

Tidal Lagoon Swansea Bay

Construction Environmental Management Plan Appendix G

Materials Management Plan

DCO Requirement 5

Works 7a

May 2020

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0.1	26/03/2020	Draft	TC	RA	RA
0.2	15/04/2020	Update after RA Review	TC	RA	RA

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1 Introduction

1.1 The development

- 1.1.1 Tidal Lagoon Swansea Bay (TLSB) will be the world's first purpose built tidal energy lagoon. The generating station will have an installed capacity of 320 Mega Watts (MW) and will enclose part of Swansea Bay, from the eastern side of the River Tawe to the eastern edge of the new Swansea University Bay Campus. In total the seawall will form an approximately 9.5km-long, U-shaped seawall which will encompass approximately 11.5km² of the seabed, foreshore and intertidal area of Swansea Bay.
- 1.1.2 TLSB made an application to the Planning Inspectorate on 7 February 2014 for a Development Consent Order (DCO) for a tidal lagoon (the Project) in Swansea Bay, South Wales. Examination of the application closed on 10 December 2014 and development consent was awarded by the Secretary of State (SoS) on 9 June 2015.
- 1.1.3 The Materials Management Plan is a requirement of the Construction Environmental Management Plan (CEMP) and as such has been prepared by the relevant contractors on behalf of TLSB for approval by the relevant planning authorities.
- 1.1.4 This Materials Management Plan is applicable to soils excavated within the DCO Works 7a.
- 1.1.5 The following Materials Management Plan is based on the results of ground investigations undertaken by TLSB up to August 2015 prior to commencement of any works activities involved in the construction of the tidal power lagoon in Swansea bay.
- 1.1.6 Works 7a construction activities will be undertaken outside locations where previous ground investigations indicate the presence of contaminants above base limits therefore no remediation will be required.

2 Construction Environmental Management Plan Requirements

2.1 CEMP Requirements:

2.1.1 The CEMP revision of May 2020 refers to:

Land quality and disposal of soil off-site

- Site materials will be reused to level the Project where possible
- A Materials Management Plan will be devised and implemented during construction to govern the procedure for managing the reuse of soil.
- Where surplus soil needs to be disposed of, it will be done at an appropriate, licensed landfill facility, in accordance with current duty of care responsibilities and other statutory requirements.
- As required by the Landfill Directive, inert, non-hazardous and hazardous waste will require pre-treatment prior to disposal.
- Prior to disposal, soil will need to be characterised following the methodology described in the Environment Agency publications 'Framework for the Classification of Contaminated Soils in Hazardous Wastes', version 1 and 'Guidelines on sampling and testing of wastes to meet landfill waste acceptance procedures' version 1.

3 Land details

3.1 Land Details

- | | | |
|-------|---------------------------------------|---|
| 3.1.1 | Site details: | <p>Address:
Land within the boundary of:
ABP Port Swansea, Harbour Office, Lockhead, Kings Dock,
Swansea SA1 1QR
NGR:
E 268554 N 192756</p> <p>Address:
Land outside of the boundary of ABP:
Fabian Way, Swansea SA1 1QR
NGR:
E 270708 N 193167</p> |
| 3.1.2 | Landowners where material is arising: | <p>ABP Port
ABP Port Swansea, Harbour Office, Lockhead, Kings Dock,
Swansea SA1 1QR</p> |
| 3.1.3 | Landowners where material is reused: | <p>ABP Port
ABP Port Swansea, Harbour Office, Lockhead, Kings Dock,
Swansea SA1 1QR</p> |

4 Scope of work

4.1 Scope of Work

- 4.1.1 The scope of land based 7a works comprises the following areas of activity;
- a) earthworks and general construction activities associated with highway works and surface drainage;
 - b) demolition of existing buildings;
 - c) construction of temporary and permanent access roads; and
 - d) installation of temporary offices, compounds and laydown areas.

4.2 Summary and objectives

- 4.2.1 The excavation site will comprise shallow activities in order to construct the proposed access road and laydown areas.
- 4.2.2 Surplus material from the shallow excavations will be temporarily stockpiled prior to reuse in later phases where fill is required under some raised areas and within landscape bunds and raised profile areas.
- 4.2.3 Any contaminated materials encountered during the works 7a activities will be contained within sealed cells for remediation at a later date.

