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Terry Preece
**Neath Port Talbot Council**
The Quays
Brunel Way
Neath
SA11 2GG

Friday, 11 July 2025

Dear Terry,

**SANDFIELDS YOUNG BUSINESS CENTRE, PORT TALBOT**
**WASTE CHARACTERISATION**

Following our investigation assessment report (ESP.9222.4325, May 2025), we are pleased to provide our letter report to inform the disposal of the waste soils generated.

## 1. Background

The Earth Science Partnership Ltd (ESP), Consulting Engineers, Geologists and Environmental Scientists, were instructed by Neath Port Talbot County Burrough Council (hereafter known as the Client), to undertake an assessment of the waste characteristics of the soils tested at the site during the previous assessment (ESP, 2025), to inform suitable disposal destination options.

The soil samples are from investigation works within the site, which is in the process of being re-developed for commercial land use.

This report only assesses the contamination status of the previously sampled material in terms of waste. No other assessment has been undertaken (e.g. human health, controlled water etc.).

For all other aspects of investigation and assessment, please refer to our previous site assessment (ESP, 2025).

## 2. Sampling Works & Location

### 2.1. General

The intrusive investigation (ESP, 2025) was undertaken between the 23rd of February to the 13th of March 2025 and was designed to investigate both geo-environmental and geotechnical hazards. The relevant investigation comprised trial pitting, cable percussion boreholes and windowless sample boreholes. The investigation point positions are shown on Figure 1.

### 2.2. Samples

Samples were collected across the site for geo-environmental and geotechnical laboratory testing; however, the samples (and investigation point locations) relevant to this waste assessment are detailed in the table below.

*Table 1 – Summary of Samples for Waste Assessment & WAC Testing*

| Investigation Point | Sample Depth (m) | Soil Description |
|---|---|---|
| **WM3 Assessment Samples** | | |
| TP101 | 0.60 | Made Ground – Slag-like material |
| TP102 | 0.60 | Made Ground – Slag-like material |
| WS101 | 0.60 | Made Ground – Slag-like material |
| WS102 | 0.30 | Made Ground – Slag-like material |
| WS103 | 0.60 | Made Ground – Slag-like material |
| CP101 | 0.30 | Made Ground – Slag-like material |
| CP102 | 0.60 | Made Ground – Slag-like material |
| CP103 | 0.60 | Made Ground – Slag-like material |
| **WAC Assessment Samples** | | |
| TP102 | 0.30 | Made Ground – Slag-like material |
| CP102 | 1.00 | Made Ground – Slag-like material |
| CP103 | 0.30 | Made Ground – Slag-like material |

### 2.3. Evidence of Contamination

No obvious visual/olfactory evidence of contamination was observed; however, slag-like material was identified across the site to a maximum depth of 2.0m.

## 3. Sampling Strategy

Environmental samples were collected from the excavated waste materials for geo-environmental laboratory testing and generally comprised a plastic tub, an amber glass jar and an amber glass vial.

The sample containers were provided clean by the testing laboratory appropriate for the proposed testing to be scheduled. Immediately after collection the samples were placed in sealed cool boxes with ice packs where they remained during storage and transport to the laboratory.

## 4. Laboratory Testing

Geo-environmental analyses were carried out by a UKAS accredited testing laboratory with detection limits being generally compatible with the relevant guideline values adopted in the assessment.

### 4.1. Soil Testing

Laboratory testing for typical UK brownfield contaminants has been undertaken on samples of the slag-like Made Ground, which included:

- 8no. samples of Made Ground (slag-like material).

The general suite of geo-environmental laboratory testing undertaken comprised:

- Arsenic, barium, beryllium, boron, cadmium, total chromium, chromium VI, copper, lead, mercury, nickel, selenium, vanadium, zinc.
- US EPA 16 polyaromatic hydrocarbon (PAH) compounds.
- Petroleum Hydrocarbons – Total EPH (C10 – C40).
- Total monohydric phenols.
- Total cyanide, asbestos qualitative screen (presence or absence).
- Soil organic content, pH value.

The geo-environmental soil test results are presented in Appendix A.

### 4.2. WAC Testing

In order to assess the disposal options for the soils in term of landfill facilities, leachate has been analysed in accordance with the Landfill Directive (2004) – Waste Acceptance Criteria (WAC) testing. The following were tested:

- 3no. samples of Made Ground (slag-like material)

One strength of leachate generated from the soils (at 10:1) was analysed for the following determinands:

- Total organic carbon, loss on ignition, pH, acid neutralisation capacity, total dissolved solids, dissolved organic carbon.
- BTEX, PCBs (7 congeners), mineral oil ($C_{10}$-$C_{40}$), PAHs, phenol index.
- Arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium, zinc.
- Chloride, fluoride, sulphate (as $SO_4$).

The results of the WAC testing are presented in Appendix B.

## 5. Waste Characterisation

### 5.1. Invasive Species

No obvious evidence of invasive species was noted in the observed soils.

### 5.2. Asbestos

No visible ACM was obviously identified by ESP during the sampling and no asbestos was identified in the laboratory screening. The results of the asbestos screening are presented in the assessment reports in Appendix A.

