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Proposed Development Florentia Clothing Village Extension Vale Road



Phase II Ground Investigation Report

January 2023
R-GI-23675-01-03
Revision 03

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1.0 Executive Summary

1.1.1 The following is provided as an overview and should not be relied upon in isolation.

Summary overview	
Existing site	The Site is approximately 0.77Ha in size and is currently used for parking in the east and a self-storage facility in the west which comprises shipping containers predominantly as a single height array with some stacked towards the south east of the Site.
Proposals	It is proposed to construct circa 100,000 sq ft of additional light industrial creative business space comprising 4 blocks of 2 storey units with ground floor warehouse units with a mezzanine office space and first floor attic units.
History	Generally, the Site has been occupied by light industrial works/schools since the mid 1930s with minor changes to the layouts and building occupiers until 1999 where aerial mapping shows the clearance of some of the site buildings. By 2005 the available imagery shows the Site in its current layout.
Geology	No superficial deposits are mapped on site, with the bedrock recorded as the London Clay Formation. Worked ground is recorded in the east of the Site.
Hydrology	The bedrock London Clay is designated as Unproductive Strata. The Site is located within an Inner Zone (Zone 1) groundwater Source Protection Zone
Radon	The Site is located in a lower probability radon area and no radon measures are necessary
UXO	The UXO risk for the Site is reported as moderate. A site specific UXO assessment commissioned to refine the risk and determine whether an EOD engineer was necessary for intrusive works determined that the risk to the Site as low
Fieldwork	The field work on the 6 th and 7 th October 2021 consisted of 2 excavated trial pits, 8 windowless sampler boreholes with 5 gas and groundwater monitoring installations and 7 hand excavated trial pits. The field work on the 6 th , 7 th and 8 th December 2022 consisted of 15 hand pits dug to a maximum depth of 1.50m bgl and one cable percussive borehole to a maximum depth of 15m bgl
Ground conditions	Across the Site, a mixture of cohesive and granular Made Ground was encountered to between 0.70m and 1.75m bgl, over a generally firm to stiff clay of the London Clay Formation. The clay generally increased in strength with strength readings ranging from 12.5kPa to 225kPa.
Groundwater	Groundwater was encountered within the Made Ground and in one location within the London Clay Formation across the Site from between 0.45m and 1.50m bgl.
Contamination assessment	Elevated levels of lead were encountered in the Made Ground on site. TPH's were below the guideline values. Remediation is not considered to be required to protect end users of the Site from the contamination identified due to the development proposals.
Off-Site Disposal	Testing undertaken has shown two areas of soils which would be considered to be Hazardous in the north west and the eastern areas with the majority of the site classifying as non-hazardous.
Ground gas	We have not identified any likely sources of ground gases and ground gas monitoring has indicated no gas protection measures are required.
Foundation assessment	Traditional shallow pad foundations are considered suitable for the Proposed Development founded into the natural soils and fully penetrating any roots and possible desiccated soils (including as a result of grasses). Where plots are close to boundary trees or vegetation foundations will need to be deepened in accordance with NHBC Chapter 4.2 based on the high volume change potential of the soils.
Floor slab	A ground bearing floor slab is considered suitable for the development providing the Made Ground is reworked to an engineered standard or ground improvement is utilised.
Soil aggressivity	Made Ground - DS-1, ACEC-1s London Clay Formation - DS-3 ACEC-3 if the ground is undisturbed, otherwise DS-4 ACEC-4 if the ground is disturbed.
Pavement design	Based on the depth, variation and condition of the Made Ground soils underlying the Site, we suggest a preliminary CBR design value of <2% is adopted for the Site.



Summary overview	
Infiltration potential	Due to the cohesive nature of the soils of the London Clay Formation, it is anticipated that insufficient soakage would be achieved. As a result, we consider that soakaways are not considered a viable option for surface water drainage at the Site.
Table 1.1	

2.0 Introduction

2.1 Client instructions and reliance

2.1.1 JPP were appointed by Quartz Project Services Ltd on behalf of Florentia Property Unit Trust (hereafter referred to as the 'Applicant') to carry out a Phase II ground investigation on the land at the existing Storage for London, 108 Vale Road, London, N4 1TD (the 'Site').

2.1.2 This report has been prepared to discharge Condition 10 attached to planning application reference. HGY/2022/0044..

2.1.3 The description of development is as follows:

"Application for full planning permission for a comprehensive redevelopment of the site to provide four buildings comprising flexible light industrial floorspace (Class E) and storage and distribution units (Class B8), together with car and cycle parking, plant and all highways, landscaping and other associated works".

2.1.4 Condition 10 reads:

"Before development commences other than for investigative work:

a) Using the information already submitted in the Phase II Ground Investigation Report (reference R-GI-23675-01-02, Revision 02, prepared by JPP Geotechnical & Environmental Ltd, dated: December 2021), chemical analyses on samples of the near surface soil, in order to determine whether any contaminants are present in the un-investigated part of the site and to provide an assessment of classification for waste disposal purposes, shall be conducted. The site investigation must be comprehensive enough to enable; a risk assessment to be undertaken, refinement of the Conceptual Model, and the development of a Method Statement detailing any additional remediation requirements where necessary.

b) Prior to the remediation being carried out on site, the risk assessment and refined Conceptual Model, along with the site investigation report, shall be submitted to and approved in writing by the Local Planning Authority.

c) Where remediation of contamination on the site is required, completion of the remediation detailed in the method statement shall be carried out and;

d) A report that provides verification that the required works have been carried out, shall be submitted to, and approved in writing by the Local Planning Authority before the development is occupied".

2.1.5 Our site investigation was carried out in October 2021 with a second phase then undertaken in December 2022 with this report issued in January 2023.

2.1.6 This report has been produced for the benefit of Quartz Project Services Ltd and JPP Geotechnical & Environmental Ltd will not accept liability for the third-party use of the information herein without prior reliance agreed. This report is valid for 6 years from the date of issue however any significant changes to the proposals or followed legislation and guidance within this time could dictate a review of our findings and recommendations.

2.1.7 A Phase I Desk Study has previously been carried out by Delta-Simons (Ref: 21-0258.01) which was completed in July 2021. We have referred to pertinent information within the report where it is relevant to our investigations and assessment. JPP produced a Ground Investigation Scoping Report (GISR), reference R-GISR-23675-01-00, based on the information contained within the Delta Simons Phase 1 Desk Study report.

2.1.8 Investigations have been carried out using reasonable care and judgement based on the development proposals and brief. There is a potential for ground conditions to vary from those encountered during our investigations and differ where not exposed by our investigations. Our investigations have been carried out following current and relevant standards and guidance which are listed within our references, although this is not an exhaustive list. Our investigations and assessments may not be fully in accordance with the Eurocodes.

2.2 Site proposals

2.2.1 It is proposed to construct circa 100,000 sq ft of additional light industrial creative business space comprising 4 blocks of 2 storey units with ground floor warehouse units with a mezzanine office space and first floor attic units.

2.3 Investigation strategy and objectives

2.3.1 The investigations comprised a Phase II contamination and geotechnical risk assessment for the Proposed Development with associated access and infrastructure. Our investigation also included a preliminary assessment to inform foundation design.

2.3.2 The ground investigation has been undertaken in general accordance with the GISR with additional investigation works undertaken to further refine the outcomes and aid in the detailed design and construction costing.

2.3.3 Some locations were relocated to avoid services following issue of the GISR where the service plans were not available. Trial pit TP01 could also not be completed due to site constraints, parked cars and client wishes to reduce the loss of car parking.

3.0 Site desk study review

3.1 Site description

- 3.1.1 The Site is located off Vale Road within the Harringay Warehouse District approximately 2km to the south west of Tottenham centred at National Grid Reference 532480, 188060. The Site location is shown on Figure 3.1 with the Site layout shown on Figure 3.1a.
- 3.1.2 The Site is approximately 0.75Ha in size and is currently used for parking in the east and a self-storage facility in the west which comprises shipping containers predominantly as a single height array with some stacked towards the south east of the Site.
- 3.1.3 A detailed site description is provided within the Delta Simons Phase I Desk Study report which has not been appended but the reader is referred, the Site location is shown on Figure 3.1.

