Appendix 17.3a Sediment Sampling Plan

Orkney's Community Wind Farm Project - Faray

Sample Plan for Proposed Dredge and Disposal Activities

Client:	Orkney Island Council
Project/Proposal No:	1677
Version:	0.1
Date:	2021-03-02

Document Information

Project Name:	Orkney's Community Wind Farm Project - Faray
Document Title:	Sample Plan for Proposed Dredge and Disposal Activities
Client Name:	Orkney Island Council
Client Contact:	Sweyn Johnston
Client Address:	Town House, Stromness, Orkney
Document Status:	Draft
Author:	K Collins
Reviewed:	G Tait
Approved:	J Hazzard
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Project/Proposal Number:	1677
ITPEnergised Office:	4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh, EH3 5DQ

Revision History

Version	Date	Authored	Reviewed	Approved	Notes
0.1	2021-03-02	K Collins	G Tait	J Hazzard	[Add note e.g. First issue]

Contents

1. Introduction

Orkney Island Council (OIC) are proposing to undertake dredging activity as part of the marine licensable activities associated with Orkney's Community Wind farm Project - Faray. This sampling plan has been produced for approval by Marine Scotland in order to comply with marine licensing requirements in relation to the dredging and disposal of marine sediment. The dredging activities relate to the installation of a new extended slipway and new landing jetty on the southeast coast of the Island of Faray (59°12'23"N 002°49'07"W and 59°12'25"N 002°49'02"W)

This sampling plan sets out a description of the proposed dredge, known data regarding the marine sediments to be removed, and the proposed sampling strategy to be undertaken in order to comply with OSPAR and Marine Scotland requirements.

2. Dredge Description

2.1 Project Description

Dredging is required to facilitate construction of two new marine structures on the southeast coast of Faray.

New Extended Slipway

A new extended slipway would be required to replace the existing dilapidated facility. The new extended slipway would be built in the same location as the existing slipway. It would be refurbished and extended to allow for preliminary site works for the proposed wind farm to be undertaken. The design of the slipway would be sufficient to enable access by larger vessels with the bow or stern gate and would be built to a standard design for the Orkney Islands to allow access for local vessels. The extant slipway is c.20 m long by 3.5 m wide, though this was originally longer. This would be upgraded to a maximum 36 m long and 8 m wide.

The exact vessel requirements are not known at the time of writing as construction contractors would not be appointed until post consent. As such, the dimensions provided are the maximum size of the slipway based on a vessel similar to the OIC reserve ferry, MV Thorsvoe (35m length, 385 gross tonnage (MV Thorsvoe spec sheet, no date)), requiring access. The new slipway would also be used for staff access during operations using smaller vessels.

New Landing Jetty

The new landing jetty is necessary because of the dimensions of the turbine components mean that a slipway is unsuitable for delivery. The jetty has, therefore, been designed to accommodate vessels which transport the turbine components. The jetty would comprise a causeway up to a maximum of 55 m long and 10 m wide, terminating in square structure for docking measuring up to a maximum of 20 m by 20 m. The square docking structure would likely be constructed on site from sheet piles. The causeway would be in-filled and capped-off with concrete batched onsite.

The exact vessel requirements are not known at the time of writing as turbine and construction contractors would not be appointed until post consent. As such, the dimensions provided are the maximum size of the landing jetty based on a specialist vessel such as the MV Meri (105.4mx18.8m, 3,360 gross tonnage (Marine Traffic, 2020)).

2.2 Dredging

Localised dredging will be required for the construction of both the slipway and the jetty, in addition there is the potential for channel dredging to allow for vessel access to the jetty to be required. As outlined above, the exact vessel requirements are not known, therefore channel dredging has been included as a contingency

only with the volumes provided representing the worst case based on the largest vessel that the structures were designed to accommodate.

