BARRETT **MAHONY**
CIVIL & STRUCTURAL
CONSULTING ENGINEERS

# Outline Construction & Demolition Waste Management Plan

Project:
**Carlisle Residential Development, Kimmage Road West, Kimmage, Dublin 12**

Job No.
**21.221**

# DOCUMENT CONTROL

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## 1. INTRODUCTION & PURPOSE OF REPORT

An LRD Planning permission is being sought by '1 Terenure Land Ltd', for a proposed Large Scale residential development at Carlisle Site, Kimmage Road, Kimmage, Dublin 12.

Permission was granted, under ABP 313043 on the 22/09/2022, for an SHD on the subject site comprising 208 no. apartment units in 5 no. blocks. The current proposed LRD application provides the same layout and quantum of units as this permitted development. The proposed LRD construction and demolition waste management arrangements are the same as permitted in the SHD application.

In order to optimize the effectiveness of waste management, it is recognized that the formulation of an outline Construction & Demolition Waste Management Plan (CDWMP) should start at the earliest possible stage of a project. Formal production and presentation of the CDWMP will occur at a later stage in the development process, but a clear "waste management philosophy" needs to be adopted by the designers / developers at the initial planning stages of the project and to be documented for subsequent inclusion within the formal CDWMP.

Therefore, this outline CDWMP provides an overview of what is expected in terms of dealing with waste generated during constructions phases of the proposed project. As the subject site is currently greenfield no demolition works are required. This CDWMP is considered a live document which will be adopted, amended, and updated as necessary by the Main Contractor. The Main Contractor is ultimately responsible for management of the waste arising during the project.

The primary purpose of the CDWMP is to demonstrate how the management of waste produced on site may be carried out and how it should be in accordance with all current legislation and industry standards, in particular the Waste Management Act 1996-2021 and the associated North East Region Waste Management Act.

The key principals of this legislation as well as the related European and national waste policies relevant to proposed construction are summarized as follows:

- Prevention and minimisation of waste is the preferred option;
- Where construction waste is generated it should be source separated to facilitate recycling and reuse, and maximise diversion of waste from landfill.
- Where waste may not be prevented or recycled it should be transported and disposed of in accordance with applicable legislation and without causing environmental pollution; and
- Waste may only be transferred by a waste collection permit holder and delivered to an authorised waste facility.

This report contains:

- A list of certain legislation, policy and guidance documents relevant to sustainable waste management in construction.
- An overview of the project site and opportunities for waste minimise minimisation and re-use.
- Envisaged categories of waste and their approximate quantities that will be produced during construction.
- An outline methodology for waste management at the site.

# 2. RELEVANT LEGISLATION, POLICY AND GUIDANCE DOCUMENTS

Construction waste is defined as waste which arises from construction and renovation activities, together with all waste categories mentioned in chapter 17 of the European Waste Catalogue (EWC). Also included within the definition are surplus and damaged products and materials arising in the course of construction work or used temporarily during the course of on-site activities.

The recycling of construction waste is essential in order to reduce our dependency on finite natural resources such as geological and energy reserves. While recycling of such material has the added benefit of controlling the extent of waste disposal and reducing overall transportation costs, prevention is the most desirable approach to waste management, since the elimination of waste removes the need for subsequent handling, transportation and treatment of discarded materials.

The Waste Management Acts (WMA) 1996 to 2021 and associated regulations create a "cradle to grave" responsibility for the management of waste.

It is proposed that all waste minimisation, management and disposal measures related to the proposed development will be carried out using best practice and in conformance with the requirements of the relevant authorities. The key legislation, policies and guidance documents are listed below. The Contractor shall familiarise themselves with these documents (and all current versions of legislation in affect at a given time) to aid the preparation of the detailed waste management plan.

## 2.1 LEGISLATION

### 2.1.1 European Legislation

- Directive 2008/98/EC of the European Parliament and of the Council of 19
- November 2008 on waste and repealing certain Directives (Text with EEA relevance)

### 2.1.2 National Legislation

- Waste Management Acts, 1996 to 2008, as amended and Regulations Made under the Acts
- Waste Management (Collection Permit) Regulations, 2007, S.I. No 820 of 2008, as amended
- Waste Management (Shipments of Waste) Regulations 2007, S.I. No. 419 of 2007
- European Communities (Waste Directive) Regulations 2011, S.I. No.0126 of 2011

### 2.1.3 Regional Legislation

- Dublin City Council Waster Management (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws 2018.

## 2.2 POLICY

### 2.2.1 European Policy

- Circular Economy Package, European Commission (2018)
- Europe 2020 Strategy, European Commission (2010)
- Roadmap to a Resource Efficient Europe, European Commission (2011)
- 7th Environmental Action Programme, European Commission (2014)
- European Commission Circular Economy Strategy (2018; 2015)

### 2.2.2 National Policy

- Department of the Environment and Local Government (1998). 'Waste Management - Changing Our Ways' – A Policy Statement.
- Department of the Environment and Local Government (2002). Preventing and Recycling Waste – Delivering Change – A Policy Statement.
- Department of the Environment, Heritage and Local Government (2004). Waste Management - Taking Stock and Moving Forward.
- Department of the Environment, Heritage and Local Government (2006). National Strategy on Biodegradable Waste Management.
- Department of the Environment, Heritage and Local Government (2012). A Resource Opportunity- Waste Management Policy in Ireland.
- EPA National Waste Statistics and Bulletins
- EPA (2014) National Municipal Waste Recovery Capacity. An Assessment for the Department of the Environment, Community and Local Government
- Environmental Protection Agency (2014) National Hazardous Waste
- Management Plan, 2014-2020
- EPA (2015) Waste Classification – List of Waste and Determining if Waste is hazardous or Non-Hazardous.

### 2.2.3 Regional Policy

- The Eastern Midlands Region Waste Management Plan (2015-2021)

## 2.3 GUIDANCE DOCUMENTS

- Construction and Demolition Waste Management – A Handbook for Contractors & Site Managers, FÁS and CIF (2002)
- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – DoEHLG 2006

# 3. PROJECT OVERVIEW

## 3.1 SITE DETAILS

The site consists of approximately 1.25ha net site area and is bounded by residential dwellings to the north, east and west with Ben Dunne gym to the southwest. The site is currently greenfield. Refer Figure 3.1 for a satellite view of the site.

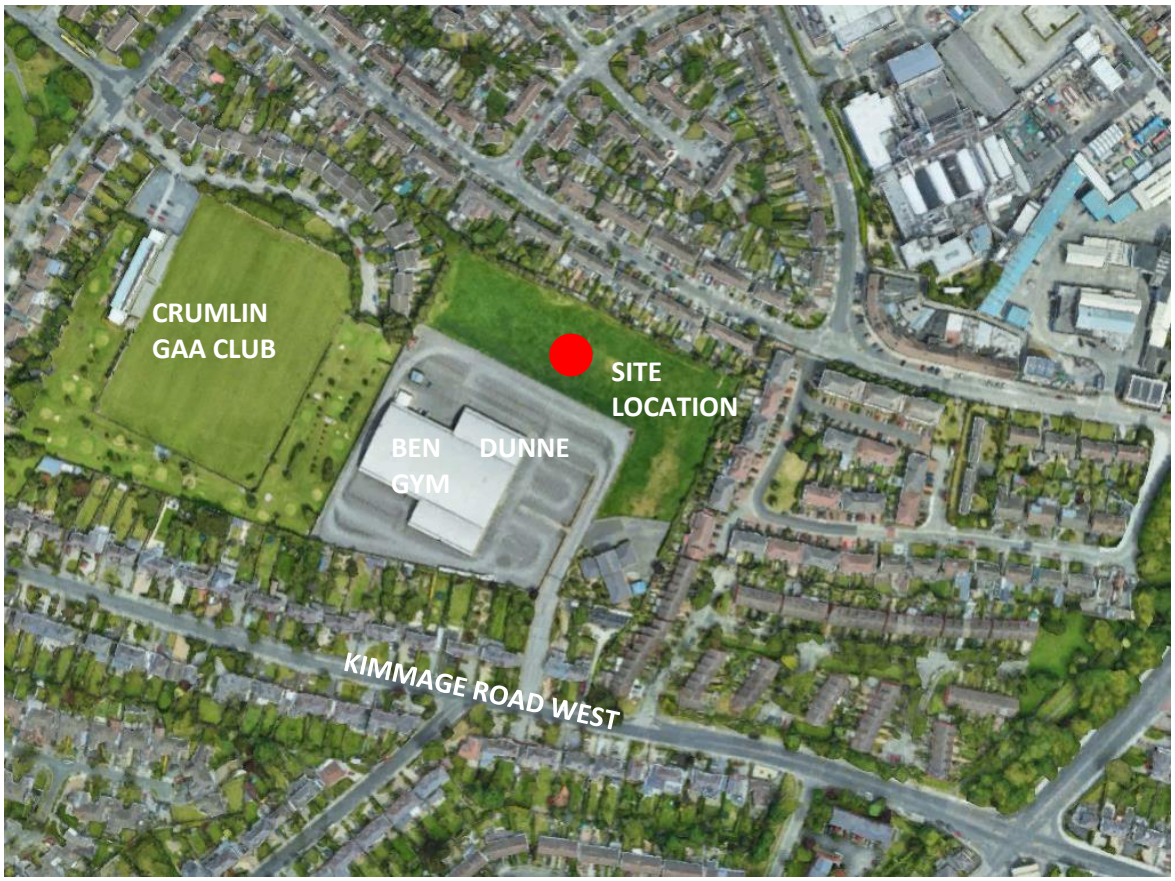


**Figure 3.1: Site Location**

## 3.2 PROPOSED DEVELOPMENT

The proposed Large Scale Residential Development will consist of the construction of 5 no. blocks of development and will range in height up to 6 storeys. This will provide 208 no. residential units (104 no. 1 beds and 104 no. 2 beds) all of which will have associated private balconies/terraces. Car, cycle, and motorbike parking will be located at under croft and surface level. Vehicular/pedestrian/cyclist access is provided off Kimmage Road West via the existing Ben Dunne Gym access route. All associated site development works, open spaces, landscaping, boundary treatments, plant areas, waste management areas, and services (including ESB substations) shall be provided. A full description is set out in the statutory notices included with this application.

100 No. car parking spaces are proposed, together with 484 No. bike parking spaces

# 4. KEY ROLES AND RESPONSIBILITIES

## 4.1 CONSTRUCTION WASTE MANAGER

A construction waste manager shall be nominated / appointed by the Main Contractor prior to commence of the works to ensure that waste prevention, minimisation, recycling and any unavoidable disposal are managed appropriately. Their main tasks should be;

- To implement all items set out above effectively and to keep accurate records of the waste generated, and the cost associated with waste generation and management.
- Document each consignment of construction waste, including;
  - type of material being transported,
  - quantity of material,
  - name and permit number of waste collection contractor (note, contractors must hold a valid permit issued by the National Waste Collection Permit Office - NWCPO).
  - destination of material and proposed use.
- Produce summary reports for the above, which also include estimates of the quantity of waste that is diverted from landfill.
- Document the extent of re-use, salvage, recycling and solid waste disposal.
- Distinguish reusable materials from materials suitable for recycling.
- Ensure maximum segregation at source.
- Cooperate with site manager on the best locations for stockpiling reusable materials.
- Separate materials for recovery.

The construction waste manager should have the authority to instruct all site personnel to comply with the Waste Management Plan.

At the operational level, sub-contractors shall have an appointed person who has the responsibility to ensure operations in the Waste Management Plan are carried out on an ongoing basis.

## 4.2 WASTE AUDITING

Regular site audits across the site shall be carried out by the construction waste manager. The audits will comprise a review of all records of waste generated and transported on or off the site. This includes:

- reviewing details of materials arriving on site
- reviewing the amount, nature and composition of waste leaving site.
- calculate the total cost of waste management.
- All areas, and stages of the project should be reviewed to ensure that obvious opportunities for waste reduction are not overlooked.
- Summary of waste arisings should be sent to the environmental authority at the completion of the project.

The audit findings should highlight corrective actions that may be taken in relation to management policies or site practices in order to bring about further waste reductions. The data can be used to assist designers in the reduction of waste on future projects.

A tracking system should be stipulated to determine the success or failure of corrective actions.

### 4.3 TRAINING

Copies of the CWMP should be made available to all personnel on site. The objectives, procedures and responsibilities of the plan should be outlined to all personnel during the site induction.

The construction waste manager shall conduct toolbox talks with all site operatives regarding the waste management arrangements and procedures on site.

Posters should be displayed on site reinforcing the key messages of the Waste Management Plan.

## 5. WASTES ARISING AND MANAGEMENT PLAN

The site is currently greenfield which significantly reduces the quantity of waste created by the project. As such waste will arise on the project mainly from waste associated with excavation for new foundations and services, and unavoidable construction waste including material surpluses, damaged materials and packaging waste.

### 5.1 CONSTRUCTION WASTE CATEGORIES:

The main non-hazardous waste streams are expected to be as set out in Table 5.1 below:

***Table 5.1 Typical Waste Types Expected to be Generated***

| European Waste Code (EWC) / List of Waste Code (LoW) | Waste Material |
|---|---|
| 17 01 | Concrete, blocks, tiles, ceramics |
| 17 02 | Wood, glass and plastic |
| 17 03 | Bituminous mixtures, coal tar and tarred products |
| 17 04 | Metals (including their alloys) |
| 17 05 | Soil and stones |
| 17 08 | Gypsum based construction material |
| 20 01 01 | Paper and cardboard |
| 17 09 | Mixed C&D waste |
| 20 02 01 | Green waste |
| 20 01 35 & 36 | Electrical and electronic components |
| 20 01 33 & 34 | Batteries and accumulators |
| 13 07 | Liquid fuels |
| 20 01 13, 19, 27-30 | Chemicals (solvents, pesticides, paints, adhesives, detergents etc.) |
| 17 06 | Insulation materials and asbestos-containing construction materials |

Notes: If fuel is stored on site for machinery and construction vehicles, then areas around fuel tanks and draw off points will be bunded. If fuel is correctly contained and bunded, then it is not expected that there will be any significant fuel wastage at the site.

## 5.2 EXCAVATION

It is calculated that there will be c.11,500m$^3$ of spoil removed from site, arising from excavations for foundations, floor slabs, roads and site services excavations. A copy of the site investigation carried out at the site is included in Appendix 1. A summary of the ground conditions encountered is as follows:

- **Topsoil:** encountered across the site with a thickness range of 100-400mm.
- **Made Ground (fill):** reworked sandy gravelly clay fill encountered across the site to a maximum depth of 2.80m in BH05. Fragments of red brick were encountered within the made ground in BH01, CBR02, TP05, TP07 and TP08.
- **Glacial Till:** sandy gravelly clay, frequently with low cobble content, typically firm or stiff in upper horizons, becoming very stiff with increasing depth
- **Bedrock (Limestone):** Weathered limestone was encountered at depths ranging from 2.00m in RC01 to 2.3m in WM01, while competent bedrock was encountered at depths ranging from 2.9m in RC01 to 12.5m in WM02. Bedrock was not recovered as part of the ground investigation

### 5.2.1 Disposal of Excavated material

All contracted hauliers and disposal facilities used to dispose of excavation waste from the site must be authorized to dispose of this waste, and all licenses/permits must be valid, and conditions adhered to.

## 5.3 CONSTRUCTION PHASE

### 5.3.1 Estimated Quantities

In terms of construction stage waste, the Outline CDWMP for the project proposes a target maximum waste generation for the new construction of <7.5m$^3$ (6.5tonnes) per 100sq.m Gross Internal Floor Area. The proposed floor area of new buildings is c.20,000m$^2$ – therefore this equates to a target maximum waste generation of c.1500m$^3$ or c.1725tonnes for the new build aspect of the project.

### 5.3.2 Construction Waste Management

Appropriate measures should be taken to ensure excess waste is not generated during construction, including;

- Ordering of materials should be on an 'as needed' basis to prevent over supply to site. Co-ordination is required with suppliers enabling them to take/buy back surplus stock.
- Purchase of materials pre-cut to length to avoid excess scrap waste generated on site.
- Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal.
- Ensuring correct sequencing of operations.
- Use reclaimed materials in the construction works.
- Materials are segregated at source before removed offsite to a licenced facility.
- Office and food waste on site should be separated.
- Site should be maintained to prevent letter / excess debris throughout the project.
- 'Just on time' delivery should be used so far is reasonably practicable.

- Hazardous materials such as chemicals and paints should be stored in a secure, bunded location.

### 5.3.3 Reuse on Site

Concrete and masonry waste should be source segregated separately and disposed of at a remote facility for reprocessing and reuse as aggregate or backfill material if suitable. Timber and scrap metal shall be collected in receptacles with mixed construction waste materials, for subsequent separation and recycling at a remote facility.

Other construction waste materials will be collected in receptacles with mixed construction waste materials, for subsequent separation and disposal at a remote facility.

Hazardous wastes will be identified, removed and kept separate from other construction waste materials in order to avoid contamination.

Contractor's office and canteen waste should be separated into paper/glass/plastic recycling, and removed to an off-site recycling facility. Under no circumstances is the burning of waste material permitted. Packaging waste will be separated into glass, paper, steel, aluminium, fibreboard, wood and plastic sheeting fractions and arrangements be made for it to be collected by a Repak approved waste contractor.

## 6. CONSTRUCTION WASTE COLLECTION AND DISPOSAL

Waste collectors and disposal facilities must have appropriate permits / licences in accordance with the Waste Management Regulations.

The Contractor will maintain a list of all authorised hauliers and receiving facilities along with copies of their permits. All waste will be documented prior to leaving the site. All information will be entered into a waste management system kept on the site.

## 7. ESTIMATED COST OF WASTE MANAGEMENT

The cost of waste management should be estimated by the appointed contractor and included for at tender stage. This may include:

- The purchase cost of waste materials.
- Handling costs.
- Storage and transportation costs.
- Disposal costs including landfill tax.

It should then be possible to estimate:

- Total waste concrete management costs.
- Total waste soil management costs.
- Total waste masonry management costs.

This will help ensure that unproductive and avoidable costs of construction waste management are eliminated and will be effective in enhancing internal cost control procedures. The estimate of the cost of waste management should be updated throughout the project at each stage at which a waste audit is carried out.

## 8. PROPOSED CONTENT FOR CONSTRUCTION STAGE DETAILED CWMP

The detailed Construction Waste Management Plan should be prepared prior to commencement of the works by the Main Contractor, and should address the following aspects of the Project:

- Analysis of the waste arisings/material surpluses;
- Specific waste management objectives for the project (including stating the maximum waste targets per GIA for new buildings)
- Methods proposed for prevention, reuse and recycling of wastes;
- Material handling procedures; and
- Proposals for education of workforce and plan dissemination programme.

The plan should contain the following information as a minimum:

- Details of the Contractor and key personnel.
- Detailed responsibilities of each person involved in waste management, including the C&D waste manager.
- Categories of waste that will be generated and their estimated quantities.
- Types and quantities of excavated materials (soils).
- Estimated quantities of soil for re-use and temporary storage requirements.
- Estimated waste volumes that will require temporary storage on site and its proposed location.
- Measures to reduce waste generation.
- Measures to prevent nuisances including noise, dust or other pollution associated with waste management procedures.
- List of authorised waste collectors / hauliers and their associated licences or permits.
- List of recycling and disposal sites, including copies of permits/licences for waste facilities;
- Procedure for the control of sub-contractors (if applicable) with regards to waste management. This must include an assessment of their policies and control capabilities and the identification and implementation of additional controls needed to fulfil the Contractor's obligations in respect of waste management.
- Procedure for segregation and proper storage of materials on site to facilitate reuse and recycling.
- Procedures for record keeping relating to the handling, transportation and disposal of waste.
- Particular procedures for the management of any hazardous or contaminated waste.
- Procedure for review / auditing of the CWMP to demonstrate successful implementation of the plan.

# Appendix 1

## Site Investigation Information (Causeway Geotech Report)

# Carlisle Residential Development – Ground Investigation

| | |
|---|---|
| Client: | Lioncor |
| Client's Representative: | Barrett Mahony Consulting Engineers |
| Report No.: | 21-0968 |
| Date: | September 2021 |
| Status: | Final for Issue |

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## APPENDICES

## Document Control Sheet

| | | | | | |
|---|---|---|---|---|---|
| **Report No.:** | | 21-0968 | | | |
| **Project Title:** | | Carlisle Residential Development | | | |
| **Client:** | | Lioncor | | | |
| **Client's Representative:** | | Barrett Mahony Consulting Engineers | | | |
| **Revision:** | A00 | **Status:** | Final for Issue | **Issue Date:** | 1st October 2021 |
| **Prepared by:** | | **Reviewed by:** | | **Approved by:** | |
|  Michelle Gaffney BSc | |  Sean Ross BSc MSc MIEI | |  Darren O'Mahony BSc MSc MIEI EurGeol PGeo | |

The works were conducted in accordance with:

British Standards Institute (2015) BS 5930:2015+A1:2020, Code of practice for site investigations.

BS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland

Laboratory testing was conducted in accordance with:

British Standards Institute BS 1377:1990 parts 2, 4, 5, 7 and 9

## METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015+A1:2020, The Code of Practice for Site Investigation.

| **Abbreviations used on exploratory hole logs** | |
|---|---|
| U | Nominal 100mm diameter undisturbed open tube sample (thick walled sampler). |
| UT | Nominal 100mm diameter undisturbed open tube sample (thin walled sampler). |
| P | Nominal 100mm diameter undisturbed piston sample. |
| B | Bulk disturbed sample. |
| LB | Large bulk disturbed sample. |
| D | Small disturbed sample. |
| C | Core sub-sample (displayed in the Field Records column on the logs). |
| L | Liner sample from dynamic sampled borehole. |
| W | Water sample. |
| ES / EW | Soil sample for environmental testing / Water sample for environmental testing. |
| SPT (s) | Standard penetration test using a split spoon sampler (small disturbed sample obtained). |
| SPT (c) | Standard penetration test using 60 degree solid cone. |
| (x,x/x,x,x,x) | Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length. |
| (Y for Z/ Y for Z) | Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given seating or test length 'Z' (mm). |
| N=X | SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm). |
| HVP / HVR | In situ hand vane test result (HVP) and vane test residual result (HVR). Results presented in kPa. |
| V<br>VR | Shear vane test (borehole). Shear strength stated in kPa.<br>V: undisturbed vane shear strength VR: remoulded vane shear strength |
| Soil consistency description | In cohesive soils, where samples are disturbed and there are no suitable laboratory tests, N values may be used to indicate consistency on borehole logs – a median relationship of Nx5=Cu is used (as set out in Stroud & Butler 1975). |
| dd-mm-yyyy | Date at the end and start of shifts, shown at the relevant borehole depth. Corresponding casing and water depths shown in the adjacent columns. |
| ▽ | Water strike: initial depth of strike. |
| ▼ | Water strike: depth water rose to. |
| Abbreviations relating to rock core – reference Clause 36.4.4 of BS 5930: 2015 | |
| TCR (%) | Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run. |
| SCR (%) | Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures. |
| RQD (%) | Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run. |
| FI | Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing. |
| NI | Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles. |
| AZCL | Assessed zone of core loss: The estimated depth range where core was not recovered. |
| DIF | Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring. |
| (xxx/xxx/xxx) | Spacing between discontinuities (minimum/average/maximum) measured in millimetres. |

# Carlisle Residential Development

## 1 AUTHORITY

On the instructions of Barrett Mahony Consulting Engineer, ("the Client's Representative"), acting on the behalf of Lioncor ("the Client"), a ground investigation was undertaken at the above location to provide geotechnical and environmental information for input to the design and construction of a proposed residential development.

This report details the work carried out both on site and in the chemical testing laboratories; it contains a description of the site and the works undertaken, the exploratory hole logs and the laboratory test results. A discussion on the recommendations for construction is also provided.

All information given in this report is based upon the ground conditions encountered during the site investigation works, and on the results of the laboratory and field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client's Representative in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

## 2 SCOPE

The extent of the investigation, as instructed by the Client's Representative, included boreholes, trial pits, soil sampling, environmental sampling, groundwater monitoring, in-situ and laboratory testing, and the preparation of a report on the findings including recommendations for construction.

## 3 DESCRIPTION OF SITE

As shown on the site location plan in Appendix A, the works were conducted on a greenfield site located in Carlisle, Kimmage Road West, Dublin 12. The site is bounded by Brookfield housing estate to the east, by Ben Dunne Gym to the south, by Park Crescent to the south and by Captain's Road to the north. The is relatively flat and is comprised entirely of grassland.

# 4 SITE OPERATIONS

## 4.1 Summary of site works

Site operations, which were conducted between the 2nd and 22nd September 2021, comprised:

- five boreholes by dynamic (windowless) sampling methods
- five boreholes by rotary drilling methods
- eleven machine dug trial pits
- an infiltration test performed at four locations; and
- plate load tests at three locations.

The exploratory holes and in-situ tests were located as instructed by the Client's Representative, as shown on the exploratory hole location plan in Appendix A.

## 4.2 Boreholes

A total of ten boreholes were put down in a minimum diameter of 150mm through soils and rock strata to their completion depths by a combination of methods, including light percussion boring using a Dando Terrier rig and rotary drilling by a Comacchio 205 tracked rotary drilling rig.

The borehole logs state the methodology and plant used for each location, as well as the appropriate depth ranges.

A summary of the boreholes, subdivided by category in accordance with the methods employed for their completion, is presented in the following sub-sections.

### 4.2.1 Dynamic sampled boreholes

Five boreholes (BH01-02) were put down to completion by light percussion boring techniques using a Dando Terrier dynamic sampling rig. The boreholes were put down initially in 150mm diameter, reducing in diameter with depth as required, down to 50mm by use of the smallest sampler.

Hand dug inspection pits were carried out between ground level and 1.20m depth to ensure boreholes were put down clear of services or subsurface obstructions. The boreholes were taken to depths ranging between 1.90m and 3.60m where they were terminated on encountering virtual refusal on obstructions.

Disturbed (bulk and small bag) samples were taken within the encountered strata. Environmental samples were taken at standard intervals, as directed by the Client's Representative.

Standard penetration tests were carried out in accordance with BS EN 22476-3:2005+A1:2011 at standard depth intervals using the split spoon sampler ($SPT_{(s)}$) or solid cone attachment ($SPT_{(c)}$). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible. The *N*-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix H.

Any water strikes encountered during boring were recorded along with any changes in their levels as the borehole proceeded. Details of the water strikes are presented on the individual borehole logs.

Appendix B presents the borehole logs.

### 4.2.2 Rotary drilled boreholes

Five boreholes (RC01-RC03 and WM01-WM02) were put to their completion by rotary drilling techniques only. The boreholes were completed using a Comacchio 205 tracked drilling rig.

Symmetrix-cased full hole rotary percussive drilling techniques were employed to advance the boreholes to scheduled depth. SPTs were carried out at standard intervals throughout the overburden in accordance with BS EN 22476-3:2005+A1:2011 at standard depth intervals using the split spoon sampler ($SPT_{(s)}$) or solid cone attachment ($SPT_{(c)}$). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible. The *N*-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix H.

Appendix B presents the borehole logs.

## 4.3 Trial Pits

Eight trial pits (TP01–TP08) were excavated using a 13t tracked excavator fitted with a 600mm wide bucket, to a maximum depth of 3.00m.

Environmental samples were taken at standard intervals in each trial pit.

Disturbed (bulk bag) samples were taken at standard depth intervals and at change of strata.

Any water strikes encountered during excavation were recorded along with any changes in their levels as the excavation proceeded. The stability of the trial pit walls was noted on completion.

Appendix C presents the trial pit logs with photographs of the pits and arising provided in Appendix D.

## 4.4 Plate load tests

Plate load tests were carried out at four locations CBR01 to CBR04 in similarly numbered trial pits. The pits were excavated using a 13t tracked excavator fitted with a 600mm wide bucket, to a maximum depth of 3.00m with tests undertaken at 0.50mbgl.

The plate load tests were conducted as incremental loading tests in accordance with Clause 4.1 of BS1377: Part 9: 1990 (British Standards Institute, 1990). A 450mm diameter bearing plate was used with five equal loadings to a maximum pressure of approximately 500kPa, followed by unloading.

Plate movements were measured using three strain gauges fitted to a remotely fixed tripod frame. Each loading increment was maintained until the plate movement had essentially stopped.

The test results are provided in Appendix E in the form of plots of the plate settlements (average of the three gauges) against pressure.

The Modulus of Subgrade Reaction, *k*, is estimated by applying a "best fit" to the settlement-pressure plots, and is reported in MPa/m. The numerical value represents the pressure, in kPa, on the bearing plate that induces 1.25mm of settlement.

An approximate CBR value was estimated using the guidance provided in the Interim Advice Note 73/06 (Revision 1, 2009) of the Design Guidance for Road Pavement Foundations (Draft HD25). The document provides methods to convert the measured k value to the equivalent for a 762mm diameter plate and the consequent relationship with CBR. This method of estimating an equivalent CBR value is relatively conservative.

## 4.5 Infiltration tests

An infiltration/soakaway test was carried out at four locations (IF01-IF04) in accordance with BRE Digest 365 - Soakaways (BRE, 2016). The pits were excavated using a 13t tracked excavator fitted with a 600mm wide bucket, to a depth of 1.50m.

Appendix F presents the results and analysis of the infiltration test.

## 4.6 Surveying

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R10 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish Transverse Mercator) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole plan presented in Appendix A shows these as-built positions.

## 4.7 Groundwater monitoring

Following completion of site works, a groundwater data logger was installed in WM01 and WM02 to monitor groundwater levels over a period of time. The loggers were set to record at fifteen-minute intervals.

The results of will be issued once the period of monitoring has ended, in electronic format.

# 5 LABORATORY WORK

Upon their receipt in the laboratory, all disturbed samples were carefully examined and accurately described, and their descriptions incorporated into the borehole logs.

## 5.1 Environmental laboratory testing of soils

Environmental testing, was conducted on selected environmental soil samples by Chemtest at its laboratory in Newmarket, Suffolk.

Rilta suite of analysis was carried out on samples for landfill disposal criteria. This included testing for a range of determinants, including:

- Metals
- Speciated total petroleum hydrocarbons (TPH)
- Speciated polycyclic aromatic hydrocarbons (PAH)
- Cyanides
- Asbestos screen
- pH; and
- Waste acceptance criteria (WAC) testing.

Results of environmental laboratory testing are presented in Appendix G.

A waste classification report was compiled analysing the results of the above testing. The report is presented in Appendix I.

# 6 GROUND CONDITIONS

## 6.1 General geology of the area

Published geological mapping indicate the superficial deposits underlying the site comprise Glacial Till. These deposits are underlain by limestones and shales of the Lucan Formation.

## 6.2 Ground types encountered during investigation of the site

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Topsoil:** encountered across the site with a thickness range of 100-400mm.
- **Made Ground (fill):** reworked sandy gravelly clay fill encountered across the site to a maximum depth of 2.80m in BH05. Fragments of red brick were encountered within the made ground in BH01, CBR02, TP05, TP07 and TP08.
- **Glacial Till:** sandy gravelly clay, frequently with low cobble content, typically firm or stiff in upper horizons, becoming very stiff with increasing depth.
- **Bedrock (Limestone):** Weathered limestone was encountered at depths ranging from 2.00m in RC01 to 2.3m in WM01, while competent bedrock was encountered at depths ranging from 2.9m in RC01 to 12.5m in WM02. Bedrock was not recovered as part of the ground investigation.

## 6.3 Groundwater

Details of the individual groundwater strikes, along with any relative changes in levels as works proceeded, are presented on the exploratory hole logs for each location.

Groundwater was encountered during percussion boring, rotary drilling and trial pit excavation at depths as shown in Table 1 below.

**Table 1 Groundwater strikes encountered during the ground investigation**

| GI Ref | Water Level (mbgl) | Comments |
|---|---|---|
| BH01 | 2.90 | Slight seepage |
| BH04 | 2.60 | |
| BH05 | 2.80 | Seepage at 2.80 |
| CBR01 | 2.00 | Slow seepage at 2.00m |
| TP01 | 2.40 | Fast seepage at 2.40m |
| TP04 | 1.95 | Slow seepage at 1.95m |
| TP06 | 2.90 | Fast seepage at 2.90m |
| WM02 | 4.00 | |

Groundwater was not noted during drilling at any of the other borehole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out any or additional groundwater strikes and the possibility of encountering groundwater during excavation works should not be ruled out.

Seasonal variation in groundwater levels should also be factored into design considerations and continued monitoring of the two installed standpipes will give an indication of the seasonal variation.