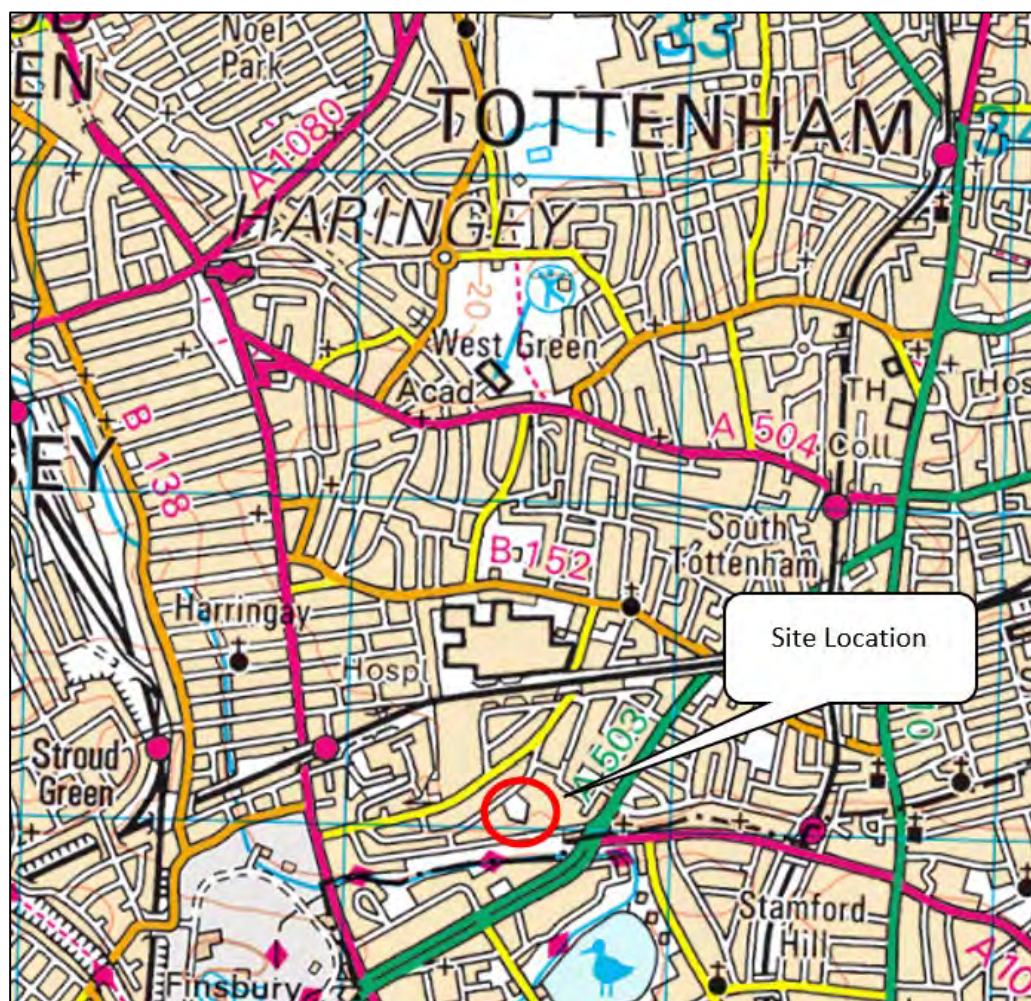


Figure 3.1: Site Location

- 3.1.1 Vale Road bounds the Site to the north west with the existing Florentia Clothing Village located to the north east, further light industrial areas are located to the east, south and west.
- 3.1.2 The proposed site layout is shown on Figure 3.1a, an extract from the TurnerWorks Drawing: Proposed Area Summary, which shows the proposed extension to the Florentia Clothing Village.



Figure 3.1a: Development Proposals

3.2 Geology

- 3.2.1 The Site is mapped by the British Geological Survey (BGS) online viewer, as underlain by bedrock of London Clay with no superficial deposits present.
- 3.2.2 Worked ground is shown to be present in the east of the Site, within the Phase 1 Desk Study Report, associated with the brickworks mapped as in the area of the Site on the 1896 1:2,500 map. The extents of any pits etc are not shown on the historic mapping. The available mapping from the Groundsure online viewer shows a boundary crossing the Site from North to south approximately half way through the Site.

3.3 Mining

- 3.3.1 Information derived from the Coal Authority and BGS dictates that the Site is not located within a Coal Mining Reporting Area and therefore no further action is required.

- 3.3.2 There are no man-made mining cavities or natural cavities recorded within 1km of the Site.

3.4 Hydrology and hydrogeology

- 3.4.1 The bedrock London Clay is designated as Unproductive Strata.
- 3.4.2 The Site is located within an Inner Zone (Zone 1) groundwater Source Protection Zone. Several North London Artificial Recharge Schemes (NLARS) are located within 90m to 980m of the Site, with the closest utilised by Thames Water Utilities Ltd for public potable supply. It is considered that these are abstracting from underlying chalk at depth due to the geology beneath the Site.
- 3.4.3 The nearest surface water feature is the New River Path, located 95m south of the Site. Stoke Newington East and West Reservoirs are situated approximately 380m and 555m south of the Site respectively.

3.5 Site history

- 3.5.1 A full description of the site history is provided within the Delta Simons Desk Study, generally the Site has been occupied by light industrial works/schools since the mid 1930's with minor changes to the layouts and building occupiers until 1999 where aerial mapping shows the clearance of some of the site buildings. By 2005 the available imagery shows the Site in its current layout.
- 3.5.2 The Delta Simons Desk Study records evidence of a potential petroleum storage tank associated with the previous site occupiers. No further details were found pertaining to the tank, recommendations are made within the desk study report to make further enquiries with the landowners. It is understood that no further information is available with regards to this feature.

3.6 Landfills

- 3.6.1 There are no listed waste sites within close proximity (1km) to the Site and therefore the desk study has not recommended any further action.

3.7 Unexploded Ordnance Risk

- 3.7.1 The Unexploded Ordnance (UXO) risk for the Site is reported as Moderate within the Delta Simons Phase 1 report. As the Site was classified as having a moderate risk a site specific UXO assessment was commissioned to refine the risk and determine whether any specialist supervision was necessary for intrusive works.
- 3.7.2 The report concluded that although the surrounding area was subject of bombing raids during WWII, no records were found to indicate a bomb strike within the footprint. Therefore, the UXO risk was considered to be low following the Site specific UXO assessment and as such no specialist supervision was required for the works.

4.0 Site Photographs



Photograph 4.1 View from the south of the car park area of the Site, looking west towards the storage containers.



Photograph 4.2 View from the south of the car park area of the Site looking north.



Photograph 4.3 View from the south of the Site looking north, the storage containers in the right of the picture have been placed up to the western site boundary.



Photograph 4.4 View from the east of the Site looking east at an area of car parking for the Florentia Clothing Village.

5.0 Ground Investigation

- 5.1.1 A ground investigation was completed on 6th and 7th October 2021 comprising:
- 2 trial pits excavated by a JCB 3CX to a maximum depth of 2.10m below ground level (m bgl);
 - 8 windowless sampler boreholes to a maximum depth of 5.00m bgl, with 5 gas and groundwater monitoring installations.
 - 7 hand excavated trial pits in order to determine foundation depths of the easternmost and southern walls.
- 5.1.2 A second phase of ground investigation was completed on 6th, 7th and 8th December 2022 comprising:
- 15 hand pits excavated to a maximum depth of 1.50m below ground level (m bgl); and
 - 1 cable percussive borehole drilled to 15m bgl
- 5.1.3 Statutory undertakers' plans were reviewed in advance of the investigations. Each position was scanned using a cable avoidance tool and signal generator in advance of the investigations. Where buried services were identified or present exploratory holes were located a safe distance away. The location of each position is shown on the exploratory hole plans (Drawing 01 and 02), included within Appendix A.
- 5.1.4 Standard penetration testing was completed within the windowless sampler boreholes at 1.0m intervals and hand pocket penetrometer testing was carried out on large intact samples recovered as the boreholes progressed (where cohesive soils were present) with the results presented on the logs. Photographic records of the trial pits as well as the logs are presented within Appendix B.

6.0 Ground Conditions

6.1 Soils

Topsoil

- 6.1.1 Topsoil was encountered in HD111A only which consisted of a sandy, silty, clayey topsoil with gravels of sandstone and brick up to 0.20m bgl.

Made Ground – Florentia Clothing Village Car Park (East)

- 6.1.2 Made Ground was encountered across the east of the Site, in the area used as car parking for the existing Florentia Clothing Village.
- 6.1.3 Blacktop was encountered to between 0.05m and 0.13m bgl. Beneath the blacktop in HD06, concrete was encountered to 0.25m bgl.
- 6.1.4 In general, underlying the blacktop and concrete, a generally brown and dark grey, gravelly, slightly ashy, silty, fine to medium sand was encountered to depths of between 0.25m and 0.75m bgl.
- 6.1.5 Subangular to angular, fine to coarse flint, brick, glass, ceramic, clinker, wood concrete and sandstone gravels were encountered in TP03 to 0.45m bgl, with a high brick cobble content.
- 6.1.6 Beneath the sand in HD03 and HD04, orangish red, angular brick cobbles were encountered to 0.55m bgl.
- 6.1.7 The gravels comprised brick, clinker, blacktop and concrete, with TP03 also containing glass and tile.
- 6.1.8 A generally brown, gravelly, sandy, silty clay was encountered to between 1.40m and 1.75m bgl, the base of the hand excavated holes, underlying the near surface granular soils. These soils contained some roots and rootlets, with the gravel consisting of brick, sandstone, and occasional tile and metal. In HD114, at the base of the hand pit, a brownish/black, coarse slag gravel was encountered.

Made Ground – Storage Units (West)

- 6.1.9 Made Ground was encountered across the entirety of the west of the Site, in the area used as a storage yard.
- 6.1.10 Aside from HD01 and HD02, concrete was initially encountered to depths of between 0.15m and 0.55m bgl. In WS01, WS02, WS05 and TP02, the concrete was reinforced, with the reinforcement 7mm in diameter. Concrete was also encountered underlying the Made Ground in HD107 from 0.10m to 0.25m bgl.
- 6.1.11 In general, the Made Ground encountered contained both cohesive and granular elements, consisting primarily of brown to grey, slightly gravelly, slightly sandy, silty clay to depths of between 0.70m and 1.50m bgl. The granular material generally consisted of a slightly clayey, silty sandy brick, concrete and blacktop gravel. The

gravels within the clay soils consisted of brick, sandstone, concrete, and occasional blacktop and glass. Gravels of limestone were also encountered in HD105 to HD108 to a maximum depth of 0.20m bgl.

- 6.1.12 A band of fine to coarse brick gravel was found in WS04 from 0.25m to 0.35m bgl and HD105 from 0.15m to 0.30m bgl. A fine to medium blacktop gravel was found in WS05 from 0.40m to 0.60m bgl and in HD107 from surface to 0.10m bgl.
- 6.1.13 Above the clayey Made Ground in HD01 and HD02 from the surface was a dark grey, slightly ashy, gravelly, slightly silty, fine to medium sand to 0.30m and 0.35m bgl respectively. The gravel within the sand was brick, concrete and wood, with occasional brick cobbles also found.
- 6.1.14 It should be noted that HD103 encountered materials which were suspected to be Asbestos, these were sent to the laboratory for analysis and confirmation however the sample was misplaced and as such this has not been able to be confirmed. A repeat hand dug pit in the area undertaken to recover similar materials for laboratory testing did not encounter any suspected asbestos.
- 6.1.15 A possible concrete obstruction was encountered in the base of HP109 at 0.95m bgl, HP111 was also abandoned at 0.25m bgl on a potential buried brick wall. HP102 was terminated at 0.85m bgl due to a potential service.