Dredge volumes are anticipated to be no more than 5,000 m^3. The exact volume will be confirmed following site investigation works, further jetty and slipway design and confirmation of vessel to be used for transportation of windfarm infrastructure.

Dredge depths will be no more than 1 metre in any of the dredge locations. This will allow the proposed vessel to berth at a range of tides (mid tide and above). This is anticipated to be a worst case scenario and, as with dredge volume, will be confirmed following further jetty design and confirmation of vessel to be used for transportation of windfarm infrastructure.

Dredging will be undertaken by back hoe dredger located on a barge or spud leg platform. Dredged material will be collected on a barge and it is anticipated that the dredged material will be disposed of at a licenced disposal site close to the development. The preferred site, to be confirmed within the marine licence application, is Stromness A.

3. Historical Data

3.1 Contaminant Analysis

No known contaminant analysis has been undertaken in the dredge area. Faray is uninhabited and is currently used for sheep grazing. Evidence of previous habitation - the upstanding remains of nine farm complexes, a former school, a boathouse, and the jetty – suggest no industrial activities have been undertaken on the island. The island was abandoned shortly after World War II. As such, it is considered highly unlikely for contaminants to be found within the dredged material.

3.2 Geotechnical Conditions

No borehole data is available for the dredge location. The available British Geological Survey (BGS) data suggests that the bedrock geology consists of Lower Eday Sandstone. Superficial geology is not known and detailed Site Investigation sediment probing is to be undertaken to establish the depth and composition of superficial geology at the site.

4. Marine Scotland Guidance

The Marine Scotland 'Pre-disposal Sampling Guidance Version 2 – November 2017' (Marine Scotland 2017) provides guidance on sampling in relation to disposal of dredged material at sea. Section 3 of the guidance document provides the minimum sample stations required by dredge volume, stating that a minimum of three samples are required for a proposed dredge volume of less than 25,000m^3.

The guidance also states that for dredging up to 1 m depth, surface samples are adequate for analysis.

5. Proposed Sampling Strategy

5.1 Location and Number of Samples

Due to the small volume of dredge material to be removed during the marine activities for the Orkney Community Wind farm project – Faray, we propose to provide four (4No) samples for analysis. The location of these is presented on the sample plan included in Appendix 1 and represents good coverage of the areas around each of the marine structures, and their approaches.

As the dredge depth is to be a maximum of 1 m, surface samples will be taken at these locations. Samples will be collected by diver and placed into individual tubs to be frozen and transported to the lab for analysis.

5.2 Laboratory Analysis

To assess the suitability of the proposed dredged material for disposal at sea, laboratory analysis for the following determinants will be undertaken, to be agreed with Marine Scotland through this sample plan submission:

- Moisture content
- Total Organic Carbon (TOC)
- Particle Size Analysis (PSA, subcontracted)
- Density
- Metals Suite (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn)
- Organotins (DBT, TBT)
- PAHs (DTI 2-6 ring aromatics + EPA 16)
- PCBs (25 congeners inc. ICES 7)
- Total Hydrocarbon Content
- Organochlorine Pesticides
- Asbestos Identification

Analysis will be undertaken in line with Marine Scotland guidance (Marine Scotland 2017) and reporting will align with the Action Levels and be presented on the pre-disposal sampling results form for submission to MS-LOT with the marine licence application.

6. Summary

To inform that marine licence application for the proposed dredge elements of the Orkney Community Wind farm project – Faray, sampling will be undertaken as follows:

- Surface samples collected from four (4no) sampling stations across the dredge area.
- Samples will be analysed for determinants as defined in Marine Scotland guidance
- Analysis results will be submitted with the marine licence for the marine elements of the Orkney Community Wind farm project – Faray.

