sullivan is resident in Bere Island Co. Cork; he is an employee of Atlantic Towage Ltd.

### **5.3 JNCC Methods and Recording Forms**

The Marine Mammal Observer (MMO) carried out dedicated watches for marine animals during dredging operations during all daylight hours and completed the relevant JNCC recording forms. The pre-watch search was conducted over a period of 30 minutes before commencement of works. The MMO made a visual assessment to determine if any marine mammals are within 500 meters of the centre of dredging works area. Watches primarily carried out from the boat. Prior to beginning a watch, the time (UTC) and the

Weather conditions were recorded on the JNCC Location and Effort Form (Appendix B). Weather conditions such as Beaufort wind force, sea state and visibility were noted every hour and whenever a change in conditions occurred. The used definitions of Beaufort wind force and sea state are provided (Appendix B). In addition, the start and end times of marine animal watches and the start and end times. The primary observation technique used to spot marine animals was to scan the visible area of sea using the naked eye and scanning areas of interest with binoculars and a telescope (e.g. waves going against the prevailing direction, white water during calm periods, bird activity, bird transiting direction etc.). This technique gave both a wide field of view and the ability to have a sufficient range of 3 - 4 km in ideal conditions. Observations were carried out while dredging works were on-going, usual timing was 7:00 - 18:30.

Appropriate JNCC recording forms include: A Cover Page, records general information about the survey including details about the source. The effort form records the start and end times of watches by MMOs or monitoring by PAM operators, together with position and depth at the start and end of each watch. The source activity and weather conditions are recorded at hourly intervals. If source activity or weather conditions change, MMOs should start a new line on the form. A new line should be entered at least every hour, even if source activity or weather conditions do not change. Typically many lines would be entered on this form each observation day.