# 7 DISCUSSION

## 7.1 Proposed construction

It is proposed to construct a residential development on the site.

No further details were available to Causeway Geotech at the time of preparing this report and any designs based on the recommendations or conclusions within this report should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory holes. Causeway Geotech were commissioned to provide a geotechnical report, and it is outwith our remit to advise on structure design.

## 7.2 Recommendations for construction

### 7.2.1 Summary

Based on the presence of stiff glacial till at relatively shallow depths across the footprint of the proposed building, the implementation of traditional shallow (spread) foundations (strip/pad and trench fill) are considered suitable.

WM02 and RC03 in the east of the site encountered bedrock at deeper depths than the rest of the site (>10mbgl). Depending on the design of the proposed structure in this area shallow foundations may prove problematic, and possibly the most practicable foundation solution in this part of the site involves the transfer of loading to depth by piling.

Should piling be adopted as the preferred foundation type, it is highly recommended that further ground investigation works involving rotary drilling be carried out to prove the depth to bedrock across the eastern edge of the site.

### 7.2.2 Soil strength parameters

When estimating the shear strength of fine soils (silt/clay), reference is made to the results of Standard Penetration Tests (SPT's) carried out within the boreholes. The undrained shear strength of fine soils can be estimated using the correlation developed by Stroud & Butler:

$$C_u = f_1 \times N$$

where $f_1$ is typically in the range 4 to 6. A median $f_1$ value of 5 is adopted for this report.

For granular soils (sand/gravel), a graphical relationship between SPT "N" value and angle of shearing resistance, φ, has been developed by Peck, Hanson and Thorburn. This is published in *Foundation Design and Construction* (Tomlinson, 2001) and is referenced in this report when deriving angles of shearing resistance for the gravel soils.

### 7.2.3 Foundations and ground floor construction

Foundations should transfer loading to below any Made Ground or subsoil. The recommended foundation construction and allowable bearing pressure (ABP) at the borehole locations are presented in Table 1.

**Table 1: Construction recommendations**

| Borehole | Depth below EGL* to suitable bearing stratum | Estimated ABP (kPa) | Strata description | Foundation type | Ground floor construction | Groundwater |
|---|---|---|---|---|---|---|
| BH01 | 3.00m | 250 | Weathered bedrock | Trench fill | Suspended | Strike at 2.90m |
| BH02 | 1.20m | 250 | Stiff Glacial Till | Strip & pad | Ground bearing | Not encountered |
| BH03 | 1.20m | 170 | Stiff Glacial Till | Strip & pad | Ground bearing | Not encountered |
| BH04 | 3.00m | 250 | Stiff Glacial Till | Trench fill | Suspended | Strike at 2.60m |
| BH05 | 3.00m | 250 | Stiff Glacial Till | Trench fill | Suspended | Strike at 2.80m |
| RC01 | 1.20m | 210 | Stiff Glacial Till | Strip & pad | Ground bearing | Not encountered |
| RC02 | 2.00m | 250 | Weathered bedrock | Trench fill | Ground bearing | Not encountered |

| Borehole | Depth below EGL* to suitable bearing stratum | Estimated ABP (kPa) | Strata description | Foundation type | Ground floor construction | Groundwater |
|---|---|---|---|---|---|---|
| RC03 | >10.00m | n/a | Stiff Glacial Till | Piled | Suspended | Not encountered |
| WM01 | 1.20m | 190 | Stiff Glacial Till | Strip & pad | Ground bearing | Not encountered |
| WM02 | 12.50m | n/a | BEDROCK | Piled | Suspended | Not encountered |

*Existing Ground Level

Based on the findings of the site investigation, spread foundations (strip/pad and trench fill) are considered suitable with estimated allowable bearing pressures between 170kPa and 250kPa at depths between 1.20m and 3.00m on stiff glacial till or possible bedrock.

The base of foundation excavations should be thoroughly inspected in accordance with the Earthworks Specification; any soft or loose soils should be removed with the resultant void backfilled with ST1 concrete or engineered backfill. A consistent bearing stratum should be provided for any building unit to limit differential settlements.

Given the generally fine grained/cohesive nature of the soils throughout the proposed formation levels, excavations for foundations are likely to be relatively stable. However, any instability can be minimised by battering the side slopes at 2 vertical to 1 horizontal and by limiting the duration that the excavation is open. Groundwater control, where required, will be possible by pumping from sumps formed in the base of excavations.

RC03 and WM02 encountered bedrock at depths of >10m, which marks a big drop off from the rest of the site. It is not unusual for rockhead to vary in depth across short depths due to weathering effects or other geological features such as karst features. faults or old river channels. However, the area of Kimmage is noted for historic quarries, with one noted 450m to the west, to a depth of 11-12m and 750m to the northeast to a depth of 12m. Generally, with infilled quarries the backfilled material will consist of very soft/very loose material which would not have been engineered given the era it was excavated in, however the material encountered in RC03 and WM02 appears to consist of stiff to very stiff sandy gravelly clay, typical of glacial till. The driller also noted no anthropegenic material during drilling of the boreholes apart from the upper 1-2m, however given the nature of the drilling process, which provides no recovery, it would be hard to tell from drilling flush returns if any man-made material was present.

Given the findings of the boreholes in the east of the site, it cannot be confirmed whether the area is an old, infilled quarry, therefore it is recommended that a deep foundation method be utilised in this area to transfer any loadings to bedrock. Dependant on the design of the building and structural loads associated with same, piles may acquire sufficient shaft and base resistance with the stiff to very stiff clay encountered at shallower depths than provided in Table 1, however a specialist piling contractor should be consulted prior to commencing to design process.

Driven piles are the preferred pile type – of precast concrete or steel/ductile iron. The piles should be driven to a predetermined set – each pile will, therefore, be effectively proof tested by the installation method.

If the surrounding land use precludes the use of hard drive piles, due to environmental restrictions with respect to noise and vibration, low vibration driven piles, continuous flight auger (CFA) or continuous helical displacement (CHD) piles will be required.

Piles will end bear on limestone bedrock, however design dependant they may acquire sufficient shaft and base resistance from the stiff to very stiff clay.

Where site levels are to be raised, piles should be designed to resist additional loading that will arise due to negative skin friction along the pile length passing through Made Ground and soft soils.

The detailed design of piles should be undertaken in conjunction with specialist piling contractors. Their proposals should include the means to verify that the required load capacity has been achieved: for example, dynamic pile tests and/or static load tests.

Where pile foundation solution is adopted, floor slabs should be supported by ground beams spanning between piles caps supported by piles.

### 7.2.4 Floor slabs

Floor slabs should not bear directly onto Made Ground or soft soils. Consequently, the use of ground bearing floor slabs is considered appropriate following the removal of any surface Made Ground and soft clay layers and their replacement using well-graded well-compacted granular fill. However, a suspended floor slab should be adopted where the difference in levels of the proposed floor and the base of Made Ground/soft soils is greater than 600mm.

Therefore, given the depth to the base of Made Ground and relative low strength of upper soil layers, a suspended floor slab may be required over parts of the site. The use of intermediate lines of support stub walls would reduce the spans required for flooring units.

### 7.2.5 Excavations for services

For the installation of services ducts/trenches, it is suggested that open trenching will be the most practicable construction method. Generally speaking, the ground conditions should render the use of open trenching by backhoe excavator possible, with some trench support required should any granular stratum be encountered during excavations.

Where working in open trenches, it is thought that trench support systems, by way of a trench box (or possibly sheet piles), will be required to maintain trench stability and safe working conditions. Groundwater control at these locations should be possible by means of sump pumping.

To preclude the eventuality of differential settlements in pipes, they should be laid on a consistent stratum of appropriate allowable bearing capacity and protected with appropriate fill cover.

Where ducts and chambers must be installed in areas where localised soft spots are encountered, the use of geogrid reinforcement along the base of the excavation is recommended. This will stiffen the base of the trench and help control longitudinal differential settlement.

Backfilling of trenches may be completed by using compacted Cl 804 granular fill and reinstated as appropriate.

### 7.2.6 Rock excavatability

Rotary drilling established the depth to rockhead, as summarised below in Table 2.

**Table 2: Depth to rockhead**

| Exploratory hole location | Weathered Rock depth (mbgl) | Competent Rock Depth (mbgl) |
|---|---|---|
| RC01 | 2.00 | 2.90 |
| RC02 | 2.00 | 2.40 |
| RC03 | Not encountered | |
| WM01 | 2.30 | 3.00 |
| WM02 | 12.50 | 12.50 |

As shown above, depth to competent rockhead is typically 2.00-3.00m in the western part of the site (west of CBR03). There are no basements planned as part of the development, however, the possibility of encountering weathered bedrock/competent bedrock locally at depths shallower than indicated in Table 2 should not be ruled out.

Based on the trial pits terminating once encountering weathered bedrock was encountered using a 13t excavator, it is likely that any weathered bedrock encountered should be able to be excavated by hard digging, with competent bedrock being excavated by localised rock breaking, using a large excavator than used during the trial pits.

Where hydraulic breaking of rock is required, a plan for control of noise and vibration should be produced in advance of construction activities. This should outline the extent and type of monitoring required for the duration of site works, as well as the requirement for respite periods to punctuate breaking activities.

### 7.2.7 Access roads, car parks and hard standing

Based on a summary of the CBR tests undertaken at the site, it is envisaged that the upper strata on site would be suitable for the placement of road make up layers. Areas tested indicated CBR values ranging from 7-12% at a depth of 0.50mbgl, although it should be noted that some tests were undertaken within made ground, which is not ideal for placement of road layers, as it could lead to differential settlement.

Table 2.1 of volume 7 section2 of the Design Manual for Roads and Bridges (below), gives guidance on the average thickness of the pavement layers in relation to the CBR results. As can be seen, a CBR in excess of 7% requires a 340mm thick capping layer.

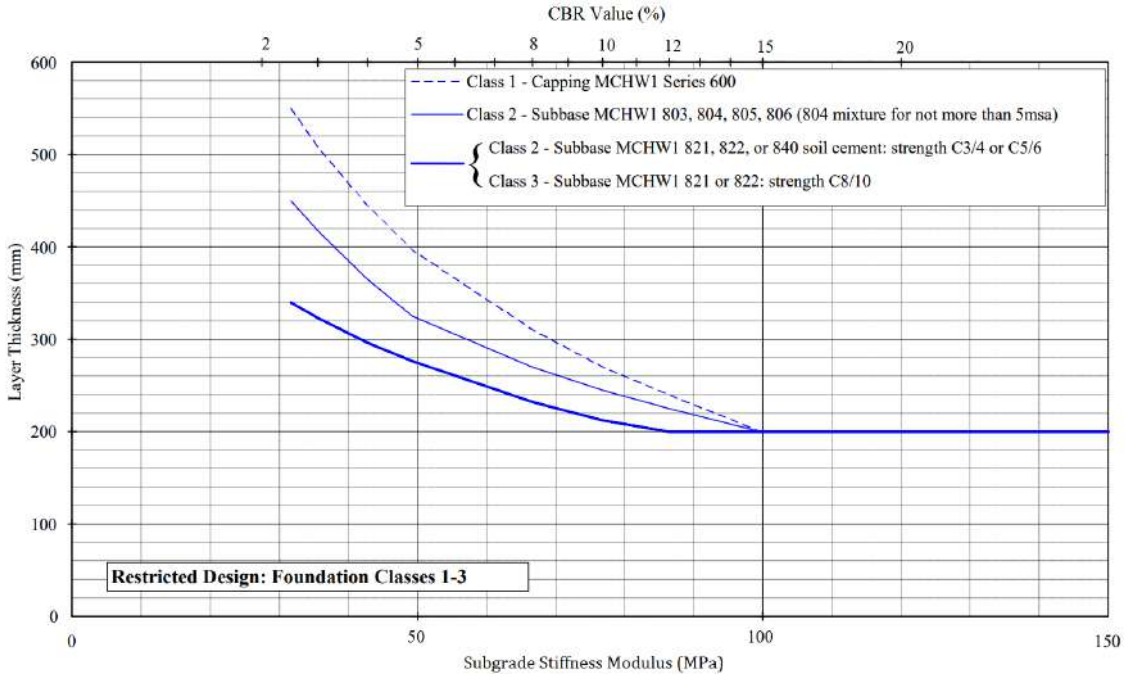



**Table 2.1 (DMRB Vol.7 Sec2) 2009**

It is recommended that further testing be undertaken during the course of construction works at intervals as set out in the Earthworks Specification, and should any areas indicate lower than expected value, the above plot should be used to determine the thicknesses of any capping or sub-base layers that may need to be placed in these areas.

The use of geosynthetics in the construction of paved areas, will be beneficial, particularly in areas of Made Ground. These could include a geosynthetic (e.g., a geogrid) at subgrade level with further benefit gained by incorporating further layer(s) within the capping/sub-base layer. Road design should be undertaken by a specialist earthworks contractor/designer.

## 7.3 Infiltration drainage

In infiltration test carried out in trial pit IF01-IF04, the absence of outflow precluded the calculation of any infiltration coefficients. The low-permeability fine-grained soils are therefore considered to be poor infiltration media, and would be deemed unsuitable for the implementation of infiltration drainage systems.

Reference should be made the Sustainable Drainage Systems (SuDS) design guidance, taking into account meteorological conditions and a hydrogeological assessment.

## 7.4 Waste classification

For consideration of material to be removed from site, a waste classification of the solid soil laboratory results was completed using HazWasteOnline™ software. A copy of the Waste Classification report is included at Appendix I. The Waste Classification report shows that the material tested can be classified as non-hazardous material considering the List of Wastes (LoW) code 17 for Construction and Demolition Wastes (including soils excavated from contaminated sites), specifically 17 05 03* and 17 05 04.

Following completion of the waste classification, and to determine a suitable disposal route for the soil, assessment of the WAC analysis of the samples was completed. The laboratory results of the WAC testing indicate that the soils from the site are suitable for disposal as Inert waste to an appropriate licenced facility.

It is noted that this waste classification assessment has been based solely on the available samples results and corresponding investigation findings. In making this assessment all due care and attention to available and relevant legislative and guidance frameworks has been taken in arriving at the conclusions.

Also, potential areas of localised contamination outside the areas of the investigation cannot be discounted. Any potential contamination identified during site development work by visual or olfactory means should be investigated, including further laboratory testing, and appropriate health & safety, waste disposal and remediation measures adopted. Additional testing of the soils to be disposed from site may also be requested by the individual landfill before acceptance at their facility.

# 8 REFERENCES

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland.

IS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. National Standards Authority of Ireland.

BS 5930: 2015+A1:2020: Code of practice for ground investigations. British Standards Institution.

BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

BS EN ISO 14688-2:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification.

BS 1377: 1990: Methods of test for soils for civil engineering purposes. British Standards Institution.

BS EN ISO 14689-1:2018: Geotechnical investigation and testing. Identification and classification of rock. Identification and description.

BS EN ISO 22476-3:2005+A1:2011: Geotechnical investigation and testing. Field testing. Standard penetration test.

Building Research Establishment (2007), BRE Digest 365: Soakaways.

Land contamination risk management (LCRM), (2020) Environment Agency.

CAUSEWAY GEOTECH

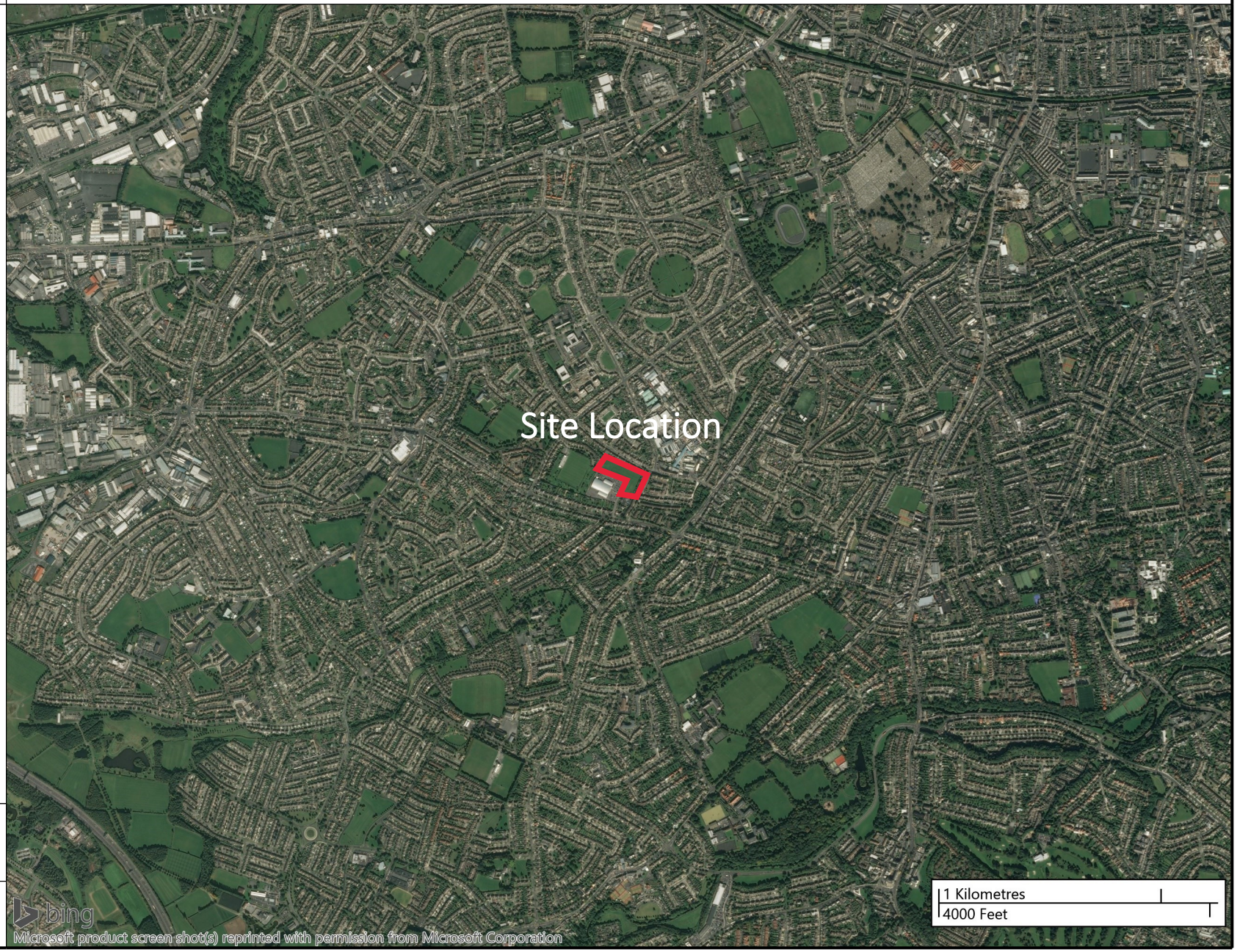
# APPENDIX A

# SITE AND EXPLORATORY HOLE LOCATION PLAN

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.:** | 21-0968 | **Client:** | |
| **Project Name:** | Carlisle Residential Development, Kimmage | **Client's Representative:** | |

Legend Key




**Title:**

Site Location Plan

| **Last Revised:** | **Scale:** |
|---|---|
| 01/10/2021 | 1:25000 |

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.:** | 21-0968 | **Client:** | |
| **Project Name:** | Carlisle Residential Development, Kimmage | **Client's Representative:** | |

Legend Key

- Locations By Type - DS
- Locations By Type - RO
- Locations By Type - TP


**Title:**
Exploratory Hole Location Plan

| **Last Revised:** | **Scale:** |
|---|---|
| 01/10/2021 | 1:1500 |

CAUSEWAY GEOTECH

# APPENDIX B

# BOREHOLE LOGS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | BH01 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Dynamic Sampling | Dando Terrier | 0.00 | 3.00 | 712983.66 E<br>730745.71 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 1 |
|---|---|---|---|
| 3.00 m | 02/09/2021 | JA | Scale: 1:50 |
| **Elevation:** 46.53 mOD | **End Date:** 02/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.20 - 1.00 | B6 | | | | 46.33 | 0.20 | | TOPSOIL | | |
| 0.50 | ES1 | | | | | | | MADE GROUND: Firm dark brown gravelly CLAY with fragments of red brick. Sand is fine to coarse. Gravel is angular fine to coarse. | | |
| 1.00 | ES2 | | | | 45.53 | 1.00 | | | | |
| 1.00 - 1.30 | B7 | | | | | | | POSSIBLE MADE GROUND: Stiff light brown slightly sandy gravelly CLAY. Sand is fine to coarse Gravel is angular fine to coarse of mixed lithologies. | | |
| 1.20 | D3 | | | | 45.23 | 1.30 | | | | |
| 1.20 - 1.65 | SPT (S) | N=27 (4,4/7,7,7,6) Hammer SN = 0267 | | | | | | POSSIBLE MADE GROUND: Stiff orange sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of mixed lithologies. | | |
| 1.30 - 2.00 | B8 | | | | | | | | | |
| 2.00 | D4 | | | | 44.53 | 2.00 | | POSSIBLE MADE GROUND: Very soft dark brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular fine to medium of limestone | | |
| 2.00 - 3.00 | B9 | | | | | | | | | |
| 2.00 - 2.45 | SPT (S) | N=2 (0,2/0,0,1,1) Hammer SN = 0267 | | | | | | | | |
| | | Slight seepage at 2.90m | | | | | | | | |
| 3.00 | D5 | | | | 43.53 | 3.00 | | End of Borehole at 3.00m | | |
| 3.00 - 3.22 | SPT (S) | N=50 (8,7/50 for 75mm) Hammer SN = 0267 | | | | | | | | |

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| 2.90 | 2.90 | | |

**Casing Details**

| To (m) | Diameter |
|---|---|
| | |

**Remarks**

Hand dug inspection pit excavated to 1.20m.

**Termination Reason**

Terminated on refusal.

**Last Updated**

04/10/2021

AGS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | BH02 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Dynamic Sampling | Dando Terrier | 0.00 | 2.00 | 713027.23 E<br>730739.23 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 1 |
|---|---|---|---|
| 2.00 m | 02/09/2021 | JA | Scale: 1:50 |
| **Elevation:** 46.17 mOD | **End Date:** 02/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.10 - 2.00 | B6 | | | | 46.07 | 0.10 | | TOPSOIL<br>Stiff mottled brownish grey and orange slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular fine to medium of limestone. Cobbles are subangular of limestone. | | |
| 0.50 | ES1 | | | | | | | | | |
| 1.00 | ES2 | | | | | | | | | |
| 1.20 | D3 | | | | | | | | | |
| 1.20 - 1.65 | SPT (S) | N=25 (5,6/5,6,6,8) Hammer SN = 0267 | | | | | | | | |
| 2.00 | D4 | | | | 44.17 | 2.00 | | End of Borehole at 2.00m | | |
| 2.00 - 2.45 | SPT (S) | N=41 (2,8/9,7,4,21) Hammer SN = 0267 | | | | | | | | |

| Water Strikes | | | | Casing Details | |
|---|---|---|---|---|---|
| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) | To (m) | Diameter |
| | | | | | |

**Remarks**

Hand dug inspection pit excavated to 1.20m.
No groundwater encountered.

| Termination Reason | Last Updated |
|---|---|
| Terminated on refusal. | 04/10/2021 |

AGS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | BH03 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates | Final Depth: | Start Date: | Driller: | Sheet 1 of 1 |
|---|---|---|---|---|---|---|---|---|
| Dynamic Sampling | Dando Terrier | 0.00 | 1.90 | 713056.80 E | 1.90 m | 02/09/2021 | JA | Scale: 1:50 |
| | | | | 730708.83 N | Elevation: 46.15 mOD | End Date: 02/09/2021 | Logger: SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TOPSOIL | | |
| 0.40 - 1.30 | B4 | | | | 45.74 | 0.40 | | | | |
| 0.50 | ES1 | | | | | | | Firm light brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular fine to medium. | | |
| 1.00 | ES2 | | | | | | | | | |
| 1.20 | D3 | | | | | | | | | |
| 1.20 - 1.65 | SPT (S) | N=17 (6,4/4,4,5,4) Hammer SN = 0267 | | | 44.84 | 1.30 | | Stiff to very stiff brownish grey slightly sandy gravelly CLAY. Sand is fine. Gravel is angular fine to medium. | | |
| 1.30 - 1.90 | B5 | | | | | | | | | |
| 1.90 - 2.05 | SPT (S) | N=50 (25 for 75mm/50 for 75mm) Hammer SN = 0267 | | | 44.24 | 1.90 | | End of Borehole at 1.90m | | |

| Water Strikes | | | | Casing Details | |
|---|---|---|---|---|---|
| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) | To (m) | Diameter |
| | | | | | |

**Remarks**

Hand dug inspection pit excavated to 1.20m.
No groundwater encountered.

| Termination Reason | Last Updated |
|---|---|
| Terminated on refusal. | 04/10/2021 |

AGS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | BH04 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Dynamic Sampling | Dando Terrier | 0.00 | 3.00 | 713094.76 E<br>730688.98 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 1 |
|---|---|---|---|
| 3.00 m | 03/09/2021 | JA | Scale: 1:50 |
| **Elevation:** 46.11 mOD | **End Date:** 03/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.30 | ES1 | | | | 45.81 | 0.30 | | TOPSOIL | | |
| 0.30 - 0.80 | B6 | | | | | | | MADE GROUND: Firm light brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subrounded fine to medium. | | |
| 0.80 - 2.00 | B7 | | | | 45.31 | 0.80 | | POSSIBLE MADE GROUND: Firm to stiff brownish grey slightly sandy gravelly CLAY with low cobble content. Sand is fine. Gravel is angular fine to coarse. | | |
| 1.00 | ES2 | | | | | | | | | |
| 1.20 | D3 | | | | | | | | | |
| 1.20 - 1.65 | SPT (S) | N=24 (3,3/5,6,7,6) Hammer SN = 0267 | | | | | | | | |
| 2.00 | D4 | | | | 44.11 | 2.00 | | POSSIBLE MADE GROUND: Very soft mottled brownish orangish grey sandy CLAY. Sand is fine to medium. Gravel is angular fine to coarse. | ▼ | |
| 2.00 - 3.00 | B8 | | | | | | | | | |
| 2.00 - 2.45 | SPT (S) | N=3 (3,1/0,1,1,1) Hammer SN = 0267<br>Water strike at 2.60m | | | | | | | | |
| 3.00 | D5 | | | | 43.11 | 3.00 | | End of Borehole at 3.00m | | |
| 3.00 - 3.38 | SPT (S) | N=50 (1,11/50 for 225mm) Hammer SN = 0267 | | | | | | | | |

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| 2.60 | 2.60 | | |

**Casing Details**

| To (m) | Diameter |
|---|---|
| | |

**Remarks**

Hand dug inspection pit excavated to 1.20m.

**Termination Reason**

Terminated on refusal.

**Last Updated**

04/10/2021

AGS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | BH05 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Dynamic Sampling | Dando Terrier | 0.00 | 3.60 | 713088.65 E<br>730649.12 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 1 |
|---|---|---|---|
| 3.60 m | 03/09/2021 | JA | Scale: 1:50 |
| **Elevation:** 46.54 mOD | **End Date:** 03/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TOPSOIL | | |
| 0.30 - 2.80 | B7 | | | | 46.24 | 0.30 | | MADE GROUND: Firm to stiff brownish grey slightly sandy CLAY with low cobble content and fragments of red brick. Sand is fine to coarse. | | |
| 0.50 | ES1 | | | | | | | | | |
| 1.00 | ES2 | | | | | | | | | |
| 1.20 | D3 | | | | | | | | | |
| 1.20 - 1.65 | SPT (S) | N=17 (2,3/4,4,5,4) Hammer SN = 0267 | | | | | | | | |
| 2.00 | D4 | | | | | | | | | |
| 2.00 - 2.45 | SPT (S) | N=18 (2,3/2,3,7,6) Hammer SN = 0267 | | | | | | | | |
| 2.80 - 3.60 | B8 | Seepage at 2.80 | | | 43.74 | 2.80 | | Very stiff orangish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse. | | |
| 3.00 | B5 | | | | | | | | | |
| 3.00 - 3.45 | SPT (S) | N=29 (2,2/4,4,8,13) Hammer SN = 0267 | | | | | | | | |
| 3.60 | D6 | | | | 42.94 | 3.60 | | End of Borehole at 3.60m | | |
| 3.60 - 3.75 | SPT (S) | N=50 (25 for 75mm/50 for 75mm) Hammer SN = 0267 | | | | | | | | |

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| 2.80 | 2.80 | | |

**Casing Details**

| To (m) | Diameter |
|---|---|
| | |

**Remarks**

Hand dug inspection pit excavated to 1.20m.

**Termination Reason**

Terminated on refusal.

**Last Updated**

04/10/2021

AGS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | RC01 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 10.00 | 712995.08 E<br>730750.57 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 2 |
|---|---|---|---|
| 10.00 m | 20/09/2021 | RS | Scale: 1:40 |
| **Elevation:** 46.52 mOD | **End Date:** 20/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 46.42 | 0.10 | | TOPSOIL<br>Firm to stiff brown sandy gravelly CLAY. (Driller's description) | | |
| 1.20 - 1.65 | SPT (S) | N=21 (4,4/5,5,6,6,5) Hammer SN = 0200 | | | | | | | | |
| | | | | | 44.52 | 2.00 | | Grey weathered LIMESTONE. (Driller's description) | | |
| | | | | | 43.62 | 2.90 | | Grey LIMESTONE. (Driller's description) | | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| | | | |

**Casing Details**

| To (m) | Diam (mm) |
|---|---|
| | |

**Water Added**

| From (m) | To (m) |
|---|---|
| | |

**Remarks**

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | RC01 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates | Final Depth: | Start Date: | Driller: | Sheet / Scale |
|---|---|---|---|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 10.00 | 712995.08 E<br>730750.57 N | 10.00 m | 20/09/2021 | RS | Sheet 2 of 2<br>Scale: 1:40 |
| | | | | | Elevation: 46.52 mOD | End Date: 20/09/2021 | Logger: SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Grey LIMESTONE. (Driller's description) | | |
| | | | | | 36.52 | 10.00 | | End of Borehole at 10.00m | | |

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| | | | |

**Casing Details**

| To (m) | Diam (mm) |
|---|---|
| | |

**Water Added**

| From (m) | To (m) |
|---|---|
| | |

**Remarks**

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | RC02 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 5.50 | 713063.89 E<br>730710.73 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 1 |
|---|---|---|---|
| 5.50 m | 20/09/2021 | RS | Scale: 1:40 |
| **Elevation:** 46.08 mOD | **End Date:** 20/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 45.98 | 0.10 | | TOPSOIL<br>Firm to stiff brown sandy gravelly CLAY. (Driller's description) | | |
| | | | | | 44.08 | 2.00 | | Grey weathered LIMESTONE. (Driller's description) | | |
| | | | | | 43.68 | 2.40 | | Grey LIMESTONE. (Driller's description) | | |
| | | | | | 40.58 | 5.50 | | End of Borehole at 5.50m | | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

| Water Strikes | | | |
|---|---|---|---|
| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
| | | | |

| Casing Details | | Water Added | |
|---|---|---|---|
| To (m) | Diam (mm) | From (m) | To (m) |
| | | | |

**Remarks**

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | RC03 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates | Final Depth: | Start Date: | Driller: | Sheet 1 of 2 |
|---|---|---|---|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 10.00 | 713090.69 E | 10.00 m | 21/09/2021 | RS | Scale: 1:40 |
| | | | | 730655.96 N | Elevation: 46.53 mOD | End Date: 21/09/2021 | Logger: SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 46.42 | 0.10 | | TOPSOIL | | |
| | | | | | | | | MADE GROUND: Firm to stiff brown sandy gravelly CLAY with high cobble content. (Driller's description) | | |
| 1.20 - 1.65 | SPT (C) | N=20 (3,4/5,5,5,5) Hammer SN = 0200 | | | | | | | | |
| 2.50 - 2.95 | SPT (S) | N=25 (4,4/6,6,7,6) Hammer SN = 0200 | | | 44.02 | 2.50 | | Stiff brown sandy slightly sandy slightly gravelly CLAY with low cobble content. (Driller's description) | | |
| 4.00 - 4.45 | SPT (C) | N=31 (5,5/7,7,8,9) Hammer SN = 0200 | | | 42.52 | 4.00 | | Very stiff brown sandy slightly sandy slightly gravelly CLAY with low cobble content. (Driller's description) | | |
| 5.50 - 5.95 | SPT (C) | N=32 (4,5/6,8,9,9) Hammer SN = 0200 | | | | | | | | |
| 7.00 - 7.45 | SPT (C) | N=42 (7,8/10,10,11,11) Hammer SN = 0200 | | | | | | | | |

| Water Strikes | | | |
|---|---|---|---|
| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
| | | | |

| Casing Details | | Water Added | |
|---|---|---|---|
| To (m) | Diam (mm) | From (m) | To (m) |
| | | | |

**Remarks**

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | RC03 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 10.00 | 713090.69 E<br>730655.96 N |

| Final Depth: | 10.00 m | Start Date: | 21/09/2021 | Driller: | RS | Sheet 2 of 2<br>Scale: 1:40 |
|---|---|---|---|---|---|---|
| Elevation: | 46.53 mOD | End Date: | 21/09/2021 | Logger: | SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| 8.50 - 8.95 | SPT (C) | N=47 (6,9/11,11,12,13) Hammer SN = 0200 | | | | | | Very stiff brown sandy slightly sandy slightly gravelly CLAY with low cobble content. (Driller's description) | | |
| 10.00 - 10.42 | SPT (C) | N=50 (8,11/50 for 265mm) Hammer SN = 0200 | | | 36.52 | 10.00 | | End of Borehole at 10.00m | | |

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

| Water Strikes | | | |
|---|---|---|---|
| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
| | | | |

| Casing Details | | Water Added | |
|---|---|---|---|
| To (m) | Diam (mm) | From (m) | To (m) |
| | | | |

**Remarks**

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | WM01 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 7.00 | 713022.87 E<br>730733.41 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 1<br>Scale: 1:40 |
|---|---|---|---|
| 7.00 m | 21/09/2021 | RS | |
| **Elevation:** 46.30 mOD | **End Date:** 21/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 46.20 | 0.10 | | TOPSOIL<br>Firm to stiff brown sandy gravelly CLAY. (Driller's description) | | |
| 1.20 - 1.65 | SPT (S) | N=19 (3,4/4,5,5,5) Hammer SN = 0200 | | | | | | | | |
| | | | | | 44.00 | 2.30 | | Grey weathered LIMESTONE. (Driller's description) | | |
| | | | | | 43.30 | 3.00 | | Grey LIMESTONE. (Driller's description) | | |
| | | | | | 39.30 | 7.00 | | End of Borehole at 7.00m | | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| | | | |

**Casing Details**

| To (m) | Diam (mm) |
|---|---|
| | |

**Water Added**

| From (m) | To (m) |
|---|---|
| | |

**Remarks**

Groundwater data logger installed.