London Clay Formation

- 6.1.16 The London Clay Formation was encountered across the Site below the Made Ground in the trial pits, boreholes and only four hand pits. No recovery was noted within WS08 from 2.00m bgl to 3.00m bgl.
- 6.1.17 During the second phase of ground investigation which comprised hand pitting only the London clay was encountered in HD105, HD106, HD111A and HD113 from 0.55m to 1.10m bgl only at depths ranging from 0.50m bgl to 0.90m bgl. These depths corroborate the encountered depths previously reported. London Clay deposits were also encountered from 1.20m bgl to the base depth of the cable percussive hole completed to 15.00m bgl in the car park in the south eastern area of the existing Florentia site.
- 6.1.18 This generally comprised a firm becoming stiff, brown and grey mottled, slightly gravelly, slightly sandy, silty clay to the base of the exploratory holes. Occasional sand pockets were encountered in the clay, with the gravels consisting of sandstone.
- 6.1.19 The London Clay deposits encountered within BH101 were initially encountered as soft becoming firm to stiff, brown and grey mottled clay.
- 6.1.20 Undrained shear strength values of 12.5kPa to 225kPa were recorded in the London Clay Formation, indicating extremely low to very high strength deposits. The low strength clays were encountered no deeper than 1.65m bgl, with the strength of the soils increasing with depth. In general, the soils became high strength from approximately 1.75m bgl within the windowless sampler borehole and trial pits.

6.1.21 Within the cable percussive borehole the extremely low to low strength clays were encountered up to 3.00m bgl. The pocket penetrometer readings appear to be low however it is considered these may have been negatively impacted by the water being added by the drillers to assist with the drilling.

6.1.22 A plot showing the undrained shear strength against depth is presented within Appendix B.

6.2 Groundwater

6.2.1 A summary of the groundwater encountered is set out in Table 6.2.

Summary of Groundwater Encountered			
Exploratory Hole	Depth of Hole	Depth of Groundwater	Strata groundwater was encountered in
WS08	3.00m	Strike at 0.45m bgl. Water level at 0.45m bgl on completion.	Made Ground
TP03	2.10m	Strike at 1.35m bgl. Water level at 1.95m bgl after 10 minutes.	Made Ground
HD04	0.65m	Strike at 0.65m bgl. Water level at 0.65m bgl on completion. Groundwater had a hydrocarbon odour.	Made Ground
HD05	0.60m	Strike at 0.50m bgl. Water level at 0.50m bgl on completion. Groundwater had a hydrocarbon odour.	Made Ground
HD07	0.75m	Strike at 0.60m bgl. Water level at 0.60m bgl on completion. Groundwater had a hydrocarbon odour.	Made Ground
HD102	0.80m	Strike at 0.80m bgl. Water level at 0.85m bgl on completion.	Made Ground
HD106	1.15m	Strike at 1.10m bgl. Water level at 1.10m bgl on completion.	London Clay Formation
HD112	1.20m	Strike at 0.75m bgl. Water level at 1.2m bgl on completion.	Made Ground
HD114	1.50m	Strike at 1.50m bgl. Water level at 1.50m bgl on completion.	Made Ground
HD115	1.40m	Strike at 1.40m bgl. Water level at 1.40m bgl on completion.	Made Ground

Table 6.2

6.2.2 HD112 encountered an oily seepage at 0.75m which was noted to have a sheen and strong hydrocarbon smell.

6.3 Existing Foundations

6.3.1 Seven hand dug trial pits were carried out to expose the existing foundations of the walls along the site boundaries to the east, south and south east during the initial

ground investigation. An additional 2 trial pits were undertaken during the second phase of works in order to confirm the foundations in previously inaccessible areas, HD107 and HD108. The hand pit locations are shown on the exploratory hole location plan presented in Appendix A.

- 6.3.2 In the south east of the Site, in the area occupied by storage containers, the wall foundation comprised concrete which stepped out 0.22m from the wall 0.45m bgl (six brick courses down). The concrete foundation was 0.15m thick.
- 6.3.3 In the south of the Site, in the area occupied by the scaffolding equipment, the foundations comprised a brick foundation or thickening of the wall with no concrete present. The foundations stepped out twice, first by 0.05m and then by 0.03m. The first step out was 0.40m bgl (four brick courses down), with each step the height of one brick, 0.08m. The second phase of investigation works comprised hand excavated trial pit HD107 completed against the eastern wall, the foundation followed a similar profile with 3 steps of 0.02m, 0.05m and 0.07m at 0.10m intervals with depth 0.20m below ground level.
- 6.3.4 HD108 was excavated on the western boundary which confirmed the perimeter wall foundation comprised a concrete footing which was located 0.05m below groundlevel and projected 0.25m from the wall face. The footing had a thickness of 0.20m terminating at a depth of 0.25m bgl.
- 6.3.5 In the east of the Site, immediately south of the existing Florentia Clothing Village currently used for car parking, the foundations comprised a concrete footing which was visible above ground surface to a maximum height of 0.41m in HP05. The concrete footing stepped out from the wall by between 0.15m and 0.32m. The concrete had a maximum thickness of 0.81m in the location of HP06 and invariable had a step between 0.2m and 0.3m below ground level which extended up to a further 0.22m from the wall.
- 6.3.6 The foundation for the wall separating the eastern and western sections of the Site comprised concrete and stepped out three times by 0.07m, 0.06m and 0.09m. The top of the foundation was located 0.27m bgl (three brick courses down). The thickness of each step varied, initially 0.07m, then 0.05m, and finally 0.10m for a total concrete thickness of 0.22m.
- 6.3.7 The foundation sketches and photographs are included within Appendix B of this report.

7.0 Laboratory testing

7.1 Geotechnical testing

7.1.1 Samples obtained during the initial ground investigation on the 6th - 7th October 2021 were scheduled for the geotechnical testing summarised in Table 7.1a.

Summary of Geotechnical Laboratory Testing Strategy		
Sample reference and depth	Soil type	Laboratory testing scheduled
TP03 @ 1.00m	Made Ground	1 Point plasticity index and moisture content
WS01 @ 0.80m	Made Ground	1 Point plasticity index and moisture content
WS02 @ 2.50m	London Clay Formation	1 Point plasticity index and moisture content
WS04 @ 1.70m	London Clay Formation	1 Point plasticity index and moisture content
WS05 @ 2.70m	London Clay Formation	1 Point plasticity index and moisture content
WS06 @ 1.20m	London Clay Formation	1 Point plasticity index and moisture content
Table 7.1a		

7.1.2 Samples obtained during the second phase of investigation on the 6th - 8th December 2022 with scheduled for the geotechnical testing summarised in Table 7.1b.

Summary of Geotechnical Laboratory Testing Strategy		
Sample reference and depth	Soil type	Laboratory testing scheduled
BH101 @ 2.0m	London Clay Formation	1 Point plasticity index and moisture content
BH101 @ 5.0m	London Clay Formation	1 Point plasticity index and moisture content
BH101 @ 10.0m	London Clay Formation	1 Point plasticity index and moisture content
BH101 @ 15.0m	London Clay Formation	1 Point plasticity index and moisture content
Table 7.1b		

7.2 Chemical testing

7.2.1 Samples obtained during the initial ground investigation on the 6th - 7th October 2021 were scheduled for the chemical testing summarised in Table 7.2a.

Summary of Contamination Laboratory Testing Strategy		
Sample reference and depth	Soil type	Laboratory testing scheduled
HD04 @ 0.65m	Made Ground	Metals, metalloids, inorganics, PAHs, leachates, TPH-CWG, asbestos and single stage WAC
HD05 @ 0.55m	Made Ground	TPH-CWG
HD06 @ 0.50m	Made Ground	BRE SD1 Suite
TP03 @ 0.50m	Made Ground	Metals, metalloids, inorganics, PAHs, leachates, TPH-CWG and asbestos
WS01 @ 0.45m	Made Ground	TPH-CWG
WS01 @ 2.50m	London Clay Formation	BRE SD1 Suite
WS02 @ 0.70m	Made Ground	Metals, metalloids, inorganics, PAHs, TPHs and asbestos
WS03 @ 1.80m	London Clay Formation	BRE SD1 Suite
WS05 @ 1.50m	London Clay Formation	BRE SD1 Suite
WS06 @ 2.00m	London Clay Formation	BRE SD1 Suite
WS07 @ 0.90m	Made Ground	BRE SD1 Suite
WS08 @ 1.70m	London Clay Formation	Metals, metalloids, inorganics, PAHs, TPHs and asbestos
Table 7.2a		

7.2.3 Samples obtained during the second investigation on the 6^t - 8th December 2022 were scheduled for the chemical testing summarised in Table 7.2b.

