

CONTRACTOR DOCUMENT FRONT SHEET

NOT PROTECTIVELY MARKED

DOCUMENT DETAILS

PROJECT	CONTRACT CODE										ASSET		SYSTEM BUILDING			DOCUMENT TYPE			SEQUENTIAL NUMBER				
H P C - D E V 0 2 4 - X X - 0 0 0 - R E T - 1 0 0 0 1 5																							

DOCUMENT TITLE	Cefas BEEMS TR429 Hinkley Point C – Intake and outfall dredge disposal bathymetric survey plan	EMPLOYER REVISION	05
-----------------------	--	--------------------------	----

DOCUMENT STATUS	D4	DOCUMENT PURPOSE	D4 - FFC - FIT FOR CONSTRUCTION, MANUFACTURING, PROCUREMENT	TOTAL PAGES <small>(Including this page)</small>	13
------------------------	----	-------------------------	---	--	----

CONTRACTOR DETAILS

CONTRACTOR NAME	Cefas
------------------------	-------

CONTRACTOR DOCUMENT NUMBER	Cefas BEEMS Technical Report TR429	CONTRACTOR REVISION	5.00
-----------------------------------	------------------------------------	----------------------------	------

ECS CODES

--

REVISION HISTORY

EMPLOYER REVISION	REVISION DATE	PREPARED BY	POSITION/TITLE	CHECKED BY	POSITION/TITLE	APPROVED BY	POSITION/TITLE
01	07/03/2018	Dean Foden	Hinkley Point Programme lead	Ines martin Grandes	Coastal Processes Scientist	Brian Robinson	BEEMS Programme Manager
02	23/03/2018	Dean Foden	Hinkley Point Programme lead	Katie Musgrave	Coastal Processes Scientist	Dean Foden	Hinkley Point Programme lead
03	20/04/2018	Dean Foden	Hinkley Point Programme lead	Katie Musgrave	Coastal Processes Scientist	Dean Foden	Hinkley Point Programme lead
04	26/04/2018	Dean Foden	Hinkley Point Programme lead	Katie Musgrave	Coastal Processes Scientist	Dean Foden	Hinkley Point Programme lead
05	01/05/2018	Dean Foden	Hinkley Point Programme Lead	Katie Musgrave	Coastal Processes Scientist	Dean Foden	Hinkley Point Programme lead

COPYRIGHT

© Copyright 2018 NNB Generation Company (HPC) Limited. All rights reserved.

REVISION STATUS/SUMMARY OF CHANGES

Revision	Purpose	Amendment	By	Date
01	Publication	First publication via Supplier Exchange	Cefas	07/03/18
02	Response to NNB GenCo comments	Update of NNB EDFE contact details	Cefas	23/03/18
03	Response to further NRW comments	Inclusion of survey line plan, update to Figure 1 to include 100m buffer zone, PSA sample locations and <i>Sabellaria</i> protocol added	Cefas	20/04/2018
04	Further editing	Updated figures	Cefas	26/04/2018
05	Response to NRW approval comments	Revision on Marine Licence number	Cefas	30/04/2018



Hinkley Point C – Intake and outfall dredge disposal bathymetric survey plan

A - ACCEPTED

Hinkley Point C – Intake and outfall dredge disposal bathymetric survey plan

Dean Foden

A - ACCEPTED

Version and Quality Control

	Version	Author	Date
Draft	0.01	Dean Foden	
Technical QA	0.02	Inés Martín Grandes	10/04/2017
Executive QA & Final Draft	0.03	Brian Robinson	11/04/2017
Submission to NNB GenCo as Prel A	1.00		11/04/2017
Update following comments from NRW	1.01	Dean Foden	28/04/2017
Submission to NNB GenCo as Prel B	2.00		28/06/2017
Update following revised comments from NRW	2.01	Dean Foden	30/06/2017
Submission to NNB GenCo as Prel C	3.00		30/06/2017
Update following comments from NNB GenCo	3.01	Dean Foden	07/03/2018
Submission to NNB GenCo as Prel D	4.00		07/03/2018
Update following comments from NRW	4.01	Dean Foden	19/04/2018
Submission to NNB GenCo as Prel E	5.00		20/04/2018
Update following NRW and NNBGenCo comments (improved figure quality and updated marine licence number)	5.01	Dean Foden	30/04/2018
Submission to NNB GenCo as Prel E	6.00		30/04/2018