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | WM02 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 15.50 | 713092.19 E<br>730674.78 N |

| Final Depth: | Start Date: | Driller: | Sheet 1 of 3<br>Scale: 1:40 |
|---|---|---|---|
| 15.50 m | 22/09/2021 | RS | |
| **Elevation:** 46.27 mOD | **End Date:** 22/09/2021 | **Logger:** SR | FINAL |

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description |
|---|---|---|---|---|---|---|---|---|
| | | | | | 46.17 | 0.10 | | TOPSOIL<br>MADE GROUND: Firm to stiff brown sandy gravelly CLAY. (Driller's description) |
| | | | | | 44.77 | 1.50 | | Grey BOULDER of limestone. (Driller's description) |
| | | | | | 44.57 | 1.70 | | Stiff brown sandy gravelly CLAY. (Driller's description) |
| 2.50 - 2.95 | SPT (C) | N=24 (4,5/5,6,6,7) Hammer SN = 0200 | | | | | | |
| | | | | | 43.47 | 2.80 | | Stiff to very stiff brown sandy gravelly CLAY. (Driller's description) |
| 4.00 - 4.45 | SPT (C) | N=29 (5,6/7,7,7,8) Hammer SN = 0200<br>Water strike at 4.00 | | | | | | |
| 5.50 - 5.95 | SPT (C) | N=29 (4,6/6,6,8,9) Hammer SN = 0200 | | | | | | |
| 7.00 - 7.45 | SPT (C) | N=39 (7,7/8,10,10,11) Hammer SN = 0200 | | | | | | |

Water

Backfill

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| 4.00 | 4.00 | | |

**Casing Details**

| To (m) | Diam (mm) |
|---|---|
| | |

**Water Added**

| From (m) | To (m) |
|---|---|
| | |

**Remarks**

Groundwater data logger installed.

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

AGS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | WM02 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 15.50 | 713092.19 E<br>730674.78 N |

| Final Depth: | 15.50 m | Start Date: | 22/09/2021 | Driller: | RS |
|---|---|---|---|---|---|
| Elevation: | 46.27 mOD | End Date: | 22/09/2021 | Logger: | SR |

Sheet 2 of 3
Scale: 1:40
FINAL

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| 8.50 - 8.95 | SPT (C) | N=35 (5,6/8,9,9,9) Hammer SN = 0200 | | | | | | Stiff to very stiff brown sandy gravelly CLAY. (Driller's description) | | |
| 10.00 - 10.42 | SPT (C) | N=50 (11,13/50 for 265mm) Hammer SN = 0200 | | | | | | | | |
| 11.50 - 11.88 | SPT (C) | N=50 (10,14/50 for 235mm) Hammer SN = 0200 | | | | | | | | |
| | | | | | 33.77 | 12.50 | | Grey LIMESTONE. (Driller's description) | | |

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| 4.00 | 4.00 | | |

**Casing Details**

| To (m) | Diam (mm) |
|---|---|
| | |

**Water Added**

| From (m) | To (m) |
|---|---|
| | |

**Remarks**

Groundwater data logger installed.

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

| Project No. | Project Name: | Borehole ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | WM02 |
| | Client: Lioncor | |
| | Client's Rep: Barrett Mahony Consulting Engineers | |

| Method | Plant Used | Top (m) | Base (m) | Coordinates |
|---|---|---|---|---|
| Rotary Drilling | Comacchio 205 | 0.00 | 15.50 | 713092.19 E<br>730674.78 N |

| Final Depth: | 15.50 m | Start Date: | 22/09/2021 | Driller: | RS |
|---|---|---|---|---|---|
| Elevation: | 46.27 mOD | End Date: | 22/09/2021 | Logger: | SR |

Sheet 3 of 3
Scale: 1:40
FINAL

| Depth (m) | Sample / Tests | Field Records | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Description | Water | Backfill |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Grey LIMESTONE. (Driller's description) | | |
| | | | | | 30.77 | 15.50 | | End of Borehole at 15.50m | | |

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

**Water Strikes**

| Struck at (m) | Casing to (m) | Time (min) | Rose to (m) |
|---|---|---|---|
| 4.00 | 4.00 | | |

**Casing Details**

| To (m) | Diam (mm) |
|---|---|
| | |

**Water Added**

| From (m) | To (m) |
|---|---|
| | |

**Remarks**
Groundwater data logger installed.

| Core Barrel | Flush Type | Termination Reason | Last Updated |
|---|---|---|---|
| | | Terminated at scheduled depth. | 04/10/2021 |

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CAUSEWAY GEOTECH

# APPENDIX C

# TRIAL PIT LOGS

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** TP01 |
| **Coordinates** 712971.92 E 730769.42 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.41 mOD | **Date:** 02/09/2021 | **Logger:** RS | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 46.11 | 0.30 | | TOPSOIL | |
| 0.50<br>0.50 | B3<br>ES1 | | | | | MADE GROUND: Stiff brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| 1.00<br>1.00 | B4<br>ES2 | | | | | | |
| 2.00 | B5 | | | | | | |
| | | Fast seepage at 2.40m | | | | | ▼ |
| | | | 43.91 | 2.50 | | End of trial pit at 2.50m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| 2.40 | Fast seepage at 2.40m |

**Depth:** 2.50
**Width:** 0.50
**Length:** 4.50

**Remarks:**

**Stability:** Stable

**Termination Reason:** Terminated on refusal.

**Last Updated** 04/10/2021

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CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** TP02 |
| **Coordinates** 712967.28 E 730745.32 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.76 mOD | **Date:** 02/09/2021 | **Logger:** RS | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 46.46 | 0.30 | | TOPSOIL | |
| 0.50<br>0.50 | B3<br>ES1 | | | | | MADE GROUND: Fir light brown slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of various lithologies. | |
| | | | 46.06 | 0.70 | | Firm light brown slightly sandy gravelly CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded of various lithologies. | |
| 1.00<br>1.00 | B4<br>ES2 | | | | | | |
| 2.00 | B5 | | | | | | |
| | | | 43.76 | 3.00 | | End of trial pit at 3.00m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 3.00
**Width:** 0.50
**Length:** 5.10

**Remarks:**

**Stability:** Stable

**Termination Reason:** Terminated at scheduled depth.

**Last Updated** 04/10/2021

AGS

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** TP03 |
| **Coordinates** 713023.64 E 730746.28 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.14 mOD | **Date:** 02/09/2021 | **Logger:** RS | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 45.84 | 0.30 | | TOPSOIL | |
| 0.50 | ES1 | | | | | Stiff brown slightly sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| 1.00 | B3 | | | | | | |
| 1.00 | ES2 | | | | | | |
| | | | 44.34 | 1.80 | | End of trial pit at 1.80m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 1.80
**Width:** 0.50
**Length:** 5.65

**Remarks:** No groundwater encountered.

| Stability: | Termination Reason: | Last Updated |
|---|---|---|
| Stable | Terminated on refusal. | 04/10/2021 |

AGS

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** TP04 |
| **Coordinates** 713064.76 E 730727.53 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 45.83 mOD | **Date:** 02/09/2021 | **Logger:** RS | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 45.63 | 0.20 | | TOPSOIL | |
| | | | | | | MADE GROUND: Stiff yellowish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine tom coarse of limestone. | |
| 0.50 | ES1 | | 45.23 | 0.60 | | Stiff brown slightly sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| 1.00 | B3 | | | | | | |
| 1.00 | ES2 | | | | | | |
| 2.00 | B4 | Slow seepage at 1.95m | 43.83 | 2.00 | | End of trial pit at 2.00m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

**Water Strikes**

| Struck at (m) | Remarks |
|---|---|
| 1.95 | Slow seepage at 1.95m |

**Depth:** 2.00
**Width:** 0.50
**Length:** 4.60

**Remarks:**

**Stability:** Stable

**Termination Reason:** Terminated on refusal.

**Last Updated** 04/10/2021

AGS

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** TP05 |
| **Coordinates** 713075.61 E 730681.87 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.50 mOD | **Date:** 02/09/2021 | **Logger:** RS | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 46.35 | 0.15 | | TOPSOIL | |
| 0.50<br>0.50 | B3<br>ES1 | | | | | MADE GROUND: Stiff brown slightly sandy slightly gravelly CLAY with fragments of red brick and low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| 1.00<br>1.00 | B4<br>ES2 | | | | | | |
| | | | 44.80 | 1.70 | | Grey sandy silty subangular GRAVEL of limestone. Sand is fine to coarse. (Possible weathered bedrock) | |
| | | | 44.40 | 2.10 | | End of trial pit at 2.10m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 2.10
**Width:** 0.50
**Length:** 5.10

**Remarks:**
No groundwater encountered.

| Stability: | Termination Reason: | Last Updated |
|---|---|---|
| Stable | Terminated on refusal. | 04/10/2021 |

AGS

| | | | |
|---|---|---|---|
| CAUSEWAY GEOTECH | **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | **Trial Pit ID** TP06 |
| | **Coordinates** 713102.71 E 730711.08 N | **Client:** Lioncor | |
| **Method:** Trial Pitting | | **Client's Representative:** Barrett Mahony Consulting Engineers | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 45.89 mOD | **Date:** 02/09/2021 | **Logger:** RS FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | | | | MADE GROUND: Stiff brown slightly sandy very gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| 0.50 | ES1 | | | | | | |
| 1.00 | B3 | | | | | | |
| 1.00 | ES2 | | | | | | |
| | | | 44.24 | 1.65 | | Brownish yellow very gravelly very silty fine to coarse SAND with high cobble content. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| 2.00 | B4 | | | | | | |
| | | Fast seepage at 2.90m | | | | | ▼ |
| 3.00 | B5 | | 42.88 | 3.00 | | End of trial pit at 3.00m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| 2.90 | Fast seepage at 2.90m |

**Depth:** 3.00
**Width:** 0.50
**Length:** 5.00

**Remarks:**

**Stability:** Stable

**Termination Reason:** Terminated at scheduled depth.

**Last Updated** 04/10/2021

AGS

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** TP07 |
| **Coordinates** 713106.60 E 730668.94 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.00 mOD | **Date:** 03/09/2021 | **Logger:** NP | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | | | | TOPSOIL with grass | |
| | | | 45.64 | 0.35 | | | |
| 0.50 | B3 | | | | | MADE GROUND: Stiff brown sandy slightly gravelly CLAY with low cobble content and fragments of brick. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are subangular of limestone. | |
| 0.50 | ES1 | | | | | | |
| 1.00 | ES2 | | | | | | |
| | | | 44.60 | 1.40 | | | |
| 1.50 | B4 | | | | | MADE GROUND: Stiff slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are subangular of limestone. | |
| 2.50 | B5 | | | | | | |
| | | | 43.00 | 3.00 | | End of trial pit at 3.00m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 3.00
**Width:** 0.60
**Length:** 3.20

**Remarks:**
No groundwater encountered.

| Stability: | Termination Reason: | Last Updated |
|---|---|---|
| Stable | Terminated at scheduled depth. | 04/10/2021 |

AGS

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** TP08 |
| **Coordinates** 713071.78 E 730644.93 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.65 mOD | **Date:** 03/09/2021 | **Logger:** NP | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | | | | TOPSOIL with grass | |
| | | | 46.25 | 0.40 | | | |
| 0.50 | ES1 | | | | | MADE GROUND: Stiff brown sandy slightly gravelly CLAY with low cobble content and fragments of brick. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are subangular of limestone. | |
| 1.00 | B3 | | | | | | |
| 1.00 | ES2 | | | | | | |
| | | | 45.15 | 1.50 | | | |
| 1.55 | B4 | | | | | Brown and light grey sandy subangular fine to coarse GRAVEL of limestone. (Possible rockhead) | |
| | | | 44.95 | 1.70 | | End of trial pit at 1.70m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 1.70
**Width:** 0.60
**Length:** 3.70

**Remarks:**
No groundwater encountered.

**Stability:**
Stable

**Termination Reason:**
Terminated on concrete obstruction.

**Last Updated**
04/10/2021

AGS

CAUSEWAY GEOTECH

# APPENDIX D

# TRIAL PIT PHOTOGRAPHS

**TP01**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Date
02/09/2021
Project Number
21-0968
TP01
(m)
0.1
0.2
0.3
0.4
0.5

**TP01**


CAUSEWAY
GEOTECH
Project Number
21-0968
Project Name
Carlisle Development
Date
02/09/2021
TP01

**TP01**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
TP01

**TP01**


CAUSEWAY
GEOTECH
21-0968
02/09/2021
TP01

**TP01**

**TP01**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP03
(m)
0.1
0.2
0.3
0.4
0.5

**TP02**


CAUSEWAY
Carlisle Development
21-0968
02/09/2021
TP03

**TP02**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
TP03
(m) 0.1 0.2 0.3 0.4 0.5

**TP02**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP03
(m) 0.1 0.2 0.3 0.4 0.5

**TP02**

**TP02**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
TP03
0.1
0.2
0.3
0.4
0.5

**TP02**

**TP02**


CAUSEWAY
21-0968
02/09/2021
TP03

**TP03**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
ER Number
TP03
(m) 0.1 0.2 0.3 0.4 0.5

**TP03**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Date
02/09/2021
Project Number
21-0968
EH Number
TP03
(m) 0.1 0.2 0.3 0.4 0.5

**TP03**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Date
02/09/2021
Project Number
21-0968
EH Number
TP03
(m) 0.1 0.2 0.3 0.4 0.5

**TP03**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP03
(m) 0.1 0.2 0.3 0.4 0.5

**TP03**

**TP03**


**TP03**


GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP04
(m) 0.1 0.2 0.3 0.4 0.5

**TP04**


GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP04
(m) 0.1 0.2 0.3 0.4 0.5

**TP04**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP04
(m) 0.1 0.2 0.3 0.4 0.5

**TP04**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP04
(m) 0.1 0.2 0.3 0.4 0.5

**TP04**

**TP04**

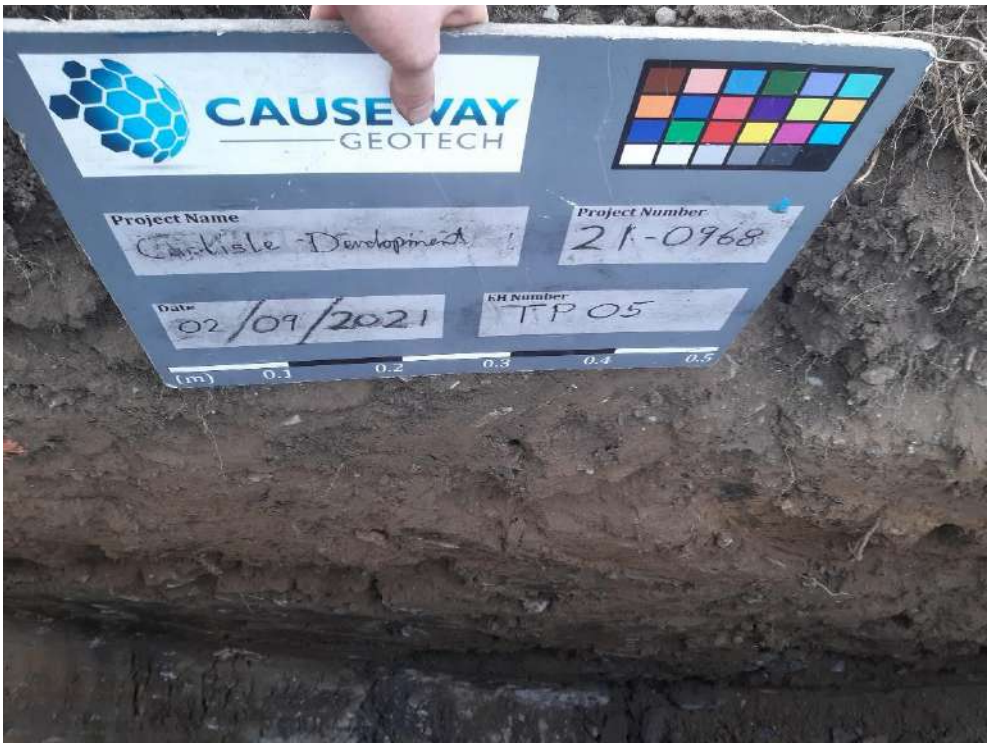

**TP04**

**TP04**

**TP05**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
BH Number
TP05
(m) 0.1 0.2 0.3 0.4 0.5

**TP05**

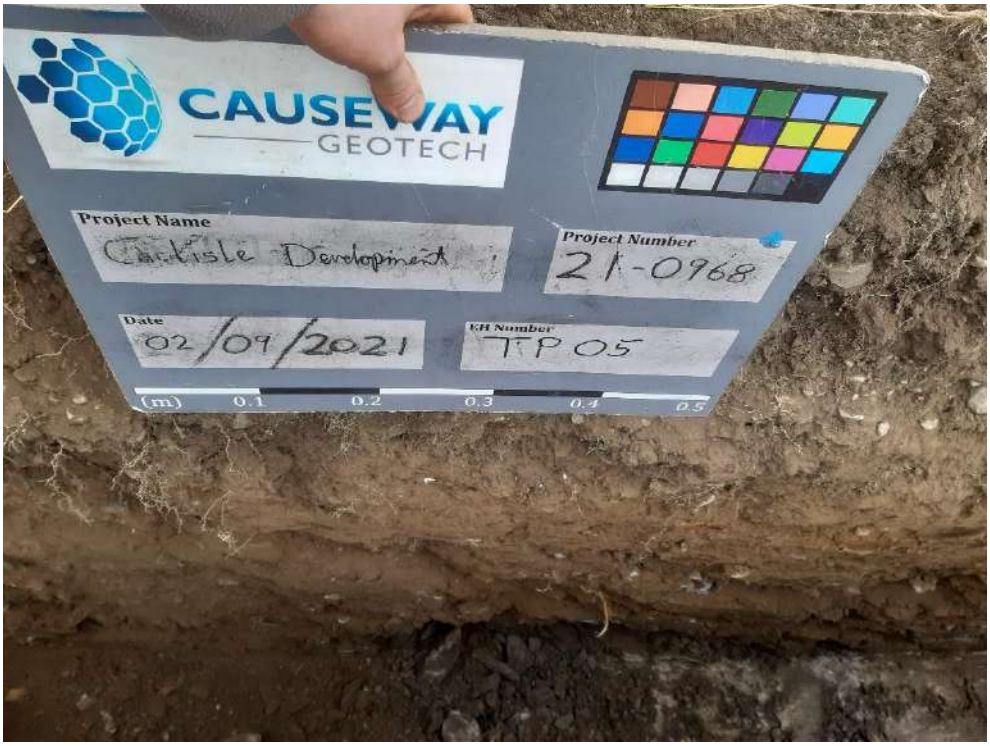

CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
BH Number
TP05
(m) 0.1 0.2 0.3 0.4 0.5

**TP05**

**TP05**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP05
(m) 0.1 0.2 0.3 0.4 0.5

**TP05**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
GH Number
TP05
(m) 0.1 0.2 0.3 0.4 0.5

**TP05**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Date
02/09/2021
Project Number
21-0968
TP Number
TP06
(m)
0.1
0.2
0.3
0.4

**TP06**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP06
(m) 0.1 0.2 0.3 0.4 0.5

**TP06**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP06
(m) 0.1 0.2 0.3 0.4 0.5

**TP06**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP06
(m) 0.1 0.2 0.3 0.4 0.5

**TP06**


CAUSEWAY
GEOTECH
Project Name
Carlisle Development
Project Number
21-0968
Date
02/09/2021
EH Number
TP06
(m) 0.1 0.2 0.3 0.4 0.5

**TP06**


**TP06**


**TP07**


**TP07**


**TP07**


**TP07**


**TP07**


**TP08**


**TP08**


**TP08**


**TP08**


**CBR01**


**CBR01**


**CBR01**


**CBR01**

**CBR01**


**CBR02**


**CBR02**


**CBR02**


**CBR02**


**CBR02**


**CBR03**


**CBR03**


**CBR03**


**CBR03**


**IF03**


**IF03**


**IF04**


**IF04**

CAUSEWAY GEOTECH

# APPENDIX E

# PLATE LOAD TEST RESULTS

CAUSEWAY GEOTECH

| Project No. | Project Name: | Trial Pit ID |
|---|---|---|
| 21-0968 | Carlisle Residential Development | CBR01 |
| **Coordinates** | **Client:** | |
| 713016.63 E | Lioncor | |
| 730755.91 N | **Client's Representative:** | Sheet 1 of 1 |
| | Barrett Mahony Consulting Engineers | Scale: 1:25 |
| **Elevation** | **Date:** / **Logger:** | |
| 46.00 mOD | 03/09/2021 / NP | FINAL |

**Method:** Trial Pitting

**Plant:** 13T Tracked Excavator

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 45.70 | 0.30 | | TOPSOIL with grass | |
| | | | | | | Stiff brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone and sandstone. Cobbles are subangular of limestone. | |
| | | | 44.40 | 1.60 | | Soft brown slightly sandy gravelly CLAY with pockets of grey fine to coarse sand. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Boulders are subrounded of limestone. | |
| | | Slow seepage at 2.00m | | | | | ▼ |
| | | | 43.55 | 2.45 | | Brown and grey clayey slightly silty sandy subangular fine to coarse GRAVEL of limestone. with low cobble content. Sand is fine to coarse. Cobbles are subangular fo limestone. | |
| | | | 43.30 | 2.70 | | Possible LIMESTONE | |
| | | | 43.20 | 2.80 | | End of trial pit at 2.80m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

**Water Strikes**

| Struck at (m) | Remarks |
|---|---|
| 2.00 | Slow seepage at 2.00m |

**Depth:** 2.80
**Width:** 0.70
**Length:** 2.90

**Remarks:**

**Stability:** Stable

**Termination Reason:** Terminated on refusal.

**Last Updated** 01/10/2021

AGS

# CBR TEST REPORT

Analysing
Testing
Consulting
Calibrating

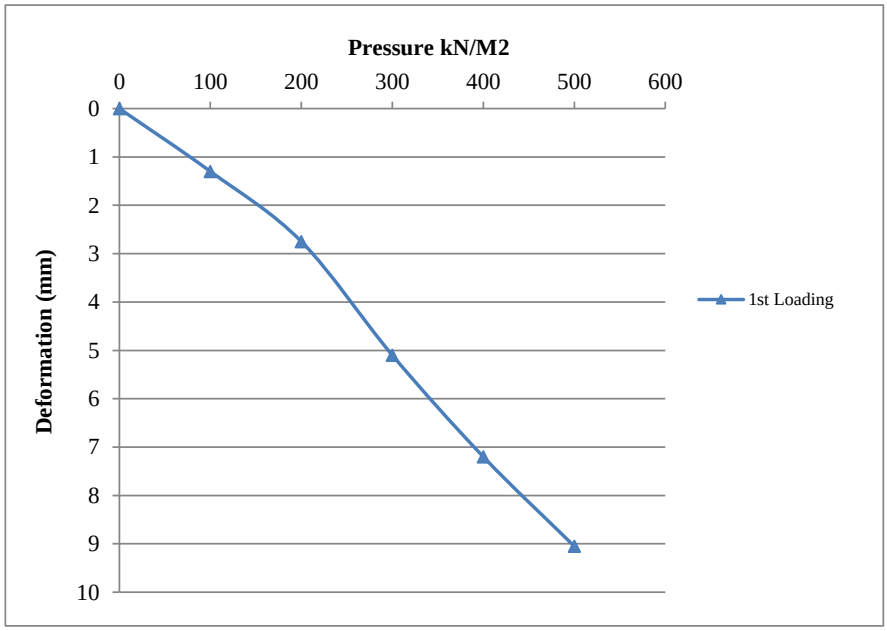
**Client:** Causeway Geotech Ltd
8 Drumahiskey Rd,
Bendooragh,
Ballymoney
BT53 7QL
Northern Ireland

**FAO:** Mr. Sean Ross

**BHP Ref. No.:** 21/09/028-1
**Order No.:** Not Supplied
**Date Tested:** 02/09/2021
**Test Specification:** Client Spec.
**Item:** Top Soil

BHP Laboratories Ltd
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax +353 61 455447
E Mail jamespurcell@bhp.ie

**Client Reference:** Carlisle, Kimmage, Dublin.
**Location Reference:** Site CBR Test Location - Test 1
**Type of Reaction Load:** 14T
**Plate Diameter:** 450mm
**BS 1377:Part 9:1990, Cl.4.1 (Plate Loading Test)**




| Bearing Pressure kN/m² | Plate Settlement (mm) |
|---|---|
| 0 | 0 |
| 100 | 1.30 |
| 200 | 2.75 |
| 300 | 5.10 |
| 400 | 7.20 |
| 500 | 9.05 |

| | |
|---|---|
| Maximum Applied Pressure ( kN/m$^2$) | 500 |
| Maximum Deformation (mm) | 9.05 |
| Estimated CBR % @ 1.25mm deformation | 8 |
| K= ( KN/m$^2$/m) @ 1.25mm deformation | 47616 |

Remarks:
*CBR calculated in in accordance with Part 2 DMRB Volume 7 : Part 2 HD 25/94.*
*Time Recorded at each interval was 2 minutes.*

Tony Hehir
Field Testing Services Manager
For and On Behalf of BHP Laboratories

Seamus O' Connell
Laboratory Technical Manager
Issue Date: 03/09/2021

Tested by BHP Laboratories, Limerick (c/o above address) Phone:(061) 455399 Fax:(061) 455447



Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation.

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** CBR02 |
| **Coordinates** 713044.32 E 730735.09 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 45.71 mOD | **Date:** 03/09/2021 | **Logger:** NP | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | | | | TOPSOIL with grass | |
| | | | 45.36 | 0.35 | | MADE GROUND: Stiff brown sandy gravelly CLAY with medium cobble content and fragments of brick. Sand is fine to coarse. Gravel s subangular fine to coarse limestone. Cobbles are subangular fo limestone. | |
| | | | 44.41 | 1.30 | | LIMESTONE | |
| | | | 44.31 | 1.40 | | End of trial pit at 1.40m | |

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 1.40
**Width:** 0.60
**Length:** 3.20

**Remarks:**
No groundwater encountered.

**Stability:**
Stable

**Termination Reason:**
Terminated on refusal.

**Last Updated**
01/10/2021

AGS

# CBR TEST REPORT

Analysing
Testing
Consulting
Calibrating

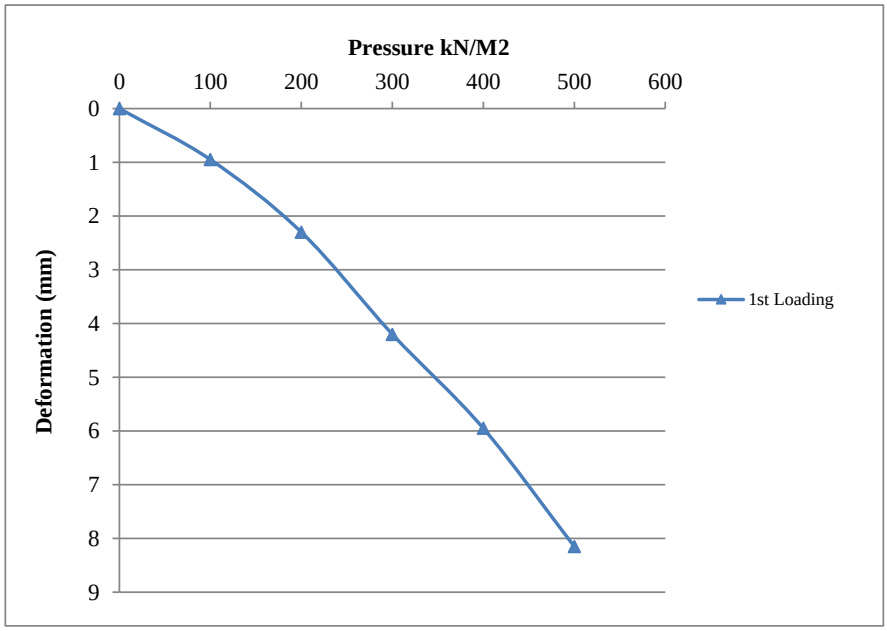
**Client:** Causeway Geotech Ltd
8 Drumahiskey Rd,
Bendooragh,
Ballymoney
BT53 7QL
Northern Ireland

**FAO:** Mr. Sean Ross

**BHP Ref. No.:** 21/09/028-2
**Order No.:** Not Supplied
**Date Tested:** 02/09/2021
**Test Specification:** Client Spec.
**Item:** Top Soil

BHP Laboratories Ltd
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax +353 61 455447
E Mail jamespurcell@bhp.ie

**Client Reference:** Carlisle, Kimmage, Dublin.
**Location Reference:** Site CBR Test Location - Test 2
**Type of Reaction Load:** 14T
**Plate Diameter:** 450mm
**BS 1377:Part 9:1990, Cl.4.1 (Plate Loading Test)**




| Bearing Pressure kN/m² | Plate Settlement (mm) |
|---|---|
| 0 | 0 |
| 100 | 0.95 |
| 200 | 2.30 |
| 300 | 4.20 |
| 400 | 5.95 |
| 500 | 8.15 |

| | |
|---|---|
| Maximum Applied Pressure ( kN/m$^2$) | 500 |
| Maximum Deformation (mm) | 8.15 |
| Estimated CBR % @ 1.25mm deformation | 12 |
| K= ( KN/m$^2$/m) @ 1.25mm deformation | 60512 |

Remarks:
*CBR calculated in in accordance with Part 2 DMRB Volume 7 : Part 2 HD 25/94.*
*Time Recorded at each interval was 2 minutes.*

Tony Hehir
Field Testing Services Manager
For and On Behalf of BHP Laboratories

Seamus O' Connell
Laboratory Technical Manager
Issue Date: 03/09/2021

Tested by BHP Laboratories, Limerick (c/o above address) Phone:(061) 455399 Fax:(061) 455447



Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation.