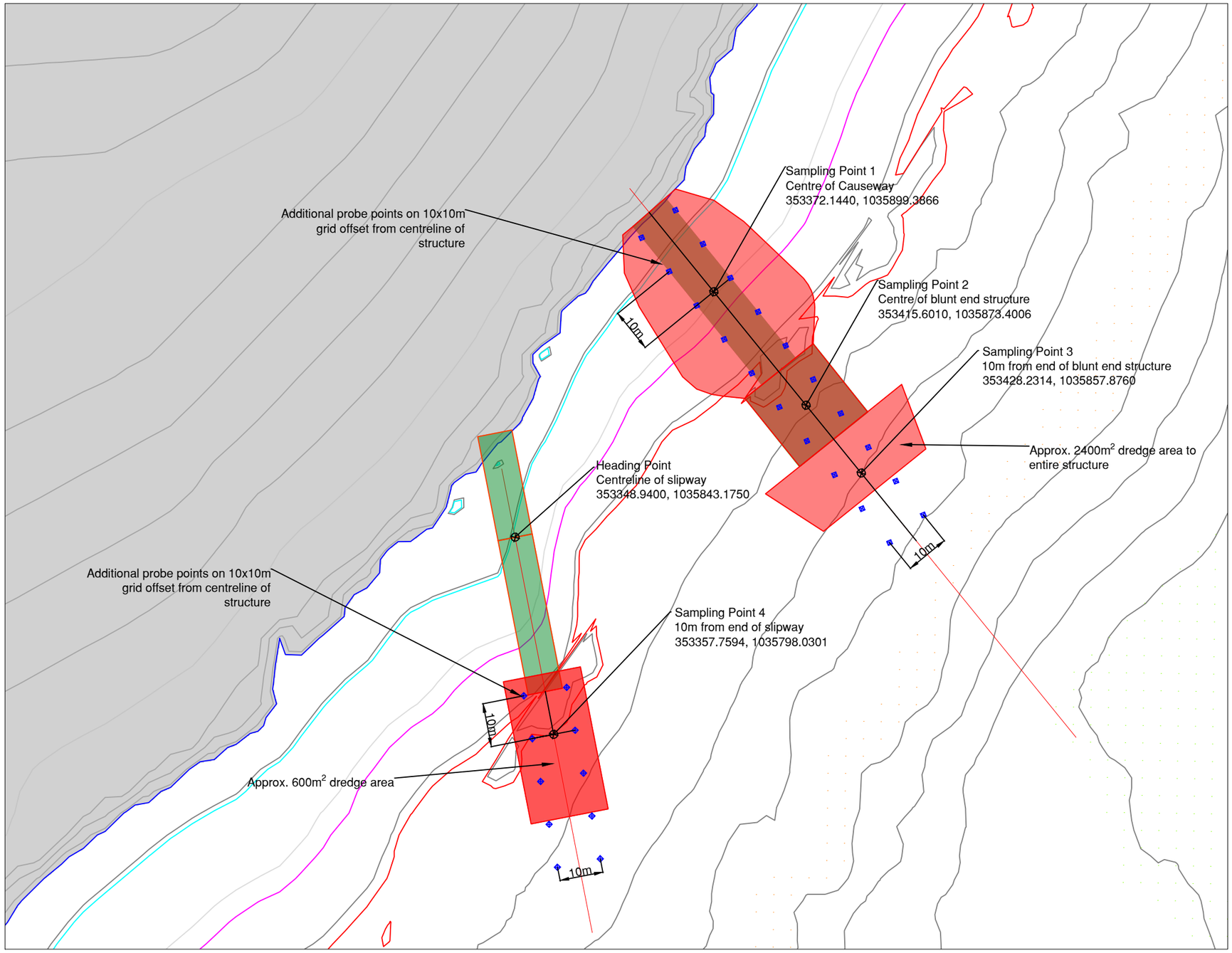
7. References

Marine Scotland (2017) Pre-disposal Sampling Guidance Version 2 – November 2017. Available at: https://www.gov.scot/publications/marine-licensing-applications-and-guidance/ Accessed on: 19 February 2021