Table of contents

List of Tables and Figures	6
1 Introduction.....	7
2 Description of the monitoring programme	8
3 Monitoring reporting	12
4 References	13

List of Tables and Figures

Tables

Table 1: The coordinates bounding the survey area and the area in which disposal may take place.....	9
Table 2: The schedule of bathymetric surveys within disposal area LU110.	9
Table 3: The proposed grab sampling.....	9
Table 4: The coordinates of the proposed grab sampling locations.....	10
Table 5: The reporting schedule for the proposed bathymetric surveys.	12

Figures

Figure 1: The location of the proposed disposal operations and associated bathymetric surveys (marked by the shaded polygon).....	8
Figure 2: The survey line plan including crosslines and grab locations.	11

1 Introduction

Installation of the intake and outfall heads for the Hinkley Point C (HPC) nuclear power station will require dredging to prepare the seabed and subsequent disposal of the dredged material. Consent to carry out this dredge is granted by the Marine Management Organisation in Marine Licence L/2013/00178/4 (MMO, 2013). Permission to dispose of this material in disposal area LU110 (Cardiff Grounds) is granted in Welsh Government Marine Licence 12/45/MLv1 (NRW, 2014). Condition 9.1 requires the submission to NRW of a proposed monitoring programme and condition 9.2 requires that the proposal include timescales for the submission of monitoring reporting. The purpose of this report is to discharge these conditions and propose a monitoring programme of the disposal site and its immediate environs.

Condition 9.1 and 9.2 of Marine Licence 12/45/MLv1 are shown below:

9.1. The Licence Holder must submit a proposal for a monitoring programme of the disposal site and immediate environs to Natural Resources Wales acting on behalf of the Licensing Authority for written approval at least 12 weeks before any disposal operation. The scheme will include details of pre, during and post disposal operation surveys, and any actions to be taken as a consequence of the survey findings. The purpose of the scheme will be to enable the avoidance of significant build-up of material and any consequent shallowing.

9.2. The Licence holder must ensure the programme, and any consequent actions are being undertaken in line with the agreed programme. Reports of the monitoring must be submitted to Natural Resources Wales acting on behalf of the Licensing Authority within the timescales agreed within the programme.

During pre-application discussions on Condition 9.1, NRW has confirmed that the monitoring needs to include particle size analysis (PSA) and that, due to the short duration of disposal operations, 'during' operation surveys are not required. This survey plan outlines the approach for bathymetric surveys and sampling for particle size analysis at the Cardiff Grounds before and after disposal operations.

The pre-disposal survey will allow the disposal vessel skipper to plan operations (routes and areas) to avoid any pre-existing high areas on the seabed at the disposal grounds. Should the post-disposal survey identify any issues at the site after disposal operations, then potential remedial action would be discussed and agreed with NRW depending on the cause/extent of the issue (for example, 'ploughing' of any high areas of disposed material).

2 Description of the monitoring programme

The proposed bathymetric surveying, grab sampling and sample analysis are described below. The disposal site lies within disposal area LU110 (Figure 1) and disposal is restricted to the area shown by condition 1.4.1 of Welsh Government Marine Licence 12/45/MLv1. Coordinates of the disposal area are shown in Table 1 and surveys will be undertaken according to the schedule shown in Table 2. Swathe bathymetry surveys will acquire 100% seabed coverage, complying with International Hydrographic Organization (IHO) order 1a (IHO, 2008). This standard specifies horizontal accuracy of 5 m plus 5% of water depth and vertical accuracy of 0.5 m. Bathymetric survey lines are to be no more than 100 m apart with “tie-in” lines no more than 500 m apart (Figure 2). During the pre-disposal and post-disposal bathymetric surveys grab samples will also be acquired and analysed to determine the particle size distribution of the surface sediments (Table 5). Particle size analysis will follow NMBAQC guidelines.