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** CBR03 |
| **Coordinates** 713085.55 E 730695.00 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.17 mOD | **Date:** 03/09/2021 | **Logger:** NP | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 45.82 | 0.35 | | TOPSOIL with grass | |
| | | | | | | MADE GROUND: Stiff brown mottled grey sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular of limestone. | |
| | | | 44.67 | 1.50 | | Stiff brown slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are subangular of limestone. | |
| | | | 43.97 | 2.20 | | Very stiff greyish brown slightly sandy slightly gravelly CLAY with pockets of grey fine to coarse sand. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. | |
| | | | 43.17 | 3.00 | | End of trial pit at 3.00m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 3.00
**Width:** 0.60
**Length:** 3.10

**Remarks:**
No groundwater encountered.

**Stability:**
Stable

**Termination Reason:**
Terminated at scheduled depth.

**Last Updated**
01/10/2021

AGS

# CBR TEST REPORT

Analysing
Testing
Consulting
Calibrating

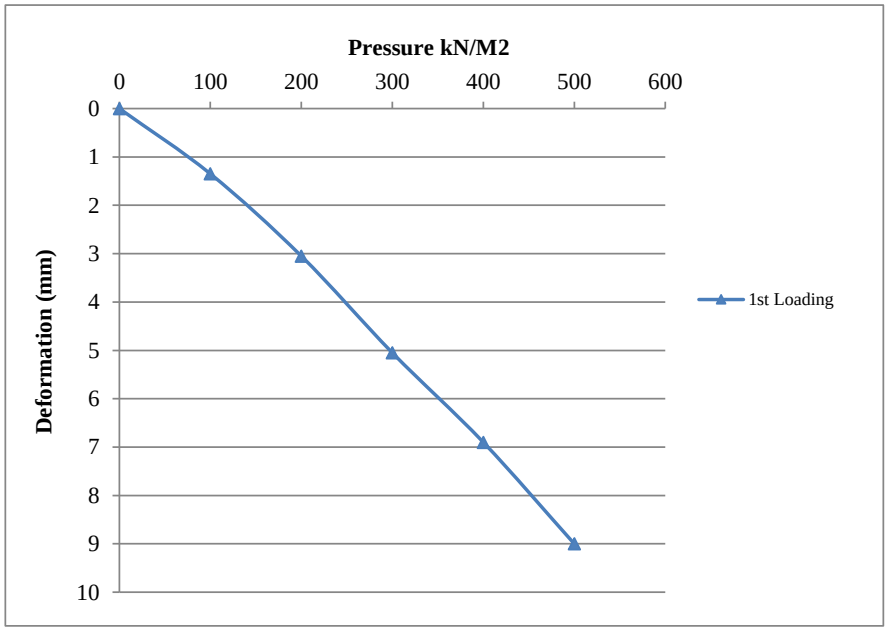
BHP Laboratories Ltd
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax +353 61 455447
E Mail jamespurcell@bhp.ie

**Client:** Causeway Geotech Ltd
8 Drumahiskey Rd,
Bendooragh,
Ballymoney
BT53 7QL
Northern Ireland

**FAO:** Mr. Sean Ross

**BHP Ref. No.:** 21/09/028-3
**Order No.:** Not Supplied
**Date Tested:** 02/09/2021
**Test Specification:** Client Spec.
**Item:** Top Soil

**Client Reference:** Carlisle, Kimmage, Dublin.
**Location Reference:** Site CBR Test Location - Test 3
**Type of Reaction Load:** 14T
**Plate Diameter:** 450mm
**BS 1377:Part 9:1990, Cl.4.1 (Plate Loading Test)**




| Bearing Pressure kN/m² | Plate Settlement (mm) |
|---|---|
| 0 | 0 |
| 100 | 1.35 |
| 200 | 3.05 |
| 300 | 5.05 |
| 400 | 6.90 |
| 500 | 9.00 |

| | |
|---|---|
| Maximum Applied Pressure ( kN/m²) | 500 |
| Maximum Deformation (mm) | 9.00 |
| Estimated CBR % @ 1.25mm deformation | 7 |
| K= ( KN/m²/m) @ 1.25mm deformation | 46128 |

Remarks:
*CBR calculated in in accordance with Part 2 DMRB Volume 7 : Part 2 HD 25/94.*
*Time Recorded at each interval was 2 minutes.*

Tony Hehir
Field Testing Services Manager
For and On Behalf of BHP Laboratories

Seamus O' Connell
Laboratory Technical Manager
Issue Date: 03/09/2021

Tested by BHP Laboratories, Limerick (c/o above address) Phone:(061) 455399 Fax:(061) 455447



Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation.

CAUSEWAY GEOTECH

# APPENDIX F

# SOAKAWAY TEST RESULTS

CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** IF01 |
| **Coordinates** 713006.66 E 730756.37 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.14 mOD | **Date:** 02/09/2021 | **Logger:** RS | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 45.84 | 0.30 | | TOPSOIL | |
| | | | | | | MADE GROUND: Stiff brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| | | | 44.94 | 1.20 | | End of trial pit at 1.20m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 1.20
**Width:** 0.50
**Length:** 2.00

**Remarks:**
No groundwater encountered.

| Stability: | Termination Reason: | Last Updated |
|---|---|---|
| Stable | Terminated on refusal. | 01/10/2021 |

AGS

# Soakaway Infiltration Test

**Project No.:** 21-0968
**Site:** Carlisle Development
**Test Location:** IF01
**Test Date:** 02 September 2021

*Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual*

| | width (m) | length (m) |
|---|---|---|
| test pit top dimensions | 0.50 | 2.00 |
| test pit base dimensions | 0.50 | 1.10 |

test pit depth (m) 1.20

depth to groundwater before adding water (m) = Dry

| time (mins) | depth to water surface (m) | depth of water in pit (m) |
|---|---|---|
| 0 | 0.40 | 0.80 |
| 1 | 0.40 | 0.80 |
| 2 | 0.40 | 0.80 |
| 4 | 0.40 | 0.80 |
| 6 | 0.45 | 0.75 |
| 8 | 0.45 | 0.75 |
| 10 | 0.45 | 0.75 |
| 15 | 0.45 | 0.75 |
| 20 | 0.47 | 0.73 |
| 25 | 0.47 | 0.73 |
| 30 | 0.48 | 0.72 |
| 45 | 0.48 | 0.72 |
| 60 | 0.48 | 0.72 |
| 90 | 0.48 | 0.72 |
| 120 | 0.50 | 0.71 |
| 195 | 0.51 | 0.69 |
| 250 | 0.53 | 0.68 |
| 325 | 0.54 | 0.66 |
| 420 | 0.55 | 0.65 |

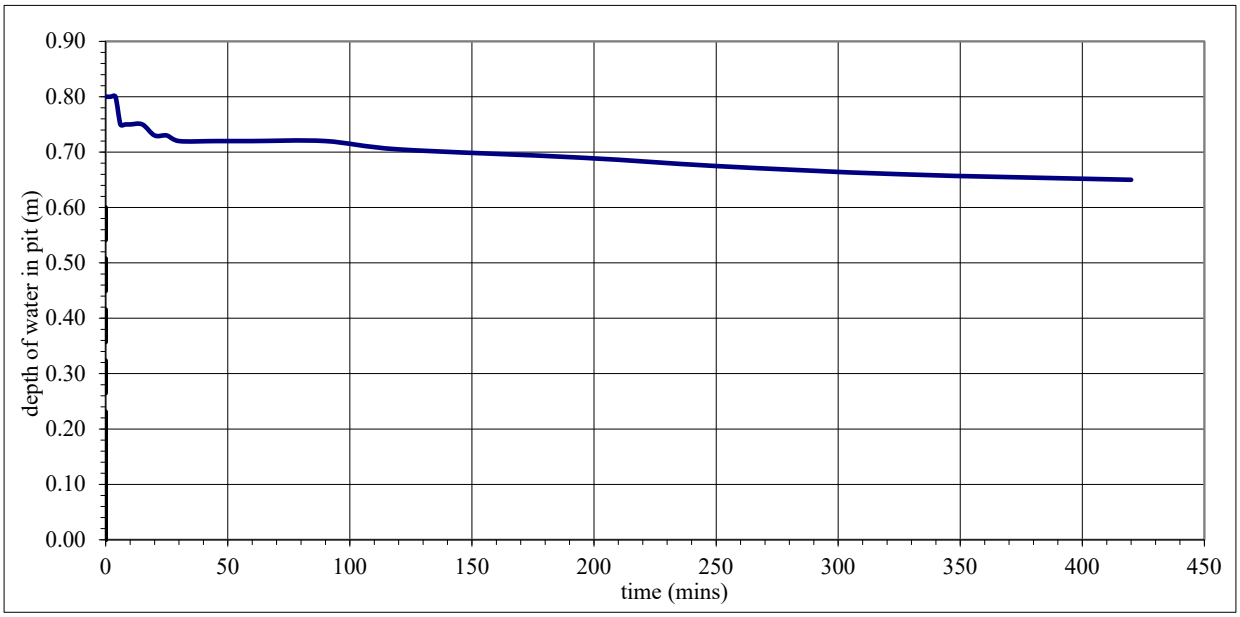
From graph below:

test start - 75% depth at
0.6 m water depth
time is not determined

test end - 25% depth at
0.2 m water depth
time is not determined

**infiltration rate (q) is very low**

| time (mins) | depth to water (m) | depth of water in pit (m) | time elapsed (mins) | volume of water lost ($m^3$) | Area of walls and base at 50% drop ($m^2$) | q (m/min) | q (m/h) |
|---|---|---|---|---|---|---|---|
| | 0.60 | 0.6 | | | | | |
| | 1.00 | 0.2 | | | | | |



CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** IF02 |
| **Coordinates** 713032.18 E 730708.41 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.68 mOD | **Date:** 02/09/2021 | **Logger:** RS | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 46.48 | 0.20 | | TOPSOIL | |
| | | | | | | MADE GROUND: Stiff brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are of limestone. | |
| | | | 45.18 | 1.50 | | End of trial pit at 1.50m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 1.50
**Width:** 0.50
**Length:** 1.90

**Remarks:** No groundwater encountered.

**Stability:** Stable

**Termination Reason:** Terminated at scheduled depth.

**Last Updated** 01/10/2021

AGS

# Soakaway Infiltration Test

**Project No.:** 21-0968
**Site:** Carlisle Development
**Test Location:** IF02
**Test Date:** 02 September 2021

*Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual*

| | width (m) | length (m) |
|---|---|---|
| test pit top dimensions | 0.50 | 1.90 |
| test pit base dimensions | 0.50 | 0.80 |

test pit depth (m) 1.50

depth to groundwater before adding water (m) = Dry

| time (mins) | depth to water surface (m) | depth of water in pit (m) |
|---|---|---|
| 0 | 0.50 | 1.00 |
| 1 | 0.53 | 0.97 |
| 2 | 0.55 | 0.96 |
| 4 | 0.57 | 0.93 |
| 6 | 0.59 | 0.92 |
| 8 | 0.60 | 0.91 |
| 10 | 0.61 | 0.89 |
| 15 | 0.64 | 0.86 |
| 20 | 0.66 | 0.84 |
| 30 | 0.70 | 0.81 |
| 45 | 0.75 | 0.75 |
| 60 | 0.80 | 0.71 |
| 90 | 0.83 | 0.68 |
| 135 | 0.87 | 0.63 |
| 175 | 0.91 | 0.60 |
| 215 | 0.94 | 0.57 |
| 285 | 0.98 | 0.53 |
| 380 | 1.02 | 0.48 |

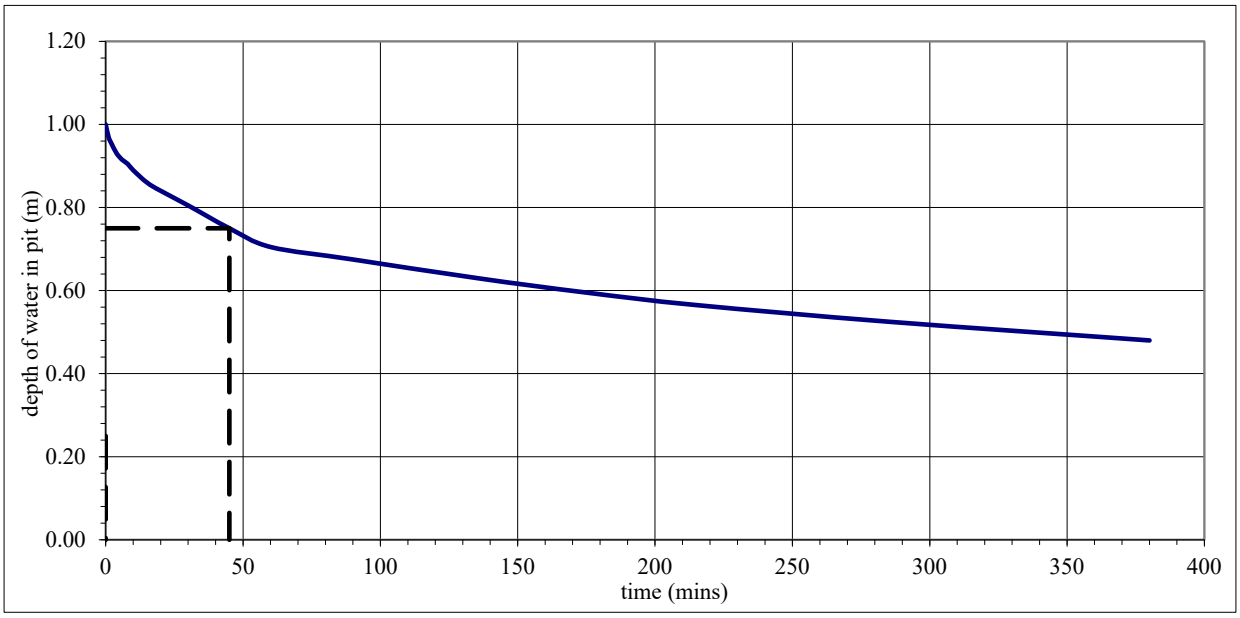
From graph below:

test start - 75% depth at
0.75 m water depth
time is 45.0 minutes

test end - 25% depth at
0.25 m water depth
time is not determined

**infiltration rate (q) is very low**

| time (mins) | depth to water (m) | depth of water in pit (m) | time elapsed (mins) | volume of water lost ($m^3$) | Area of walls and base at 50% drop ($m^2$) | q (m/min) | q (m/h) |
|---|---|---|---|---|---|---|---|
| 45 | 0.75 | 0.75 | | | | | |
| | 1.25 | 0.25 | | | | | |



CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** IF03 |
| **Coordinates** 713094.38 E 730712.23 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 45.95 mOD | **Date:** 03/09/2021 | **Logger:** NP | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 45.65 | 0.30 | | TOPSOIL with grass | |
| | | | | | | Stiff brown very sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. Cobbles are subangular of limestone. | |
| | | | 44.45 | 1.50 | | End of trial pit at 1.50m | |

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 1.50
**Width:** 0.60
**Length:** 3.00

**Remarks:** No groundwater encountered.

**Stability:** Stable

**Termination Reason:** Terminated at scheduled depth.

**Last Updated** 01/10/2021

AGS

# Soakaway Infiltration Test

**Project No.:** 21-0968
**Site:** Carlisle Development
**Test Location:** IF03
**Test Date:** 03 September 2021

*Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual*

| | width (m) | length (m) |
|---|---|---|
| test pit top dimensions | 0.60 | 3.00 |
| test pit base dimensions | 0.60 | 2.20 |

test pit depth (m) 1.50

depth to groundwater before adding water (m) = Dry

| time (mins) | depth to water surface (m) | depth of water in pit (m) |
|---|---|---|
| 0 | 0.75 | 0.75 |
| 1 | 0.77 | 0.73 |
| 2 | 0.77 | 0.73 |
| 4 | 0.78 | 0.72 |
| 6 | 0.79 | 0.71 |
| 8 | 0.79 | 0.71 |
| 10 | 0.80 | 0.70 |
| 15 | 0.82 | 0.68 |
| 20 | 0.82 | 0.68 |
| 30 | 0.83 | 0.67 |
| 40 | 0.83 | 0.67 |
| 50 | 0.84 | 0.66 |
| 60 | 0.85 | 0.65 |
| 120 | 0.89 | 0.61 |
| | | |
| | | |
| | | |
| | | |
| | | |

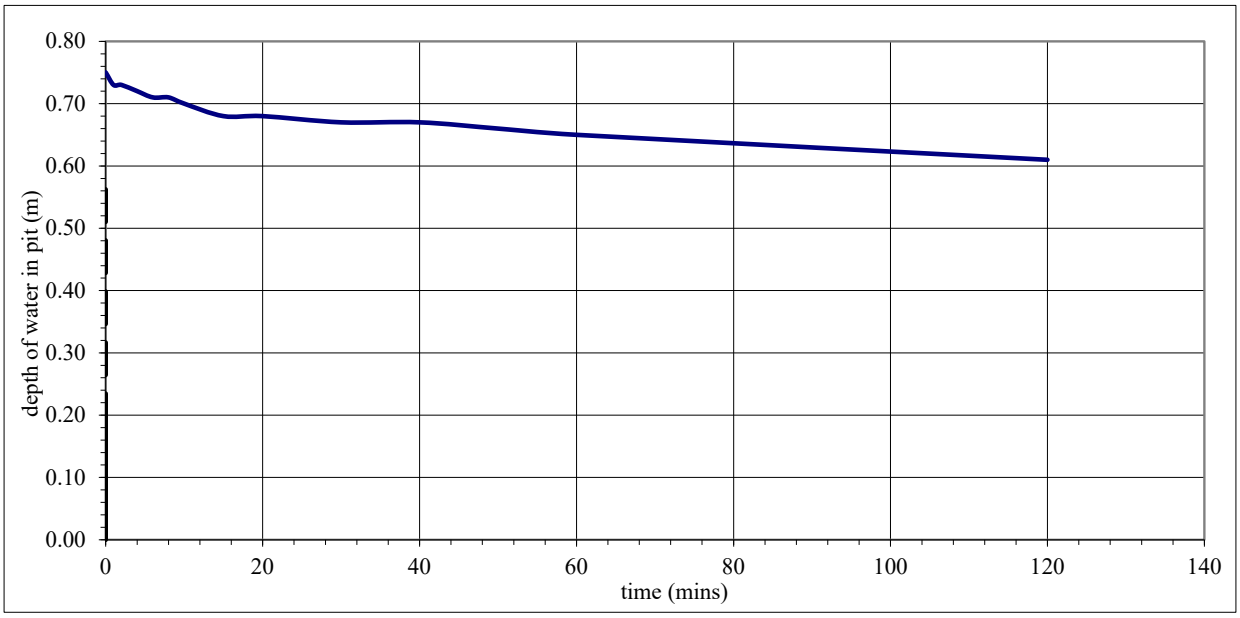
From graph below:

test start - 75% depth at
0.5625 m water depth
time is not determined

test end - 25% depth at
0.1875 m water depth
time is not determined

**infiltration rate (q) is very low**

| time (mins) | depth to water (m) | depth of water in pit (m) | time elapsed (mins) | volume of water lost ($m^3$) | Area of walls and base at 50% drop ($m^2$) | q (m/min) | q (m/h) |
|---|---|---|---|---|---|---|---|
| | 0.94 | 0.5625 | | | | | |
| | 1.31 | 0.1875 | | | | | |



CAUSEWAY GEOTECH

| | | | |
|---|---|---|---|
| **Project No.** 21-0968 | **Project Name:** Carlisle Residential Development | | **Trial Pit ID** IF04 |
| **Coordinates** 713097.52 E 730648.42 N | **Client:** Lioncor | | |
| **Method:** Trial Pitting | **Client's Representative:** Barrett Mahony Consulting Engineers | | Sheet 1 of 1 Scale: 1:25 |
| **Plant:** 13T Tracked Excavator | **Elevation** 46.42 mOD | **Date:** 03/09/2021 | **Logger:** NP | FINAL |

| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water |
|---|---|---|---|---|---|---|---|
| | | | 46.22 | 0.20 | | TOPSOIL with grass | |
| | | | | | | MADE GROUND: Brown and grey slightly silty sandy subangular fine to coarse GRAVEL of limestone with medium cobble content and fragments of brick and metal. Sand is fine to coarse. Cobbles are subangular of limestone. | |
| | | | 45.72 | 0.70 | | Firm becoming stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of limestone. | |
| | | | 44.92 | 1.50 | | End of trial pit at 1.50m | |

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

| Water Strikes | |
|---|---|
| Struck at (m) | Remarks |
| | |

**Depth:** 1.50
**Width:** 0.60
**Length:** 2.10

**Remarks:** No groundwater encountered.

**Stability:** Stable

**Termination Reason:** Terminated at scheduled depth.

**Last Updated** 01/10/2021

AGS

# Soakaway Infiltration Test

**Project No.:** 21-0968
**Site:** Carlisle Development
**Test Location:** IF04
**Test Date:** 03 September 2021

*Analysis using method as described in BRE Digest 365 and CIRIA Report C697-The SUDS Manual*

| | width (m) | length (m) |
|---|---|---|
| test pit top dimensions | 0.60 | 2.10 |
| test pit base dimensions | 0.60 | 1.20 |

test pit depth (m) 1.50

depth to groundwater before adding water (m) = Dry

| time (mins) | depth to water surface (m) | depth of water in pit (m) |
|---|---|---|
| 0 | 0.50 | 1.00 |
| 1 | 0.51 | 0.99 |
| 2 | 0.52 | 0.98 |
| 3 | 0.54 | 0.96 |
| 4 | 0.55 | 0.95 |
| 5 | 0.56 | 0.94 |
| 6 | 0.57 | 0.93 |
| 7 | 0.58 | 0.92 |
| 8 | 0.59 | 0.91 |
| 9 | 0.59 | 0.91 |
| 10 | 0.60 | 0.90 |
| 15 | 0.62 | 0.88 |
| 20 | 0.64 | 0.86 |
| 30 | 0.65 | 0.85 |
| 40 | 0.65 | 0.85 |
| 50 | 0.69 | 0.81 |
| 60 | 0.71 | 0.79 |
| 120 | 0.70 | 0.80 |
| | | |

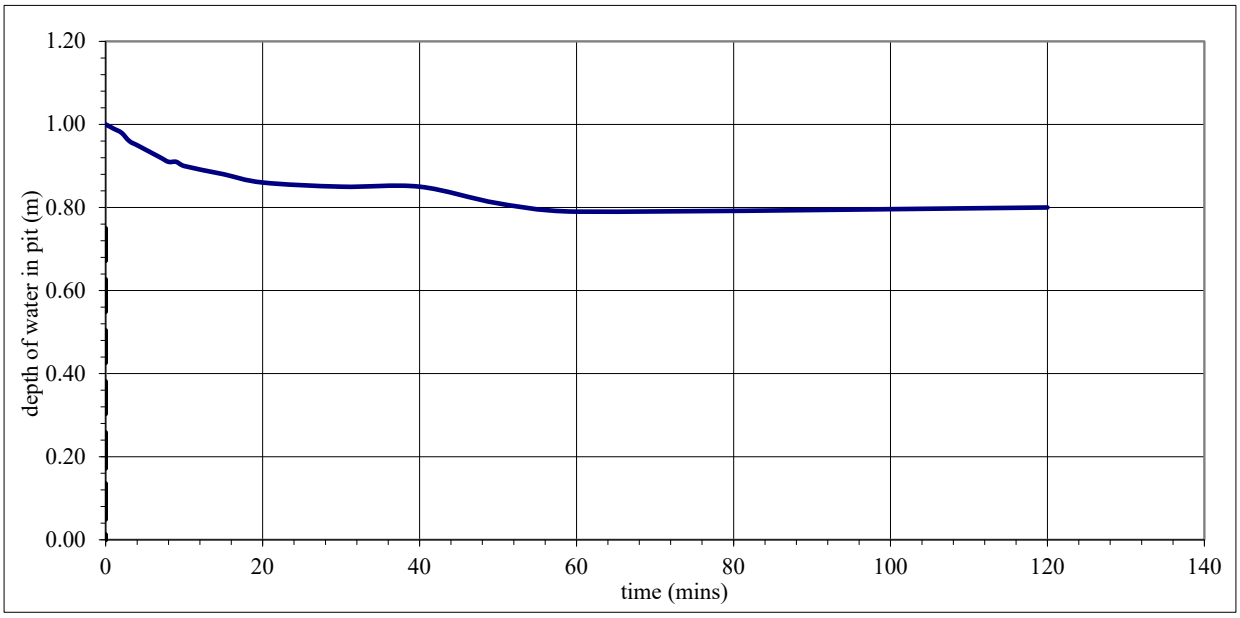
From graph below:

test start - 75% depth at
0.75 m water depth
time is not determined

test end - 25% depth at
0.25 m water depth
time is not determined

**infiltration rate (q) is very low**

| time (mins) | depth to water (m) | depth of water in pit (m) | time elapsed (mins) | volume of water lost ($m^3$) | Area of walls and base at 50% drop ($m^2$) | q (m/min) | q (m/h) |
|---|---|---|---|---|---|---|---|
| | 0.75 | 0.75 | | | | | |
| | 1.25 | 0.25 | | | | | |



CAUSEWAY GEOTECH

# APPENDIX G

# ENVIRONMENTAL LABORATORY TEST RESULTS

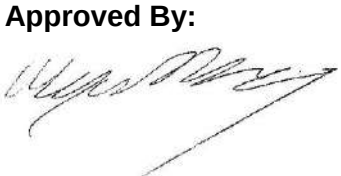
eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

# Final Report

| | |
|---|---|
| **Report No.:** | 21-30908-1 |
| **Initial Date of Issue:** | 16-Sep-2021 |
| **Client** | Causeway Geotech Ltd |
| **Client Address:** | 8 Drumahiskey Road<br>Balnamore<br>Ballymoney<br>County Antrim<br>BT53 7QL |
| **Contact(s):** | Carin Cornwall<br>Colm Hurley<br>Darren O'Mahony<br>Gabriella Horan<br>Joe Gervin<br>John Cameron<br>Lucy Newland<br>Martin Gardiner<br>Matthew Gilbert<br>Michelle Gaffney<br>Neil Haggan<br>Paul Dunlop<br>Sean Ross<br>Stephen Franey<br>Stephen Watson<br>Stuart Abraham<br>Thomas McAllist |
| **Project** | 21-0968 Carlisle Residential Development, Kimmage |

| | | | |
|---|---|---|---|
| **Quotation No.:** | | **Date Received:** | 07-Sep-2021 |
| **Order No.:** | | **Date Instructed:** | 08-Sep-2021 |
| **No. of Samples:** | 10 | | |
| **Turnaround (Wkdays):** | 7 | **Results Due:** | 16-Sep-2021 |
| **Date Approved:** | 16-Sep-2021 | | |

**Approved By:**



**Details:** Glynn Harvey, Technical Manager

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

# Results - Leachate

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | | **Chemtest Job No.:** | | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | | **Chemtest Sample ID.:** | | 1273912 | 1273913 | 1273914 | 1273915 | 1273916 | 1273917 | 1273918 | 1273919 |
| Order No.: | | | | Client Sample Ref.: | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| | | | | Sample Location: | | BH01 | BH01 | BH02 | BH02 | BH03 | BH03 | BH04 | BH04 |
| | | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | Top Depth (m): | | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 |
| | | | | Date Sampled: | | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 |
| **Determinand** | **Accred.** | **SOP** | **Type** | **Units** | **LOD** | | | | | | | | |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | < 0.050 | < 0.050 | 0.062 | 0.083 | 0.059 | < 0.050 | 0.090 | 0.083 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 0.60 | 0.56 | 0.65 | 0.92 | 0.64 | 0.42 | 0.96 | 0.93 |