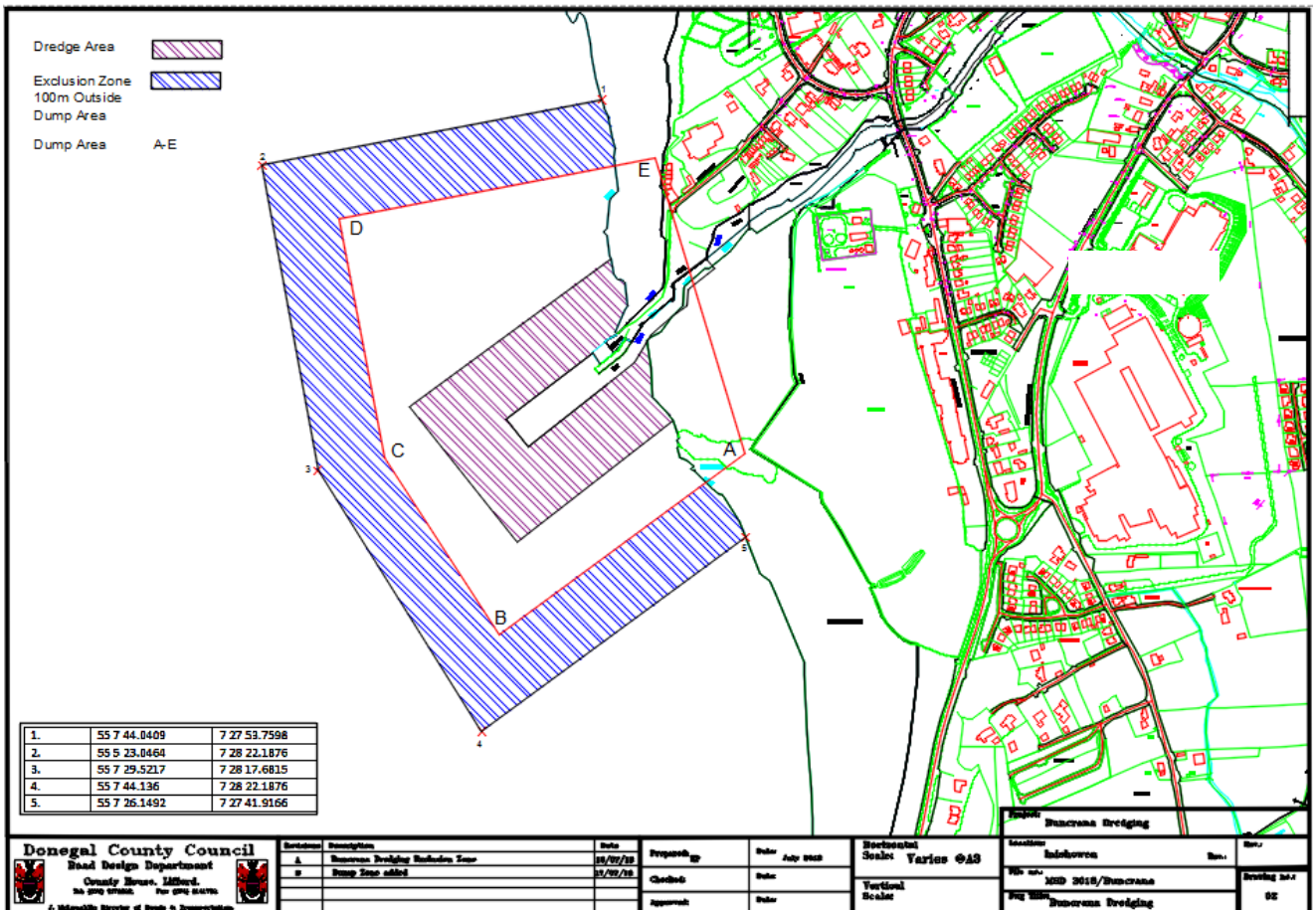


Figure 3 Dredger Area and exclusion Zone

The sightings form records information about each sighting or acoustic detection of marine mammals. One line would normally be for each sighting or acoustic detection (unless there were multiple species involved, in which case one line would be completed for each species in a sighting or detection but they would share the same sighting number or acoustic detection number). Where a marine mammal or group of marine mammals is detected both visually and acoustically care must be taken not to duplicate the record.

Marine mammal Observations were carried out from the 23rd of July 2018 to 26th of August 2018 during all daylight hours when dredging activity was on-going. Observations began before dawn and scheduled to begin before dredging operations began to identify initial marine mammal activity within the vicinity of the dredging operations area and within a 500m monitoring zone.

The pier area was walked intermittently during observations to give the best view of the surrounding adjacent harbour area and 500m mitigation zone.

#### **5.4 Observation and Recording Equipment**

Equipment Used:

- Swarovski 8.5 x 42 Binoculars
- Fuji Digital camera
- Stopwatch

Details of watches and marine mammals sighted were recorded on standard JNCC recording forms. Watches were carried out from 30 minutes before dredging while all dredging activity was on-going until dredging activity was completed.

### **6.0 Results**

#### **6.1 Desk Study**

Information taken from site MMRA and all relevant data checked for up to date records, up to date records and personal MMO records added further to information within the MMRA report.

From guidance it was ascertained that the habitat in Lough Swilly is suitable for the following marine mammal species:

- Fin Whale
- Sei Whale
- Minke Whale
- Humpback Whale
- Northern Bottlenose Whale
- Long-finned Pilot Whale
- Killer Whale
- Risso's Dolphin
- Common Bottlenose Dolphin
- Atlantic White-sided Dolphin
- White-beaked Dolphin
- Striped Dolphin
- Short-beaked common Dolphin
- Harbour Porpoise

- Harbour Seal
- Grey Seal

Data from the JNCC 1980-2003 cetacean sightings dataset, other marine sightings dataset, the Atlas of Mammals in Ireland and the NPWS seals database, held by the National Biodiversity Data Centre [www.biodiversityireland.ie](http://www.biodiversityireland.ie) (10 Jan 2015) show records of the following species within 50km of Lough Swilly:

- Minke Whale - nearest record approximately 10km offshore, north of Lough Swilly;
- Risso's Dolphin - nearest record approximately 40km offshore, east of Lough Swilly;
- Common Bottlenose Dolphin - nearest record approximately 15km west of Lough Swilly in Sheephaven Bay;
- Harbour Porpoise - nearest record approximately 10km offshore north of Lough Swilly;
- Harbour/Common Seal - Recent records within 5km of Bunrana harbour at Fahan and Rathmullen;
- Grey Seal - nearest records along the coastline east and west of Lough Swilly at Inishowen, Glashagh Bay, Melmore Head, Mulroy Bay and Horn Head.

## 6.2 Timing

Marine Mammal Observation were carried out at Bunrana Harbour from the 23rd of July to 26th of August 2018, including weekends and bank holidays.

## 6.3 Weather Conditions

Conditions were mostly good with visibility high during most observation days. There was only 1 days of particularly bad weather that may have made conditions for viewing marine mammals difficult but observation were still possible.