In order to prevent potential damage to *Sabellaria* reef, grab sampling at any location will be terminated if *Sabellaria* is observed in a grab sample. No alternative site used will be within 25 m of the site at which *Sabellaria* was encountered. Any alternative site locations will be reported to NRW together with an explanation of the reason for the location change.

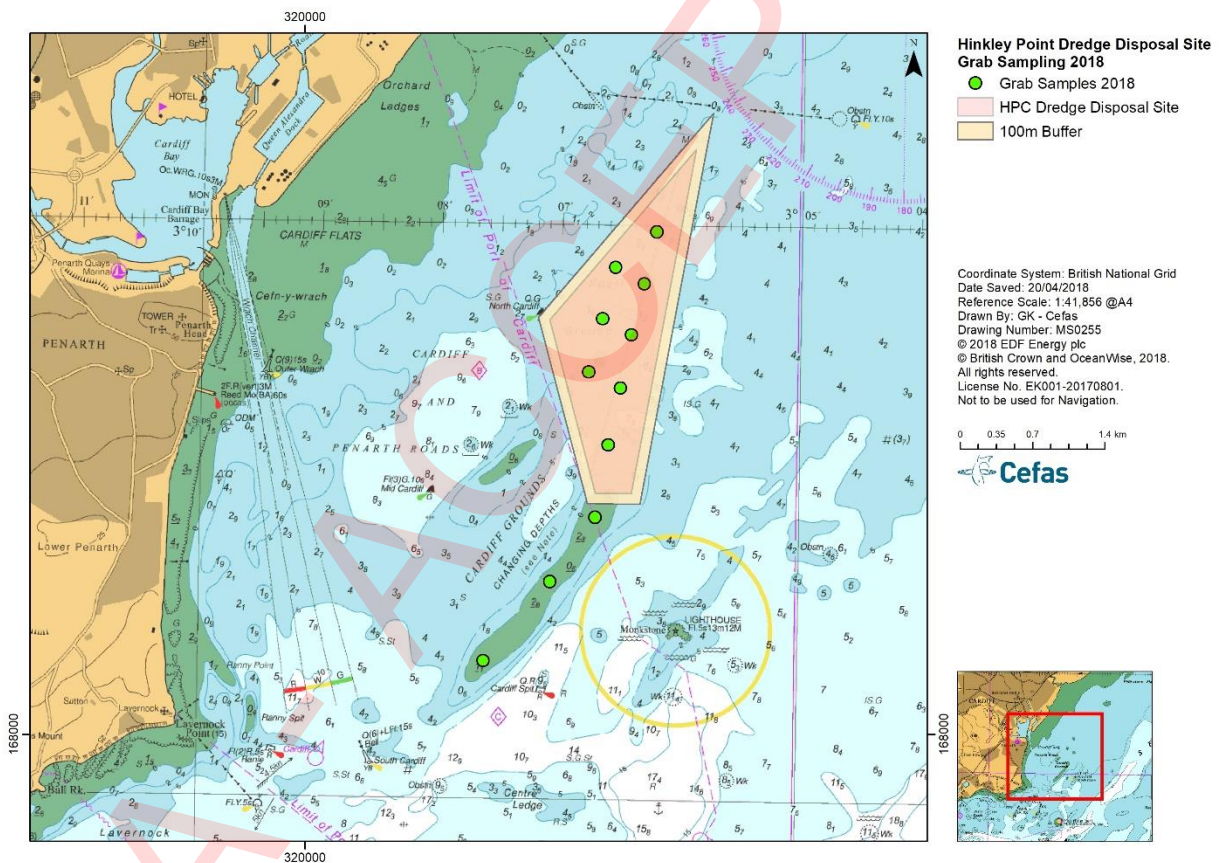


Figure 1: The location of the proposed disposal operations and associated bathymetric surveys (marked by the shaded polygon).

Table 1: The coordinates bounding the survey area and the area in which disposal may take place.