# Results - Leachate

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | | **Chemtest Job No.:** | | 21-30908 | 21-30908 |
|---|---|---|---|---|---|---|---|
| Quotation No.: | | | | **Chemtest Sample ID.:** | | 1273920 | 1273921 |
| Order No.: | | | | Client Sample Ref.: | | 1 | 2 |
| | | | | Sample Location: | | BH05 | BH05 |
| | | | | Sample Type: | | SOIL | SOIL |
| | | | | Top Depth (m): | | 0.5 | 1 |
| | | | | Date Sampled: | | 06-Sep-2021 | 06-Sep-2021 |
| **Determinand** | **Accred.** | **SOP** | **Type** | **Units** | **LOD** | | |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | 0.10 | 0.073 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 1.4 | 0.81 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | **Chemtest Job No.:** | | | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | **Chemtest Sample ID.:** | | | 1273912 | 1273913 | 1273914 | 1273915 | 1273916 | 1273917 | 1273918 | 1273919 | 1273920 |
| Order No.: | | Client Sample Ref.: | | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| | | Sample Location: | | | BH01 | BH01 | BH02 | BH02 | BH03 | BH03 | BH04 | BH04 | BH05 |
| | | Sample Type: | | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 |
| | | Date Sampled: | | | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 |
| | | Asbestos Lab: | | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | - | - | - | - | - |
| Asbestos Identification | U | 2192 | | N/A | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 17 | 11 | 15 | 9.2 | 13 | 7.5 | 13 | 10 | 4.7 |
| pH | M | 2010 | | 4.0 | 9.0 | 9.2 | 8.7 | 9.1 | 8.8 | 9.3 | 8.9 | 9.1 | 9.2 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 2.2 | 0.47 | 1.5 | < 0.40 | 1.2 | < 0.40 | 1.3 | < 0.40 | < 0.40 |
| Sulphur (Elemental) | M | 2180 | mg/kg | 1.0 | 31 | 5.5 | < 1.0 | 5.0 | 3.5 | 3.0 | < 1.0 | 4.4 | < 1.0 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | 1.1 | < 0.50 | < 0.50 | < 0.50 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 1.8 | 1.7 | 1.6 | 3.3 | 3.3 | 3.5 | 3.3 | 3.3 | 3.3 |
| Sulphate (Total) | M | 2430 | % | 0.010 | 0.12 | 0.029 | 0.11 | 0.029 | 0.040 | 0.039 | 0.11 | 0.039 | 0.12 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 27 | 16 | 19 | 12 | 11 | 22 | 26 | 19 | 23 |
| Barium | M | 2450 | mg/kg | 10 | 95 | 60 | 86 | 41 | 47 | 51 | 97 | 71 | 67 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 1.6 | 2.7 | 1.5 | 1.8 | 1.3 | 2.3 | 1.7 | 2.0 | 3.2 |
| Chromium | M | 2450 | mg/kg | 1.0 | 23 | 19 | 20 | 14 | 14 | 17 | 22 | 21 | 26 |
| Molybdenum | M | 2450 | mg/kg | 2.0 | 4.3 | 6.2 | 3.8 | 2.6 | 2.6 | 4.1 | 4.0 | 4.3 | 4.3 |
| Antimony | N | 2450 | mg/kg | 2.0 | 2.7 | 7.3 | 4.3 | 2.7 | 2.2 | 2.5 | 5.7 | 2.8 | < 2.0 |
| Copper | M | 2450 | mg/kg | 0.50 | 76 | 31 | 62 | 21 | 29 | 29 | 61 | 35 | 25 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.97 | 0.14 | 0.64 | < 0.10 | 0.22 | < 0.10 | 0.58 | < 0.10 | 0.11 |
| Nickel | M | 2450 | mg/kg | 0.50 | 56 | 54 | 48 | 34 | 32 | 51 | 48 | 46 | 55 |
| Lead | M | 2450 | mg/kg | 0.50 | 170 | 21 | 160 | 17 | 59 | 20 | 120 | 95 | 38 |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.94 | 0.49 | 0.60 | 0.27 | 0.44 | 0.31 | 0.80 | < 0.20 | 0.70 |
| Zinc | M | 2450 | mg/kg | 0.50 | 130 | 94 | 110 | 50 | 64 | 74 | 160 | 70 | 74 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 23 | 19 | 20 | 14 | 14 | 17 | 22 | 21 | 26 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Total Organic Carbon | M | 2625 | % | 0.20 | 6.7 | 3.6 | 3.8 | 0.89 | 4.0 | 0.80 | 4.9 | 1.3 | 1.4 |
| Mineral Oil (TPH Calculation) | N | 2670 | mg/kg | 10 | 35 | 27 | 390 | 69 | 14 | 27 | 99 | 12 | 30 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | 9.6 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | 35 | 27 | 380 | 69 | 14 | 27 | 99 | 12 | 30 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | 35 | 27 | 390 | 69 | 14 | 27 | 99 | 12 | 30 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | **Chemtest Job No.:** | | | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | **Chemtest Sample ID.:** | | | 1273912 | 1273913 | 1273914 | 1273915 | 1273916 | 1273917 | 1273918 | 1273919 | 1273920 |
| Order No.: | | Client Sample Ref.: | | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| | | Sample Location: | | | BH01 | BH01 | BH02 | BH02 | BH03 | BH03 | BH04 | BH04 | BH05 |
| | | Sample Type: | | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 |
| | | Date Sampled: | | | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 |
| | | Asbestos Lab: | | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | | |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | 31 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | 130 | 88 | 43 | 29 | 73 | 79 | 61 | 41 | 55 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | 160 | 88 | 43 | 29 | 73 | 79 | 61 | 41 | 55 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | 200 | 120 | 430 | 98 | 86 | 110 | 160 | 53 | 84 |
| Benzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Toluene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Ethylbenzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| m & p-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Methyl Tert-Butyl Ether | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Naphthalene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | M | 2800 | mg/kg | 0.10 | 1.1 | < 0.10 | 0.60 | < 0.10 | < 0.10 | < 0.10 | 0.59 | < 0.10 | 1.1 |
| Anthracene | M | 2800 | mg/kg | 0.10 | 0.21 | < 0.10 | 0.12 | < 0.10 | < 0.10 | < 0.10 | 0.12 | < 0.10 | 0.22 |
| Fluoranthene | M | 2800 | mg/kg | 0.10 | 1.4 | < 0.10 | 0.85 | < 0.10 | < 0.10 | < 0.10 | 0.85 | < 0.10 | 0.94 |
| Pyrene | M | 2800 | mg/kg | 0.10 | 1.3 | < 0.10 | 0.84 | < 0.10 | < 0.10 | < 0.10 | 0.80 | < 0.10 | 0.84 |
| Benzo[a]anthracene | M | 2800 | mg/kg | 0.10 | 0.74 | < 0.10 | 0.48 | < 0.10 | < 0.10 | < 0.10 | 0.50 | < 0.10 | 0.53 |
| Chrysene | M | 2800 | mg/kg | 0.10 | 0.87 | < 0.10 | 0.57 | < 0.10 | < 0.10 | < 0.10 | 0.60 | < 0.10 | 0.60 |
| Benzo[b]fluoranthene | M | 2800 | mg/kg | 0.10 | 1.0 | < 0.10 | 0.66 | < 0.10 | < 0.10 | < 0.10 | 0.63 | < 0.10 | 0.60 |
| Benzo[k]fluoranthene | M | 2800 | mg/kg | 0.10 | 0.33 | < 0.10 | 0.24 | < 0.10 | < 0.10 | < 0.10 | 0.23 | < 0.10 | 0.26 |
| Benzo[a]pyrene | M | 2800 | mg/kg | 0.10 | 0.71 | < 0.10 | 0.47 | < 0.10 | < 0.10 | < 0.10 | 0.46 | < 0.10 | 0.38 |
| Indeno(1,2,3-c,d)Pyrene | M | 2800 | mg/kg | 0.10 | 0.48 | < 0.10 | 0.37 | < 0.10 | < 0.10 | < 0.10 | 0.32 | < 0.10 | 0.30 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | 0.14 | < 0.10 | 0.13 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.13 |
| Benzo[g,h,i]perylene | M | 2800 | mg/kg | 0.10 | 0.48 | < 0.10 | 0.39 | < 0.10 | < 0.10 | < 0.10 | 0.33 | < 0.10 | 0.30 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | 8.8 | < 2.0 | 5.7 | < 2.0 | < 2.0 | < 2.0 | 5.4 | < 2.0 | 6.2 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 | 21-30908 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1273912 | 1273913 | 1273914 | 1273915 | 1273916 | 1273917 | 1273918 | 1273919 | 1273920 |
| Order No.: | | | Client Sample Ref.: | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| | | | Sample Location: | | BH01 | BH01 | BH02 | BH02 | BH03 | BH03 | BH04 | BH04 | BH05 |
| | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 |
| | | | Date Sampled: | | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 | 06-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | | |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total PCBs (7 Congeners) | U | 2815 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Phenols | M | 2920 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-30908 |
|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1273921 |
| Order No.: | | | Client Sample Ref.: | | 2 |
| | | | Sample Location: | | BH05 |
| | | | Sample Type: | | SOIL |
| | | | Top Depth (m): | | 1 |
| | | | Date Sampled: | | 06-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | |
| ACM Type | U | 2192 | | N/A | - |
| Asbestos Identification | U | 2192 | | N/A | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 17 |
| pH | M | 2010 | | 4.0 | 8.6 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 0.70 |
| Sulphur (Elemental) | M | 2180 | mg/kg | 1.0 | 1.9 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | < 0.50 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 3.3 |
| Sulphate (Total) | M | 2430 | % | 0.010 | 0.062 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 15 |
| Barium | M | 2450 | mg/kg | 10 | 67 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 2.2 |
| Chromium | M | 2450 | mg/kg | 1.0 | 20 |
| Molybdenum | M | 2450 | mg/kg | 2.0 | 3.7 |
| Antimony | N | 2450 | mg/kg | 2.0 | 2.1 |
| Copper | M | 2450 | mg/kg | 0.50 | 43 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.21 |
| Nickel | M | 2450 | mg/kg | 0.50 | 50 |
| Lead | M | 2450 | mg/kg | 0.50 | 51 |
| Selenium | M | 2450 | mg/kg | 0.20 | 1.2 |
| Zinc | M | 2450 | mg/kg | 0.50 | 93 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 20 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 |
| Total Organic Carbon | M | 2625 | % | 0.20 | 2.8 |
| Mineral Oil (TPH Calculation) | N | 2670 | mg/kg | 10 | 14 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | 14 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | 14 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-30908 |
|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1273921 |
| Order No.: | | | Client Sample Ref.: | | 2 |
| | | | Sample Location: | | BH05 |
| | | | Sample Type: | | SOIL |
| | | | Top Depth (m): | | 1 |
| | | | Date Sampled: | | 06-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | 72 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | 72 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | 86 |
| Benzene | M | 2760 | µg/kg | 1.0 | < 1.0 |
| Toluene | M | 2760 | µg/kg | 1.0 | < 1.0 |
| Ethylbenzene | M | 2760 | µg/kg | 1.0 | < 1.0 |
| m & p-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 |
| o-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 |
| Methyl Tert-Butyl Ether | M | 2760 | µg/kg | 1.0 | < 1.0 |
| Naphthalene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 |
| Acenaphthene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Fluorene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Phenanthrene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[a]anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Chrysene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[b]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[k]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[a]pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | M | 2800 | mg/kg | 0.10 | < 0.10 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-30908 |
|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1273921 |
| Order No.: | | | Client Sample Ref.: | | 2 |
| | | | Sample Location: | | BH05 |
| | | | Sample Type: | | SOIL |
| | | | Top Depth (m): | | 1 |
| | | | Date Sampled: | | 06-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 |
| Total PCBs (7 Congeners) | U | 2815 | mg/kg | 0.10 | < 0.10 |
| Total Phenols | M | 2920 | mg/kg | 0.10 | < 0.10 |

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273912 | | | | | | |
| **Sample Ref:** | 1 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH01 | | | | | | |
| **Top Depth(m):** | 0.5 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 6.7 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 13 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 200 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 8.8 | 100 | -- | -- |
| pH | 2010 | M | | 9.0 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.013 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0016 | 0.016 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0088 | 0.088 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0034 | 0.034 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0047 | 0.047 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0043 | 0.043 | 0.4 | 10 | 40 |
| Lead | 1455 | U | 0.0008 | 0.0080 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | 0.0007 | 0.0069 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.45 | 4.5 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 100 | 1000 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 15 | 150 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 17 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273913 | | | | | | |
| **Sample Ref:** | 2 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH01 | | | | | | |
| **Top Depth(m):** | 1 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 3.6 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 4.1 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 120 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 9.2 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.0090 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0093 | 0.093 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0010 | 0.010 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0032 | 0.032 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0043 | 0.043 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.42 | 4.2 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 72 | 710 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 12 | 120 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 11 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273914 | | | | | | |
| **Sample Ref:** | 1 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH02 | | | | | | |
| **Top Depth(m):** | 0.5 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 3.8 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 11 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 430 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 5.7 | 100 | -- | -- |
| pH | 2010 | M | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.0090 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0021 | 0.021 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0088 | 0.088 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0048 | 0.048 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0064 | 0.064 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0052 | 0.052 | 0.4 | 10 | 40 |
| Lead | 1455 | U | 0.0008 | 0.0077 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.39 | 3.9 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 78 | 780 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 22 | 220 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 15 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273915 | | | | | | |
| **Sample Ref:** | 2 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH02 | | | | | | |
| **Top Depth(m):** | 1 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.89 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 4.3 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 98 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 9.1 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.021 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0003 | 0.0034 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0087 | 0.087 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0014 | 0.014 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0064 | 0.064 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0041 | 0.041 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.41 | 4.1 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 2.8 | 28 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 65 | 650 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 13 | 130 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 9.2 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273916 | | | | | | |
| **Sample Ref:** | 1 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH03 | | | | | | |
| **Top Depth(m):** | 0.5 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 4.0 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 7.7 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 86 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.8 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.0080 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0005 | 0.0045 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0088 | 0.088 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0013 | 0.013 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.015 | 0.15 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0040 | 0.041 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | 0.0005 | 0.0052 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.45 | 4.5 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 59 | 580 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 14 | 140 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 13 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273917 | | | | | | |
| **Sample Ref:** | 2 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH03 | | | | | | |
| **Top Depth(m):** | 1 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.80 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 2.8 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 110 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 9.3 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.031 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0002 | 0.0021 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0089 | 0.089 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0006 | 0.0055 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0053 | 0.053 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0041 | 0.041 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.40 | 4.0 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 2.0 | 20 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 58 | 580 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 8.1 | 81 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.5 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273918 | | | | | | |
| **Sample Ref:** | 1 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH04 | | | | | | |
| **Top Depth(m):** | 0.5 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 4.9 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 9.6 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 160 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 5.4 | 100 | -- | -- |
| pH | 2010 | M | | 8.9 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.012 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0011 | 0.011 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0085 | 0.085 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0039 | 0.039 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0055 | 0.056 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0050 | 0.050 | 0.4 | 10 | 40 |
| Lead | 1455 | U | 0.0007 | 0.0074 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | 0.0008 | 0.0083 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.61 | 6.1 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 98 | 970 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 24 | 240 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 13 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273919 | | | | | | |
| **Sample Ref:** | 2 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH04 | | | | | | |
| **Top Depth(m):** | 1 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.3 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.1 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 53 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 9.1 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.019 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0081 | 0.081 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0005 | 0.0053 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0068 | 0.068 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0039 | 0.039 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.32 | 3.2 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 3.0 | 30 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 57 | 570 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 7.6 | 76 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 10 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273920 | | | | | | |
| **Sample Ref:** | 1 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH05 | | | | | | |
| **Top Depth(m):** | 0.5 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.4 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.1 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 84 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 6.2 | 100 | -- | -- |
| pH | 2010 | M | | 9.2 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.030 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0020 | 0.020 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.010 | 0.10 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0013 | 0.013 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0076 | 0.076 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0040 | 0.040 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.29 | 2.9 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 6.8 | 68 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 55 | 550 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 11 | 110 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 4.7 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-30908 | | | | | | |
| **Chemtest Sample ID:** | 1273921 | | | | | | |
| **Sample Ref:** | 2 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH05 | | | | | | |
| **Top Depth(m):** | 1 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 06-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 2.8 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 6.6 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | 86 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.6 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | < 0.0020 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0004 | 0.0035 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0084 | 0.084 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0016 | 0.016 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0037 | 0.037 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0041 | 0.041 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.34 | 3.4 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 15 | 150 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 98 | 970 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 12 | 120 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 17 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Test Methods

| SOP | Title | Parameters included | Method summary |
|---|---|---|---|
| 1010 | pH Value of Waters | pH | pH Meter |
| 1020 | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Conductivity Meter |
| 1220 | Anions, Alkalinity & Ammonium in Waters | Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium | Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser. |
| 1455 | Metals in Waters by ICP-MS | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS). |
| 1610 | Total/Dissolved Organic Carbon in Waters | Organic Carbon | TOC Analyser using Catalytic Oxidation |
| 1920 | Phenols in Waters by HPLC | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded. | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection. |
| 2010 | pH Value of Soils | pH | pH Meter |
| 2015 | Acid Neutralisation Capacity | Acid Reserve | Titration |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2180 | Sulphur (Elemental) in Soils by HPLC | Sulphur | Dichloromethane extraction / HPLC with UV detection |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2325 | Sulphide in Soils | Sulphide | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine. |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2610 | Loss on Ignition | loss on ignition (LOI) | Determination of the proportion by mass that is lost from a soil by ignition at 550°C. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40 | Dichloromethane extraction / GC-FID |
| 2680 | TPH A/A Split | Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44 | Dichloromethane extraction / GCxGC FID detection |

# Test Methods

| SOP | Title | Parameters included | Method summary |
|---|---|---|---|
| 2760 | Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule | Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds. |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS |
| 2815 | Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS | ICES7 PCB congeners | Acetone/Hexane extraction / GC-MS |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |
| 640 | Characterisation of Waste (Leaching C10) | Waste material including soil, sludges and granular waste | ComplianceTest for Leaching of Granular Waste Material and Sludge |

## Report Information

**Key**

| | |
|---|---|
| U | UKAS accredited |
| M | MCERTS and UKAS accredited |
| N | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

**Sample Deviation Codes**

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**Sample Retention and Disposal**

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

# Final Report

| | |
|---|---|
| **Report No.:** | 21-31046-1 |
| **Initial Date of Issue:** | 20-Sep-2021 |
| **Client** | Causeway Geotech Ltd |
| **Client Address:** | 8 Drumahiskey Road<br>Balnamore<br>Ballymoney<br>County Antrim<br>BT53 7QL |
| **Contact(s):** | Carin Cornwall<br>Colm Hurley<br>Darren O'Mahony<br>Gabriella Horan<br>Joe Gervin<br>John Cameron<br>Lucy Newland<br>Martin Gardiner<br>Matthew Gilbert<br>Michelle Gaffney<br>Neil Haggan<br>Paul Dunlop<br>Sean Ross<br>Stephen Franey<br>Stephen Watson<br>Stuart Abraham<br>Thomas McAllist |
| **Project** | 21-0968 Carlisle Residential Development, Kimmage |

| | | | |
|---|---|---|---|
| **Quotation No.:** | | **Date Received:** | 08-Sep-2021 |
| **Order No.:** | | **Date Instructed:** | 10-Sep-2021 |
| **No. of Samples:** | 4 | | |
| **Turnaround (Wkdays):** | 7 | **Results Due:** | 20-Sep-2021 |
| **Date Approved:** | 20-Sep-2021 | | |

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

# Results - Leachate

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | | **Chemtest Job No.:** | | 21-31046 | 21-31046 | 21-31046 | 21-31046 |
|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | | **Chemtest Sample ID.:** | | 1274583 | 1274584 | 1274585 | 1274586 |
| | | | | Sample Location: | | TP07 | TP07 | TP08 | TP08 |
| | | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL |
| | | | | Top Depth (m): | | 0.5 | 1 | 0.5 | 1 |
| | | | | Date Sampled: | | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 |
| **Determinand** | **Accred.** | **SOP** | **Type** | **Units** | **LOD** | | | | |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | 0.16 | 0.12 | 0.071 | 0.071 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 1.7 | 1.3 | 0.76 | 0.76 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | **Chemtest Job No.:** | | | 21-31046 | 21-31046 | 21-31046 | 21-31046 |
|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | **Chemtest Sample ID.:** | | | 1274583 | 1274584 | 1274585 | 1274586 |
| | | Sample Location: | | | TP07 | TP07 | TP08 | TP08 |
| | | Sample Type: | | | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | | 0.5 | 1 | 0.5 | 1 |
| | | Date Sampled: | | | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 |
| | | Asbestos Lab: | | | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - |
| Asbestos Identification | U | 2192 | | N/A | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 17 | 13 | 13 | 15 |
| pH | M | 2010 | | 4.0 | 9.2 | 9.0 | 9.0 | 8.9 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | < 0.40 | 0.40 | < 0.40 | 3.3 |
| Sulphur (Elemental) | M | 2180 | mg/kg | 1.0 | < 1.0 | 1.4 | < 1.0 | < 1.0 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 2.0 | 3.0 | 3.0 | 2.0 |
| Sulphate (Total) | M | 2430 | % | 0.010 | 0.036 | 0.042 | 0.050 | 0.015 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 14 | 11 | 15 | 11 |
| Barium | M | 2450 | mg/kg | 10 | 62 | 40 | 56 | 44 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 2.3 | 1.3 | 2.1 | 1.8 |
| Chromium | M | 2450 | mg/kg | 1.0 | 19 | 13 | 20 | 16 |
| Molybdenum | M | 2450 | mg/kg | 2.0 | 3.6 | 2.5 | 3.9 | 3.1 |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Copper | M | 2450 | mg/kg | 0.50 | 59 | 44 | 47 | 60 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.12 | 0.13 | 0.13 | 0.16 |
| Nickel | M | 2450 | mg/kg | 0.50 | 63 | 42 | 65 | 53 |
| Lead | M | 2450 | mg/kg | 0.50 | 33 | 29 | 27 | 20 |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.48 | 0.30 | 0.86 | 0.59 |
| Zinc | M | 2450 | mg/kg | 0.50 | 100 | 74 | 99 | 83 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 19 | 13 | 20 | 16 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Total Organic Carbon | M | 2625 | % | 0.20 | 1.3 | 1.8 | 1.4 | 1.0 |
| Mineral Oil (TPH Calculation) | N | 2670 | mg/kg | 10 | < 10 | < 10 | < 10 | < 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-31046 | 21-31046 | 21-31046 | 21-31046 |
|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1274583 | 1274584 | 1274585 | 1274586 |
| | | | Sample Location: | | TP07 | TP07 | TP08 | TP08 |
| | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 0.5 | 1 | 0.5 | 1 |
| | | | Date Sampled: | | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | < 10 | < 10 | < 10 | < 10 |
| Benzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Toluene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Ethylbenzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| m & p-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Methyl Tert-Butyl Ether | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Naphthalene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Chrysene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[b]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[k]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-31046 | 21-31046 | 21-31046 | 21-31046 |
|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1274583 | 1274584 | 1274585 | 1274586 |
| | | | Sample Location: | | TP07 | TP07 | TP08 | TP08 |
| | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 0.5 | 1 | 0.5 | 1 |
| | | | Date Sampled: | | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 | 03-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | |
| Total PCBs (7 Congeners) | U | 2815 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Phenols | M | 2920 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31046 | | | | | | |
| **Chemtest Sample ID:** | 1274583 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP07 | | | | | | |
| **Top Depth(m):** | 0.5 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 03-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.3 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 4.6 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 9.2 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.011 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0003 | 0.0030 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0045 | 0.045 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0020 | 0.020 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0056 | 0.056 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0026 | 0.027 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.47 | 4.7 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 160 | 1600 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 13 | 130 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 17 |

## Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31046 | | | | | | |
| **Chemtest Sample ID:** | 1274584 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP07 | | | | | | |
| **Top Depth(m):** | 1 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 03-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.8 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 4.7 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 9.0 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.0070 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0003 | 0.0031 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0046 | 0.046 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0030 | 0.030 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0065 | 0.065 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0025 | 0.026 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | 0.0006 | 0.0056 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.46 | 4.6 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 85 | 840 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 13 | 130 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 13 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31046 | | | | | | |
| **Chemtest Sample ID:** | 1274585 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP08 | | | | | | |
| **Top Depth(m):** | 0.5 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 03-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.4 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.4 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 9.0 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.010 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0045 | 0.045 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0016 | 0.016 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0039 | 0.039 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0023 | 0.023 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.40 | 4.0 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 2.8 | 28 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 78 | 780 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 13 | 130 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 13 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31046 | | | | | | |
| **Chemtest Sample ID:** | 1274586 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP08 | | | | | | |
| **Top Depth(m):** | 1 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 03-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.0 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.3 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.9 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.0030 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0003 | 0.0025 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0056 | 0.056 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0018 | 0.018 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0027 | 0.027 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0028 | 0.028 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.33 | 3.3 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 1.7 | 17 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 58 | 580 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 11 | 110 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 15 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Test Methods

| SOP | Title | Parameters included | Method summary |
|---|---|---|---|
| 1010 | pH Value of Waters | pH | pH Meter |
| 1020 | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Conductivity Meter |
| 1220 | Anions, Alkalinity & Ammonium in Waters | Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium | Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser. |
| 1455 | Metals in Waters by ICP-MS | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS). |
| 1610 | Total/Dissolved Organic Carbon in Waters | Organic Carbon | TOC Analyser using Catalytic Oxidation |
| 1920 | Phenols in Waters by HPLC | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded. | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection. |
| 2010 | pH Value of Soils | pH | pH Meter |
| 2015 | Acid Neutralisation Capacity | Acid Reserve | Titration |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2180 | Sulphur (Elemental) in Soils by HPLC | Sulphur | Dichloromethane extraction / HPLC with UV detection |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2325 | Sulphide in Soils | Sulphide | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine. |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2610 | Loss on Ignition | loss on ignition (LOI) | Determination of the proportion by mass that is lost from a soil by ignition at 550°C. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40 | Dichloromethane extraction / GC-FID |
| 2680 | TPH A/A Split | Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44 | Dichloromethane extraction / GCxGC FID detection |

# Test Methods

| SOP | Title | Parameters included | Method summary |
|---|---|---|---|
| 2760 | Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule | Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds. |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS |
| 2815 | Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS | ICES7 PCB congeners | Acetone/Hexane extraction / GC-MS |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |
| 640 | Characterisation of Waste (Leaching C10) | Waste material including soil, sludges and granular waste | ComplianceTest for Leaching of Granular Waste Material and Sludge |

## Report Information

**Key**

| | |
|---|---|
| U | UKAS accredited |
| M | MCERTS and UKAS accredited |
| N | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

**Sample Deviation Codes**

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**Sample Retention and Disposal**

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

# Final Report

| | |
|---|---|
| **Report No.:** | 21-31392-1 |
| **Initial Date of Issue:** | 22-Sep-2021 |
| **Client** | Causeway Geotech Ltd |
| **Client Address:** | 8 Drumahiskey Road<br>Balnamore<br>Ballymoney<br>County Antrim<br>BT53 7QL |
| **Contact(s):** | Carin Cornwall<br>Colm Hurley<br>Darren O'Mahony<br>Gabriella Horan<br>Joe Gervin<br>John Cameron<br>Lucy Newland<br>Martin Gardiner<br>Matthew Gilbert<br>Michelle Gaffney<br>Neil Haggan<br>Paul Dunlop<br>Sean Ross<br>Stephen Franey<br>Stephen Watson<br>Stuart Abraham<br>Thomas McAllist |
| **Project** | 21-0968 Carlisle Residential Development, Kimmage |

| | | | |
|---|---|---|---|
| **Quotation No.:** | | **Date Received:** | 10-Sep-2021 |
| **Order No.:** | | **Date Instructed:** | 14-Sep-2021 |
| **No. of Samples:** | 12 | | |
| **Turnaround (Wkdays):** | 7 | **Results Due:** | 22-Sep-2021 |
| **Date Approved:** | 22-Sep-2021 | | |

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

# Results - Leachate

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | | **Chemtest Job No.:** | | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | | **Chemtest Sample ID.:** | | 1276275 | 1276276 | 1276277 | 1276278 | 1276279 | 1276280 | 1276281 | 1276282 |
| | | | | Sample Location: | | TP01 | TP01 | TP02 | TP02 | TP03 | TP03 | TP04 | TP04 |
| | | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | Top Depth (m): | | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 |
| | | | | Date Sampled: | | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| **Determinand** | **Accred.** | **SOP** | **Type** | **Units** | **LOD** | | | | | | | | |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | 0.12 | 0.28 | 0.16 | 0.22 | 0.25 | 0.12 | 0.068 | 0.10 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 1.5 | 4.3 | 2.0 | 2.9 | 3.8 | 1.6 | 0.82 | 1.4 |

# Results - Leachate

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | | **Chemtest Job No.:** | | 21-31392 | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | | **Chemtest Sample ID.:** | | 1276283 | 1276284 | 1276285 | 1276286 |
| | | | | Sample Location: | | TP05 | TP05 | TP06 | TP06 |
| | | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL |
| | | | | Top Depth (m): | | 0.50 | 1.00 | 0.50 | 1.00 |
| | | | | Date Sampled: | | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| **Determinand** | **Accred.** | **SOP** | **Type** | **Units** | **LOD** | | | | |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | 0.20 | 0.072 | 0.17 | 0.24 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 2.3 | 0.84 | 2.0 | 3.0 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | **Chemtest Job No.:** | | | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | **Chemtest Sample ID.:** | | | 1276275 | 1276276 | 1276277 | 1276278 | 1276279 | 1276280 | 1276281 | 1276282 | 1276283 |
| | | Sample Location: | | | TP01 | TP01 | TP02 | TP02 | TP03 | TP03 | TP04 | TP04 | TP05 |
| | | Sample Type: | | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 |
| | | Date Sampled: | | | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| | | Asbestos Lab: | | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | - | - | - | - | - |
| Asbestos Identification | U | 2192 | | N/A | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 11 | 6.1 | 9.9 | 7.3 | 7.7 | 7.4 | 8.8 | 7.3 | 7.7 |
| pH | M | 2010 | | 4.0 | 8.7 | 8.8 | 8.8 | 8.8 | 8.9 | 8.9 | 8.7 | 8.9 | 8.6 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 0.59 | < 0.40 | 0.54 | < 0.40 | < 0.40 | < 0.40 | 0.42 | < 0.40 | < 0.40 |
| Sulphur (Elemental) | M | 2180 | mg/kg | 1.0 | < 1.0 | < 1.0 | 1.7 | < 1.0 | 1.5 | < 1.0 | < 1.0 | < 1.0 | 2.6 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 0.66 | 1.5 | 3.9 | 1.9 | 5.2 | 3.1 | 0.77 | 4.4 | 0.99 |
| Sulphate (Total) | M | 2430 | % | 0.010 | 0.032 | 0.058 | 0.056 | 0.041 | 0.040 | 0.044 | 0.014 | 0.048 | 0.064 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 12 | 15 | 18 | 19 | 11 | 15 | 9.8 | 14 | 15 |
| Barium | M | 2450 | mg/kg | 10 | 58 | 42 | 80 | 53 | 36 | 55 | 62 | 62 | 68 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 1.9 | 2.0 | 2.3 | 2.4 | 1.2 | 2.0 | 1.7 | 2.0 | 1.5 |
| Chromium | M | 2450 | mg/kg | 1.0 | 17 | 12 | 19 | 16 | 10 | 12 | 17 | 15 | 17 |
| Molybdenum | M | 2450 | mg/kg | 2.0 | 2.7 | 3.7 | 4.3 | 4.5 | 2.4 | 3.6 | 2.5 | 3.5 | 3.6 |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | 4.1 | 3.1 | 2.6 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Copper | M | 2450 | mg/kg | 0.50 | 40 | 56 | 65 | 38 | 24 | 33 | 36 | 32 | 56 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.22 | 0.11 | 0.39 | 0.11 | 0.17 | < 0.10 | 0.10 | < 0.10 | 0.31 |
| Nickel | M | 2450 | mg/kg | 0.50 | 46 | 40 | 61 | 57 | 30 | 46 | 43 | 45 | 43 |
| Lead | M | 2450 | mg/kg | 0.50 | 37 | 23 | 69 | 23 | 29 | 18 | 19 | 20 | 87 |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.50 | 0.33 | 0.70 | 0.39 | 0.23 | < 0.20 | 0.64 | < 0.20 | 0.80 |
| Zinc | M | 2450 | mg/kg | 0.50 | 89 | 66 | 97 | 80 | 48 | 63 | 86 | 64 | 94 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 17 | 12 | 19 | 16 | 10 | 12 | 17 | 15 | 17 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Total Organic Carbon | M | 2625 | % | 0.20 | 1.1 | 0.30 | 1.8 | 0.33 | 0.91 | 0.29 | 0.75 | 1.4 | 4.2 |
| Mineral Oil (TPH Calculation) | N | 2670 | mg/kg | 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| Client: Causeway Geotech Ltd | | Chemtest Job No.: | | | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | Chemtest Sample ID.: | | | 1276275 | 1276276 | 1276277 | 1276278 | 1276279 | 1276280 | 1276281 | 1276282 | 1276283 |
| | | Sample Location: | | | TP01 | TP01 | TP02 | TP02 | TP03 | TP03 | TP04 | TP04 | TP05 |
| | | Sample Type: | | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 |
| | | Date Sampled: | | | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| | | Asbestos Lab: | | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | | |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Benzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Toluene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 2.6 | < 1.0 | < 1.0 | < 1.0 |
| Ethylbenzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| m & p-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Methyl Tert-Butyl Ether | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Naphthalene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 1.5 | < 0.10 | 2.9 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.27 | < 0.10 | 0.44 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | M | 2800 | mg/kg | 0.10 | 0.12 | < 0.10 | 1.8 | < 0.10 | 2.3 | < 0.10 | < 0.10 | < 0.10 | 0.20 |
| Pyrene | M | 2800 | mg/kg | 0.10 | 0.20 | < 0.10 | 1.5 | < 0.10 | 2.0 | < 0.10 | < 0.10 | < 0.10 | 0.22 |
| Benzo[a]anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.66 | < 0.10 | 0.87 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Chrysene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.64 | < 0.10 | 1.0 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[b]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.83 | < 0.10 | 0.97 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[k]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.30 | < 0.10 | 0.34 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.55 | < 0.10 | 0.69 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.42 | < 0.10 | 0.49 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.17 | < 0.10 | 0.14 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.45 | < 0.10 | 0.50 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 | < 2.0 | 9.1 | < 2.0 | 13 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1276275 | 1276276 | 1276277 | 1276278 | 1276279 | 1276280 | 1276281 | 1276282 | 1276283 |
| | | | Sample Location: | | TP01 | TP01 | TP02 | TP02 | TP03 | TP03 | TP04 | TP04 | TP05 |
| | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 |
| | | | Date Sampled: | | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | | |
| Total PCBs (7 Congeners) | U | 2815 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Phenols | M | 2920 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | **Chemtest Job No.:** | | | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|
| Quotation No.: | | **Chemtest Sample ID.:** | | | 1276284 | 1276285 | 1276286 |
| | | | | Sample Location: | TP05 | TP06 | TP06 |
| | | | | Sample Type: | SOIL | SOIL | SOIL |
| | | | | Top Depth (m): | 1.00 | 0.50 | 1.00 |
| | | | | Date Sampled: | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| | | | | Asbestos Lab: | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | |
| ACM Type | U | 2192 | | N/A | - | - | - |
| Asbestos Identification | U | 2192 | | N/A | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 8.5 | 7.5 | 6.3 |
| pH | M | 2010 | | 4.0 | 8.8 | 8.7 | 8.9 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | < 0.40 | 0.63 | < 0.40 |
| Sulphur (Elemental) | M | 2180 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | 0.91 | 2.3 | 3.1 |
| Sulphate (Total) | M | 2430 | % | 0.010 | 0.022 | 0.042 | 0.044 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 12 | 12 | 13 |
| Barium | M | 2450 | mg/kg | 10 | 49 | 56 | 52 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 1.9 | 1.5 | 1.7 |
| Chromium | M | 2450 | mg/kg | 1.0 | 15 | 16 | 12 |
| Molybdenum | M | 2450 | mg/kg | 2.0 | 2.7 | 2.3 | 3.2 |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Copper | M | 2450 | mg/kg | 0.50 | 32 | 34 | 29 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.10 | 0.13 | < 0.10 |
| Nickel | M | 2450 | mg/kg | 0.50 | 48 | 39 | 41 |
| Lead | M | 2450 | mg/kg | 0.50 | 19 | 28 | 16 |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.47 | 0.40 | < 0.20 |
| Zinc | M | 2450 | mg/kg | 0.50 | 80 | 73 | 58 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 15 | 16 | 12 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Total Organic Carbon | M | 2625 | % | 0.20 | 0.80 | 1.0 | 0.90 |
| Mineral Oil (TPH Calculation) | N | 2670 | mg/kg | 10 | < 10 | < 10 | < 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1276284 | 1276285 | 1276286 |
| | | | Sample Location: | | TP05 | TP06 | TP06 |
| | | | Sample Type: | | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 1.00 | 0.50 | 1.00 |
| | | | Date Sampled: | | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | < 10 | < 10 | < 10 |
| Benzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Toluene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Ethylbenzene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| m & p-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Methyl Tert-Butyl Ether | M | 2760 | µg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Naphthalene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]anthracene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Chrysene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[b]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[k]fluoranthene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | M | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Coronene | N | 2800 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 |
| PCB 28 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 52 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 90+101 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 118 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 153 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 138 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 |
| PCB 180 | U | 2815 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 |

