

# REPORT

## **Canada Graving Dock Infill: Waste Acceptance Procedure**

In Support of Environmental Permit Application

Client: Mersey Docks and Harbour Company Limited

Reference: PB9683-RHD-ZZ-XX-RP-Z-0009

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## 1 Introduction

The Mersey Docks and Harbour Company (MDHC) wish to operate a bespoke deposit for recovery (DfR) Environmental Permit at the Canada Graving Dock 'the dock', located within the Canada Dock complex, off Regent Road, Liverpool, Merseyside, L20 1DE (herein referred to as the site). The permit will allow the infill of the dock as a recovery operation to create land that can be beneficially used for industrial purposes within the dock estate.

### 1.1 Recovery of waste

The Environment Agency provided their 'agreement in principle' that the operation is the recovery of waste in their pre-application advice letter (ref. EPR/JB3004UN/A001) dated 16 July 2020, which is included within the Environmental Setting and Site Design (ESSD) report (ref: PB9683-RHD-ZZ-XX-RP-Z-0007).

### 1.2 Objectives

The Environment Agency guidance document 'Waste acceptance procedures for waste recovery on land'<sup>1</sup> was used in the preparation of this document. The guidance sets out what must be included within the waste acceptance procedures and when waste is required to be tested.

The contents of this document are outlined as:

- What the waste acceptance procedures must cover.
- Testing waste (as waste producer).
- Waste that may not need testing.
- Testing waste (as operator of the site).

### 1.3 Purpose of waste acceptance procedures

The purpose of having robust waste acceptance procedures is to ensure:

- The waste does not cause pollution;
- The wastes that are accepted are from pre-defined sources; and
- That waste which is not covered by the permit is prevented from being accepted at the site.

The waste acceptance procedures also form part of the environmental management system.

### 1.4 Acceptable wastes

The wastes that are covered by the permit have been described (characterised) and are set out in the waste list below. The waste acceptance procedures ensure that the wastes:

- Are suitable for the recovery activity within the proposed scheme;
- Are appropriate and allowed by the environmental permit; and
- Have been considered in the environmental risk assessment in the permit.

The volume of material required to infill the dock is 104,000 m<sup>3</sup> (130,000 tonnes) of waste described as dredged sand material and processed construction and demolition hardcore meeting 6F2 specification.

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<sup>1</sup> Waste acceptance procedures for waste recovery on land <https://www.gov.uk/guidance/waste-acceptance-procedures-for-waste-recovery-on-land> October 2016

The waste materials being used are classified using WM3<sup>2</sup> guidance as non-hazardous waste, with the six-digit waste code from the following categories of waste on the List of Wastes (Table 1-1).

Table 1-1 Waste List

Code	Description
<b>01</b>	<b>WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERAL</b>
<b>01 01</b>	<b>Wastes from mineral excavation</b>
01 01 01	Wastes from mineral non-metalliferous excavation
<b>01 04</b>	<b>Wastes from physical and chemical processing of non-metalliferous minerals</b>
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 06
01 04 09	Waste sand and clays
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 01</b>	<b>concrete, bricks, tiles and ceramics</b>
17 01 01	concrete
17 01 02	bricks
17 01 03	Tiles and ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06 (not containing hazardous substances)
<b>17 05</b>	<b>Soil (including excavated soil from contaminated sites), stones and dredging spoil</b>
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 05 06	Dredging spoil other than those mentioned in 17 05 05

No other wastes are acceptable.

Wastes with the following physical attributes are excluded from the permit:

- wastes consisting solely or mainly of dusts, powders or loose fibres; and
- wastes that are in a form which is either sludge or liquid.

## 1.5 Permitted activities

The permitted activities are to include the following 'R' (recovery) codes as defined in Annex II of the Waste Framework Directive:

- R13 Storage of wastes pending any of the operations numbered R5.
- R5 Recycling or reclamation of other inorganic materials.

<sup>2</sup> Waste Classification, Guidance on the classification and assessment of waste (1<sup>st</sup> Edition v1.1) Technical Guidance WM3, May 2018



As the scheme is solely a recovery operation no 'D' (disposal) codes are required.

## 2 Waste Acceptance Procedures

### 2.1.1 Evidence that waste matches description

The description of the wastes received and proposed to be infilled into the dock must match waste provided within the waste list. Visual checks of each load will be undertaken as minimum before it is accepted on the site. Records of haulage loads in the form of waste transfer notes will be maintained and kept for the duration of the works and two years thereafter. The records will be made available for Environment Agency inspection and also collated for the permit surrender.

### 2.1.2 Storage of waste

The waste will be stored in areas where it is not likely to be contaminated by any off-site sources of contamination, as far as reasonably practical.

Any waste that appears to have been contaminated during storage will be segregated in a quarantine area and subject to further testing and assessment made against the importation criteria, set out later in this document. The suspect waste will only be used in the infill works should sufficient evidence be presented that it is suitable for use in the scheme. Should testing identify any material that is unsuitable for use, it will be removed from site for recovery or disposal, as appropriate, in accordance with the waste hierarchy.