Table 2 Weather Conditions during the Observation Period

Date	Time	Wind Dir	Wind force (B,fort)	Sea State	Swell	Visibility	Sun Glare	Precipitation
23/07/2018	07:00-19:00	NE	2-3	1	o	G	n	n
24/07/2018	06:30-20:00	SW	3-4	1	L	H	wf	l
25/07/2018	06:35-20:00	SE	2-3	2	L	H	n	h
26/07/2018	06:30-20:00	SE	2-3	3	L	H	n	n
27/07/2018	06:40-20:00	SW	0	2	L	H	n	n
28/07/2018	06:30-17:30	SW	3	3	L	G	n	l-n
29/07/2018	06:40-20:00	W	1	1	L	H	n	l
30/07/2018	06:45-20:00	SE	2	2	L	H	sf	n
31/07/2018	06:40-19:10	SW	4	3	M	H	vf	n
01/08/2018	06:35-17:20	SE	1-2	1	L	H	n	n
15/08/2018	08:15-20:00	SW	2	2	L	H	m	l
16/08/2018	06:30-14:30	NE	1-2	1	L	H	N	n
17/08/2018	07:15-15:15	SW	3	2	L	G	n	n
18/08/2018	08:15-16:15	SW	1-2	1	L	G	n	n
19/08/2018	09:00-18:00	NW	1	1	L	H	n	l
20/08/2018	10:15-18:15	SW	2-3	2	L	H	vf	n
21/08/2018	11:00-20:00	SW	1	2	L	H	n	l
22/08/2018	12:10-20:00	NW	1-2	1	L	H	n	h
23/08/2018	06:40-19:00	WSW	2-3	2	L	H	n	n
24/08/2018	06:40-19:00	NNW	2-3	2	L	G	vf	h
25/08/2018	06:40-19:30	NW	3-4	2-3	M	H	n	m
26/08/2018	06:45-19:30	SSE	3-4	2	L	G	n	l

**Sea state:** g = glassy (like mirror); s = slight (no/ few white caps); c = choppy (many white caps); r = rough (big waves, foam, spray)

**Swell:** o = low (< 2 m); m = medium (2-4 m); l = large (> 4 m)

**Visibility:** p = poor (< 1 km); m = moderate (1-5 km); g = good (> 5 km)

**Sun glare:** n = none; wf = weak forward; sf = strong forward; vf = variable forward; wb = weak behind; sb = strong behind; vb = variable behind