# Results - Soil

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Client: Causeway Geotech Ltd** | | | **Chemtest Job No.:** | | 21-31392 | 21-31392 | 21-31392 |
|---|---|---|---|---|---|---|---|
| Quotation No.: | | | **Chemtest Sample ID.:** | | 1276284 | 1276285 | 1276286 |
| | | | Sample Location: | | TP05 | TP06 | TP06 |
| | | | Sample Type: | | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 1.00 | 0.50 | 1.00 |
| | | | Date Sampled: | | 02-Sep-2021 | 02-Sep-2021 | 02-Sep-2021 |
| | | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | |
| Total PCBs (7 Congeners) | U | 2815 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Phenols | M | 2920 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 |

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276275 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP01 | | | | | | |
| **Top Depth(m):** | 0.50 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.1 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 90 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.010 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0006 | 0.0057 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0012 | 0.012 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0021 | 0.021 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0058 | 0.058 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0013 | 0.013 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.40 | 4.0 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 78 | 780 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 15 | 150 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 11 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276276 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP01 | | | | | | |
| **Top Depth(m):** | 1.00 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.30 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 2.9 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.8 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.034 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 70 |
| Copper | 1455 | U | < 0.0005 | < 0.0005 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0031 | 0.031 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0006 | 0.0062 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.22 | 2.2 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 48 | 470 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 6.9 | 69 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 6.1 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276277 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP02 | | | | | | |
| **Top Depth(m):** | 0.50 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.8 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 5.9 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 9.1 | 100 | -- | -- |
| pH | 2010 | M | | 8.8 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.016 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0003 | 0.0032 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0010 | 0.010 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0012 | 0.012 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0048 | 0.048 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0008 | 0.0083 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.41 | 4.1 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 72 | 710 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 12 | 120 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 9.9 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276278 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP02 | | | | | | |
| **Top Depth(m):** | 1.00 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.33 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 2.9 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.8 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.037 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0007 | 0.0074 | 0.5 | 10 | 70 |
| Copper | 1455 | U | < 0.0005 | < 0.0005 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0069 | 0.069 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | < 0.0005 | < 0.0005 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.34 | 3.4 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 1.1 | 11 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 59 | 590 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 7.3 | 73 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.3 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276279 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP03 | | | | | | |
| **Top Depth(m):** | 0.50 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.91 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.5 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | 13 | 100 | -- | -- |
| pH | 2010 | M | | 8.9 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.048 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0003 | 0.0032 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0009 | 0.0085 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0008 | 0.0079 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0066 | 0.066 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0008 | 0.0084 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.1 | 11 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.28 | 2.8 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 48 | 480 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 7.7 | 77 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.7 |

## Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276280 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP03 | | | | | | |
| **Top Depth(m):** | 1.00 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.29 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 2.3 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.9 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.045 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0002 | 0.0020 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0005 | 0.0055 | 0.5 | 10 | 70 |
| Copper | 1455 | U | < 0.0005 | < 0.0005 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0066 | 0.066 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | < 0.0005 | < 0.0005 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 1.2 | 12 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 65 | 650 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 6.3 | 63 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.4 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276281 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP04 | | | | | | |
| **Top Depth(m):** | 0.50 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.75 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.2 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.028 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0006 | 0.0060 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0005 | 0.0055 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0027 | 0.027 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | < 0.0005 | < 0.0005 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.58 | 5.8 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 58 | 580 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 11 | 110 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 8.8 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| **Chemtest Job No:** | 21-31392 | | | | **Landfill Waste Acceptance Criteria Limits** | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Sample ID:** | 1276282 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP04 | | | | | | |
| **Top Depth(m):** | 1.00 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.4 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 2.0 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.9 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.053 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 70 |
| Copper | 1455 | U | < 0.0005 | < 0.0005 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0099 | 0.099 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | < 0.0005 | < 0.0005 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.46 | 4.6 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 52 | 520 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 7.5 | 75 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.3 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276283 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP05 | | | | | | |
| **Top Depth(m):** | 0.50 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 4.2 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 8.0 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.6 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.024 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0006 | 0.0060 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0007 | 0.0074 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0029 | 0.029 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0055 | 0.055 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0009 | 0.0091 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | 0.0005 | 0.0052 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.70 | 7.0 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 72 | 720 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 17 | 170 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.7 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276284 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP05 | | | | | | |
| **Top Depth(m):** | 1.00 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.80 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.5 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.8 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.021 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0005 | 0.0055 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0038 | 0.038 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | < 0.0005 | < 0.0005 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.41 | 4.1 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 72 | 710 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 11 | 110 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 8.5 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276285 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP06 | | | | | | |
| **Top Depth(m):** | 0.50 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 1.0 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 3.9 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.020 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0002 | 0.0021 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0013 | 0.013 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0048 | 0.048 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0006 | 0.0064 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | < 0.003 | < 0.003 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.54 | 5.4 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 78 | 780 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 12 | 120 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 7.5 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Results - Single Stage WAC

**Project: 21-0968 Carlisle Residential Development, Kimmage**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 21-31392 | | | | | | |
| **Chemtest Sample ID:** | 1276286 | | | | | | |
| **Sample Ref:** | | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP06 | | | | | | |
| **Top Depth(m):** | 1.00 | | | | | | |
| **Bottom Depth(m):** | | | | | | | |
| **Sampling Date:** | 02-Sep-2021 | | | | | | |
| **Determinand** | **SOP** | **Accred.** | **Units** | | **Inert Waste Landfill** | **Stable, Non-reactive hazardous waste in non-hazardous Landfill** | **Hazardous Waste Landfill** |
| Total Organic Carbon | 2625 | M | % | 0.90 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | M | % | 2.1 | -- | -- | 10 |
| Total BTEX | 2760 | M | mg/kg | < 0.010 | 6 | -- | -- |
| Total PCBs (7 Congeners) | 2815 | M | mg/kg | < 0.10 | 1 | -- | -- |
| TPH Total WAC | 2670 | M | mg/kg | < 10 | 500 | -- | -- |
| Total (Of 17) PAH's | 2800 | N | mg/kg | < 2.0 | 100 | -- | -- |
| pH | 2010 | M | | 8.9 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.033 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | < 0.0002 | < 0.0002 | 0.5 | 2 | 25 |
| Barium | 1455 | U | < 0.005 | < 0.0005 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.00011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0005 | 0.0054 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0008 | 0.0078 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00005 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0089 | 0.089 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0007 | 0.0066 | 0.4 | 10 | 40 |
| Lead | 1455 | U | < 0.0005 | < 0.0005 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0005 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | < 0.0005 | < 0.0005 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | 0.006 | 0.064 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.41 | 4.1 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 61 | 600 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 8.0 | 80 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 6.3 |

**Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

# Test Methods

| SOP | Title | Parameters included | Method summary |
|---|---|---|---|
| 1010 | pH Value of Waters | pH | pH Meter |
| 1020 | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Conductivity Meter |
| 1220 | Anions, Alkalinity & Ammonium in Waters | Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium | Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser. |
| 1455 | Metals in Waters by ICP-MS | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS). |
| 1610 | Total/Dissolved Organic Carbon in Waters | Organic Carbon | TOC Analyser using Catalytic Oxidation |
| 1920 | Phenols in Waters by HPLC | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded. | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection. |
| 2010 | pH Value of Soils | pH | pH Meter |
| 2015 | Acid Neutralisation Capacity | Acid Reserve | Titration |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2180 | Sulphur (Elemental) in Soils by HPLC | Sulphur | Dichloromethane extraction / HPLC with UV detection |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2325 | Sulphide in Soils | Sulphide | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine. |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2610 | Loss on Ignition | loss on ignition (LOI) | Determination of the proportion by mass that is lost from a soil by ignition at 550°C. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40 | Dichloromethane extraction / GC-FID |
| 2680 | TPH A/A Split | Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44 | Dichloromethane extraction / GCxGC FID detection |

# Test Methods

| SOP | Title | Parameters included | Method summary |
|---|---|---|---|
| 2760 | Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule | Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds. |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS |
| 2815 | Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS | ICES7 PCB congeners | Acetone/Hexane extraction / GC-MS |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |
| 640 | Characterisation of Waste (Leaching C10) | Waste material including soil, sludges and granular waste | ComplianceTest for Leaching of Granular Waste Material and Sludge |

## Report Information

**Key**

| | |
|---|---|
| U | UKAS accredited |
| M | MCERTS and UKAS accredited |
| N | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

**Sample Deviation Codes**

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**Sample Retention and Disposal**

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

CAUSEWAY GEOTECH

# APPENDIX H

# SPT HAMMER ENERGY MEASUREMENT REPORT

# SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

**Southern Testing**
**Unit 11**
**Charlwood Road**
**East Grinstead**
**West Sussex**
**RH19 2HU**

| | |
|---|---|
| SPT Hammer Ref: | 0200 |
| Test Date: | 27/02/2021 |
| Report Date: | 01/03/2021 |
| File Name: | 0200.spt |
| Test Operator: | NPB |

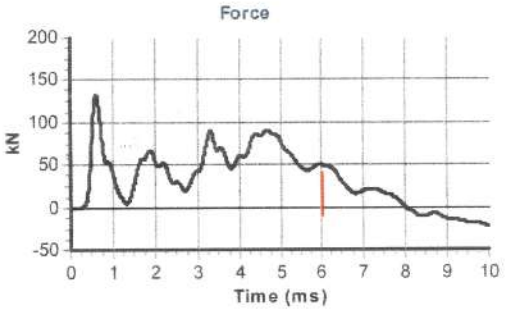
**Instrumented Rod Data**

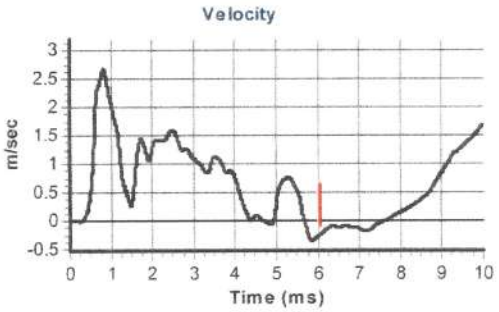
| | |
|---|---|
| Diameter $d_r$ (mm): | 54 |
| Wall Thickness $t_r$ (mm): | 6.3 |
| Assumed Modulus $E_a$ (GPa): | 208 |
| Accelerometer No.1: | 6458 |
| Accelerometer No.2: | 9607 |

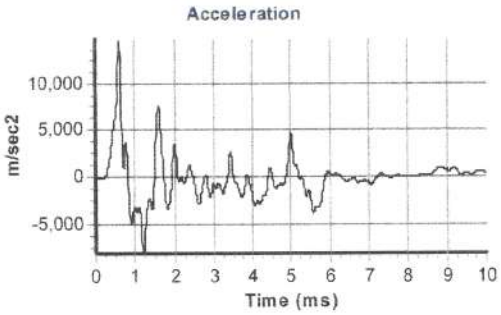
**SPT Hammer Information**

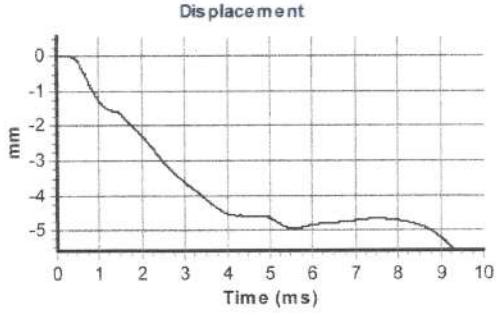
| | |
|---|---|
| Hammer Mass m (kg): | 63.5 |
| Falling Height h (mm): | 760 |
| SPT String Length L (m): | 11.0 |

**Comments / Location**
BALLYMONEY




**Calculations**

| | |
|---|---|
| Area of Rod A (mm2): | 944 |
| Theoretical Energy $E_{theor}$ (J): | 473 |
| Measured Energy $E_{meas}$ (J): | 282 |

**Energy Ratio $E_r$ (%):** **60**

N P Burrows

Signed: N P Burrows
Title: Field Operations Manager

The recommended calibration interval is 12 months

# SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

**Southern Testing**
**Unit 11**
**Charlwood Road**
**East Grinstead**
**West Sussex**
**RH19 2HU**

| | |
|---|---|
| SPT Hammer Ref: | T1. |
| Test Date: | 27/02/2021 |
| Report Date: | 01/03/2021 |
| File Name: | T1..spt |
| Test Operator: | NPB |

### Instrumented Rod Data

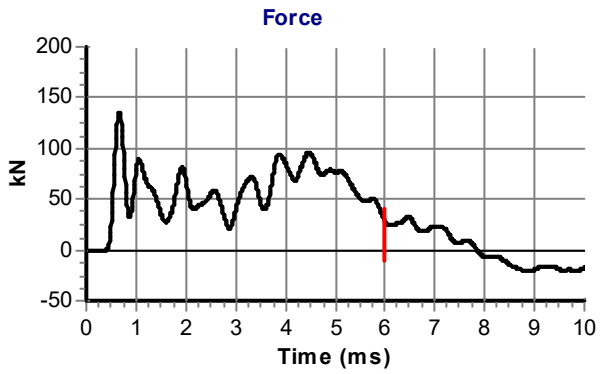
| | |
|---|---|
| Diameter $d_r$ (mm): | 54 |
| Wall Thickness $t_r$ (mm): | 6.3 |
| Assumed Modulus $E_a$ (GPa): | 208 |
| Accelerometer No.1: | 6458 |
| Accelerometer No.2: | 9607 |

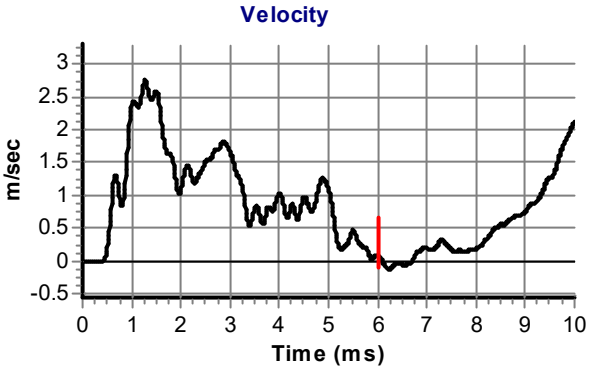
### SPT Hammer Information

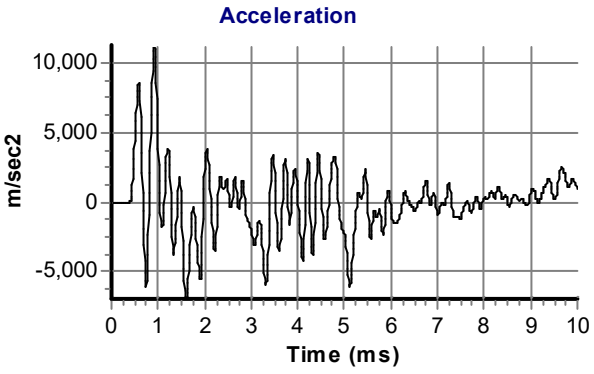
| | |
|---|---|
| Hammer Mass m (kg): | 63.5 |
| Falling Height h (mm): | 760 |
| SPT String Length L (m): | 11.0 |

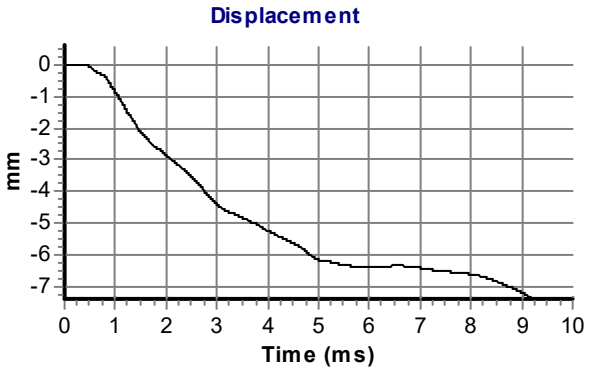
### Comments / Location

BALLYMONEY




### Calculations

| | |
|---|---|
| Area of Rod A (mm2): | 944 |
| Theoretical Energy $E_{theor}$ (J): | 473 |
| Measured Energy $E_{meas}$ (J): | 409 |

**Energy Ratio $E_r$ (%):** **86**

Signed: N P Burrows

Title: Field Operations Manager

The recommended calibration interval is 12 months

CAUSEWAY GEOTECH

# APPENDIX I

# WASTE CLASSIFICATION REPORT

# Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

F21NP-62I2D-X5J95

## Job name

Carlisle Development

## Description/Comments

Waste Classification run on samples taken during ground investigation works in August 2021

## Project

21-0968

## Site

Carlisle Develpoment

## Classified by

Name:
**Sean Ross**
Date:
**23 Sep 2021 08:42 GMT**
Telephone:

Company:
**Causeway Geotech Ltd**
**Unit 1 Fingal House, Stephenstown Industrial Estate,**
**Balbriggan**
**K32 VR66**

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

**HazWasteOnline™ Certification:** -

| Course | Date |
|---|---|
| Hazardous Waste Classification | 50% complete |

## Job summary

| # | Sample name | Depth [m] | Classification Result | Hazard properties | WAC Results | | Page |
|---|---|---|---|---|---|---|---|
| | | | | | Inert | Non Haz | |
| 1 | BH01-1-06/09/2021-0.5 | 0.5 | Non Hazardous | | Fail | Fail | 3 |
| 2 | BH01-2-06/09/2021-1 | 1 | Non Hazardous | | Fail | Pass | 7 |
| 3 | BH02-1-06/09/2021-0.5 | 0.5 | Non Hazardous | | Fail | Pass | 11 |
| 4 | BH02-2-06/09/2021-1 | 1 | Non Hazardous | | Pass | Pass | 15 |
| 5 | BH03-1-06/09/2021-0.5 | 0.5 | Non Hazardous | | Fail | Pass | 19 |
| 6 | BH03-2-06/09/2021-1 | 1 | Non Hazardous | | Pass | Pass | 23 |
| 7 | BH04-1-06/09/2021-0.5 | 0.5 | Non Hazardous | | Fail | Pass | 27 |
| 8 | BH04-2-06/09/2021-1 | 1 | Non Hazardous | | Pass | Pass | 31 |
| 9 | BH05-1-06/09/2021-0.5 | 0.5 | Non Hazardous | | Pass | Pass | 35 |
| 10 | BH05-2-06/09/2021-1 | 1 | Non Hazardous | | Pass | Pass | 39 |
| 11 | TP07-03/09/2021-0.5 | 0.5 | Non Hazardous | | Pass | Pass | 43 |
| 12 | TP07-03/09/2021-1 | 1 | Non Hazardous | | Pass | Pass | 47 |
| 13 | TP08-03/09/2021-0.5 | 0.5 | Non Hazardous | | Pass | Pass | 51 |
| 14 | TP08-03/09/2021-1 | 1 | Non Hazardous | | Pass | Pass | 55 |
| 15 | TP01-02/09/2021-0.50 | 0.50 | Non Hazardous | | Pass | Pass | 59 |
| 16 | TP01-02/09/2021-1.00 | 1.00 | Non Hazardous | | Pass | Pass | 63 |
| 17 | TP02-02/09/2021-0.50 | 0.50 | Non Hazardous | | Pass | Pass | 67 |
| 18 | TP02-02/09/2021-1.00 | 1.00 | Non Hazardous | | Pass | Pass | 71 |
| 19 | TP03-02/09/2021-0.50 | 0.50 | Non Hazardous | | Pass | Pass | 75 |
| 20 | TP03-02/09/2021-1.00 | 1.00 | Non Hazardous | | Fail | Pass | 79 |
| 21 | TP04-02/09/2021-0.50 | 0.50 | Non Hazardous | | Pass | Pass | 83 |
| 22 | TP04-02/09/2021-1.00 | 1.00 | Non Hazardous | | Pass | Pass | 87 |
| 23 | TP05-02/09/2021-0.50 | 0.50 | Non Hazardous | | Fail | Pass | 91 |
| 24 | TP05-02/09/2021-1.00 | 1.00 | Non Hazardous | | Pass | Pass | 95 |
| 25 | TP06-02/09/2021-0.50 | 0.50 | Non Hazardous | | Pass | Pass | 99 |
| 26 | TP06-02/09/2021-1.00 | 1.00 | Non Hazardous | | Pass | Pass | 103 |

## Related documents

| # | Name | Description |
|---|---|---|
| 1 | Carlisle Development.BATCH | .batch file used to create the Job |
| 2 | HWOL_21-30908-20210916 174524.hwol | .hwol file used to create the Job |
| 3 | HWOL_21-31046-20210920 183230.hwol | .hwol file used to create the Job |
| 4 | HWOL_21-31392-20210922 190651.hwol | .hwol file used to create the Job |
| 5 | Example waste stream template for contaminated soils | waste stream template used to create this Job |

## WAC results

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate the samples in this Job: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

## Report

Created by: Sean Ross

Created date: 23 Sep 2021 08:42 GMT

## Classification of sample: BH01-1-06/09/2021-0.5

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH01-1-06/09/2021-0.5**
Sample Depth:
**0.5 m**
Moisture content:
**17%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number / EC Number / CAS Number | | | | | | | |
| 1 | | antimony { antimony trioxide } | | 2.7 mg/kg | 1.197 | 2.683 mg/kg | 0.000268 % | ✓ | |
| | | 051-005-00-X / 215-175-0 / 1309-64-4 | | | | | | | |
| 2 | | arsenic { arsenic trioxide } | | 27 mg/kg | 1.32 | 29.588 mg/kg | 0.00296 % | ✓ | |
| | | 033-003-00-0 / 215-481-4 / 1327-53-3 | | | | | | | |
| 3 | | boron { diboron trioxide; boric oxide } | | 2.2 mg/kg | 3.22 | 5.879 mg/kg | 0.000588 % | ✓ | |
| | | 005-008-00-8 / 215-125-8 / 1303-86-2 | | | | | | | |
| 4 | | cadmium { cadmium oxide } | | 1.6 mg/kg | 1.142 | 1.517 mg/kg | 0.000152 % | ✓ | |
| | | 048-002-00-0 / 215-146-2 / 1306-19-0 | | | | | | | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 23 mg/kg | 1.462 | 27.901 mg/kg | 0.00279 % | ✓ | |
| | | / 215-160-9 / 1308-38-9 | | | | | | | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| | | 024-017-00-8 / / | | | | | | | |
| 7 | | copper { dicopper oxide; copper (I) oxide } | | 76 mg/kg | 1.126 | 71.021 mg/kg | 0.0071 % | ✓ | |
| | | 029-002-00-X / 215-270-7 / 1317-39-1 | | | | | | | |
| 8 | | lead { lead chromate } | 1 | 170 mg/kg | 1.56 | 220.09 mg/kg | 0.0141 % | ✓ | |
| | | 082-004-00-2 / 231-846-0 / 7758-97-6 | | | | | | | |
| 9 | | mercury { mercury dichloride } | | 0.97 mg/kg | 1.353 | 1.09 mg/kg | 0.000109 % | ✓ | |
| | | 080-010-00-X / 231-299-8 / 7487-94-7 | | | | | | | |
| 10 | | molybdenum { molybdenum(VI) oxide } | | 4.3 mg/kg | 1.5 | 5.354 mg/kg | 0.000535 % | ✓ | |
| | | 042-001-00-9 / 215-204-7 / 1313-27-5 | | | | | | | |
| 11 | | nickel { nickel chromate } | | 56 mg/kg | 2.976 | 138.337 mg/kg | 0.0138 % | ✓ | |
| | | 028-035-00-7 / 238-766-5 / 14721-18-7 | | | | | | | |
| 12 | | selenium { nickel selenate } | | 0.94 mg/kg | 2.554 | 1.993 mg/kg | 0.000199 % | ✓ | |
| | | 028-031-00-5 / 239-125-2 / 15060-62-5 | | | | | | | |
| 13 | | zinc { zinc chromate } | | 130 mg/kg | 2.774 | 299.33 mg/kg | 0.0299 % | ✓ | |
| | | 024-007-00-3 / 236-878-9 / 13530-65-9 | | | | | | | |
| 14 | | TPH (C6 to C40) petroleum group | | 200 mg/kg | | 166 mg/kg | 0.0166 % | ✓ | |
| | | / / TPH | | | | | | | |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| | | 603-181-00-X / 216-653-1 / 1634-04-4 | | | | | | | |
| 16 | | benzene | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| | | 601-020-00-8 / 200-753-7 / 71-43-2 | | | | | | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 9 | pH | | 9 | pH | 9pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | 1.1 | mg/kg | | 0.913 | mg/kg | 0.0000913 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | 0.21 | mg/kg | | 0.174 | mg/kg | 0.0000174 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | 1.4 | mg/kg | | 1.162 | mg/kg | 0.000116 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | 1.3 | mg/kg | | 1.079 | mg/kg | 0.000108 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | 0.74 | mg/kg | | 0.614 | mg/kg | 0.0000614 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | 0.87 | mg/kg | | 0.722 | mg/kg | 0.0000722 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | 1 | mg/kg | | 0.83 | mg/kg | 0.000083 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | 0.33 | mg/kg | | 0.274 | mg/kg | 0.0000274 % | ✓ | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.71 | mg/kg | | 0.589 | mg/kg | 0.0000589 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | 0.48 | mg/kg | | 0.398 | mg/kg | 0.0000398 % | ✓ | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | 0.14 | mg/kg | | 0.116 | mg/kg | 0.0000116 % | ✓ | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | 0.48 | mg/kg | | 0.398 | mg/kg | 0.0000398 % | ✓ | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | 31 | mg/kg | | 25.73 | mg/kg | 0.00257 % | ✓ | |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 95 | mg/kg | 1.233 | 97.261 | mg/kg | 0.00973 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.102 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0166%)

## WAC results for sample: BH01-1-06/09/2021-0.5

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample FAILS the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 6.7 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 13 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 200 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | 8.8 | 100 | - |
| 7 | pH | pH | 9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.013 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.016 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.088 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.034 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.047 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.043 | 0.4 | 10 |
| 17 | lead | mg/kg | 0.008 | 0.5 | 10 |
| 18 | antimony | mg/kg | 0.0069 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.5 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 150 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 1000 | 4,000 | 60,000 |

Key

| | |
|---|---|
| | User supplied data |
| | Inert WAC criteria fail |
| | Non Hazardous WAC criteria fail |

## Classification of sample: BH01-2-06/09/2021-1

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH01-2-06/09/2021-1**
Sample Depth:
**1 m**
Moisture content:
**11%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | 7.3 mg/kg | 1.197 | 7.778 mg/kg | 0.000778 % | ✓ | |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 16 mg/kg | 1.32 | 18.801 mg/kg | 0.00188 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.47 mg/kg | 3.22 | 1.347 mg/kg | 0.000135 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2.7 mg/kg | 1.142 | 2.745 mg/kg | 0.000275 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 19 mg/kg | 1.462 | 24.715 mg/kg | 0.00247 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 31 mg/kg | 1.126 | 31.063 mg/kg | 0.00311 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 21 mg/kg | 1.56 | 29.153 mg/kg | 0.00187 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.14 mg/kg | 1.353 | 0.169 mg/kg | 0.0000169 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 6.2 mg/kg | 1.5 | 8.278 mg/kg | 0.000828 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 54 mg/kg | 2.976 | 143.039 mg/kg | 0.0143 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.49 mg/kg | 2.554 | 1.114 mg/kg | 0.000111 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 94 mg/kg | 2.774 | 232.085 mg/kg | 0.0232 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | 120 mg/kg | | 106.8 mg/kg | 0.0107 % | ✓ | |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 9.2 | pH | | 9.2 | pH | 9.2 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | 5.5 | mg/kg | | 4.895 | mg/kg | 0.000489 % | ✓ | |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 60 | mg/kg | 1.233 | 65.869 | mg/kg | 0.00659 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0671 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0107%)

## WAC results for sample: BH01-2-06/09/2021-1

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 3.6 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 4.1 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 120 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 9.2 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.009 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.093 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.01 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.032 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.043 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.2 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 120 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 710 | 4,000 | 60,000 |

Key

| | |
|---|---|
| | User supplied data |
| | Inert WAC criteria fail |

## Classification of sample: BH02-1-06/09/2021-0.5

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH02-1-06/09/2021-0.5**
Sample Depth:
**0.5 m**
Moisture content:
**15%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number / EC Number / CAS Number | | | | | | | |
| 1 | | antimony { antimony trioxide } | | 4.3 mg/kg | 1.197 | 4.375 mg/kg | 0.000438 % | ✓ | |
| | | 051-005-00-X / 215-175-0 / 1309-64-4 | | | | | | | |
| 2 | | arsenic { arsenic trioxide } | | 19 mg/kg | 1.32 | 21.323 mg/kg | 0.00213 % | ✓ | |
| | | 033-003-00-0 / 215-481-4 / 1327-53-3 | | | | | | | |
| 3 | | boron { diboron trioxide; boric oxide } | | 1.5 mg/kg | 3.22 | 4.105 mg/kg | 0.000411 % | ✓ | |
| | | 005-008-00-8 / 215-125-8 / 1303-86-2 | | | | | | | |
| 4 | | cadmium { cadmium oxide } | | 1.5 mg/kg | 1.142 | 1.456 mg/kg | 0.000146 % | ✓ | |
| | | 048-002-00-0 / 215-146-2 / 1306-19-0 | | | | | | | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 20 mg/kg | 1.462 | 24.846 mg/kg | 0.00248 % | ✓ | |
| | | / 215-160-9 / 1308-38-9 | | | | | | | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <LOD |
| | | 024-017-00-8 / / | | | | | | | |
| 7 | | copper { dicopper oxide; copper (I) oxide } | | 62 mg/kg | 1.126 | 59.334 mg/kg | 0.00593 % | ✓ | |
| | | 029-002-00-X / 215-270-7 / 1317-39-1 | | | | | | | |
| 8 | | lead { lead chromate } | 1 | 160 mg/kg | 1.56 | 212.135 mg/kg | 0.0136 % | ✓ | |
| | | 082-004-00-2 / 231-846-0 / 7758-97-6 | | | | | | | |
| 9 | | mercury { mercury dichloride } | | 0.64 mg/kg | 1.353 | 0.736 mg/kg | 0.0000736 % | ✓ | |
| | | 080-010-00-X / 231-299-8 / 7487-94-7 | | | | | | | |
| 10 | | molybdenum { molybdenum(VI) oxide } | | 3.8 mg/kg | 1.5 | 4.846 mg/kg | 0.000485 % | ✓ | |
| | | 042-001-00-9 / 215-204-7 / 1313-27-5 | | | | | | | |
| 11 | | nickel { nickel chromate } | | 48 mg/kg | 2.976 | 121.432 mg/kg | 0.0121 % | ✓ | |
| | | 028-035-00-7 / 238-766-5 / 14721-18-7 | | | | | | | |
| 12 | | selenium { nickel selenate } | | 0.6 mg/kg | 2.554 | 1.302 mg/kg | 0.00013 % | ✓ | |
| | | 028-031-00-5 / 239-125-2 / 15060-62-5 | | | | | | | |
| 13 | | zinc { zinc chromate } | | 110 mg/kg | 2.774 | 259.383 mg/kg | 0.0259 % | ✓ | |
| | | 024-007-00-3 / 236-878-9 / 13530-65-9 | | | | | | | |
| 14 | | TPH (C6 to C40) petroleum group | | 430 mg/kg | | 365.5 mg/kg | 0.0366 % | ✓ | |
| | | / / TPH | | | | | | | |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| | | 603-181-00-X / 216-653-1 / 1634-04-4 | | | | | | | |
| 16 | | benzene | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| | | 601-020-00-8 / 200-753-7 / 71-43-2 | | | | | | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.7 | pH | | 8.7 | pH | 8.7 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | 0.6 | mg/kg | | 0.51 | mg/kg | 0.000051 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | 0.12 | mg/kg | | 0.102 | mg/kg | 0.0000102 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | 0.85 | mg/kg | | 0.723 | mg/kg | 0.0000723 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | 0.84 | mg/kg | | 0.714 | mg/kg | 0.0000714 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | 0.48 | mg/kg | | 0.408 | mg/kg | 0.0000408 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | 0.57 | mg/kg | | 0.484 | mg/kg | 0.0000484 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | 0.66 | mg/kg | | 0.561 | mg/kg | 0.0000561 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | 0.24 | mg/kg | | 0.204 | mg/kg | 0.0000204 % | ✓ | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.47 | mg/kg | | 0.399 | mg/kg | 0.0000399 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | 0.37 | mg/kg | | 0.315 | mg/kg | 0.0000314 % | ✓ | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | 0.13 | mg/kg | | 0.111 | mg/kg | 0.0000111 % | ✓ | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | 0.39 | mg/kg | | 0.331 | mg/kg | 0.0000331 % | ✓ | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 86 | mg/kg | 1.233 | 90.168 | mg/kg | 0.00902 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.11 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0366%)