### 2.1.3 Rejection process

MDHC will operate a strict waste acceptance and rejection process. Each load will be visually inspected. The load will be quarantined pending either further investigation and sampling or complete rejection if it is not considered possible to easily prepare the waste for re-use where any observations of contraries (such as plastic or putrescible waste), non-compliant waste, or contamination of the waste are made. Complete rejection will require removal from site for off-site for recovery or disposal, as appropriate, in accordance with the waste hierarchy.

### 2.1.4 Pre-acceptance testing

Pre-acceptance testing for chemical and geotechnical suitability will be carried out ahead of importation to site where possible to minimise delays in processing paperwork at the site entrance and reduce the potential of unauthorised waste arriving at the site.

The sediment from the Liverpool 2 waste source was analysed in August 2019 which indicates the waste classification and also indicates that it is likely to be suitable for re-use due the absence of any gross contamination.

A small number of samples (9 No. samples) were scheduled for chemical laboratory analysis at The Environmental Laboratory (Elab) which consisted of:

- Metals.
- Inorganics: Sulphate, free cyanide.
- Acid neutralisation capacity (ANC).
- pH.
- soil organic matter.
- total organic carbon.
- Speciated polycyclic aromatic hydrocarbons (PAHs).
- Total petroleum hydrocarbons including benzene, toluene, ethylbenzene and xylene (BTEX).

- Polychlorinated biphenyls (PCBs).
- Waste acceptance criteria analysis.

The ELAB data has been used to guide that suitability for use and is not part of the waste acceptance set out in this document and is not being relied upon as evidence for suitability within the scheme.

### 2.1.5 Waste hierarchy

The waste acceptance procedures set out in this document follow Defra's waste hierarchy guidance, which is summarised as:

- Prevention.
- Preparing for re-use.
- Recycling.
- Other recovery.
- Disposal.

The prevention of any 'contrary' waste being incorporated into the scheme will be undertaken by adequate management of the demolition works and waste segregation to ensure that only brick, concrete and other inert material is used in the scheme for the purpose of 'Other recovery' in accordance with the waste hierarchy.

Should any material be observed as being contaminated and therefore could exceed the hazardous waste threshold, this material will be quarantined and subject to testing to confirm suitability for use. If the material is unsuitable for recovery within the proposed scheme, it will be removed from site for recovery or disposal elsewhere in accordance with the waste hierarchy.

### 2.1.6 Record keeping

Evidence that the waste types accepted at the site in the form of haulage records and certificates of laboratory analysis will be kept in order to confirm the waste imported to site is inert and non-hazardous and will be used to support application of the permit surrender.

Daily records will also be kept by the site operator and submitted to the Technically Competent Manager (TCM) at regular intervals, records include, but are not limited to the items in Table 2-1.

Table 2-1 Daily record log

Daily Record
Date
Haulage records, number of loads
Observations of infill material, any evidence of non-compliant waste or contraries
Weather conditions: Temperature, Wind Speed, Moisture on ground surface
Personnel on site
Plant/machinery on site
Sampling undertaken and number of samples taken
Field instrument calibration undertaken



**Daily Record**

Noticeable odours or evidence of contamination

Volume of infill undertaken each day

Photographic record of site activities and infill material

Volume of water dewatered

Any material in quarantine pending sampling and analysis, if so volume of material

Record of suspended sediment from water pump

### 3 Waste acceptance criteria

#### 3.1 Waste producers' records

The original source of the waste is from two main sources, summarised below:

- 79,000 m<sup>3</sup> of capital marine dredged material from the Liverpool 2 project; and
- 25,000 m<sup>3</sup> brick and concrete demolition rubble process to 6F2 standards. The origin of this waste is from warehouses within the Liverpool dock estate that will be demolished.

The demolition process will be carried out so that any hazardous substances will have been stripped from the building prior to demolition. The remaining brick and concrete demolition rubble will be screened to ensure that the waste used to infill the dock is free from asbestos, wood, plastic, metal and only consists of inert material comprising concrete, bricks, tiles or ceramics.

There is no reason to suspect that the waste proposed to be used in the infilling works has been contaminated.

##### 3.1.1 Waste that may not need testing

The Environment Agency waste acceptance procedures for waste recovery on land guidance<sup>3</sup> indicates that some waste may not require testing for classification, if the waste:

- Is from a single source; and
- Is well characterised and described; and
- Carries no risk of contamination, i.e. if the site has not been previously developed; and
- Is listed in the table within the guidance as not requiring testing.

A review of the waste list required against the waste list within the guidance indicates the wastes listed in Table 3-1 may not require testing.