**Precipitation:** n = none; l = light rain; m = moderate rain; h = heavy rain; s = snow

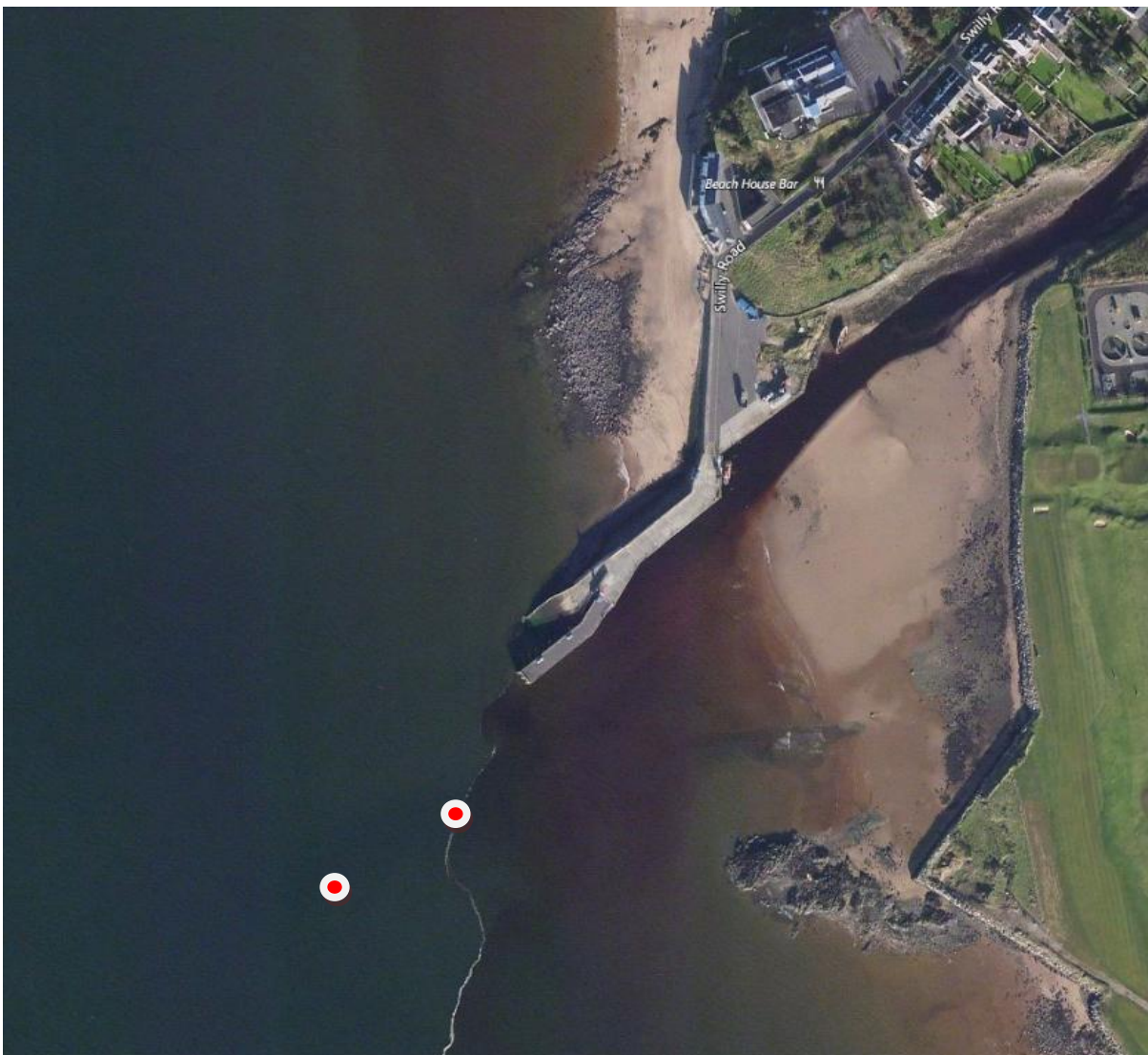
### 6.4 Marine Mammal Observations

Table 3 Marine Mammals Observations Recorded During the Observation Period.

Sighting No.	Species	Date	Start/End time	Visual or Acoustic	Observer	Bearing/Range	No.	Ad/Juvenile	Dir. Of Travel	Action taken
1	Harbour Seal	27/07/18	6:40-20:20	Visual	P.O.S	S 100m	1	juv	S	none
2	Harbour Seal	31/07/18	6:40-19:10	Visual	P.O.S	S150m	1	Juv	sw	none

During the survey period a total of 2 incidents on marine mammals were observed during a total of 248 hours of observation. All of the marine mammal sightings were of Common Seal. No marine mammals were detected during the start up process of each survey day, no delay to the dredging activity was required or mitigation measures imposed to works being carried out. Pre source activity was delay because of marine mammal observations prior to start up of operations.

Figure 4 Locations of Marine Mammal Observations at Buncrana Harbour During On-going Dredging Works



## 7.0 Conclusion

Pat O`Sullivan (Atlantic Towage) was asked to complete appropriate Marine Mammal Observations of scheduled dredging activities at Buncrana harbour. MMOs were carried out each day of source activity and all day watches were completed during daylight hours with no period of activity not observed during the marine mammal observation timeframe. A total of 248 hours of marine mammal observations were complete when dredging operations came to a conclusion on the 26th of August 2018.

Harbour Seal (*Phoca vitulina*), was the only recorded marine mammal during observations. No mitigation measures were applicable to operations during the timeframe of observations, the pre-start observations did not record marine mammal activity and all recorded activity was during active source vessel operations.

Weather conditions were generally good with high visibility during the observation period. The sheltered area within Lough Swilly gave good weather conditions with limited swell and breaking waves to allow good observations of possible marine mammals within the observation monitoring zone and the wider Lough Swilly area.