## WAC results for sample: BH02-1-06/09/2021-0.5

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 3.8 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 11 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 430 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | 5.7 | 100 | - |
| 7 | pH | pH | 8.7 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.009 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.021 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.088 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.048 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.064 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.052 | 0.4 | 10 |
| 17 | lead | mg/kg | 0.0077 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 3.9 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 220 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 780 | 4,000 | 60,000 |

Key

| | |
|---|---|
| | User supplied data |
| | Inert WAC criteria fail |

## Classification of sample: BH02-2-06/09/2021-1

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH02-2-06/09/2021-1**
Sample Depth:
**1 m**
Moisture content:
**9.2%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 9.2% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|
| | CLP index number / EC Number / CAS Number | | | | | | | |
| 1 | antimony { antimony trioxide }<br>051-005-00-X / 215-175-0 / 1309-64-4 | | 2.7 mg/kg | 1.197 | 2.935 mg/kg | 0.000293 % | ✓ | |
| 2 | arsenic { arsenic trioxide }<br>033-003-00-0 / 215-481-4 / 1327-53-3 | | 12 mg/kg | 1.32 | 14.386 mg/kg | 0.00144 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide }<br>005-008-00-8 / 215-125-8 / 1303-86-2 | | <0.4 mg/kg | 3.22 | <1.288 mg/kg | <0.000129 % | | <**LOD** |
| 4 | cadmium { cadmium oxide }<br>048-002-00-0 / 215-146-2 / 1306-19-0 | | 1.8 mg/kg | 1.142 | 1.867 mg/kg | 0.000187 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) }<br>215-160-9 / 1308-38-9 | | 14 mg/kg | 1.462 | 18.579 mg/kg | 0.00186 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }<br>024-017-00-8 | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide }<br>029-002-00-X / 215-270-7 / 1317-39-1 | | 21 mg/kg | 1.126 | 21.468 mg/kg | 0.00215 % | ✓ | |
| 8 | lead { lead chromate }<br>082-004-00-2 / 231-846-0 / 7758-97-6 | 1 | 17 mg/kg | 1.56 | 24.077 mg/kg | 0.00154 % | ✓ | |
| 9 | mercury { mercury dichloride }<br>080-010-00-X / 231-299-8 / 7487-94-7 | | <0.1 mg/kg | 1.353 | <0.135 mg/kg | <0.0000135 % | | <**LOD** |
| 10 | molybdenum { molybdenum(VI) oxide }<br>042-001-00-9 / 215-204-7 / 1313-27-5 | | 2.6 mg/kg | 1.5 | 3.542 mg/kg | 0.000354 % | ✓ | |
| 11 | nickel { nickel chromate }<br>028-035-00-7 / 238-766-5 / 14721-18-7 | | 34 mg/kg | 2.976 | 91.883 mg/kg | 0.00919 % | ✓ | |
| 12 | selenium { nickel selenate }<br>028-031-00-5 / 239-125-2 / 15060-62-5 | | 0.27 mg/kg | 2.554 | 0.626 mg/kg | 0.0000626 % | ✓ | |
| 13 | zinc { zinc chromate }<br>024-007-00-3 / 236-878-9 / 13530-65-9 | | 50 mg/kg | 2.774 | 125.946 mg/kg | 0.0126 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group<br>TPH | | 98 mg/kg | | 88.984 mg/kg | 0.0089 % | ✓ | |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane<br>603-181-00-X / 216-653-1 / 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene<br>601-020-00-8 / 200-753-7 / 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 9.1 | pH | | 9.1 | pH | 9.1 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | 5 | mg/kg | | 4.54 | mg/kg | 0.000454 % | ✓ | |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 41 | mg/kg | 1.233 | 45.921 | mg/kg | 0.00459 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0442 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0089%)

## WAC results for sample: BH02-2-06/09/2021-1

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.89 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 4.3 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 98 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 9.1 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.021 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0034 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.087 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.014 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.064 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.041 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.1 | 10 | 150 |
| 23 | sulphate | mg/kg | 28 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 130 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 650 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: BH03-1-06/09/2021-0.5

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH03-1-06/09/2021-0.5**
Sample Depth:
**0.5 m**
Moisture content:
**13%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | 2.2 mg/kg | 1.197 | 2.291 mg/kg | 0.000229 % | ✓ | |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 11 mg/kg | 1.32 | 12.636 mg/kg | 0.00126 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 1.2 mg/kg | 3.22 | 3.362 mg/kg | 0.000336 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.3 mg/kg | 1.142 | 1.292 mg/kg | 0.000129 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 14 mg/kg | 1.462 | 17.802 mg/kg | 0.00178 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 29 mg/kg | 1.126 | 28.406 mg/kg | 0.00284 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 59 mg/kg | 1.56 | 80.065 mg/kg | 0.00513 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.22 mg/kg | 1.353 | 0.259 mg/kg | 0.0000259 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 2.6 mg/kg | 1.5 | 3.393 mg/kg | 0.000339 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 32 mg/kg | 2.976 | 82.859 mg/kg | 0.00829 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.44 mg/kg | 2.554 | 0.978 mg/kg | 0.0000978 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 64 mg/kg | 2.774 | 154.464 mg/kg | 0.0154 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | 86 mg/kg | | 74.82 mg/kg | 0.00748 % | ✓ | |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 8.8 | pH | | 8.8 | pH | 8.8 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | 3.5 | mg/kg | | 3.045 | mg/kg | 0.000305 % | ✓ | |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 47 | mg/kg | 1.233 | 50.438 | mg/kg | 0.00504 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0491 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00748%)

## WAC results for sample: BH03-1-06/09/2021-0.5

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 4 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 7.7 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 86 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.8 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.008 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0045 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.088 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.013 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.15 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.041 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | 0.0052 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.5 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 140 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 580 | 4,000 | 60,000 |

Key

| | |
|---|---|
| | User supplied data |
| | Inert WAC criteria fail |

## Classification of sample: BH03-2-06/09/2021-1

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH03-2-06/09/2021-1**
Sample Depth:
**1 m**
Moisture content:
**7.5%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 7.5% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | 2.5 | mg/kg | 1.197 | 2.768 | mg/kg | 0.000277 % | ✓ | |
| 2 | | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 22 | mg/kg | 1.32 | 26.869 | mg/kg | 0.00269 % | ✓ | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 | mg/kg | 3.22 | <1.288 | mg/kg | <0.000129 % | | <**LOD** |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2.3 | mg/kg | 1.142 | 2.43 | mg/kg | 0.000243 % | ✓ | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 17 | mg/kg | 1.462 | 22.983 | mg/kg | 0.0023 % | ✓ | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 29 | mg/kg | 1.126 | 30.202 | mg/kg | 0.00302 % | ✓ | |
| 8 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 20 | mg/kg | 1.56 | 28.857 | mg/kg | 0.00185 % | ✓ | |
| 9 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <0.1 | mg/kg | 1.353 | <0.135 | mg/kg | <0.0000135 % | | <**LOD** |
| 10 | | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 4.1 | mg/kg | 1.5 | 5.689 | mg/kg | 0.000569 % | ✓ | |
| 11 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 51 | mg/kg | 2.976 | 140.405 | mg/kg | 0.014 % | ✓ | |
| 12 | | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.31 | mg/kg | 2.554 | 0.732 | mg/kg | 0.0000732 % | ✓ | |
| 13 | | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 74 | mg/kg | 2.774 | 189.89 | mg/kg | 0.019 % | ✓ | |
| 14 | | TPH (C6 to C40) petroleum group | | | TPH | | 110 | mg/kg | | 101.75 | mg/kg | 0.0102 % | ✓ | |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | 1.1 | mg/kg | 1.884 | 1.917 | mg/kg | 0.000192 % | ✓ | |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 9.3 | pH | | 9.3 | pH | 9.3 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | 3 | mg/kg | | 2.775 | mg/kg | 0.000277 % | ✓ | |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 51 | mg/kg | 1.233 | 58.19 | mg/kg | 0.00582 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.061 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0102%)

## WAC results for sample: BH03-2-06/09/2021-1

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.8 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 2.8 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 110 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 9.3 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.031 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0021 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.089 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.0055 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.053 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.041 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4 | 10 | 150 |
| 23 | sulphate | mg/kg | 20 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 81 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 580 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: BH04-1-06/09/2021-0.5

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH04-1-06/09/2021-0.5**
Sample Depth:
**0.5 m**
Moisture content:
**13%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number / EC Number / CAS Number | | | | | | | |
| 1 | | antimony { antimony trioxide } | | 5.7 mg/kg | 1.197 | 5.936 mg/kg | 0.000594 % | ✓ | |
| | | 051-005-00-X / 215-175-0 / 1309-64-4 | | | | | | | |
| 2 | | arsenic { arsenic trioxide } | | 26 mg/kg | 1.32 | 29.866 mg/kg | 0.00299 % | ✓ | |
| | | 033-003-00-0 / 215-481-4 / 1327-53-3 | | | | | | | |
| 3 | | boron { diboron trioxide; boric oxide } | | 1.3 mg/kg | 3.22 | 3.642 mg/kg | 0.000364 % | ✓ | |
| | | 005-008-00-8 / 215-125-8 / 1303-86-2 | | | | | | | |
| 4 | | cadmium { cadmium oxide } | | 1.7 mg/kg | 1.142 | 1.69 mg/kg | 0.000169 % | ✓ | |
| | | 048-002-00-0 / 215-146-2 / 1306-19-0 | | | | | | | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 22 mg/kg | 1.462 | 27.974 mg/kg | 0.0028 % | ✓ | |
| | | / 215-160-9 / 1308-38-9 | | | | | | | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <LOD |
| | | 024-017-00-8 / / | | | | | | | |
| 7 | | copper { dicopper oxide; copper (I) oxide } | | 61 mg/kg | 1.126 | 59.751 mg/kg | 0.00598 % | ✓ | |
| | | 029-002-00-X / 215-270-7 / 1317-39-1 | | | | | | | |
| 8 | | lead { lead chromate } | 1 | 120 mg/kg | 1.56 | 162.845 mg/kg | 0.0104 % | ✓ | |
| | | 082-004-00-2 / 231-846-0 / 7758-97-6 | | | | | | | |
| 9 | | mercury { mercury dichloride } | | 0.58 mg/kg | 1.353 | 0.683 mg/kg | 0.0000683 % | ✓ | |
| | | 080-010-00-X / 231-299-8 / 7487-94-7 | | | | | | | |
| 10 | | molybdenum { molybdenum(VI) oxide } | | 4 mg/kg | 1.5 | 5.221 mg/kg | 0.000522 % | ✓ | |
| | | 042-001-00-9 / 215-204-7 / 1313-27-5 | | | | | | | |
| 11 | | nickel { nickel chromate } | | 48 mg/kg | 2.976 | 124.289 mg/kg | 0.0124 % | ✓ | |
| | | 028-035-00-7 / 238-766-5 / 14721-18-7 | | | | | | | |
| 12 | | selenium { nickel selenate } | | 0.8 mg/kg | 2.554 | 1.777 mg/kg | 0.000178 % | ✓ | |
| | | 028-031-00-5 / 239-125-2 / 15060-62-5 | | | | | | | |
| 13 | | zinc { zinc chromate } | | 160 mg/kg | 2.774 | 386.161 mg/kg | 0.0386 % | ✓ | |
| | | 024-007-00-3 / 236-878-9 / 13530-65-9 | | | | | | | |
| 14 | | TPH (C6 to C40) petroleum group | | 160 mg/kg | | 139.2 mg/kg | 0.0139 % | ✓ | |
| | | / / TPH | | | | | | | |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| | | 603-181-00-X / 216-653-1 / 1634-04-4 | | | | | | | |
| 16 | | benzene | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| | | 601-020-00-8 / 200-753-7 / 71-43-2 | | | | | | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.9 | pH | | 8.9 | pH | 8.9 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | 0.59 | mg/kg | | 0.513 | mg/kg | 0.0000513 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | 0.12 | mg/kg | | 0.104 | mg/kg | 0.0000104 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | 0.85 | mg/kg | | 0.74 | mg/kg | 0.000074 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | 0.8 | mg/kg | | 0.696 | mg/kg | 0.0000696 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | 0.5 | mg/kg | | 0.435 | mg/kg | 0.0000435 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | 0.6 | mg/kg | | 0.522 | mg/kg | 0.0000522 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | 0.63 | mg/kg | | 0.548 | mg/kg | 0.0000548 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | 0.23 | mg/kg | | 0.2 | mg/kg | 0.00002 % | ✓ | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.46 | mg/kg | | 0.4 | mg/kg | 0.00004 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | 0.32 | mg/kg | | 0.278 | mg/kg | 0.0000278 % | ✓ | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | 0.33 | mg/kg | | 0.287 | mg/kg | 0.0000287 % | ✓ | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 97 | mg/kg | 1.233 | 104.095 | mg/kg | 0.0104 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.1 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0139%)

## WAC results for sample: BH04-1-06/09/2021-0.5

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 4.9 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 9.6 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 160 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | 5.4 | 100 | - |
| 7 | pH | pH | 8.9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.012 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.011 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.085 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.039 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.056 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.05 | 0.4 | 10 |
| 17 | lead | mg/kg | 0.0074 | 0.5 | 10 |
| 18 | antimony | mg/kg | 0.0083 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 6.1 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 240 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 970 | 4,000 | 60,000 |

Key

| | |
|---|---|
| | User supplied data |
| | Inert WAC criteria fail |

## Classification of sample: BH04-2-06/09/2021-1

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH04-2-06/09/2021-1**
Sample Depth:
**1 m**
Moisture content:
**10%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|
| | CLP index number / EC Number / CAS Number | | | | | | | |
| 1 | antimony { antimony trioxide } | | 2.8 mg/kg | 1.197 | 3.017 mg/kg | 0.000302 % | ✓ | |
| | 051-005-00-X / 215-175-0 / 1309-64-4 | | | | | | | |
| 2 | arsenic { arsenic trioxide } | | 19 mg/kg | 1.32 | 22.578 mg/kg | 0.00226 % | ✓ | |
| | 033-003-00-0 / 215-481-4 / 1327-53-3 | | | | | | | |
| 3 | boron { diboron trioxide; boric oxide } | | <0.4 mg/kg | 3.22 | <1.288 mg/kg | <0.000129 % | | <LOD |
| | 005-008-00-8 / 215-125-8 / 1303-86-2 | | | | | | | |
| 4 | cadmium { cadmium oxide } | | 2 mg/kg | 1.142 | 2.056 mg/kg | 0.000206 % | ✓ | |
| | 048-002-00-0 / 215-146-2 / 1306-19-0 | | | | | | | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 21 mg/kg | 1.462 | 27.623 mg/kg | 0.00276 % | ✓ | |
| | / 215-160-9 / 1308-38-9 | | | | | | | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <LOD |
| | 024-017-00-8 / / | | | | | | | |
| 7 | copper { dicopper oxide; copper (I) oxide } | | 35 mg/kg | 1.126 | 35.465 mg/kg | 0.00355 % | ✓ | |
| | 029-002-00-X / 215-270-7 / 1317-39-1 | | | | | | | |
| 8 | lead { lead chromate } | 1 | 95 mg/kg | 1.56 | 133.364 mg/kg | 0.00855 % | ✓ | |
| | 082-004-00-2 / 231-846-0 / 7758-97-6 | | | | | | | |
| 9 | mercury { mercury dichloride } | | <0.1 mg/kg | 1.353 | <0.135 mg/kg | <0.0000135 % | | <LOD |
| | 080-010-00-X / 231-299-8 / 7487-94-7 | | | | | | | |
| 10 | molybdenum { molybdenum(VI) oxide } | | 4.3 mg/kg | 1.5 | 5.806 mg/kg | 0.000581 % | ✓ | |
| | 042-001-00-9 / 215-204-7 / 1313-27-5 | | | | | | | |
| 11 | nickel { nickel chromate } | | 46 mg/kg | 2.976 | 123.217 mg/kg | 0.0123 % | ✓ | |
| | 028-035-00-7 / 238-766-5 / 14721-18-7 | | | | | | | |
| 12 | selenium { nickel selenate } | | <0.2 mg/kg | 2.554 | <0.511 mg/kg | <0.0000511 % | | <LOD |
| | 028-031-00-5 / 239-125-2 / 15060-62-5 | | | | | | | |
| 13 | zinc { zinc chromate } | | 70 mg/kg | 2.774 | 174.771 mg/kg | 0.0175 % | ✓ | |
| | 024-007-00-3 / 236-878-9 / 13530-65-9 | | | | | | | |
| 14 | TPH (C6 to C40) petroleum group | | 53 mg/kg | | 47.7 mg/kg | 0.00477 % | ✓ | |
| | / / TPH | | | | | | | |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| | 603-181-00-X / 216-653-1 / 1634-04-4 | | | | | | | |
| 16 | benzene | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| | 601-020-00-8 / 200-753-7 / 71-43-2 | | | | | | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 9.1 | pH | | 9.1 | pH | 9.1 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | 4.4 | mg/kg | | 3.96 | mg/kg | 0.000396 % | ✓ | |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 71 | mg/kg | 1.233 | 78.82 | mg/kg | 0.00788 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0616 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00477%)

## WAC results for sample: BH04-2-06/09/2021-1

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.3 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.1 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 53 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 9.1 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.019 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.081 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.0053 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.068 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.039 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 3.2 | 10 | 150 |
| 23 | sulphate | mg/kg | 30 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 76 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 570 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: BH05-1-06/09/2021-0.5

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH05-1-06/09/2021-0.5**
Sample Depth:
**0.5 m**
Moisture content:
**4.7%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 4.7% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <**LOD** |
| 2 | | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 23 | mg/kg | 1.32 | 28.94 | mg/kg | 0.00289 % | ✓ | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 | mg/kg | 3.22 | <1.288 | mg/kg | <0.000129 % | | <**LOD** |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 3.2 | mg/kg | 1.142 | 3.484 | mg/kg | 0.000348 % | ✓ | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 26 | mg/kg | 1.462 | 36.214 | mg/kg | 0.00362 % | ✓ | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 25 | mg/kg | 1.126 | 26.824 | mg/kg | 0.00268 % | ✓ | |
| 8 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 38 | mg/kg | 1.56 | 56.487 | mg/kg | 0.00362 % | ✓ | |
| 9 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.11 | mg/kg | 1.353 | 0.142 | mg/kg | 0.0000142 % | ✓ | |
| 10 | | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 4.3 | mg/kg | 1.5 | 6.148 | mg/kg | 0.000615 % | ✓ | |
| 11 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 55 | mg/kg | 2.976 | 156.001 | mg/kg | 0.0156 % | ✓ | |
| 12 | | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.7 | mg/kg | 2.554 | 1.704 | mg/kg | 0.00017 % | ✓ | |
| 13 | | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 74 | mg/kg | 2.774 | 195.638 | mg/kg | 0.0196 % | ✓ | |
| 14 | | TPH (C6 to C40) petroleum group | | | TPH | | 84 | mg/kg | | 80.052 | mg/kg | 0.00801 % | ✓ | |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 9.2 | pH | | 9.2 | pH | 9.2 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | 1.1 | mg/kg | | 1.048 | mg/kg | 0.000105 % | ✓ | |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | 0.22 | mg/kg | | 0.21 | mg/kg | 0.000021 % | ✓ | |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | 0.94 | mg/kg | | 0.896 | mg/kg | 0.0000896 % | ✓ | |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | 0.84 | mg/kg | | 0.801 | mg/kg | 0.0000801 % | ✓ | |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | 0.53 | mg/kg | | 0.505 | mg/kg | 0.0000505 % | ✓ | |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | 0.6 | mg/kg | | 0.572 | mg/kg | 0.0000572 % | ✓ | |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | 0.6 | mg/kg | | 0.572 | mg/kg | 0.0000572 % | ✓ | |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | 0.26 | mg/kg | | 0.248 | mg/kg | 0.0000248 % | ✓ | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | 0.38 | mg/kg | | 0.362 | mg/kg | 0.0000362 % | ✓ | |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | 0.3 | mg/kg | | 0.286 | mg/kg | 0.0000286 % | ✓ | |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | 0.13 | mg/kg | | 0.124 | mg/kg | 0.0000124 % | ✓ | |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | 0.3 | mg/kg | | 0.286 | mg/kg | 0.0000286 % | ✓ | |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 67 | mg/kg | 1.233 | 78.76 | mg/kg | 0.00788 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0663 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00801%)

## WAC results for sample: BH05-1-06/09/2021-0.5

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.4 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.1 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 84 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | 6.2 | 100 | - |
| 7 | pH | pH | 9.2 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.03 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.02 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.1 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.013 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.076 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.04 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 2.9 | 10 | 150 |
| 23 | sulphate | mg/kg | 68 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 110 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 550 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: BH05-2-06/09/2021-1

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**BH05-2-06/09/2021-1**
Sample Depth:
**1 m**
Moisture content:
**17%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | 2.1 mg/kg | 1.197 | 2.087 mg/kg | 0.000209 % | ✓ | |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 15 mg/kg | 1.32 | 16.438 mg/kg | 0.00164 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.7 mg/kg | 3.22 | 1.871 mg/kg | 0.000187 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2.2 mg/kg | 1.142 | 2.086 mg/kg | 0.000209 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 20 mg/kg | 1.462 | 24.262 mg/kg | 0.00243 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <LOD |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 43 mg/kg | 1.126 | 40.183 mg/kg | 0.00402 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 51 mg/kg | 1.56 | 66.027 mg/kg | 0.00423 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.21 mg/kg | 1.353 | 0.236 mg/kg | 0.0000236 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.7 mg/kg | 1.5 | 4.607 mg/kg | 0.000461 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 50 mg/kg | 2.976 | 123.515 mg/kg | 0.0124 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 1.2 mg/kg | 2.554 | 2.544 mg/kg | 0.000254 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 93 mg/kg | 2.774 | 214.136 mg/kg | 0.0214 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | 86 mg/kg | | 71.38 mg/kg | 0.00714 % | ✓ | |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 8.6 | pH | | 8.6 | pH | 8.6 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | 1.9 | mg/kg | | 1.577 | mg/kg | 0.000158 % | ✓ | |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 67 | mg/kg | 1.233 | 68.595 | mg/kg | 0.00686 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.062 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00714%)

## WAC results for sample: BH05-2-06/09/2021-1

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 2.8 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 6.6 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | 86 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.6 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | <0.002 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0035 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.084 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.016 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.037 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.041 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 3.4 | 10 | 150 |
| 23 | sulphate | mg/kg | 150 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 120 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 970 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP07-03/09/2021-0.5

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP07-03/09/2021-0.5**
Sample Depth:
**0.5 m**
Moisture content:
**17%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <**LOD** |
| 2 | | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 14 | mg/kg | 1.32 | 15.342 | mg/kg | 0.00153 % | ✓ | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 | mg/kg | 3.22 | <1.288 | mg/kg | <0.000129 % | | <**LOD** |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2.3 | mg/kg | 1.142 | 2.181 | mg/kg | 0.000218 % | ✓ | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 19 | mg/kg | 1.462 | 23.049 | mg/kg | 0.0023 % | ✓ | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 59 | mg/kg | 1.126 | 55.135 | mg/kg | 0.00551 % | ✓ | |
| 8 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 33 | mg/kg | 1.56 | 42.723 | mg/kg | 0.00274 % | ✓ | |
| 9 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.12 | mg/kg | 1.353 | 0.135 | mg/kg | 0.0000135 % | ✓ | |
| 10 | | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.6 | mg/kg | 1.5 | 4.483 | mg/kg | 0.000448 % | ✓ | |
| 11 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 63 | mg/kg | 2.976 | 155.629 | mg/kg | 0.0156 % | ✓ | |
| 12 | | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.48 | mg/kg | 2.554 | 1.017 | mg/kg | 0.000102 % | ✓ | |
| 13 | | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 100 | mg/kg | 2.774 | 230.254 | mg/kg | 0.023 % | ✓ | |
| 14 | | TPH (C6 to C40) petroleum group | | | TPH | | <10 | mg/kg | | <10 | mg/kg | <0.001 % | | <**LOD** |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 9.2 | pH | | 9.2 | pH | 9.2 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 62 | mg/kg | 1.233 | 63.476 | mg/kg | 0.00635 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0597 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP07-03/09/2021-0.5

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.3 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 4.6 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 9.2 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.011 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.003 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.045 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.02 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.056 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.027 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.7 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 130 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 1600 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP07-03/09/2021-1

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP07-03/09/2021-1**
Sample Depth:
**1 m**
Moisture content:
**13%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <**LOD** |
| 2 | | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 11 | mg/kg | 1.32 | 12.636 | mg/kg | 0.00126 % | ✓ | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.4 | mg/kg | 3.22 | 1.121 | mg/kg | 0.000112 % | ✓ | |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.3 | mg/kg | 1.142 | 1.292 | mg/kg | 0.000129 % | ✓ | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 13 | mg/kg | 1.462 | 16.53 | mg/kg | 0.00165 % | ✓ | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 44 | mg/kg | 1.126 | 43.099 | mg/kg | 0.00431 % | ✓ | |
| 8 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 29 | mg/kg | 1.56 | 39.354 | mg/kg | 0.00252 % | ✓ | |
| 9 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.13 | mg/kg | 1.353 | 0.153 | mg/kg | 0.0000153 % | ✓ | |
| 10 | | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 2.5 | mg/kg | 1.5 | 3.263 | mg/kg | 0.000326 % | ✓ | |
| 11 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 42 | mg/kg | 2.976 | 108.753 | mg/kg | 0.0109 % | ✓ | |
| 12 | | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.3 | mg/kg | 2.554 | 0.667 | mg/kg | 0.0000667 % | ✓ | |
| 13 | | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 74 | mg/kg | 2.774 | 178.6 | mg/kg | 0.0179 % | ✓ | |
| 14 | | TPH (C6 to C40) petroleum group | | | TPH | | <10 | mg/kg | | <10 | mg/kg | <0.001 % | | <**LOD** |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 9 | pH | | 9 | pH | 9pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | 1.4 | mg/kg | | 1.218 | mg/kg | 0.000122 % | ✓ | |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 40 | mg/kg | 1.233 | 42.926 | mg/kg | 0.00429 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0452 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP07-03/09/2021-1

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.8 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 4.7 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.007 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0031 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.046 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.03 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.065 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.026 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | 0.0056 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.6 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 130 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 840 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP08-03/09/2021-0.5

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP08-03/09/2021-0.5**
Sample Depth:
**0.5 m**
Moisture content:
**13%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <**LOD** |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 15 | mg/kg | 1.32 | 17.23 | mg/kg | 0.00172 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 | mg/kg | 3.22 | <1.288 | mg/kg | <0.000129 % | | <**LOD** |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2.1 | mg/kg | 1.142 | 2.087 | mg/kg | 0.000209 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 20 | mg/kg | 1.462 | 25.431 | mg/kg | 0.00254 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 47 | mg/kg | 1.126 | 46.038 | mg/kg | 0.0046 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 27 | mg/kg | 1.56 | 36.64 | mg/kg | 0.00235 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.13 | mg/kg | 1.353 | 0.153 | mg/kg | 0.0000153 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.9 | mg/kg | 1.5 | 5.09 | mg/kg | 0.000509 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 65 | mg/kg | 2.976 | 168.308 | mg/kg | 0.0168 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.86 | mg/kg | 2.554 | 1.911 | mg/kg | 0.000191 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 99 | mg/kg | 2.774 | 238.937 | mg/kg | 0.0239 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 | mg/kg | | <10 | mg/kg | <0.001 % | | <**LOD** |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 9 | pH | | 9 | pH | 9pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 56 | mg/kg | 1.233 | 60.096 | mg/kg | 0.00601 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0607 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP08-03/09/2021-0.5

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.4 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.4 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.01 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.045 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.016 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.039 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.023 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4 | 10 | 150 |
| 23 | sulphate | mg/kg | 28 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 130 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 780 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP08-03/09/2021-1

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP08-03/09/2021-1**
Sample Depth:
**1 m**
Moisture content:
**15%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 mg/kg | 1.197 | <2.394 mg/kg | <0.000239 % | | <**LOD** |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 11 mg/kg | 1.32 | 12.345 mg/kg | 0.00123 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 3.3 mg/kg | 3.22 | 9.032 mg/kg | 0.000903 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.8 mg/kg | 1.142 | 1.748 mg/kg | 0.000175 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 16 mg/kg | 1.462 | 19.877 mg/kg | 0.00199 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 60 mg/kg | 1.126 | 57.42 mg/kg | 0.00574 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 20 mg/kg | 1.56 | 26.517 mg/kg | 0.0017 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.16 mg/kg | 1.353 | 0.184 mg/kg | 0.0000184 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.1 mg/kg | 1.5 | 3.953 mg/kg | 0.000395 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 53 mg/kg | 2.976 | 134.081 mg/kg | 0.0134 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.59 mg/kg | 2.554 | 1.281 mg/kg | 0.000128 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 83 mg/kg | 2.774 | 195.716 mg/kg | 0.0196 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <**LOD** |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.9 | pH | | 8.9 | pH | 8.9 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 44 | mg/kg | 1.233 | 46.133 | mg/kg | 0.00461 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0516 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP08-03/09/2021-1

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.3 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.003 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0025 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.056 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.018 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.027 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.028 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 3.3 | 10 | 150 |
| 23 | sulphate | mg/kg | 17 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 110 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 580 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP01-02/09/2021-0.50

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP01-02/09/2021-0.50**
Sample Depth:
**0.50 m**
Moisture content:
**11%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <**LOD** |
| 2 | | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 12 | mg/kg | 1.32 | 14.101 | mg/kg | 0.00141 % | ✓ | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.59 | mg/kg | 3.22 | 1.691 | mg/kg | 0.000169 % | ✓ | |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.9 | mg/kg | 1.142 | 1.932 | mg/kg | 0.000193 % | ✓ | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 17 | mg/kg | 1.462 | 22.113 | mg/kg | 0.00221 % | ✓ | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 40 | mg/kg | 1.126 | 40.082 | mg/kg | 0.00401 % | ✓ | |
| 8 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 37 | mg/kg | 1.56 | 51.365 | mg/kg | 0.00329 % | ✓ | |
| 9 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.22 | mg/kg | 1.353 | 0.265 | mg/kg | 0.0000265 % | ✓ | |
| 10 | | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 2.7 | mg/kg | 1.5 | 3.605 | mg/kg | 0.00036 % | ✓ | |
| 11 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 46 | mg/kg | 2.976 | 121.848 | mg/kg | 0.0122 % | ✓ | |
| 12 | | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.5 | mg/kg | 2.554 | 1.136 | mg/kg | 0.000114 % | ✓ | |
| 13 | | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 89 | mg/kg | 2.774 | 219.74 | mg/kg | 0.022 % | ✓ | |
| 14 | | TPH (C6 to C40) petroleum group | | | TPH | | <10 | mg/kg | | <10 | mg/kg | <0.001 % | | <**LOD** |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.7 | pH | | 8.7 | pH | 8.7 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | 0.12 | mg/kg | | 0.107 | mg/kg | 0.0000107 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | 0.2 | mg/kg | | 0.178 | mg/kg | 0.0000178 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 58 | mg/kg | 1.233 | 63.673 | mg/kg | 0.00637 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0541 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP01-02/09/2021-0.50

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.1 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 90 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.7 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.01 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0057 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.012 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.021 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.058 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.013 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 150 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 780 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP01-02/09/2021-1.00