Summary of Contamination Laboratory Testing Strategy		
Sample reference and depth	Soil type	Laboratory testing scheduled
BH101 @ 2.5m	London Clay Formation	BRE SD1 Suite
BH101 @ 5.5m	London Clay Formation	BRE SD1 Suite
BH101 @ 10.5m	London Clay Formation	BRE SD1 Suite
BH101 @ 14.5m	London Clay Formation	BRE SD1 Suite
HD103 @ 0.5m	Made Ground	Single stage WAC, Asbestos screening
HD104 @ 0.25m	Made Ground	Metals, metalloids, inorganics & PAHs, Asbestos screening
HD104 @ 0.75m	Made Ground	Single stage WAC
HD106 @ 0.3m	Made Ground	Metals, metalloids, inorganics & PAHs, Asbestos screening
HD106 @ 0.6m	Made Ground	Single stage WAC
HD105 @ 0.5m	Made Ground	Metals, metalloids, inorganics & PAHs
HD109 @ 0.5m	Made Ground	Metals, metalloids, inorganics & PAHs
HD110 @ 0.3m	Made Ground	Single stage WAC
HD110 @ 0.9m	Made Ground	Single stage WAC
HD112 @ 0.8m	Made Ground	Metal, metalloids, inorganics, PAHs, TPH-CWG-BTEX-MTBE-SOM (leachate)
HD114 @ 1.0m	Made Ground	Asbestos screening
HD115 @ 1.35m	Made Ground	Asbestos screening
HD114/HD115 combined sample	Made Ground	Metals, metalloids, inorganics & PAHs, single stage WAC

Table 7.2b

7.2.4 Laboratory testing was carried out by I2Analytical who are UKAS and MCERTS accredited.

7.2.5 The full results of the laboratory testing are located in Appendices C and D.

8.0 Contamination assessment

8.1 Legislation and framework

- 8.1.1 Statutory legislative Part 2A of the Environmental Protection Act 1990 establishes the legal framework for dealing with Contaminated Land in England. Contaminated land is defined by the legislation as, *'Any land that appears to the local authority by reasons of substances in, on or under the land that significant harm is being caused if there is a significant possibility of such harm being caused or Pollution of controlled waters is being or is likely to be caused'*.
- 8.1.2 An analytical framework has been adopted which is based on a risk assessment methodology using the identification and analysis of the linkages between source-pathway-receptor, pollutant linkage. Definition of risk as outlined by the model procedure in the government's Land Contamination Risk Management system (LQRM – previously known as CLR 11) is 'a combination of probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence'. The pollutant linkage comprises the following elements. Each can exist independently but they create a risk only where they are linked together. Identifying whether a pollutant linkage exists allows regulators to determine whether there is a possibility of significant harm.
- A contaminant (source): a substance that is in, or under the land and has the potential to cause harm or to cause pollution to controlled waters
 - A pathway: a route or means by which a receptor can be exposed to, or affected by, a contaminant
 - A receptor: in general terms, something that could be adversely affected by a contaminant such as people, an ecological system, property, or a water body.
- 8.1.3 Our approach considers the above in terms of a Conceptual Model. This is a diagrammatic or written representation of the characteristics of a site showing possible relationships between contaminants, pathways, and receptors. Risks from landfill type gases are considered using the same analytical methodology and following BS8485: 2015, CIRIA C665 and NHBC. If there is no pollutant linkage in the Conceptual Model, there is not a risk. If the Conceptual Model determines there to be a pollutant linkage, it still needs to be determined whether remediation is necessary.
- 8.1.4 The proceeding assessment firstly considers a qualitative approach, taking into account all of the aspects of the desk study and site walkover to derive a Preliminary Conceptual Model (see Delta Simons Phase 1 Desk study report).
- 8.1.5 This is then supplemented by a quantitative risk assessment utilising quantitative data (laboratory testing or gas measurements where appropriate) to support the assessment and derive conclusions.
- 8.1.6 It is important to consider the uncertainties in these assessments such as limitations or restrictions in the investigations and justify how conclusions have been derived.

9.0 Preliminary conceptual model

9.1 Overview of sources of contamination

- 9.1.1 A detailed assessment of the sources and a discussion of the pathways and receptors is provided in the Delta-Simons Phase I Desk Study report which should be referred to for more detail.
- 9.1.2 In summary, the Site was occupied by light industrial works/schools from the mid 1930s with minor changes to the building layouts until 1999 where aerial mapping shows the clearance of some buildings. 2005 imagery shows the Site in its current layout.
- 9.1.3 Our investigations encountered variable, granular and cohesive, Made Ground over clays of the London Clay Formation. Anthropogenic constituents were encountered, and these included but were not limited to brick, glass, clinker, wood, blacktop and concrete. Contamination is believed to have been encountered primarily in the east of the Site within the hand excavated trial pits where groundwater ingressed into the excavations. The water and surrounding soils all had hydrocarbon odours.

9.2 Pollutant linkages and model summary

- 9.2.1 A full source-pathway-receptor conceptual model is presented within the Phase I Desk study. JPP have reviewed the preliminary Conceptual Site Model (CSM) and reproduced it within Table 9.2 as a starting point for our contamination risk assessment.

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Pollutant Linkage Summary

Sources of Contamination	Receptors	Exposure Pathways		Risk	
		Identified		Present	
On Site: Historic industrial activities and Made Ground Metals, inorganics, polycyclic aromatic hydrocarbons, asbestos. Off site: Adjacent industrial, current and historical industrial activities, former fuel station, electricity substation - Metals, inorganics, polycyclic aromatic hydrocarbons and asbestos. Off site: Worked ground/potentially infilled brickfield – Ground gas.	Human Health				
	<i>Future site users</i>	Yes	<i>Ingestion</i>	Yes	Low
			<i>Inhalation</i>	Yes	
			<i>Absorption</i>	Yes	
			<i>Consumption</i>	Yes	
	<i>Construction operatives</i>	Yes	<i>Ingestion</i>	Yes	Low to moderate
			<i>Inhalation</i>	Yes	
			<i>Absorption</i>	Yes	
	Controlled Waters				
	<i>Groundwater</i>	Yes	<i>Leaching</i>	Yes	Low to moderate
			<i>Run-off</i>	Yes	
			<i>Saturation</i>	No	
	<i>Surface Water</i>	Yes	<i>Leaching</i>	Yes	Low
			<i>Run-off</i>	Yes	
			<i>Saturation</i>	No	
	<i>Drinking Water</i>	Yes	<i>Leaching</i>	Yes	Low
			<i>Run-off</i>	No	
			<i>Saturation</i>	No	
	Water Supply Pipes	Yes	<i>Permeation through pipework</i>	Yes	Low to moderate
	Building Materials and Infrastructure	Yes	<i>Chemical attack</i>	Yes	Low

Table 9.2

10.0 Generic quantitative risk assessment

10.1 Assessment criteria

- 10.1.1 On the basis that the Proposed Development comprises a commercial development with associated infrastructure, a commercial/industrial end use is considered the most appropriate model for exposure following the Contaminated Land Exposure Assessment (CLEA) process, the associated guideline values have been adopted for our Tier 1 Screening. These are considered to be screening values by which any exceedance should be further considered as to whether it presents a potentially unacceptable risk of harm to receptors identified by our conceptual model. We have directly compared the measured concentrations with the screening values.
- 10.1.2 Screening values adopted for our risk assessment are sourced from current guidance including Category 4 Screening Levels (C4SL) from DEFRA, Suitable 4 Use Levels (S4ULs) from LQM CIEH and Atkins ATRISK SSV (derived using CLEA Software) limits. For plants we have compared the results to topsoil thresholds from BS3882 where available for zinc and copper. The risk of sulphate aggressivity to concrete has been assessed and the soils classified accordingly in Section 11.4.
- 10.1.3 The test results are presented in full in Appendix C. A summary and discussion of the laboratory testing results from the first ground investigation is provided within tables 10.1a – 10.1d.

Summary of Contamination Laboratory Testing results (metals, metalloids and inorganics) – Made Ground					
Contaminant	Number of samples tested	Highest test result mg/kg	Tier 1 screening value mg/kg	Number of samples exceeding Tier 1	Guideline value source
Arsenic	3	160	640	0	S4UL
Cadmium	3	<0.2	190	0	S4UL
Chromium	3	57	8600	0	S4UL
Hexavalent Chromium	3	<4.0	33	0	S4UL
Copper	3	370	68000	0	S4UL
Lead	3	6000	2330	1	C4SL
Mercury	3	4.6	1100	0	S4UL
Nickel	3	70	980	0	S4UL
Selenium	3	<1.0	12000	0	S4UL
Zinc	3	1100	730000	0	S4UL
Cyanide	3	1.7	34	0	SSV
Table 10.1a					
Reference guideline values: DEFRA C4SL LQM/CIEH S4ULs ATRISK SSV BS3882 pH>7					

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Summary of Contamination Laboratory Testing results (metals, metalloids and inorganics) – London Clay Formation

Contaminant	Number of samples tested	Highest test result mg/kg	Tier 1 screening value mg/kg	Number of samples exceeding Tier 1	Guideline value source
Arsenic	1	12	640	0	S4UL
Cadmium	1	<0.2	190	0	S4UL
Chromium	1	50	8600	0	S4UL
Hexavalent Chromium	1	<4.0	33	0	S4UL
Copper	1	28	68000	0	S4UL
Lead	1	17	2330	0	C4SL
Mercury	1	<0.3	1100	0	S4UL
Nickel	1	39	980	0	S4UL
Selenium	1	<1.0	12000	0	S4UL
Zinc	1	76	730000	0	S4UL
Cyanide	1	<1.0	34	0	SSV

Table 10.1b

Reference guideline values: DEFRA C4SL LQM/CIEH S4ULs ATRISK SSV BS3882 pH>7

Summary of Contamination Laboratory Testing results (polycyclic aromatic hydrocarbons) – Made Ground

Contaminant	Number of samples tested	Highest test result mg/kg	Tier 1 screening value mg/kg	Number of samples exceeding Tier 1	Guideline value source
Naphthalene	3	0.54	460	0	S4UL
Acenaphthylene	3	<0.05	97000	0	
Acenaphthene	3	<0.05	97000	0	
Fluorene	3	0.71	68000	0	
Phenanthrene	3	3.0	22000	0	
Anthracene	3	0.66	540000	0	
Fluoranthene	3	4.0	23000	0	
Pyrene	3	3.6	54000	0	
Benzo(a)anthracene	3	2.6	170	0	
Chrysene	3	2.2	350	0	
Benzo(b)fluoranthene	3	2.6	44	0	
Benzo(k)fluoranthene	3	1.3	1200	0	
Benzo(a)pyrene	3	2.5	35	0	
Indeno(1,2,3-cd)pyrene	3	1.5	510	0	
Dibenz(a,h)anthracene	3	<0.05	3.6	0	
Benzo(ghi)perylene	3	2.2	4000	0	