5 Licensing and permitting

5.1 Licensing and permitting

5.1.1 The requirements are as follows:-

- a. Asbestos Notifications and Regulations. The Control of Asbestos Regulations 2012 came into force on 6 April 2012, updating previous asbestos regulations to take account of the European Commission's view that the UK had not fully implemented the EU Directive on exposure to asbestos (Directive 2009/148/EC). HSE notification of licensed work with asbestos, Form FODASB5;
- b. CL:AIRE The Definition of Waste: Development Industry Code of Practice, Version 2;
- c. Materials Management Plan (MMP) under the CL:AIRE protocol which is required for re-use of materials on-site associated with contaminated land;
- d. Development of Detailed Quantitative Risk Assessments (DQRA) with input from Contractor Team;
- e. Site Waste Management Plan.

6 General approach

6.1 Materials Management Plan – General Approach

- 6.1.1 The main driver behind the management of materials excavated during the course of construction and development is to maximise reuse of materials and minimise the need for off-site disposal.
- 6.1.2 This Materials Management Plan is based on the 7a earthworks/drainage and the results of ground investigations including soils testing undertaken prior to commencement of any works activities involved in the construction of land based elements of work associated with Tidal Lagoon Swansea Bay.
- 6.1.3 We do not intend to disturb contaminated material, however, if required, all works involving remediation/relocation of contaminated soils will be undertaken under the guidance and control of HBR Limited who also operate their own specialist plant and equipment with Waste Management Industry Training and Advisory Board (WAMITAB) qualified personnel for all physical, chemical, bioremediation, biological and other remedial techniques offering a complete enabling works and remedial process package.
- 6.1.4 There will be a fully traceable soil management system within the remediation area to track materials to align samples with stockpiles and to ensure correct remediation techniques are undertaken. Soils will be sentenced for treatment within the remediation area based on existing site investigation and/or additional testing before/after screening.
- 6.1.5 Earthworks records will be written recording where material is excavated from and deposited to. Such records will be used in compiling the Earthworks Validation Report.
- 6.1.6 All construction vehicle movements will be controlled in accordance with the Construction Phase Traffic Plan (CPTMP Requirement 21).
- 6.1.7 All vehicles transporting contaminated materials will be sheeted and thoroughly cleaned prior to leaving the site.

6.2 Topsoil

- 6.2.1 Topsoil will be tested to confirm its suitability for re-use, placed in stockpiles not more than 2.0 metres high and re-excavated before being placed in highway verges or grassed amenity areas.
- 6.2.2 Where possible, topsoil will be site won, but where not available shall be imported in line with the landscape requirements.

- 6.2.3 It is unlikely that there will be adequate supply of topsoil, therefore the imported material will need to meet the above specification as set out in BS3882:2007 and be chemically compliant.

6.3 General Excavation

- 6.3.1 After testing, acceptable excavated materials will be excavated and transported to areas requiring fill material for instance highway embankments or to landscape areas and highway verge bunds.
- 6.3.2 After testing, if material is unacceptable, then it shall be fenced off until its location is determined and then moved for remediation or if not acceptable, removed from site.

6.4 Heavy metal contaminated soils

- 6.4.1 It is not anticipated that heavy metal contaminated soils will be encountered in the areas confined to the Works 7a activities, however TLSB are aware of its potential from previous site investigation works that have been undertaken across the site. If needed, chemical test data obtained from these intrusive investigations will be used to carry out risk assessments to determine the chemical suitability of particular sources of materials for particular end uses/fill areas. Additional chemical testing will be carried out during the course of excavation works as required.

6.5 Hydrocarbon contaminated soils

- 6.5.1 It is not anticipated that hydrocarbon contaminated soils will be encountered in the areas confined to the Works 7a activities.
- 6.5.2 Should hydrocarbon contaminated soils be discovered they will be encapsulated in fully lined impermeable cells for remediation as detailed below at a later date.
- 6.5.3 If required, all works involving remediation of hydrocarbon impacted soils will be undertaken under the guidance and control of HBR Limited who also operate their own specialist plant and equipment with Waste Management Industry Training and Advisory Board (WAMITAB) qualified personnel for all physical, chemical, bioremediation, biological and other remedial techniques offering a complete enabling works and remedial process package.