Table 3-1 Waste types which may not require testing

Code	Description
<b>01</b>	<b>Waste from exploration, mining, quarrying, and physical and chemical treatment of minerals</b>
<b>01 04</b>	<b>Waste from physical and chemical processing of non-metalliferous minerals</b>
01 04 08	Waste gravel and crushed rocks other than those containing dangerous substances
01 04 09	Waste sand and clays
<b>17</b>	<b>Construction and demolition waste (excluding excavated waste from contaminated sites)</b>
<b>17 01</b>	<b>Concrete, bricks, tiles and ceramics</b>
17 01 01	Concrete
17 01 02	bricks
17 01 03	Tiles and ceramics

<sup>3</sup> <https://www.gov.uk/guidance/waste-acceptance-procedures-for-waste-recovery-on-land#this-table>

Code	Description
17 01 07	Mixtures of concrete, bricks, tiles and ceramics
<b>17 05</b>	<b>Soil (excluding excavated soil from contaminated sites), stones and dredging spoil</b>
17 05 04	Soil and stones

Given that the demolition rubble is from a single source, will be processed to a set standard (6F2) and is considered to be inert, it is not proposed to test this particular waste. The dredged sediment will be subject to testing to confirm suitability for re-use within the scheme.

### 3.2 Limit values for waste

The waste will be assessed to determine whether the waste is hazardous or non-hazardous waste. Hazardous waste will not be accepted. The waste will also be assessed for chemical and geotechnical properties to ensure it is suitable for use.

### 3.3 Limit values for surface water dewatering

The threshold for suspended sediment content in the dewatered water from the dock is 300 mg/l. There will be regular testing of suspended solids to ensure the threshold of 300 mg/l is not exceeded ahead of water release to the dock system. The 300 mg/l concentration is based on the dock system being a medium turbidity transitional and coastal water from the Environment Agency H1 Annex D2 guidance and Water Framework Directive (WFD) 2015 directions.

#### 3.3.1 Waste characterisation

The waste must be assessed and described to ensure it can be recovered. The waste characterisation will be undertaken in accordance with the Environment Agency Dispose of waste to landfill guidance<sup>4</sup> and EC2003/33/EC<sup>5</sup> proposed to be used to characterise the waste and guide appropriate sampling frequency.

Chemical analysis will be undertaken from a suitably UKAS and MCERTs accredited laboratory. The sampling ratio will be undertaken in accordance with Environment Agency guidance Dispose of waste to landfill<sup>6</sup>. This guidance has been taken into consideration to ensure an acceptable number of samples are collected for waste classification and basic characterisation purposes. The guidance presents the minimum number of samples based on whether soils are considered homogenous and heterogenous material. The definitions of homogeneous and heterogenous waste in the context of this waste guidance are: *Homogenous means the waste generally contains the same or similar components. Heterogeneous means the waste generally contains a wide range of different components.* The infill material is considered to be heterogenous as it has not been formally mixed or processed. The number of samples required for characterisation has therefore been selected on a heterogenous basis.

The level 1 characterisation table within the guidance indicates twenty-two samples for 10,000 tonnes and ten per additional 10,000 tonnes of waste thereafter.

<sup>4</sup> Environment Agency Dispose of waste to landfill guidance, published 30 January 2020 <https://www.gov.uk/guidance/dispose-of-waste-to-landfill>

<sup>5</sup> Establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC

<sup>6</sup> Environment Agency Guidance Dispose of waste to landfill, published 30 January 2020 <https://www.gov.uk/guidance/dispose-of-waste-to-landfill>

### 3.3.2 Laboratory testing requirements

The dredged sediment will be subject to the following laboratory testing will be MCERTS and UKAS accredited to determine whether the waste is hazardous or non-hazardous:

- Asbestos identification on all samples and quantification (to a minimum Limit of Detection (LoD) of 0.01% w/w) where positive identification is made.
- Metals: arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc.
- pH.
- Organotins.
- Speciated polycyclic aromatic hydrocarbons (PAHs) (USEPA 16).

In addition to the above the following organic parameters are required on solid samples (not leachate):

- total petroleum hydrocarbons (TPH).
- benzene, toluene, ethylbenzene and xylenes (BTEX).
- Speciated PAHs (USEPA 16).
- Polychlorinated biphenyls (PCBs).
- Volatile and semi volatile organic compounds (VOCs and SVOCs).

### 3.3.3 Quality control – duplicate sampling

Duplicate samples will be collected as part of the quality assurance to identify any variability that could have arisen from contamination of the sample during sampling in the field, in transport or at the laboratory.

A ratio of 1 duplicate in for every 10 duplicate samples will be collected.

## 4 References

DEFRA (2010) Department for Environment, Food & Rural Affairs, Environmental Permitting Guidance: The Landfill Directive, for the Environmental permitting (England and Wales) Regulation 2010, updated March 2010, Version 3.1

DEFRA (2011) Guidance on applying the Waste Hierarchy, published June 2011, re. pb135

European Communities (2003) establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC

Environment Agency (2014) H1 Annex D2 Assessment of sanitary and other pollutants within Surface Water Discharges, v1 September 2014

Environment Agency (2016a) Guidance Waste acceptance procedures or waste recovery on land, published 18 October 2016 <https://www.gov.uk/guidance/waste-acceptance-procedures-for-waste-recovery-on-land>



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