Considering the site history, the presence of asbestos within the soils cannot be discounted.

### 5.3. WM3 Assessment Results

To determine the hazardous nature of waste soils, the current legislation requires that they are classified under the European Waste Catalogue 2000/532/EC (EWC), part of the Waste Framework Directive 2008/98/EC (WFD). The EWC contains 846, six-digit waste codes arranged in twenty chapters, where each chapter is based on a generic industry or process that generated the waste or upon the type of waste. The EWC is based on a hazard assessment, rather than an assessment of risk, i.e., a different approach to when evaluating the impact on human health or controlled waters.

The EWC differentiates between hazardous and non-hazardous by identifying hazardous waste entries with an asterisk. Soils containing mixed construction/demolition wastes excavated from development sites would normally be classified as one of two 'mirror' entries:

- 17-09-03*: soil and stones containing dangerous substances - hazardous waste (note the asterisk).
- 17-09-04: soils and stones other than those mentioned in 17 05 03 - non-hazardous waste.

The class into which soils fall depends on the levels of contaminants, and the likely form of the compound present. The available test data has been assessed for the soils to be removed and the output from the WM3 model is summarised below. The full reports are presented in Appendix C.

*Table 2 - Summary of the WM3 Assessment*

| Soil Type | Sample Assessed | Waste Classification | Hazard | EWC Code |
|---|---|---|---|---|
| Made Ground – Slag-like materials | TP101 (0.6m) | Non-hazardous | - | 17-09-04 |
| | TP102 (0.3m) | Hazardous Waste | Toxic for carcinogenic and mutagenic due to level of TPH. | 17-09-03* |
| | TP102 (0.6m) | Hazardous Waste | Toxic for carcinogenic and mutagenic due to level of TPH. | 17-09-03* |
| | WS101(0.6m) | Hazardous Waste | Toxic for carcinogenic and mutagenic due to level of TPH. | 17-09-03* |
| | WS102 (0.3m) | Non-hazardous | - | 17-09-04 |
| | WS103 (0.6m) | Non-hazardous | - | 17-09-04 |
| | CP102 (0.6m) | Hazardous Waste | Toxic for carcinogenic and mutagenic due to level of TPH. | 17-09-03* |
| | CP103 (0.6m) | Non-hazardous | - | 17-09-04 |

**Notes:**
1. WM3 assessment for slag-like Made Ground presented in Appendix C.

Samples of the slag-like Made Ground materials are classified as hazardous in four of the eight samples tested (50%) due to elevated levels of TPH.

## 5.4. WAC Results

WAC testing will be requested by disposal destinations to confirm that the waste can be accepted in accordance with their specific permitting/licencing. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous (see Section 5.3).

*Table 3 - Summary of WAC Results*

| Soil Type | Investigation Points (Samples Tested) | Class of Landfill Suitable for Waste Based on WAC Limits | WAC Limit Value Exceedance for LS10 Leachate |
|---|---|---|---|
| Made Ground – Slag-like materials | TP102 (0.3m) | Stable Non-Reactive Hazardous Waste | TOC > 3% - Inert (5.8%)<br>Mineral Oil >C10-C40 >500mg/kg – Inert (1,100mg/kg) |
| | CP102 (1.0m) | Inert | None |
| | CP103 (0.3m) | Inert | None |

**Notes:**
1. WAC results for slag-like Made Ground materials presented in Appendix B.

The WAC results suggest one out of three of the Made Ground samples (TP102, 0.3m) exceeds the limit values of an inert landfill due to total organic carbon and mineral oil levels, which puts it in the category for stable non-reactive hazardous waste disposal.

The remaining two samples would be in the category for inert landfill.

## 6. Concrete Boulders

Any waste concrete boulders would be classified as 'non-hazardous' with the waste code '17-01-01'. The concrete cobbles/boulders should be separated from fines and managed independently.

## 7. Recommendations

We consider the relatively limited sampling undertaken to date has been sufficient to initially characterise the slag-like Made Ground to be disposed of.

As 50% of the samples have been classified as hazardous in terms of WM3 assessment and 33% of the samples indicate that they would require disposal at a stable non-reactive waste disposal facility, we would recommend that additional sampling of the soils, once excavated and stockpiled appropriately, is undertaken to further assess the waste characteristics.

An alternative option would be to sample, test and classify the material in-situ, in the known areas of the trenches. We would also recommend prior engagement with disposal sites with regards to the assessment already undertaken.

Mixing of waste streams is not permitted, therefore any excavation arisings should be managed and disposed of separate from any other materials processing. Records should be kept demonstrating this was undertaken appropriately.

Final classification of the waste and where it can be disposed of/treated will need to be determined by the chosen disposal contactor/disposal destination and the testing results and our letter report should be provided to inform this. Further testing may be warranted/required.

We trust that the above and attached is clear and provides sufficient information for your present requirements. However, should you have any queries, or require further clarification, please do not hesitate to contact us.

Yours sincerely,

**Dan Thomas**

Enc. Appendix A: Laboratory Test Results
Appendix B: WAC Test Results
Appendix C: Waste Classification Report
General Notes