Table 10.1c

Reference guideline values: LQM/CIEH S4UL 2.5% SOM

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Summary of Contamination Laboratory Testing results (polycyclic aromatic hydrocarbons) – London Clay Formation					
Contaminant	Number of samples tested	Highest test result mg/kg	Tier 1 screening value mg/kg	Number of samples exceeding Tier 1	Guideline value source
Naphthalene	1	<0.05	190	0	S4UL
Acenaphthylene	1	<0.05	83000	0	
Acenaphthene	1	<0.05	84000	0	
Fluorene	1	<0.05	63000	0	
Phenanthrene	1	<0.05	22000	0	
Anthracene	1	<0.05	520000	0	
Fluoranthene	1	<0.05	23000	0	
Pyrene	1	<0.05	54000	0	
Benzo(a)anthracene	1	<0.05	170	0	
Chrysene	1	<0.05	350	0	
Benzo(b)fluoranthene	1	<0.05	44	0	
Benzo(k)fluoranthene	1	<0.05	1200	0	
Benzo(a)pyrene	1	<0.05	35	0	
Indeno(1,2,3-cd)pyrene	1	<0.05	500	0	
Dibenz(a,h)anthracene	1	<0.05	3.5	0	
Benzo(ghi)perylene	1	<0.05	3900	0	
Table 10.1d					
Reference guideline values: LQM/CIEH S4UL 1% SOM					

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10.1.5 Further investigative works undertaken in December 2022 and subsequent additional testing has also been assessed with a summary of the results presented within Tables 10.1e -10.1f.

Summary of Contamination Laboratory Testing results (metals, metalloids and inorganics) - Made Ground					
Contaminant	Number of samples tested	Highest test result mg/kg	Tier 1 screening value mg/kg	Number of samples exceeding Tier 1	Guideline value source
Arsenic	5	88	640	0	S4UL
Cadmium	5	< 0.2	190	0	S4UL
Chromium	5	53	8600	0	S4UL
Hexavalent Chromium	5	1.9	33	0	S4UL
Copper	5	220	68000	0	S4UL
Lead	5	4800	2330	1	C4SL
Mercury	5	17	1100	0	S4UL
Nickel	5	52	980	0	S4UL
Selenium	5	< 1.0	12000	0	S4UL
Zinc	5	520	730000	0	S4UL
Cyanide	5	5	34	0	SSV
Table 10.1e					
Reference guideline values: DEFRA C4SL LQM/CIEH S4ULs ATRISK SSV BS3882 pH>7					

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Summary of Contamination Laboratory Testing results (polycyclic aromatic hydrocarbons) – Made Ground					
Contaminant	Number of samples tested	Highest test result mg/kg	Tier 1 screening value mg/kg	Number of samples exceeding Tier 1	Guideline value source
Naphthalene	5	0.53	190	0	S4UL
Acenaphthylene	5	0.85	83000	0	
Acenaphthene	5	1.1	84000	0	
Fluorene	5	1.3	63000	0	
Phenanthrene	5	13	22000	0	
Anthracene	5	3.2	520000	0	
Fluoranthene	5	18	23000	0	
Pyrene	5	17	54000	0	
Benzo(a)anthracene	5	8.8	170	0	
Chrysene	5	8.5	350	0	
Benzo(b)fluoranthene	5	9.4 (12*)	44	0	
Benzo(k)fluoranthene	5	4.3 (12*)	1200	0	
Benzo(a)pyrene	5	8.5	35	0	
Indeno(1,2,3-cd)pyrene	5	4.5	500	0	
Dibenz(a,h)anthracene	5	0.92	3.5	0	
Benzo(ghi)perylene	5	4.8	3900	0	
Table 10.1f					
*Benzo(b)fluoranthene & Benzo(k)fluoranthene combined					
Reference guideline values: LOM/CIEH S4UL 1% SOM					

10.2 Metals, metalloids, inorganics and PAH

- 10.2.1 With reference to the preceding tables and results, all of the three Made Ground samples and the single London Clay Formation sample tested from the first phase of ground investigation were below all S4UL guideline values for commercial/industrial end use. This was except for TP03 at 0.50m, where a lead value of 6000mg/kg was recorded, exceeding the screening value of 2330mg/kg by approximately 2.5 times.
- 10.2.2 Four samples of Made Ground were tested following the second phase of ground investigation with all results below the S4UL guideline values for commercial/industrial end use with the exception of the combined sample from HD114 & HD115 where a lead value of 4800 mg/kg was recorded, exceeding the screening value of 2330mg/kg by approximately 2 times.
- 10.2.3 Considering the proposed end use of the development with hardstanding proposed across the Site, the risk presented by these soils to human health is considered to be low however some caution and suitable hygiene precautions should be adopted by construction operatives

10.3 Asbestos

- 10.3.1 Three samples of Made Ground and one sample of the London Clay Formation from the first phase of ground investigation were screened for asbestos and asbestos containing material. No asbestos was detected within any of the samples screened.
- 10.3.2 Five further samples of Made Ground were screened for asbestos following the second phase of ground investigation. No asbestos was detected within any of the samples screened.

10.4 Total Petroleum Hydrocarbons

- 10.4.1 Three samples of Made Ground and one sample of the London Clay Formation from the first phase of ground investigation were tested for Total Petroleum Hydrocarbons (TPH) concentrations. Within the Made Ground, TPH concentrations ranged from 30mg/kg in WS02 at 0.70m bgl to 5500mg/kg in HD04 at 0.65m bgl, whilst the London Clay Formation sample returned a value below the limit of detection of <10mg/kg.
- 10.4.2 One sample of Made Ground from the second phase of ground investigation was tested for TPH concentrations. All values were recorded below the limits of detection.
- 10.4.3 Due to the olfactory evidence of contamination within HD04, the TPH concentrations recorded are deemed to be as a result of a volatile or liquid contaminant.
- 10.4.4 As the result is recorded below the screening value, we do not consider this likely to produce a significant risk of harm to receptors however some caution and suitable hygiene precautions should be adopted by construction operatives.
- 10.4.5 A summary of the results of the first phase is provided in Table 10.4 .

Summary of Contamination Laboratory Testing results (petroleum hydrocarbons) – Made Ground

Contaminant	Number of samples tested	Highest test result mg/kg	Tier 1 screening value mg/kg	Number of samples exceeding Tier 1	Guideline value source
Aliphatic >EC5 - EC6	4	< 0.001	3200	0	S4UL
Aliphatic >EC6 - EC8	4	< 0.001	7800	0	S4UL
Aliphatic >EC8 - EC10	4	< 0.001	2000	0	S4UL
Aliphatic >EC10 - EC12	4	33	9700	0	S4UL
Aliphatic >EC12 - EC16	4	630	59000	0	S4UL
Aliphatic >EC16 - EC21	4	1200	1600000	0	S4UL
Aliphatic >EC21 - EC35	4	5400	1600000	0	S4UL
Aromatic >EC5 - EC7	4	< 0.001	26000	0	S4UL
Aromatic >EC7 - EC8	4	< 0.001	56000	0	S4UL
Aromatic >EC8 - EC10	4	0.052	3500	0	S4UL
Aromatic >EC10 - EC12	4	21	16000	0	S4UL
Aromatic >EC12 - EC16	4	330	36000	0	S4UL
Aromatic >EC16 - EC21	4	970	28000	0	S4UL
Aromatic >EC21 - EC35	4	7400	28000	0	S4UL

Table 10.4a

Reference guideline values: LQM/CIEH S4UL 1% SOM

10.5 Controlled Waters

- 10.5.1 Groundwater was encountered during both phases of investigation, primarily within the initial 2021 investigation within the hand excavated trial pits in the east of the Site as significant inflows. The water had a strong hydrocarbon odour. Elevated levels of contaminant have been identified within the soils in the east of the Site, however, due to the impermeable nature of the underlying London Clay Formation, the risk to controlled waters is considered to be low.
- 10.5.2 Groundwater was also encountered during our second investigation within the Made Ground in the east of the Site. HD112 encountered an oily seepage at 0.75m bgl, however, contaminant testing on HD112 at 0.80m bgl suggests all contaminants are below S4UL guidelines. It should be noted that the second phase of ground investigation did not experience the same inflows as those recorded during the first phase of investigation, the groundwater encountered was also encountered at a lower level.
- 10.5.3 Leachate testing was undertaken on the soils from HD112 with all determinands noted to be below the relevant Environmental Quality Standards and Drinking Water Standards.
- 10.5.4 Any potential receiving aquifer would be at depth with a significant thickness of low permeability London Clay deposits between the aquifer and the Made Ground, as such it is not the groundwater within the Made Ground is not considered to present a risk to groundwater.

10.6 Ground Gas

- 10.6.1 The worked ground in the east of the Site, and the previous land use as an industrial area both on and off site, are all potential sources of elevated ground gases. The proposed commercial development on site is considered to be of moderate sensitivity. Five gas monitoring wells were installed and targeted to provide a good coverage of the Site with two rounds of gas monitoring completed. The results are summarised within Table 10.6 with the results presented in Appendix B.