- 6.5.4 Once in the remediation area/compound the soils will be screened using a 3 way screener. The fractions will be as follows:-
- a. Oversize - Chemical test and if pass send to crusher
 - b. Mid-size - Chemical test and bio-remediate
 - c. Fines - Chemical test and bio-remediate
- 6.5.5 There will be a fully traceable soil management system within the remediation area to track materials to align samples with stockpiles and to ensure correct remediation techniques are undertaken. Soils will be sent for treatment within the remediation area based on existing site investigation and/or additional testing before/after screening.
- 6.5.6 The soils will have nutrients added and be aerated to increase biological activity therefore reducing the degradation time of the hydrocarbons. Aeration will consist of moving the materials from one stockpile to another with use of the excavator or by use of a rotary spinning ALLU type bucket/screen attached to an excavator. The stockpiles will be sealed with heavy duty geotextile liner as necessary to maintain heat and stop rainfall infiltration.
- 6.5.7 Environmental controls will be in place relating to the Mobile Plant License and Site Environmental Management Plan with regular monitoring for noise, odour, vapours, water leakage, etc. The Environmental Manager will be responsible for monitoring and collating the data together with risk assessments and action plans should trigger levels be met.
- 6.5.8 Samples would be taken for testing at regular intervals. After compliance with the Remedial Validation Criteria the 'clean validated soils' will be used for backfilling. Validation testing will be undertaken at a rate to be detailed in the Remediation Strategy.
- 6.5.9 All leachate and water collected in the bunded areas will be transferred to a Siltbuster groundwater treatment plant for treatment.

6.6 Asbestos sheets from demolition and contaminated soils

- 6.6.1 An asbestos survey of buildings to be demolished will be undertaken together with an audit by a suitably qualified specialist to identify potential sources of asbestos from the ground investigation results. Once these potential sources have been exposed further samples will be taken and sent for analysis.
- 6.6.2 Asbestos located within buildings to be demolished will be removed by a suitably licensed asbestos removal company prior to demolition of the buildings.

- 6.6.3 Areas of asbestos outside permitted limits located within soils to be excavated will be securely fenced with warning signs erected and kept damped down at all times during remediation. All asbestos will be disposed of as hazardous waste.
- 6.6.4 Any soils within the stockpile adjacent to the building to be demolished which are found to contain asbestos outside permitted limits (see section 6.8) will be screened by a specialist Licensed (under the duties of the Asbestos Regulation 2006 and the HSE's Permission Regime) contractor who will provide suitable enclosures and set up clean and dirty areas.
- 6.6.5 If additional in fill material is required, screened materials from the stockpile adjacent to the building to be demolished containing acceptable traces of asbestos, will be suitable for reuse on site but only in predetermined locations and with certain control measures, such as rabbit-proof membranes, in place.

6.7 Materials table

6.7.1 Table (6.1) represents the approximate quantities of materials to be managed, their in-situ location and the locations to which they are to be incorporated within the proposed works.

Material Type	Quantity	In-situ Location	Final Location
Topsoil	0 m ³		
General Excavated Materials	25000 m ³	Laydown areas Access road at Eastern gateway	Along highway footprint in embankments and verges (adjacent to eastern access area)
Existing concrete slabs and walls	350 m ³	Boundary walls adjacent to buildings to be demolished	Fill under laydown areas
Bituminous Materials	0 m ³		
Hydrocarbon and Heavy Metal Contaminated Soils	0 m ³		
Metals	100 tonnes	Old steel frame buildings	Recycled to a scrap merchant
Asbestos wall and roof sheets	20 tonnes	Old steel frame buildings (x 2)	Suitably licensed disposal facility
Asbestos in soils	0.5 tonnes	Stockpile adjacent to buildings to be demolished	Suitably licensed disposal facility

Table 6.1 Indicative Material Quantities

6.8 Soils testing and end use

6.8.1 All material from general excavations will be tested for suitability and managed in accordance with the following plans prior to incorporation in the works:

- a) Contamination and Groundwater Remediation Scheme (DCO Requirement 12);
- b) Site Waste Management Plan (DCO Requirement 20); and

- c) Terrestrial Invasive Species Construction Management Strategy (DCO Requirement 31).

6.8.2 Material movements on the site will be recorded by:

- a) Daily logs of soil movements (excavation records) which will include details of type of soil, depth of excavation, location of deposition areas and material stockpiling on the site. The daily logs will be summarised into a summary of weekly material movements;
- b) Logs and location plans will also be maintained of all testing undertaken including in-situ testing and testing during remediation processes;
- c) Plans showing the location of materials sources and where they are placed will be surveyed and drawings produced; and
- d) All information will be included in the Validation Report.