Coordinates (OSGB)		WGS84 latitude and longitude	
Easting	Northing	Latitude (degrees and minutes N)	Longitude (degrees and minutes W)
Survey Area			
323254	170303	51° 25.59'	003° 06.31'
322711	170302	51° 25.59'	003° 6.78'
322260	172027	51° 26.51'	003° 07.20'
323953	173998	51° 27.59'	003° 05.76'
Disposal Area			
323156	170321	51° 25.60'	03° 06.40'
322808	170326	51° 25.60'	03° 06.70'
322370	172002	51° 26.50'	03° 07.10'
323785	173649	51° 27.40'	03° 05.90'

Table 2: The schedule of bathymetric surveys within disposal area LU110.

Survey period	Area to be bathymetrically surveyed	Survey timing / frequency
Pre-disposal	The area bounded by the positions in Table 1, plus the remainder of disposal area LU110 with a 100m buffer along all sides (see Figure 1).	Once, not more than six months before disposal commences.
Post-disposal	As per the pre-disposal survey.	Once, between 3 and 6 months after the last disposal.

Table 3: The proposed grab sampling.

Survey period	Minimum number of grab samples	Location of grab samples
Pre-disposal	8	Sites broadly equally spaced to cover the disposal site.
	3	Sites broadly equally spaced along the spine of the sand/mud bank in the "drying area" immediately south-west of the disposal site.
Post-disposal	11	The same locations as the pre-disposal sampling

Table 4: The coordinates of the proposed grab sampling locations.

Coordinates (OSGB)		WGS84 latitude and longitude	
Easting	Northing	Latitude (degrees and minutes N)	Longitude (degrees and minutes W)
492796	5699814	51° 26.97'	003° 06.22'
492682	5699308	51° 26.69'	003° 06.32'
492565	5698817	51° 26.43'	003° 06.42'
492468	5698299	51° 26.15'	003° 06.50'
492155	5698452	51° 26.23'	003° 06.77'
492283	5698966	51° 26.51'	003° 06.66'
492406	5699466	51° 26.78'	003° 06.56'
492352	5697748	51° 25.85'	003° 06.60'
492234	5697051	51° 25.48'	003° 06.70'
491807	5696425	51° 25.14'	003° 07.07'
491174	5695650	51° 24.72'	003° 07.61'