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP01-02/09/2021-1.00**
Sample Depth:
**1.00 m**
Moisture content:
**6.1%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 6.1% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number / EC Number / CAS Number | | | | | | | |
| 1 | | antimony { antimony trioxide } | | 4.1 mg/kg | 1.197 | 4.609 mg/kg | 0.000461 % | ✓ | |
| | | 051-005-00-X / 215-175-0 / 1309-64-4 | | | | | | | |
| 2 | | arsenic { arsenic trioxide } | | 15 mg/kg | 1.32 | 18.597 mg/kg | 0.00186 % | ✓ | |
| | | 033-003-00-0 / 215-481-4 / 1327-53-3 | | | | | | | |
| 3 | | boron { diboron trioxide; boric oxide } | | <0.4 mg/kg | 3.22 | <1.288 mg/kg | <0.000129 % | | <**LOD** |
| | | 005-008-00-8 / 215-125-8 / 1303-86-2 | | | | | | | |
| 4 | | cadmium { cadmium oxide } | | 2 mg/kg | 1.142 | 2.145 mg/kg | 0.000215 % | ✓ | |
| | | 048-002-00-0 / 215-146-2 / 1306-19-0 | | | | | | | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 12 mg/kg | 1.462 | 16.469 mg/kg | 0.00165 % | ✓ | |
| | | / 215-160-9 / 1308-38-9 | | | | | | | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| | | 024-017-00-8 / / | | | | | | | |
| 7 | | copper { dicopper oxide; copper (I) oxide } | | 56 mg/kg | 1.126 | 59.204 mg/kg | 0.00592 % | ✓ | |
| | | 029-002-00-X / 215-270-7 / 1317-39-1 | | | | | | | |
| 8 | | lead { lead chromate } | 1 | 23 mg/kg | 1.56 | 33.687 mg/kg | 0.00216 % | ✓ | |
| | | 082-004-00-2 / 231-846-0 / 7758-97-6 | | | | | | | |
| 9 | | mercury { mercury dichloride } | | 0.11 mg/kg | 1.353 | 0.14 mg/kg | 0.000014 % | ✓ | |
| | | 080-010-00-X / 231-299-8 / 7487-94-7 | | | | | | | |
| 10 | | molybdenum { molybdenum(VI) oxide } | | 3.7 mg/kg | 1.5 | 5.212 mg/kg | 0.000521 % | ✓ | |
| | | 042-001-00-9 / 215-204-7 / 1313-27-5 | | | | | | | |
| 11 | | nickel { nickel chromate } | | 40 mg/kg | 2.976 | 111.789 mg/kg | 0.0112 % | ✓ | |
| | | 028-035-00-7 / 238-766-5 / 14721-18-7 | | | | | | | |
| 12 | | selenium { nickel selenate } | | 0.33 mg/kg | 2.554 | 0.791 mg/kg | 0.0000791 % | ✓ | |
| | | 028-031-00-5 / 239-125-2 / 15060-62-5 | | | | | | | |
| 13 | | zinc { zinc chromate } | | 66 mg/kg | 2.774 | 171.925 mg/kg | 0.0172 % | ✓ | |
| | | 024-007-00-3 / 236-878-9 / 13530-65-9 | | | | | | | |
| 14 | | TPH (C6 to C40) petroleum group | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <**LOD** |
| | | / / TPH | | | | | | | |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| | | 603-181-00-X / 216-653-1 / 1634-04-4 | | | | | | | |
| 16 | | benzene | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| | | 601-020-00-8 / 200-753-7 / 71-43-2 | | | | | | | |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.8 | pH | | 8.8 | pH | 8.8 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 42 | mg/kg | 1.233 | 48.647 | mg/kg | 0.00486 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0477 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP01-02/09/2021-1.00

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.3 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 2.9 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.8 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.034 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | <0.0005 | 0.5 | 10 |
| 13 | copper | mg/kg | <0.0005 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.031 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.0062 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 2.2 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 69 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 470 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP02-02/09/2021-0.50

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP02-02/09/2021-0.50**
Sample Depth:
**0.50 m**
Moisture content:
**9.9%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 9.9% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | 3.1 mg/kg | 1.197 | 3.344 mg/kg | 0.000334 % | ✓ | |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 18 mg/kg | 1.32 | 21.413 mg/kg | 0.00214 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.54 mg/kg | 3.22 | 1.567 mg/kg | 0.000157 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2.3 mg/kg | 1.142 | 2.367 mg/kg | 0.000237 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 19 mg/kg | 1.462 | 25.02 mg/kg | 0.0025 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <LOD |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 65 mg/kg | 1.126 | 65.938 mg/kg | 0.00659 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 69 mg/kg | 1.56 | 96.972 mg/kg | 0.00622 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.39 mg/kg | 1.353 | 0.476 mg/kg | 0.0000476 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 4.3 mg/kg | 1.5 | 5.812 mg/kg | 0.000581 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 61 mg/kg | 2.976 | 163.578 mg/kg | 0.0164 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.7 mg/kg | 2.554 | 1.611 mg/kg | 0.000161 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 97 mg/kg | 2.774 | 242.452 mg/kg | 0.0242 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <LOD |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.8 | pH | | 8.8 | pH | 8.8 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | 1.5 | mg/kg | | 1.351 | mg/kg | 0.000135 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | 0.27 | mg/kg | | 0.243 | mg/kg | 0.0000243 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | 1.8 | mg/kg | | 1.622 | mg/kg | 0.000162 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | 1.5 | mg/kg | | 1.351 | mg/kg | 0.000135 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | 0.66 | mg/kg | | 0.595 | mg/kg | 0.0000595 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | 0.64 | mg/kg | | 0.577 | mg/kg | 0.0000577 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | 0.83 | mg/kg | | 0.748 | mg/kg | 0.0000748 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | 0.3 | mg/kg | | 0.27 | mg/kg | 0.000027 % | ✓ | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.55 | mg/kg | | 0.496 | mg/kg | 0.0000496 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | 0.42 | mg/kg | | 0.378 | mg/kg | 0.0000378 % | ✓ | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | 0.17 | mg/kg | | 0.153 | mg/kg | 0.0000153 % | ✓ | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | 0.45 | mg/kg | | 0.405 | mg/kg | 0.0000405 % | ✓ | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | 1.7 | mg/kg | | 1.532 | mg/kg | 0.000153 % | ✓ | |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 80 | mg/kg | 1.233 | 88.91 | mg/kg | 0.00889 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0707 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP02-02/09/2021-0.50

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.8 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 5.9 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | 9.1 | 100 | - |
| 7 | pH | pH | 8.8 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.016 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0032 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.01 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.012 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.048 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.0083 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.1 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 120 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 710 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP02-02/09/2021-1.00

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP02-02/09/2021-1.00**
Sample Depth:
**1.00 m**
Moisture content:
**7.3%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 7.3% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | 2.6 mg/kg | 1.197 | 2.885 mg/kg | 0.000289 % | ✓ | |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 19 mg/kg | 1.32 | 23.255 mg/kg | 0.00233 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 mg/kg | 3.22 | <1.288 mg/kg | <0.000129 % | | <**LOD** |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2.4 mg/kg | 1.142 | 2.541 mg/kg | 0.000254 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 16 mg/kg | 1.462 | 21.678 mg/kg | 0.00217 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 38 mg/kg | 1.126 | 39.661 mg/kg | 0.00397 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 23 mg/kg | 1.56 | 33.257 mg/kg | 0.00213 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.11 mg/kg | 1.353 | 0.138 mg/kg | 0.0000138 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 4.5 mg/kg | 1.5 | 6.258 mg/kg | 0.000626 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 57 mg/kg | 2.976 | 157.263 mg/kg | 0.0157 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.39 mg/kg | 2.554 | 0.923 mg/kg | 0.0000923 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 80 mg/kg | 2.774 | 205.731 mg/kg | 0.0206 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <**LOD** |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.8 | pH | | 8.8 | pH | 8.8 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 53 | mg/kg | 1.233 | 60.603 | mg/kg | 0.00606 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0559 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP02-02/09/2021-1.00

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.33 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 2.9 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.8 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.037 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.0074 | 0.5 | 10 |
| 13 | copper | mg/kg | <0.0005 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.069 | 0.5 | 10 |
| 16 | nickel | mg/kg | <0.0005 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 3.4 | 10 | 150 |
| 23 | sulphate | mg/kg | 11 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 73 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 590 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP03-02/09/2021-0.50

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP03-02/09/2021-0.50**
Sample Depth:
**0.50 m**
Moisture content:
**7.7%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 7.7% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <**LOD** |
| 2 | | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 11 | mg/kg | 1.32 | 13.405 | mg/kg | 0.00134 % | ✓ | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 | mg/kg | 3.22 | <1.288 | mg/kg | <0.000129 % | | <**LOD** |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.2 | mg/kg | 1.142 | 1.265 | mg/kg | 0.000127 % | ✓ | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 10 | mg/kg | 1.462 | 13.49 | mg/kg | 0.00135 % | ✓ | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 24 | mg/kg | 1.126 | 24.941 | mg/kg | 0.00249 % | ✓ | |
| 8 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 29 | mg/kg | 1.56 | 41.752 | mg/kg | 0.00268 % | ✓ | |
| 9 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.17 | mg/kg | 1.353 | 0.212 | mg/kg | 0.0000212 % | ✓ | |
| 10 | | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 2.4 | mg/kg | 1.5 | 3.323 | mg/kg | 0.000332 % | ✓ | |
| 11 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 30 | mg/kg | 2.976 | 82.413 | mg/kg | 0.00824 % | ✓ | |
| 12 | | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.23 | mg/kg | 2.554 | 0.542 | mg/kg | 0.0000542 % | ✓ | |
| 13 | | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 48 | mg/kg | 2.774 | 122.906 | mg/kg | 0.0123 % | ✓ | |
| 14 | | TPH (C6 to C40) petroleum group | | | TPH | | <10 | mg/kg | | <10 | mg/kg | <0.001 % | | <**LOD** |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.9 | pH | | 8.9 | pH | 8.9 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | 2.9 | mg/kg | | 2.677 | mg/kg | 0.000268 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | 0.44 | mg/kg | | 0.406 | mg/kg | 0.0000406 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | 2.3 | mg/kg | | 2.123 | mg/kg | 0.000212 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | 2 | mg/kg | | 1.846 | mg/kg | 0.000185 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | 0.87 | mg/kg | | 0.803 | mg/kg | 0.0000803 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | 1 | mg/kg | | 0.923 | mg/kg | 0.0000923 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | 0.97 | mg/kg | | 0.895 | mg/kg | 0.0000895 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | 0.34 | mg/kg | | 0.314 | mg/kg | 0.0000314 % | ✓ | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.69 | mg/kg | | 0.637 | mg/kg | 0.0000637 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | 0.49 | mg/kg | | 0.452 | mg/kg | 0.0000452 % | ✓ | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | 0.14 | mg/kg | | 0.129 | mg/kg | 0.0000129 % | ✓ | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | 0.5 | mg/kg | | 0.461 | mg/kg | 0.0000461 % | ✓ | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | 1.5 | mg/kg | | 1.384 | mg/kg | 0.000138 % | ✓ | |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 36 | mg/kg | 1.233 | 40.987 | mg/kg | 0.0041 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.036 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP03-02/09/2021-0.50

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.91 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.5 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | 13 | 100 | - |
| 7 | pH | pH | 8.9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.048 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0032 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.0085 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.0079 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.066 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.0084 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | 11 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 2.8 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 77 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 480 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP03-02/09/2021-1.00

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP03-02/09/2021-1.00**
Sample Depth:
**1.00 m**
Moisture content:
**7.4%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 7.4% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 mg/kg | 1.197 | <2.394 mg/kg | <0.000239 % | | <LOD |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 15 mg/kg | 1.32 | 18.339 mg/kg | 0.00183 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 mg/kg | 3.22 | <1.288 mg/kg | <0.000129 % | | <LOD |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2 mg/kg | 1.142 | 2.116 mg/kg | 0.000212 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 12 mg/kg | 1.462 | 16.241 mg/kg | 0.00162 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <LOD |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 33 mg/kg | 1.126 | 34.405 mg/kg | 0.00344 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 18 mg/kg | 1.56 | 25.999 mg/kg | 0.00167 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <0.1 mg/kg | 1.353 | <0.135 mg/kg | <0.0000135 % | | <LOD |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.6 mg/kg | 1.5 | 5.001 mg/kg | 0.0005 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 46 mg/kg | 2.976 | 126.777 mg/kg | 0.0127 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | <0.2 mg/kg | 2.554 | <0.511 mg/kg | <0.0000511 % | | <LOD |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 63 mg/kg | 2.774 | 161.838 mg/kg | 0.0162 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <LOD |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | 0.0026 | mg/kg | | 0.0024 | mg/kg | 0.000000241 % | ✓ | |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | 0.5 | mg/kg | 1.884 | 0.872 | mg/kg | 0.0000872 % | ✓ | |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.9 | pH | | 8.9 | pH | 8.9 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 55 | mg/kg | 1.233 | 62.822 | mg/kg | 0.00628 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0463 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free product noted at the location

Hazard Statements hit:

**Flam. Liq. 2; H225** "Highly flammable liquid and vapour."

Because of determinand:

toluene: (conc.: 2.41e-07%)

## WAC results for sample: TP03-02/09/2021-1.00

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.29 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 2.3 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.045 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.0055 | 0.5 | 10 |
| 13 | copper | mg/kg | <0.0005 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.066 | 0.5 | 10 |
| 16 | nickel | mg/kg | <0.0005 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 12 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 63 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 650 | 4,000 | 60,000 |

Key

| | |
|---|---|
| | User supplied data |
| | Inert WAC criteria fail |

## Classification of sample: TP04-02/09/2021-0.50

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP04-02/09/2021-0.50**
Sample Depth:
**0.50 m**
Moisture content:
**8.8%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 8.8% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 mg/kg | 1.197 | <2.394 mg/kg | <0.000239 % | | <**LOD** |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 9.8 mg/kg | 1.32 | 11.801 mg/kg | 0.00118 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.42 mg/kg | 3.22 | 1.233 mg/kg | 0.000123 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.7 mg/kg | 1.142 | 1.771 mg/kg | 0.000177 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 17 mg/kg | 1.462 | 22.66 mg/kg | 0.00227 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 36 mg/kg | 1.126 | 36.965 mg/kg | 0.0037 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 19 mg/kg | 1.56 | 27.028 mg/kg | 0.00173 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.1 mg/kg | 1.353 | 0.123 mg/kg | 0.0000123 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 2.5 mg/kg | 1.5 | 3.42 mg/kg | 0.000342 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 43 mg/kg | 2.976 | 116.717 mg/kg | 0.0117 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.64 mg/kg | 2.554 | 1.491 mg/kg | 0.000149 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 86 mg/kg | 2.774 | 217.582 mg/kg | 0.0218 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <**LOD** |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 8.7 | pH | | 8.7 | pH | 8.7 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 62 | mg/kg | 1.233 | 69.747 | mg/kg | 0.00697 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0518 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP04-02/09/2021-0.50

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.75 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.2 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.7 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.028 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.006 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.0055 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.027 | 0.5 | 10 |
| 16 | nickel | mg/kg | <0.0005 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 5.8 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 110 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 580 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP04-02/09/2021-1.00

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP04-02/09/2021-1.00**
Sample Depth:
**1.00 m**
Moisture content:
**7.3%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 7.3% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 mg/kg | 1.197 | <2.394 mg/kg | <0.000239 % | | <LOD |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 14 mg/kg | 1.32 | 17.135 mg/kg | 0.00171 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 mg/kg | 3.22 | <1.288 mg/kg | <0.000129 % | | <LOD |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2 mg/kg | 1.142 | 2.118 mg/kg | 0.000212 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 15 mg/kg | 1.462 | 20.323 mg/kg | 0.00203 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <LOD |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 32 mg/kg | 1.126 | 33.398 mg/kg | 0.00334 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 20 mg/kg | 1.56 | 28.919 mg/kg | 0.00185 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <0.1 mg/kg | 1.353 | <0.135 mg/kg | <0.0000135 % | | <LOD |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.5 mg/kg | 1.5 | 4.867 mg/kg | 0.000487 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 45 mg/kg | 2.976 | 124.155 mg/kg | 0.0124 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | <0.2 mg/kg | 2.554 | <0.511 mg/kg | <0.0000511 % | | <LOD |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 64 mg/kg | 2.774 | 164.585 mg/kg | 0.0165 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <LOD |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <LOD |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 8.9 | pH | | 8.9 | pH | 8.9 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 62 | mg/kg | 1.233 | 70.894 | mg/kg | 0.00709 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0475 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP04-02/09/2021-1.00

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1.4 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 2 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.053 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | <0.0005 | 0.5 | 10 |
| 13 | copper | mg/kg | <0.0005 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.099 | 0.5 | 10 |
| 16 | nickel | mg/kg | <0.0005 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.6 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 75 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 520 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP05-02/09/2021-0.50

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP05-02/09/2021-0.50**
Sample Depth:
**0.50 m**
Moisture content:
**7.7%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 7.7% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 mg/kg | 1.197 | <2.394 mg/kg | <0.000239 % | | <**LOD** |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 15 mg/kg | 1.32 | 18.28 mg/kg | 0.00183 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 mg/kg | 3.22 | <1.288 mg/kg | <0.000129 % | | <**LOD** |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.5 mg/kg | 1.142 | 1.582 mg/kg | 0.000158 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 17 mg/kg | 1.462 | 22.933 mg/kg | 0.00229 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 56 mg/kg | 1.126 | 58.195 mg/kg | 0.00582 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 87 mg/kg | 1.56 | 125.255 mg/kg | 0.00803 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.31 mg/kg | 1.353 | 0.387 mg/kg | 0.0000387 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.6 mg/kg | 1.5 | 4.985 mg/kg | 0.000498 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 43 mg/kg | 2.976 | 118.125 mg/kg | 0.0118 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.8 mg/kg | 2.554 | 1.886 mg/kg | 0.000189 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 94 mg/kg | 2.774 | 240.691 mg/kg | 0.0241 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <**LOD** |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 8.6 | pH | | 8.6 | pH | 8.6 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | 0.2 | mg/kg | | 0.185 | mg/kg | 0.0000185 % | ✓ | |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | 0.22 | mg/kg | | 0.203 | mg/kg | 0.0000203 % | ✓ | |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | 2.6 | mg/kg | | 2.4 | mg/kg | 0.00024 % | ✓ | |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 68 | mg/kg | 1.233 | 77.419 | mg/kg | 0.00774 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0645 % | | |

| Key | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP05-02/09/2021-0.50

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample FAILS the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 4.2 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 8 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.6 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.024 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.006 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.0074 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.029 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.055 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.0091 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | 0.0052 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 7 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 170 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 720 | 4,000 | 60,000 |

Key

| | |
|---|---|
| | User supplied data |
| | Inert WAC criteria fail |

## Classification of sample: TP05-02/09/2021-1.00

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP05-02/09/2021-1.00**

Sample Depth:
**1.00 m**

Moisture content:
**8.5%**
(wet weight correction)

LoW Code:

Chapter:
17: Construction and Demolition Wastes (including excavated soil from contaminated sites)

Entry:
17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 8.5% Wet Weight Moisture Correction applied (MC)

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <**LOD** |
| 2 | | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 12 | mg/kg | 1.32 | 14.497 | mg/kg | 0.00145 % | ✓ | |
| 3 | | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 | mg/kg | 3.22 | <1.288 | mg/kg | <0.000129 % | | <**LOD** |
| 4 | | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.9 | mg/kg | 1.142 | 1.986 | mg/kg | 0.000199 % | ✓ | |
| 5 | | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 15 | mg/kg | 1.462 | 20.06 | mg/kg | 0.00201 % | ✓ | |
| 6 | | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <**LOD** |
| 7 | | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 32 | mg/kg | 1.126 | 32.966 | mg/kg | 0.0033 % | ✓ | |
| 8 | | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 19 | mg/kg | 1.56 | 27.117 | mg/kg | 0.00174 % | ✓ | |
| 9 | | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.1 | mg/kg | 1.353 | 0.124 | mg/kg | 0.0000124 % | ✓ | |
| 10 | | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 2.7 | mg/kg | 1.5 | 3.706 | mg/kg | 0.000371 % | ✓ | |
| 11 | | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 48 | mg/kg | 2.976 | 130.718 | mg/kg | 0.0131 % | ✓ | |
| 12 | | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.47 | mg/kg | 2.554 | 1.098 | mg/kg | 0.00011 % | ✓ | |
| 13 | | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 80 | mg/kg | 2.774 | 203.068 | mg/kg | 0.0203 % | ✓ | |
| 14 | | TPH (C6 to C40) petroleum group | | | TPH | | <10 | mg/kg | | <10 | mg/kg | <0.001 % | | <**LOD** |
| 15 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |
| 16 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 8.8 | pH | | 8.8 | pH | 8.8 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 49 | mg/kg | 1.233 | 55.304 | mg/kg | 0.00553 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.05 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP05-02/09/2021-1.00

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.8 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.5 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.8 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.021 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | <0.0005 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.0055 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.038 | 0.5 | 10 |
| 16 | nickel | mg/kg | <0.0005 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.1 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 110 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 710 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP06-02/09/2021-0.50

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP06-02/09/2021-0.50**
Sample Depth:
**0.50 m**
Moisture content:
**7.5%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 7.5% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 mg/kg | 1.197 | <2.394 mg/kg | <0.000239 % | | <**LOD** |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 12 mg/kg | 1.32 | 14.656 mg/kg | 0.00147 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.63 mg/kg | 3.22 | 1.876 mg/kg | 0.000188 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.5 mg/kg | 1.142 | 1.585 mg/kg | 0.000158 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 16 mg/kg | 1.462 | 21.631 mg/kg | 0.00216 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 mg/kg | 2.27 | <1.135 mg/kg | <0.000113 % | | <**LOD** |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 34 mg/kg | 1.126 | 35.409 mg/kg | 0.00354 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 28 mg/kg | 1.56 | 40.399 mg/kg | 0.00259 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 0.13 mg/kg | 1.353 | 0.163 mg/kg | 0.0000163 % | ✓ | |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 2.3 mg/kg | 1.5 | 3.192 mg/kg | 0.000319 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 39 mg/kg | 2.976 | 107.369 mg/kg | 0.0107 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 0.4 mg/kg | 2.554 | 0.945 mg/kg | 0.0000945 % | ✓ | |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 73 mg/kg | 2.774 | 187.324 mg/kg | 0.0187 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 mg/kg | | <10 mg/kg | <0.001 % | | <**LOD** |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 mg/kg | | <0.001 mg/kg | <0.0000001 % | | <**LOD** |

| # | | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 18 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 19 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | 006-007-00-5 | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| 21 | | pH | | | PH | | 8.7 | pH | | 8.7 | pH | 8.7 pH | | |
| 22 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 23 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 24 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 26 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 27 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 28 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 29 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 30 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 31 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 32 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 33 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 35 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 36 | | dibenz[a,h]anthracene | 601-041-00-2 | 200-181-8 | 53-70-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 37 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 38 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 39 | | sulfur { sulfur } | 016-094-00-1 | 231-722-6 | 7704-34-9 | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| 40 | | barium { barium sulphide } | 016-002-00-X | 244-214-4 | 21109-95-5 | | 56 | mg/kg | 1.233 | 63.895 | mg/kg | 0.00639 % | ✓ | |
| 41 | | coronene | | 205-881-7 | 191-07-1 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 42 | | monohydric phenols | | | P1186 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | | | | | | | | Total: | 0.0481 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP06-02/09/2021-0.50

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 1 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 3.9 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.7 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.02 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | 0.0021 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | <0.0005 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.013 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.048 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.0064 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | <0.0025 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 5.4 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 120 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 780 | 4,000 | 60,000 |

Key

User supplied data

## Classification of sample: TP06-02/09/2021-1.00

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**TP06-02/09/2021-1.00**
Sample Depth:
**1.00 m**
Moisture content:
**6.3%**
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

## Hazard properties

None identified

## Determinands

Moisture content: 6.3% Wet Weight Moisture Correction applied (MC)

| # | Determinand | CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | antimony { antimony trioxide } | 051-005-00-X | 215-175-0 | 1309-64-4 | | <2 | mg/kg | 1.197 | <2.394 | mg/kg | <0.000239 % | | <LOD |
| 2 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 13 | mg/kg | 1.32 | 16.083 | mg/kg | 0.00161 % | ✓ | |
| 3 | boron { diboron trioxide; boric oxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.4 | mg/kg | 3.22 | <1.288 | mg/kg | <0.000129 % | | <LOD |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.7 | mg/kg | 1.142 | 1.82 | mg/kg | 0.000182 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 12 | mg/kg | 1.462 | 16.434 | mg/kg | 0.00164 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <0.5 | mg/kg | 2.27 | <1.135 | mg/kg | <0.000113 % | | <LOD |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | 29 | mg/kg | 1.126 | 30.594 | mg/kg | 0.00306 % | ✓ | |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 16 | mg/kg | 1.56 | 23.385 | mg/kg | 0.0015 % | ✓ | |
| 9 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <0.1 | mg/kg | 1.353 | <0.135 | mg/kg | <0.0000135 % | | <LOD |
| 10 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 3.2 | mg/kg | 1.5 | 4.498 | mg/kg | 0.00045 % | ✓ | |
| 11 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | 41 | mg/kg | 2.976 | 114.339 | mg/kg | 0.0114 % | ✓ | |
| 12 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | <0.2 | mg/kg | 2.554 | <0.511 | mg/kg | <0.0000511 % | | <LOD |
| 13 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 58 | mg/kg | 2.774 | 150.764 | mg/kg | 0.0151 % | ✓ | |
| 14 | TPH (C6 to C40) petroleum group | | | TPH | | <10 | mg/kg | | <10 | mg/kg | <0.001 % | | <LOD |
| 15 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| 16 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |

| # | | Determinand | | | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLP index number | EC Number | CAS Number | | | | | | | | | |
| 17 | | toluene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 18 | | ethylbenzene | | | | <0.001 | mg/kg | | <0.001 | mg/kg | <0.0000001 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 19 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 20 | | cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } | | | | <0.5 | mg/kg | 1.884 | <0.942 | mg/kg | <0.0000942 % | | <LOD |
| | | 006-007-00-5 | | | | | | | | | | | |
| 21 | | pH | | | | 8.9 | pH | | 8.9 | pH | 8.9 pH | | |
| | | | | PH | | | | | | | | | |
| 22 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 23 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 24 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 25 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 26 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 27 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 28 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 29 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 30 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 31 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 32 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 33 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 34 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 35 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 36 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 37 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 38 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| 39 | | sulfur { sulfur } | | | | <1 | mg/kg | | <1 | mg/kg | <0.0001 % | | <LOD |
| | | 016-094-00-1 | 231-722-6 | 7704-34-9 | | | | | | | | | |
| 40 | | barium { barium sulphide } | | | | 52 | mg/kg | 1.233 | 60.101 | mg/kg | 0.00601 % | ✓ | |
| | | 016-002-00-X | 244-214-4 | 21109-95-5 | | | | | | | | | |
| 41 | | coronene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-881-7 | 191-07-1 | | | | | | | | | |
| 42 | | monohydric phenols | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | | P1186 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.0429 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<LOD** | Below limit of detection |
| **ND** | Not detected |
| CLP: Note 1 | Only the metal concentration has been used for classification |

## WAC results for sample: TP06-02/09/2021-1.00

WAC Settings: samples in this Job do not constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

## WAC Determinands

| Solid Waste Analysis | | | | Landfill Waste Acceptance Criteria Limits | |
|---|---|---|---|---|---|
| # | Determinand | | User entered data | Inert waste landfill | Non hazardous waste landfill |
| 1 | TOC (total organic carbon) | % | 0.9 | 3 | 5 |
| 2 | LOI (loss on ignition) | % | 2.1 | - | - |
| 3 | BTEX (benzene, toluene, ethylbenzene and xylenes) | mg/kg | <0.01 | 6 | - |
| 4 | PCBs (polychlorinated biphenyls, 7 congeners) | mg/kg | <0.1 | 1 | - |
| 5 | Mineral oil (C10 to C40) | mg/kg | <10 | 500 | - |
| 6 | PAHs (polycyclic aromatic hydrocarbons) | mg/kg | <2 | 100 | - |
| 7 | pH | pH | 8.9 | - | >6 |
| 8 | ANC (acid neutralisation capacity) | mol/kg | 0.033 | - | - |
| Eluate Analysis 10:1 | | | | | |
| 9 | arsenic | mg/kg | <0.0002 | 0.5 | 2 |
| 10 | barium | mg/kg | <0.0005 | 20 | 100 |
| 11 | cadmium | mg/kg | <0.0001 | 0.04 | 1 |
| 12 | chromium | mg/kg | 0.0054 | 0.5 | 10 |
| 13 | copper | mg/kg | 0.0078 | 2 | 50 |
| 14 | mercury | mg/kg | <5.0e-05 | 0.01 | 0.2 |
| 15 | molybdenum | mg/kg | 0.089 | 0.5 | 10 |
| 16 | nickel | mg/kg | 0.0066 | 0.4 | 10 |
| 17 | lead | mg/kg | <0.0005 | 0.5 | 10 |
| 18 | antimony | mg/kg | <0.0005 | 0.06 | 0.7 |
| 19 | selenium | mg/kg | <0.0005 | 0.1 | 0.5 |
| 20 | zinc | mg/kg | 0.064 | 4 | 50 |
| 21 | chloride | mg/kg | <10 | 800 | 15,000 |
| 22 | fluoride | mg/kg | 4.1 | 10 | 150 |
| 23 | sulphate | mg/kg | <10 | 1,000 | 20,000 |
| 24 | phenol index | mg/kg | <0.3 | 1 | - |
| 25 | DOC (dissolved organic carbon) | mg/kg | 80 | 500 | 800 |
| 26 | TDS (total dissolved solids) | mg/kg | 600 | 4,000 | 60,000 |

Key

User supplied data

## Appendix A: Classifier defined and non CLP determinands

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

- **barium sulphide** (EC Number: 244-214-4, CAS Number: 21109-95-5)

CLP index number: 016-002-00-X
Description/Comments:
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): EUH031 >= 0.8 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH031 >= 0.8 % hazard statement sourced from: WM3, Table C12.2

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2 H371

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Acute Tox. 3 H301 , Acute Tox. 3 H311 , Acute Tox. 3 H331 , Skin Corr. 1B H314 , Skin Corr. 1B H314 >= 3 %, Skin Irrit. 2 H315 1 £ conc. < 3 %, Eye Irrit. 2 H319 1 £ conc. < 3 %, Muta. 2 H341 , STOT RE 2 H373 , Aquatic Chronic 2 H411

## Appendix B: Rationale for selection of metal species

**antimony {antimony trioxide}**

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings (edit as required)

**arsenic {arsenic trioxide}**

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

**boron {diboron trioxide; boric oxide}**

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

**cadmium {cadmium oxide}**

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

**chromium in chromium(III) compounds {chromium(III) oxide (worst case)}**

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

**chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}**

Worst case species based on hazard statements/molecular weight (edit as required)

**copper {dicopper oxide; copper (I) oxide}**

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

**lead {lead chromate}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**mercury {mercury dichloride}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**molybdenum {molybdenum(VI) oxide}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**nickel {nickel chromate}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**selenium {nickel selenate}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**zinc {zinc chromate}**

Worst case CLP species based on hazard statements/molecular weight (edit as required)

**cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}**

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

**sulfur {sulfur}**

chemtest reports Elemental sulfur using this CAS

**barium {barium sulphide}**

No Cr VI in samples therefore worst case scenario not applicable.

## Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2021.246.4869.9247 (05 Sep 2021)
HazWasteOnline Database: 2021.246.4869.9247 (05 Sep 2021)

This classification utilises the following guidance and legislation:
**WM3 v1.1 - Waste Classification** - 1st Edition v1.1 - May 2018
**CLP Regulation** - Regulation 1272/2008/EC of 16 December 2008
**1st ATP** - Regulation 790/2009/EC of 10 August 2009
**2nd ATP** - Regulation 286/2011/EC of 10 March 2011
**3rd ATP** - Regulation 618/2012/EU of 10 July 2012
**4th ATP** - Regulation 487/2013/EU of 8 May 2013
**Correction to 1st ATP** - Regulation 758/2013/EU of 7 August 2013
**5th ATP** - Regulation 944/2013/EU of 2 October 2013
**6th ATP** - Regulation 605/2014/EU of 5 June 2014
**WFD Annex III replacement** - Regulation 1357/2014/EU of 18 December 2014
**Revised List of Waste 2014** - Decision 2014/955/EU of 18 December 2014
**7th ATP** - Regulation 2015/1221/EU of 24 July 2015
**8th ATP** - Regulation (EU) 2016/918 of 19 May 2016
**9th ATP** - Regulation (EU) 2016/1179 of 19 July 2016
**10th ATP** - Regulation (EU) 2017/776 of 4 May 2017
**HP14 amendment** - Regulation (EU) 2017/997 of 8 June 2017
**13th ATP** - Regulation (EU) 2018/1480 of 4 October 2018
**14th ATP** - Regulation (EU) 2020/217 of 4 October 2019
**15th ATP** - Regulation (EU) 2020/1182 of 19 May 2020
**The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2019** - UK: 2019 No. 720 of 27th March 2019
**The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020** - UK: 2020 No. 1567 of 16th December 2020
**The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020** - UK: 2020 No. 1540 of 16th December 2020
**POPs Regulation 2019** - Regulation (EU) 2019/1021 of 20 June 2019

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