7 Earthworks Validation report

7.1 Report

- 7.1.1 It is not expected that hydrocarbon contaminated soils will be encountered in the areas confined to the Works 7a activities.
- 7.1.2 Should hydrocarbon contaminated soils be discovered they will be encapsulated in fully lined impermeable cells for remediation at a later date after which a Validation Report will be completed as detailed below.
- 7.1.3 An Earthworks Validation report will be submitted following completion of any later remediation works in accordance with this plan and the Contamination Scheme and prior to occupation of the development site to demonstrate that the previously identified risks have been reduced to meet criteria and objectives.
- 7.1.4 The Earthworks Validation report will be prepared by HBR Limited's Waste Management Industry Training and Advisory Board (WAMITAB) qualified personnel in accordance with 'Model Procedures for the Management of Land Contamination, Contaminated Land Report 11' (Environment Agency 2004).

7.2 Background Information

- 7.2.1 Report objectives and statement of what constitutes completion of any remediation
Site details:
 - a. Name and address of site
 - b. Location, including National Grid Reference
 - c. Site plan and size
 - d. Brief history of the site and a summary of previous investigations (e.g. desk study and site investigation)
- 7.2.2 Reasons and objectives for undertaking the remediation (e.g. development control, part IIA etc.)
- 7.2.3 Details of the development project itself and of related personnel and their roles (e.g. Company names of owner, tenant, contractors, developer, consultants etc.).

7.3 Remediation

7.3.1 Should hydrocarbon contaminated soils be discovered they will be encapsulated in fully lined impermeable cells for later remediation, following the below methodology and programme of implementation:

- a. Conceptual model identifying pollutant linkages to be addressed during remediation
- b. General description of remediation
- c. Clear description of the verification plan including the methodologies used for data collection and interpretation
- d. Health and safety issues
- e. Regulatory licences/permits
- f. Site preparation and services
- g. Way-leaves
- h. Sequence of remediation activities

7.4 Verification

7.4.1 Validation of any remedial works undertaken will follow a chemical and physical testing regime during the remediation to demonstrate attainment of remediation objectives

- a. Physical testing and measurement during the remediation to demonstrate attainment of engineering objectives on backfilled and/or reused material
- b. Chemical testing to demonstrate the suitability of imported material (e.g. cover systems)
- c. Membrane performance testing

7.5 Third party contacts

7.5.1 Consultees

- a. Names, addresses, telephone numbers of utilities, local authority (Environmental Health Office, Planning), Environment Agency, Health and Safety Executive etc.

7.5.2 Statutory requirements

- a. Planning conditions requiring discharge.

7.5.3 Third party agreements

- a. Details of any covenants, way-leaves, warranties etc

7.6 Supporting information

- 7.6.1 Supporting information to be provided upon completion of the whole of the works:

Site plans, as-built drawings and photographs

- a. Location
- b. Areas remediated
- c. Areas of residual contamination
- d. Sampling or monitoring locations
- e. Depths of cover system
- f. Earthworks records (Appendix A)

- 7.6.2 Test results

- a. Analytical test results for all materials that form part of the remediation scheme (e.g. imported material, validation of excavated hotspots)
- b. Waste transfer notes

- 7.6.3 Other documentation

- a. Other documentation pertinent to the remediation (e.g. key correspondence with stakeholders, progress reports etc)

7.7 Appendices

- 7.7.1 Information such as certificates of analysis, photographs, waste transfer notes (if off-site disposal is required) and as-built drawings will be included in the appendices and referenced accordingly.

8 Appendix A - Earthworks record

EARTHWORKS EXCAVATION AND FILL



Contract Name:	Cross Hands West	Sheet No.	
Contract Number:	3756	Date:	

Drawing No:	Sector/Section:	Reference No:
<u>Source of Material:</u> (see drawing attached)		
<u>Location of Fill:</u> (see drawing attached)		
<u>Checks Prior to Fill:</u>		
Setting Out:		
Inspection of Formation Prior to Fill (including the removal of soft spots):		
<u>Compaction:</u>		
Material classification:		
Layer No. & Thickness:		
Compaction/Plant Method:		
No. of Passes of Compaction:		
Compaction Has Been Completed In Accordance With Specified Requirements		
<u>Comments</u>		
FINAL CHECK		
Name: (By AGCL Supervisor)	Name: (By Client's Representative)	
Signature:	Signature:	
Date:	Date:	

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