Summary of ground gas monitoring results							
Monitoring Well	Methane % range	Carbon Dioxide % range	Oxygen % range	Flow rate l/hr range	Borehole pressure range mb	Water level (m bgl) range	Atmospheric pressure range mb
WS04	0.2-0.9	0.8-2.9	15.6-18.7	-0.4-1.3	-0.05-0.15	0.72-3.98	1017-1027
WS05	0.2	0-0.1	19-20.3	-0.6-0.3	-0.2-0.12	0.66-1.13	1017-1027
WS06	0.3	0.5	19.9	-0.1- -0.2	0.09	2.13	1017-1027
WS07	0.2	0.1-1.1	18.2-20.5	-0.1-0.3	-0.02-0.19	0.6-3.72	1017-1027
WS08	0.2	2.7	19-19.5	-5.6- -3.8	0.1	0.92	1017-1027

Table 10.6

- 10.6.2 During the gas monitoring, a maximum steady concentration of 0.3% methane and a maximum steady concentration of 2.7% carbon dioxide were measured with a maximum flow recorded of 1.3l/hr. The above results give a gas screening value (GSV) of 0.003l/hr. Based on the 0.3% methane and 2.7% carbon dioxide; the Site is classified as a Characteristic Situation 1 (CS1) site, therefore no specific requirements are required for new buildings to mitigate gas risk.
- 10.6.3 Water levels within WS04 and WS07 varied by approximately 3.20m between the first and second visits, with the water levels rising from 3.98m and 3.72m bgl to 0.72m and 0.60m bgl respectively. This is likely due to water ingress from the Made Ground strata above, and not as a result of a variation in natural groundwater levels.

10.7 Assessment and discussion

- 10.7.1 With reference to the preceding tables and the tested metals, metalloids, inorganics and PAH compounds, only lead exceeds the commercial/industrial screening values. In addition, samples of Made Ground and London Clay Formation were screened for asbestos and did not detect any asbestos containing material or free fibres.
- 10.7.2 All of the samples tested for asbestos and TPH were below the guideline values or the contaminant was absent.
- 10.7.3 In the east of the Site around TP03, elevated levels of lead were encountered. As part of the development, it is assumed that to allow construction of hardstanding areas the Made Ground will be removed as it will not be geotechnically suitable as a founding medium. If capped by areas of hardstanding or buildings, the contaminated

Made Ground could be left in-situ where it is considered suitable for inclusion in the construction works.

- 10.7.4 Based on soil conditions encountered on site together with our quantitative assessment, the Site does not present an unacceptable risk of harm to identified receptors with an overall derived risk of low for each of the receptors identified by our conceptual model. The area of the Site around TP03, where the lead exceedance was encountered will require suitably capping. The development proposals are considered to be a suitable form of capping.

10.8 Water supply pipes

- 10.8.1 As there are some elevated concentrations of chemical contaminants locally within the Made Ground, we recommend provision of this report to the local water supplier to determine whether barrier water pipe is necessary. The water supply company may request more specific testing along the proposed line of service routes.

10.9 Unsuspected contamination during construction works

- 10.9.1 Given the past uses of the Site, there is always a potential for higher levels of contamination to be present in areas of the Site that have not been investigated. It is recommended that during groundworks, a discovery strategy should be put in place to deal with any asbestos or other contamination that may be encountered during the site works.
- 10.9.2 The strategy could include designated areas for storage of suspect excavated soils that are placed on bunded plastic sheeting prior to inspection and testing to classify for removal. Should any conditions be exposed that could suggest contaminated soils from visual or olfactory evidence, we should be consulted to determine the most appropriate course of action.
- 10.9.3 Precautions should be adopted when excavating the Made Ground due to the potential risk of asbestos fibres. Any pieces of suspected asbestos containing material or fibrous debris or clumps that could be asbestos should be safely sampled and formally identified and if confirmed, appropriate removal by a licensed asbestos contractor.
- 10.9.4 It should also be noted that a possible fuel storage tank was recorded within the Phase 1 Desk Study, this has not been encountered throughout the works undertaken to date and no further information has been made available as to its location. There is a remaining risk that the tank could be encountered during the construction works, should this be the case JPP should be consulted to determine the most appropriate course of action.

11.0 Waste classification

11.1 Hazardous or Non-Hazardous Classification

- 11.1.1 Following WM3, we have carried out analysis of our laboratory test data of samples of Made Ground using HazWasteOnline™. Copies of the generated report is provided in Appendix C together with the laboratory test results. This analysis determines the samples from WS02 at 0.70m (Made Ground) and WS08 at 1.70m (London Clay) to be **non-hazardous**.
- 11.1.2 All the samples tested have been updated to take into account the mineral oil concentration measured by the WAC testing, with HD04 at 0.65m, HD05 at 0.55m and WS01 at 0.45m exceeding the hazardous threshold of 1,000mg/kg. Therefore, these samples are considered to be **hazardous**. These samples were dark grey in colour, and had olfactory evidence of being contaminated by hydrocarbons.
- 11.1.3 The sample taken from TP03 at 0.50m bgl is also deemed to be **hazardous** due to elevated levels of lead and zinc within the soils.
- 11.1.4 Additional testing has been undertaken following WM3 using HazWasteOnline™ on samples from the second phase of the ground investigations. The analysis determines that all soils tested during the second phase of the ground investigation to be **non-hazardous** with the exception of the combined sample from HD114 & HD115 which is classified as **hazardous**. This corroborates the information from the first ground investigation undertaken.
- 11.1.5 Should any of the aforementioned soils be removed from site then this report should be provided to the proposed recipient, further testing may be required.

11.2 Classification under the Waste Acceptance Criteria

- 11.2.1 The Made Ground sample from HD04 at 0.65m depth was submitted for laboratory testing under the waste acceptance criteria (WAC) during the first phase of ground investigation works. The tested soils had olfactory evidence of hydrocarbon contamination. Elevated concentrations of 3400mg/kg for mineral oils were recorded, along with Total Organic Content (TOC) of 5.3% and a Loss on Ignition (LOI) of 12.9%. The testing determines that the Made Ground soils are classified as **hazardous waste**.
- 11.2.2 A further six samples were tested for WAC during the second phase of ground investigation from hand pits HD103 at 0.5m bgl, HD104 at 0.75m bgl, HD106 at 0.60m bgl, HD110 at 0.30m bgl, HD110 at 0.9m bgl and a combined sample from HD114 & HD115.
- 11.2.3 The samples from HD106 at 0.60m bgl and HD110 at 0.90m bgl returned a classification of **Inert Waste**, the samples from HD103, HD104 and HD110 returned a classification indicating the samples are **not inert however are also not Hazardous** whilst the sample from HD114& HD116 confirmed a classification of **Hazardous waste** as per the initial investigation for the soils in the eastern area of the site.

- 11.2.4 The samples from HD103, HD104 and HD110 were not classified as inert due to elevated levels of Sulphate and Total Dissolved Solids (HD103), Antimony (HD104 and HD110), however this is not sufficient to classify them as Hazardous, it should also be noted that Antimony and Sulphates are naturally occurring and not to have higher levels within the London Clay soils which it is likely the Made Ground on site is derived from.
- 11.2.5 The combined sample from HD114 & HD115 was classified as **Hazardous Waste** due to a Loss on Ignition (LOI) of 12.1%.
- 11.2 Arisings of the Alluvium, Head Deposits and Folkestone Formation are naturally occurring and where not affected by artificial contamination can be classified as inert for offsite disposal to landfill.

12.0 Engineering assessment

12.1 Geotechnical laboratory results

- 12.1.1 A summary of the geotechnical laboratory testing undertaken for the Site is presented in Tables 12.1a and 12.1b. The complete results are included within Appendix D.
- 12.1.2 Samples of soil from Made Ground and the London Clay Formation were tested for Atterberg limits. The results of the testing indicate the clays of the London Clay Formation have a very high plasticity which corresponds to a high volume change potential in accordance with NHBC Standards Chapter 4.2.
- 12.1.3 The Made Ground soils classify as having a high plasticity, which corresponds to a medium volume change potential in accordance with NHBC Standards Chapter 4.2.

Summary of plasticity classification results – 2021 investigation

Sample reference and depth	Soil type	Plasticity Index %	Modified Plasticity %	Plasticity term (Volume Change Potential)
TP03 @ 1.00m	Made Ground	25	20	High (Medium)
WS01 @ 0.80m	Made Ground	30	20	High (Medium)
WS02 @ 2.50m	London Clay Formation	45	43	Very High (High)
WS04 @ 1.70m	London Clay Formation	42	42	Very High (High)
WS05 @ 2.70m	London Clay Formation	46	46	Very High (High)
WS06 @ 1.20m	London Clay Formation	47	40	Very High (High)

Table 12.1

Summary of plasticity classification results – 2022 investigation

Sample reference and depth	Soil type	Plasticity Index %	Modified Plasticity %	Plasticity term (Volume Change Potential)
BH101 @ 2.0m	London Clay Formation	49	49	Very High (High)
BH101 @ 5.0m	London Clay Formation	44	44	Very High (High)
BH101 @ 10.0m	London Clay Formation	54	54	Very High (High)
BH101 @ 15.0m	London Clay Formation	33	32	High (Medium)

Table 12.2

12.2 Foundations

- 12.2.1 Across the Site, a mixture of cohesive and granular Made Ground was encountered to between 0.70m and 1.75m bgl, over a generally firm to stiff clay of the London Clay

Formation. The clay generally increased in strength with depth with readings ranging from 30kPa to 205kPa.

- 12.2.2 The plasticity index testing has confirmed the cohesive soils beneath the Site to be **high volume change potential**. Should any soft, low strength deposits or inconsistent soils be encountered in the base of the excavation, foundations should be deepened to extend through to more competent and consistent strata. Where the foundation may span inconsistent soils then reinforcement should be included to resist the effects of potential differential settlement.
- 12.2.3 On the basis of the ground conditions encountered and results of pocket penetrometer results obtained within the London Clay Formation clays, traditional shallow pad foundations are generally considered suitable.
- 12.2.4 We suggest an allowable bearing capacity of 125kN/m² within the natural clay deposits at an approximate depth of 1.75m which will limit settlement to within acceptable limits.