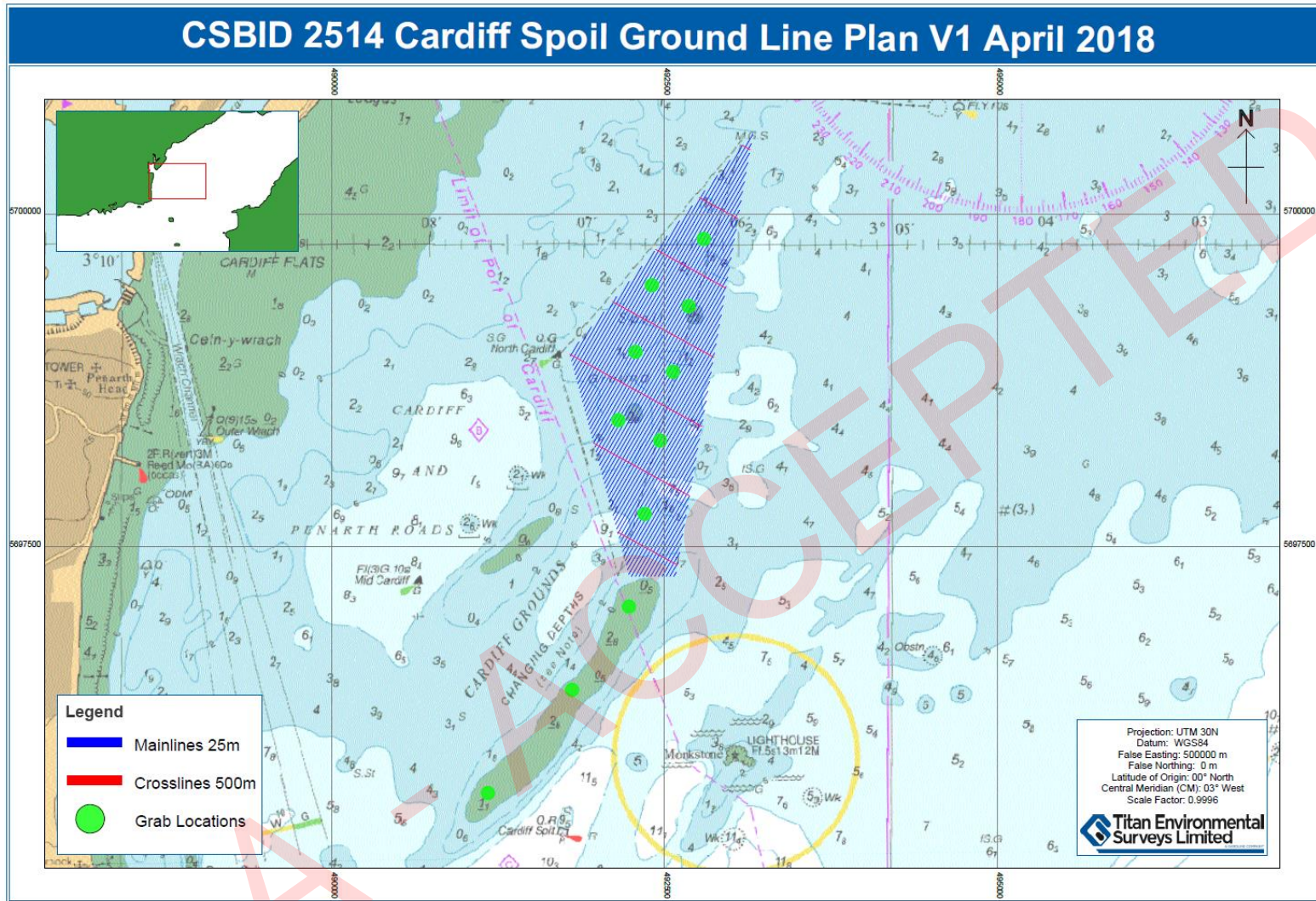


Figure 2: The survey line plan including crosslines and grab locations.

3 Monitoring reporting

Following the surveys described in section 2, reporting will be submitted to NRW within six months of the completion of the survey. The content of each report is described in Table 5.

Table 5: The reporting schedule for the proposed bathymetric surveys.

Survey period	Report content
Pre-disposal	<ul style="list-style-type: none"> • Details of survey operations • A bathymetric chart of survey area • A volume/area plot of disposal site above a representative contour (e.g. 1m below chart datum) • Figures of three transects (one through the centre of the disposal site along a SW-NE axis and two perpendicular cross-transects in the centres of the northern and southern sectors) • A chart showing the locations of the transects • A chart showing the locations of the grab sampling sites • A table showing the coordinates of the grab sampling sites • A table showing the results of the particle size analysis • A table showing the volumes and dates of disposed material from other sources during the 12 months prior to the survey (as provided by ABP Cardiff, ABP Barry and Cardiff Harbour Authority (Cardiff CC))
Post-disposal	<ul style="list-style-type: none"> • Details of survey operations • A bathymetric chart of survey area • A chart showing changes in bathymetry detected since the pre-disposal survey • A volume/area plot of disposal site above a representative contour (e.g. 1m below chart datum) • A plot showing changes in volume/area detected since the pre-disposal survey • Figures of three transects (one through the centre of the disposal site along a SW-NE axis and two perpendicular cross-transects in the centres of the northern and southern sectors) together with the previously surveyed transects for comparison • A chart showing the locations of the transects • A chart showing the locations of the grab sampling sites • A table showing the coordinates of the grab sampling sites • A table showing the results of the particle size analysis • A comparison of the pre-disposal and post disposal particle size data • A table showing the volumes and dates of disposed material from other sources during the 12 months prior to the survey (as provided by ABP Cardiff, ABP Barry and Cardiff Harbour Authority (Cardiff CC))

4 References

International Hydrographic Organization (2008). IHO Standards for Hydrographic Surveys, 5th Edition, February 2008, Special Publication No. 44.

Marine Management Organisation (2013). Marine and Coastal Access Act 2009: Part 4, Marine Licence L/2013/00178/3, case reference MLA/2012/00259/2.

Natural Resources Wales (2014). Marine and Coastal Access Act 2009: Part 4 – Marine Licencing, Marine Licence: 12/45/MLv1.

A - ACCEPTED