## Appendix A

Table A.1 Daily Record of Marine Mammal Observations and Activity

Ref No.	Location	Platform	Date	Time	Total Hours	Observer	Visual Watch / PAM	Magnification of Equipment	Height	PAM Used	MM Observ
S0011	Buncrana Harbour	Buncrana Pier	23/07/2018	07:00-19:00	12	E.P	Visual	8.5 x 42,	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	24/07/2018	06:30-20:00	12.5	E.P	Visual	8.5 x 42,	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	25/07/2018	06:35-20:00	13.25	E.P	Visual	8.5 x 42,	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	26/07/2018	06:30-20:00	13.5	E.P	Visual	8.5 x 42,	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	27/07/2018	06:40-20:00	13	E.P	Visual	8.5 x 42,	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	28/07/2018	06:30-17:30	11	E.P	Visual	8.5 x 42,	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	29/07/2018	06:40-20:00	13.20	E.P	Visual	8.5 x 42,	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	30/07/2018	06:45-20:00	13.15	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	31/07/2018	06:40-19:10	12.5	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	01/08/2018	06:35-17:20	11.35	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	15/08/2018	08:15-20:00	11.45	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	16/08/2018	06:30-14:30	10	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	17/08/2018	07:15-15:15	9	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	18/08/2018	08:15-16:15	8.5	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	19/08/2018	09:00-18:00	10	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	20/08/2018	10:15-18:15	8	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	21/08/2018	11:00-20:00	9	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	22/08/2018	12:10-20:00	7.50	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	23/08/2018	06:40-19:00	12.20	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	24/08/2018	06:40-19:00	12.20	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	25/08/2018	06:40-19:30	13.10	E.P	Visual	8.5 x 42	3-6m	no	none
S0011	Buncrana Harbour	Buncrana Pier	26/08/2018	06:45-19:30	13.05	E.P	Visual	8.5 x 42	3-6m	no	none

## Appendix B : MARINE MAMMAL RECORDING FORM - COVER PAGE

<b>Regulatory reference number</b> (e.g. DECC no., BOEM permit no., OCS lease no., etc.)	<b>Country</b>	<b>Location</b>	<b>Ship/ platform name</b>
<b>Client</b>	<b>Contractor</b>		<b>Survey type</b>
<b>Start date</b>	<b>End date</b>		<input type="checkbox"/> site <input type="checkbox"/> VSP <input type="checkbox"/> 2D <input type="checkbox"/> WAZ <input type="checkbox"/> 3D <input type="checkbox"/> piling <input type="checkbox"/> 4D <input type="checkbox"/> explosives <input type="checkbox"/> OBC <input type="checkbox"/> other <input type="checkbox"/> 4C

<b>Number of source vessels</b>	<b>Type of source</b> (e.g. airguns)	<b>Number of airguns</b> (only if airguns used)	<b>Source volume</b> (cu. in.)
<b>Source depth</b> (metres)	<b>Frequency</b> (range in which peak energy is emitted, in Hz)	<b>Intensity</b> (primary peak-to-peak amplitude in dB re. 1µPa or bar metres)	<b>Shot point interval</b> (metres)
<b>Method of soft start</b>			
<input type="checkbox"/> increase number of guns <input type="checkbox"/> increase frequency (where permitted) <input type="checkbox"/> increase pressure (where permitted) <input type="checkbox"/> increase number and frequency <input type="checkbox"/> increase number and pressure <input type="checkbox"/> other			

<b>Visual monitoring equipment used</b> (e.g. binoculars, big eyes, etc.)	<b>Magnification of optical equipment</b> (e.g. binoculars)	<b>Height of eye above water surface</b> (metres)	<b>How was distance of animals estimated?</b>
			<input type="checkbox"/> by eye <input type="checkbox"/> with laser rangefinder <input type="checkbox"/> with rangefinder stick/ callipers <input type="checkbox"/> with reticle binoculars <input type="checkbox"/> by relating to object at known distance <input type="checkbox"/> other
<b>Number of dedicated MMOs</b>		<b>Training of MMOs</b>	
		<input type="checkbox"/> JNCC approved MMO training course for UK waters <input type="checkbox"/> PSO training course for the Gulf of Mexico <input type="checkbox"/> MMO training course for Irish waters <input type="checkbox"/> MMO training course for New Zealand waters <input type="checkbox"/> other <input type="checkbox"/> none	

<b>Was PAM used?</b>	<b>Number of PAM operators</b>
<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>Description of PAM equipment</b>	