Piled Foundations

- 12.2.5 Groundwater was encountered in the eastern area of the Site which may limit excavation depths or prevent traditional foundations being constructed. Should this be the case then ground improvement or a piled solution may be required.
- 12.2.6 The cable percussive borehole log, BH101, should be provided to any specialist contractor to enable pile design along with this report.
- 12.2.7 It is considered that Continuous flight auger piles would be the most appropriate pile type for the site due to the proximity of other structures and the site boundary, the groundwater present and the soils encountered. This should be confirmed by the specialist contractor.
- 12.2.8 A working platform design in accordance with BRE470 will be required should a piled foundation solution be considered, JPP can provide a fee for this design service if required.

Vegetation and trees

- 12.2.9 Vegetation is present, including trees, along the southern site boundary of the eastern section. Any foundations within the zone of influence of these trees will need heave protection and may require overdeepening.

12.3 Floor Slabs

- 12.3.1 A ground bearing floor slab is likely to be the preferred option, however the Made Ground and underlying London Clay Formation are variable in terms of strength, depth and composition which increases the risk of potential differential settlement.
- 12.3.2 In order to enable the use of a ground bearing floor slab the underlying Made Ground would require replacing or the use of ground improvement. Excavation of the Made Ground followed by replacement with engineered fill would provide a suitable

formation layer for ground bearing slabs. The engineered fill could comprise the current Made Ground deposits reworked to an engineering specification.

- 12.3.3 Ground improvement such as vibro-stone columns or rigid inclusions with an appropriate load distribution platform could be utilised in order to prevent removal of the Made Ground soils and enable the use of a ground bearing slab.
- 12.3.4 Should an earthworks solution be considered then the Made Ground would require excavation and re-compaction, where suitable, in accordance with an earthworks specification. It is considered likely that the excavated soils would be suitable for re-use subject to meeting the requirements of the earthworks specification. Lime/cement modification may be required where the soil moisture contents are too high to enable compaction to the required standard.
- 12.3.5 We would recommend copies of our fieldwork records and sulphate laboratory testing are provided to a suitable contractor to assess the suitability of lime/cement modification. This also applies to potentially proposed external yard areas.
- 12.3.6 Alternatively, a suspended slab should be considered, though this will alter the subsequent requirements in terms of gas protection.
- 12.3.7 It is recommended that a Geotechnical Design Report is produced as part of the detailed design process to ensure the design is suitable and the design process is documented.
- 12.3.8 Ground gas monitoring has indicated that a gas resistant membrane is not required for any new proposed building due to being Characteristic Situation CS1.

12.4 Soil aggressivity

- 12.4.1 An assessment of laboratory test results following BRE Special Digest 1 'Concrete in aggressive ground' has been carried out on the Made Ground and London Clay Formation deposits.
- 12.4.2 Concentrations of water-soluble sulphate measured in the range of 0.066g/l to 0.13g/l within the Made Ground. The calculated oxidisable sulphate did not exceed 0.3% and therefore total potential sulphate has not been considered.
- 12.4.3 Groundwater conditions are considered to be static with pH in the range of 7.6 to 7.9. Therefore, a classification of DS-1 AC-1 is applicable.
- 12.4.4 Concentrations of water-soluble sulphate in the London Clay Formation were measured in the range of 0.36g/l to 4.0g/l.
- 12.4.5 The calculated oxidisable sulphide exceeded 0.3% in a sample from 2.00m in WS06 and therefore TPS (total potential sulphate) should be considered which was determined to be 3.12%, indicating a design sulphate class of DS-5. However, this is only applicable if the ground is disturbed, otherwise a classification of DS-3, AC-3 based on the water soluble sulphate result can be adopted.

- 12.4.6 If TPS is not considered, arisings should not be placed around foundations or other buried concrete. Following BRE SD1, where TPS determines the Design Sulphate Class to be DS-5 but the extraction test (water soluble sulphate) to be DS-3 or less, then DS-4 can be adopted. Therefore, for disturbed ground (reuse of arisings around foundations), a classification of DS-4, AC-4 should be adopted.
- 12.4.7 Additional testing was undertaken on the London Clay Formation deposits from BH101 to inform pile design. The results corroborated those from the first phase of investigation with the aforementioned soil aggressivity classifications confirmed.

12.5 Excavations

- 12.5.1 The trial pits and windowless sampler boreholes remained stable in the short term, so the risk of instability and collapse of trial pit sides is considered low. There is also a potential for some instability where the clay deposits hold water and the soils become potentially wetter seasonally.
- 12.5.2 The nature of clay means that it will quickly deteriorate in wet conditions therefore it is important to pour concrete as soon as practically possible to reduce the risk of the soils becoming wet and softening. It is recommended that any loose sands and soft soils are cleaned out of trenches before pouring concrete.
- 12.5.3 It is considered highly unlikely that any dewatering will be required due to groundwater inflows in the western area of the Site. The eastern area of the Site encountered groundwater at shallow depths with fast inflow rates which prevented soil recovery and resulted in termination of window sample position WS08. This area of the Site is highly likely to need groundwater control, sump and pump may be suitable though an assessment of the groundwater volume within the soils and over what area could not be made.
- 12.5.4 Human entry should always be avoided where possible, however, where entry is necessary then the contractor should ensure that the excavations are suitably managed with supports or benched to prevent collapse. Any entry should be undertaken in accordance with suitable Risk Assessments and Method Statements in accordance with the relevant guidance and recommendations.

12.6 Pavement design

- 12.6.1 Based on the depth, variation and condition of the Made Ground soils underlying the Site, we suggest a preliminary CBR design value of <2% is adopted for the proposed yard areas.
- 12.6.2 We suggest the Made Ground material should be removed and appropriately recompacted and replaced where unsuitable, with subsequent CBR testing to reassess and confirm a suitable compaction has been achieved. The formation level should be suitably proof rolled to identify any soft or loose spots. This is particularly important for areas of proposed racking.
- 12.6.3 Alternatively, ground improvement such as lime/cement stabilisation could also be considered. We would recommend copies of our fieldwork records and sulphate

laboratory testing are provided to a suitable contractor to assess the suitability of this. Inclusion of geo grid reinforcement could also be considered to mitigate potential differential settlement. Drainage schemes should be of flexible construction as the ground will be susceptible to potential settlement from surface water inundation in the event of leakage.

12.6.4 The design shall also need to consider the Made Ground soils and natural soils to be frost susceptible due to the fines content.

12.6.5 Any obvious soft or loose spots excavated and backfilled with a suitable fill. Reference should be made to the compaction requirements outlined in Highways England Volume 1: Specification for Highway Works Series 600: Earthworks.

12.7 Infiltration potential

12.7.1 Soakaway testing was not undertaken within any of the boreholes or trial pits. However, due to the cohesive nature of the soils of the London Clay Formation, it is anticipated that insufficient soakage would be achieved. As a result, we consider that soakaways are not considered a viable option for surface water drainage at the Site.

13.0 Summary and Recommendations

- 13.1.1 The development comprises construction of circa 100,000 sq ft of additional light industrial creative business space comprising 4 blocks of 2 storey units with ground floor warehouse units with a mezzanine office space and first floor attic units as an extension to the existing Florentia Clothing Village.
- 13.1.2 The Site has been occupied by light industrial works/schools since the mid 1930s with minor changes to the layouts and building occupiers until 1999 where aerial mapping shows the clearance of some of the site buildings. By 2005 the available imagery shows the Site in its current layout.
- 13.1.3 A Phase II Ground investigation has been undertaken in two phases with phase 1 comprising 2 trial pits, 8 windowless sampler boreholes and 7 hand excavated trial pits and associated sampling and laboratory testing. Phase 2 comprised 15 hand excavated trial pits and 1 cable percussive borehole.
- 13.1.4 A mixture of cohesive and granular Made Ground was encountered across the Site to between 0.70m and 1.75m bgl, over a generally firm to stiff clay of the London Clay Formation. The clay generally increased in strength with strength readings ranging from 30kPa to 205kPa, the eastern area encountered soft clays near surface which became firmer with depth within the cable percussive hole also. Groundwater was encountered only within the Made Ground in the eastern section of the Site from between 0.45m and 1.35m bgl.
- 13.1.5 Elevated levels of lead were encountered in the Made Ground soils. TPH's were recorded below the guideline values. No risk to human health or groundwater has been identified through our ground investigation works. Remediation is not considered to be required to protect end users of the Site from the contamination identified due to the development proposals resulting in complete cover of the site soils with areas of hardstanding or development. We have not identified any likely sources of ground gases and ground gas monitoring has indicated no gas protection measures are required.
- 13.1.6 Should soils be removed from site there is one hotspot located in the north western corner of the site near in the location of WS01 which would be considered to present as Hazardous Waste and the south eastern area of the existing Florentia site has been confirmed to have soils classified as hazardous should they be removed from site, in the vicinity of exploratory hole locations TP03, HP03, HP04, HP05, HP06, WS06 from the initial phase of investigation and HD114, HD115 and CP101 from the second phase.
- 13.1.7 Should soils be removed from site they should be tested and disposed of in accordance with the current legislation and guidance.
- 13.1.8 Groundworkers throughout the construction should adhere to suitable hygiene precautions.
- 13.1.9 Traditional shallow pad foundations are considered suitable for the Proposed Development founded into the natural soils and fully penetrating any roots and

possible desiccated soils. Where plots are close to boundary trees or vegetation foundations will need to be deepened in accordance with NHBC Chapter 4.2 based on the high volume change potential of the soils. A ground bearing floor slab is considered suitable for the development providing the Made Ground is reworked to an engineered standard or ground improvement is utilised.

- 13.1.10 A piled solution is understood to be utilised for Block 1 in the eastern area of the site. This report should be provided to the specialist piling contractor to provide them with the necessary information for design. A working platform will be required for any piling with the design undertaken in accordance with BRE 470.
- 13.1.11 Soil aggressivity to concrete has been classified as DS-1, ACEC-1s for the Made Ground Soils and DS-3, ACEC-3 for the London Clay Formation if the ground is undisturbed, otherwise DS-4, ACEC-4 if the ground is disturbed.
- 13.1.12 Based on the depth, variation and condition of the Made Ground soils underlying the Site, we suggest a preliminary CBR design value of <2% is adopted for the Site.
- 13.1.13 We consider that soakaways are not a viable option for surface water drainage at the Site.