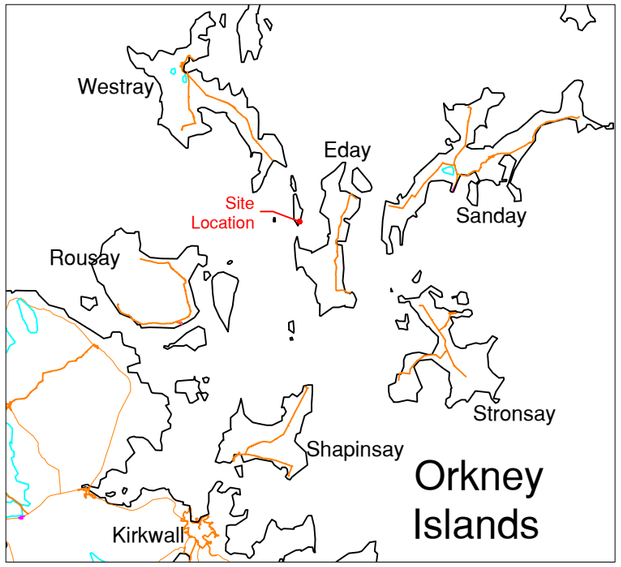
Marine Traffic (2020). MV Meri specifications. Available at: https://www.marinetraffic.com/en/ais/details/ships/shipid:6223/mmsi:230941700/imo:9622502/vessel:MERI. Accessed on: 01 December 2020

MV Thorsvoe specification sheet (no date). Available at: http://www.orkneyferries.co.uk/pdfs/ferries/thorsvoe.pdf Accessed on: 01 December 2020

Appendix 1 Sample Plan



PLAN
SCALE 1:1,000



LOCATION PLAN
SCALE 1:500,000

LOCATION PLAN
SCALE 1:10,000

Rev	Desc	Date	By	Chk	App
1	First issue	26/02/21	MD	DC	SJ

G:\Tec\TRANS\PROJECTS\(1006002) Orkney Community Wind\04 - Faray Windfarm\D - Drawings\Models\Marine License GA Reduced Dredge.dwg

File Ref. 1006002	Drawing No. 103		
Revision 1			
Drawn MD	Checked DC	Approved SJ	
Date 26/02/21	Scale As shown	Original drawing size 420mm x 297mm (A3)	

Orkney Community Wind Farm

Faray Wind Farm
Proposed Dredging & Sampling Plan

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Appendix 17.3b Marine Scotland Approval

Gemma Tait

Subject: FW: Faray Onshore Windfarm - Dredging Sample Plan

From: [redacted]
Sent: 04 March 2021 17:48
To: [redacted]
Cc: [redacted]
Subject: RE: Faray Onshore Windfarm - Dredging Sample Plan

Dear Kathryn,

Thank you very much for the sample plan for the Faray Windfarm proposed dredge.

I can confirm that we have reviewed your plan and are content with the sample locations selected and are happy for you to progress to sampling.
Best wishes
Ellie Noble

Ellie Noble
Marine Licensing Case Manager
Marine Scotland - Marine Planning & Policy

Scottish Government | Marine Scotland | 375 Victoria Road | Aberdeen | AB11 9DB

Mobile: [redacted]
Email: [redacted]
Website: http://www.gov.scot/marinescotland

Frequently Asked Questions

From: [redacted]
Sent: 02 March 2021 17:29
To: [redacted]
Cc: [redacted]
Subject: Faray Onshore Windfarm - Dredging Sample Plan
Importance: High

Hi Ellie,

Please find attached the sample plan for the Faray windfarm proposed dredge.

Can you please confirm that you have received this, and provide an indicative timescale for when we can expect a response. We are looking get the sampling done as soon as possible to feed into the main application.

If there is anything that we can do to help expedite your response, please do not hesitate to contact me.

Many thanks

Kathryn

Dr Kathryn Collins | Senior Consultant | ITPEnergised
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