## MARINE MAMMAL RECORDING FORM - SIGHTINGS

<b>Regulatory reference number</b> (e.g. DECC no., BOEM permit no., OCS lease no., etc.)	<b>Ship/ platform name</b>	<b>Sighting number</b> (start at 1 for first sighting of survey)	<b>Acoustic detection number</b> (start at 500 for first detection of survey)
<b>Date</b>		<b>Time at start of encounter</b> (UTC, 24hr clock)	<b>Time at end of encounter</b> (UTC, 24hr clock)
<b>Were animals detected visually and/ or acoustically?</b>  <input type="checkbox"/> visual <input type="checkbox"/> acoustic <input type="checkbox"/> both	<b>How were the animals first detected?</b>  <input type="checkbox"/> visually detected by observer keeping a continuous watch <input type="checkbox"/> visually spotted incidentally by observer or someone else <input type="checkbox"/> acoustically detected by PAM <input type="checkbox"/> both visually and acoustically before operators/ observers informed each other		
<b>Observer's/ operator's name</b>	<b>Position</b> (latitude and longitude)	<b>Water depth</b> (metres)	
<b>Species/ species group</b>		<b>Description</b> (include features such as overall size; shape of head; colour and pattern; size, shape and position of dorsal fin; height, direction and shape of blow; characteristics of whistles/ clicks)	
<b>Bearing to animal</b> (when first seen or heard) (bearing from true north)	<b>Range to animal</b> (when first seen or heard) (metres)		
<b>Total number</b>	<b>Number of adults</b> (visual sightings only)	<b>Number of juveniles</b> (visual sightings only)	<b>Number of calves</b> (visual sightings only)
<b>Photograph taken</b> <input type="checkbox"/> yes $\Delta$ no			
<b>Behaviour</b> (visual sightings only)			
<b>Direction of travel</b> (relative to ship)  <input type="checkbox"/> towards ship <input type="checkbox"/> away from ship <input type="checkbox"/> parallel to ship in same direction as ship <input type="checkbox"/> parallel to opposite direction to ship <input type="checkbox"/> crossing perpendicular ahead of ship		<b>Direction of travel</b> (compass points)  <input type="checkbox"/> N $\Delta$ W <input type="checkbox"/> NE $\Delta$ NW <input type="checkbox"/> E $\Delta$ variable <input type="checkbox"/> SE $\Delta$ stationary <input type="checkbox"/> S $\Delta$ unknown <input type="checkbox"/> SW	
<b>Airgun (or other source) activity when animals first detected</b>  <input type="checkbox"/> full power <input type="checkbox"/> not firing <input type="checkbox"/> soft start <input type="checkbox"/> reduced power (other than soft start)	<b>Airgun (or other source) activity when animals last detected</b>  <input type="checkbox"/> full power <input type="checkbox"/> not firing <input type="checkbox"/> soft start <input type="checkbox"/> reduced power (other than soft start)	<b>Time animals entered mitigation/ exclusion zone</b> (UTC, 24hr clock)	<b>Time animals left mitigation/ exclusion zone</b> (UTC, 24hr clock)
		<b>Closest distance of animals from airguns (or other source)</b> (metres)	<b>Time of closest approach</b> (UTC, 24hr clock)

If seen during soft start give:	What action was taken? (according to requirements of guidelines/ regulations in country concerned)	Length of power-down and/ or shut-down (if relevant) (length of time until subsequent soft start, in minutes)	Estimated loss of production (if relevant) due to mitigating actions (km)
<b>First distance</b>	none required		
<b>Closest distance</b>	delay start of firing		
<b>Last distance</b>	shut-down of active source		
during soft start (metres)	power-down of active source		
	power-down then shut-down of active source		

## APPENDIX C

### References

1. Atlas of Cetacean distribution in the north-west European waters, IWDG (Irish Whale and Dolphin Group) [www.iwdg.ie](http://www.iwdg.ie).
2. Atlas of Mammals in Ireland <http://mammals.biodiversityireland.ie>
3. Guidance to Manage Risk to Marine Mammals from Man-Made Sound Sources in Irish waters, Department of heritage, Culture and Gaeltacht, January 2014.
4. JNCC 1980-2003 Cetacean sightings dataset.
5. JNCC Guidelines for Minimising the Risk of Injury and Disturbance to Marine Mammals from Seismic Surveys, August 2010.
6. NPWS seals database <http://www.gbif.org/dataset/eeaabe3b-e64a-4819-a007-2c3529eb4bf7>
7. Reid, J.B., Evans, P.G.H., & Northridge, S.P. (2003). 'Atlas of cetacean distribution in north-west European waters' (Online). <http://www.jncc.gov.uk>