14.0 References

- 14.1 BN EN1997-1:2004 +A1:2013 Eurocode 7 - Geotechnical Design Part 1: General Rules
- 14.2 BS EN 1997-2:2007 Eurocode 7 – Geotechnical Design Part 2: Ground investigation and testing
- 14.3 BS EN ISO 14688-2:2004 Geotechnical investigation and testing – Identification and classification of soil – Part 2: Principles for a classification
- 14.4 BS 1377-2 1990 Soils for Engineering purposes classification tests
- 14.5 BS 5930:2015 Code of Practice for ground investigations
- 14.6 BS 8004:2015 Code of practice for foundations
- 14.7 MJ Tomlinson Foundation Design and Construction 7th Edition
- 14.8 BS 10175:2011+A2:2017 Investigation of potentially contaminated sites – Code of Practice
- 14.9 The LQM/CIEH S4ULs for Human Health Risk Assessment
- 14.10 Land Contamination Risk Management – replacement for Contaminated Land Report 11 Model Procedures for the Management of Land Contamination
- 14.11 Guidelines for Environmental Risk Assessment and Management (Green Leaves III) DEFRA
- 14.12 CIRIA C552 Contaminated Land Risk Assessment – A Guide to Good Practice
- 14.13 CIRIA C665 Assessing Risks Posed by Hazardous Gases to Buildings
- 14.14 BS 8485:2015 Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings
- 14.15 BS3882:2015 Specification for Topsoil
- 14.16 BRE Special Digest 1 ‘Concrete in Aggressive Ground’
- 14.17 Manual of Contract documents for Highway Works volume 1 Specification for Highway Works, Series 600 – Earthworks



Appendix A Drawings



Appendix B Fieldwork Records



Percussion Drilling Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 07/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Drilling Equipment:	
Borehole Number CP101	Hole Type CP	Level	Logged By JB	Scale 1:50	Page Number Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			BLACKTOP.	
					0.30			Greyish black sandy fine to coarse brick and concrete GRAVEL with medium cobble content. (MADE GROUND)	
								Greyish black brown slightly sandy subangular to subrounded flint brick GRAVEL. (MADE GROUND)	1
		1.20	B						
		1.20	D						
		1.20		N=4 (1,1/1,1,1,1)	1.20			Soft to firm grey mottled brown CLAY. (LONDON CLAY FORMATION)	
		2.00	D						
		2.00	PP	25.00					2
		2.00		N=6 (1,1/2,1,2)					
		2.50	D						
		2.50	PP	12.50					
		3.00	D						
		3.00	PP	66.67					3
		3.00		N=10 (1,1/2,2,3,3)					
		3.50	D						
		3.50	PP	25.00					
		4.00	D						
		4.00	PP	75.00					4
		4.00		N=13 (1,2/3,3,3,4)					
		4.50	D						
		4.50	PP	58.33					
		5.00	D						
		5.00	PP	125.00					5
		5.00		N=13 (1,2/3,3,3,4)					
		5.50	D						
		5.50	PP	58.33					
		6.00	D						
		6.00	PP	125.00					6
		6.00		N=14 (1,2/3,3,4,4)					
		7.50	B						
		7.50	D						
		7.50	PP	133.33					8
		7.50		N=18 (2,3/3,5,5,5)					
		9.00	D						
		9.00	PP	137.50					9
		9.00		N=20 (2,3/4,5,5,6)					
		10.00	D						10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
Remarks											



Percussion Drilling Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 07/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Drilling Equipment:	
Borehole Number CP101	Hole Type CP	Level	Logged By JB	Scale 1:50	Page Number Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.00	PP	191.67	15.00			Soft to firm grey mottled brown CLAY. (LONDON CLAY FORMATION)	
		10.50	D						
		10.50	PP	175.00					
		10.50		N=23 (2,4/4,6,6,7)					
		11.50	D						
		11.50	PP	191.67					
		12.00	D						
		12.00	PP	175.00					
		12.00		N=26 (3,4/5,7,7,7)					
		13.00	D						
		13.00	PP	200.00					
		13.50	D						
		13.50	PP	225.00					
		13.50		N=28 (3,5/6,7,7,8)					
		14.50	D						
		14.50	PP	208.33					
		15.00	D					End of Borehole at 15.000m	
		15.00	PP	200.00					
		15.00		N=26 (2,4/5,6,7,8)					
		15.00							
		15.00							

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
Remarks											



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 06/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD101	Location Type TP	Level	Logged By TM	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.05	ES		0.20			Black subangular to angular fine to coarse blacktop GRAVEL. (MADE GROUND)	1
		0.40	ES					Brown and dark grey gravelly slightly sandy silty CLAY with low brick and concrete cobble content. Gravel consists of subangular to angular fine to coarse brick, concrete and sandstone. (MADE GROUND)	
		0.90	ES		0.85			Greenish brown slightly gravelly slightly sandy silty CLAY. Gravel consists of subrounded to angular fine to medium sandstone, flint and rare brick. (MADE GROUND)	
					1.10			End of Trial Pit at 1.100m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Pit sides remained vertically stable					

Remarks	
No groundwater encountered.	



- 1
- 2
- 3
- 4
- 5



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 06/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD103	Location Type TP	Level	Logged By TM	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			CONCRETE	
		0.50	ES		0.85			Light brown, yellowish brown and reddish brown gravelly sandy slightly clayey brick and concrete COBBLE. Gravel consists of subangular to angular fine to coarse brick, concrete, sandstone, rubber and possible asbestos containing material. (MADE GROUND)	
					1.05			Brown slightly gravelly slightly sandy silty CLAY with low blacktop cobble content. Gravel consists of subangular to angular fine to coarse sandstone, brick and concrete. (MADE GROUND) End of Trial Pit at 1.050m	1
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Pit sides remained vertically stable					

Remarks	
No groundwater encountered.	



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 06/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD104	Location Type TP	Level	Logged By TM	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.25	ES		0.10			CONCRETE	
		0.75	ES					Grey slightly gravelly slightly sandy silty CLAY. Gravel consists of subangular to angular fine to medium brick and sandstone. (MADE GROUND)	
					1.10			End of Trial Pit at 1.100m	

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Pit sides remained vertically stable					

Remarks	
No groundwater encountered.	



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 06/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD105	Location Type TP	Level	Logged By TM	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.15			Brown slightly silty sandy subangular to angular fine to medium limestone, sandstone, brick and concrete GRAVEL. (MADE GROUND)	1
					0.30			Reddish brown brick COBBLE. (MADE GROUND)	
		0.50	ES					Grey slightly gravelly slightly sandy silty CLAY. Gravel consists of subangular to angular fine to medium brick and sandstone. (MADE GROUND)	
					0.85			Firm greyish brown and brown slightly sandy silty CLAY with occasional sand pockets. (LONDON CLAY FORMATION)	
		1.00	ES		1.10			End of Trial Pit at 1.100m	
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Pit sides remained vertically stable					

Remarks	
No groundwater encountered.	



Remarks
Groundwater encountered at 1.10m bgl. Water level at 1.10m bgl on completion.



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 06/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD107	Location Type TP	Level	Logged By TM	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.05	ES		0.10			Dark grey subangular to angular fine to medium limestone and blacktop GRAVEL with a slight hydrocarbon odour. (MADE GROUND)	
		0.30	ES		0.25			CONCRETE	
					0.70			Light brown very sandy subangular to angular fine to coarse brick, concrete and sandstone GRAVEL with pockets of clay. (MADE GROUND)	
								End of Trial Pit at 0.700m	
									1
									2
									3
									4
									5

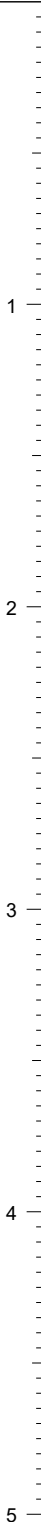
Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.60	0.30	Pit sides remained vertically stable					

Remarks	
No groundwater encountered.	



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 06/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD108	Location Type TP	Level	Logged By TM	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10			0.10			Brown slightly silty sandy subangular to angular fine to medium limestone, sandstone, brick and concrete GRAVEL. (MADE GROUND)	
		0.20	ES		0.30			Grey slightly silty sandy subangular to angular fine to coarse concrete, brick and sandstone GRAVEL. (MADE GROUND)	
		0.40	ES		0.50			Brown, grey and orangish brown mottled slightly gravelly slightly sandy silty CLAY. Gravel consists of subangular to angular fine to coarse sandstone, brick and concrete. (MADE GROUND)	
								End of Trial Pit at 0.500m	

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.70	0.30	Pit sides remained vertically stable					

Remarks	
No groundwater encountered.	



- 1
- 2
- 3
- 4
- 5



- 1
- 2
- 3
- 4
- 5



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 06/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD111A	Location Type TP	Level	Logged By TM	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.20			Brown slightly sandy silty clayey TOPSOIL with occasional roots and rootlets. Gravel consists of subangular to angular fine to medium sandstone and brick.	
					0.50			Brown slightly gravelly slightly sandy silty CLAY. Gravel consists of subangular to angular fine to coarse sandstone, brick and concrete. (MADE GROUND)	
		0.60	ES		0.80			Firm brown slightly gravelly slightly sandy silty CLAY. Gravel consists of subangular fo angular fine sandstone. (LONDON CLAY FORMATION)	
								End of Trial Pit at 0.800m	
									1
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Pit sides remained vertically stable					

Remarks	
No groundwater encountered.	

1

2

3

4

5



- 1 -
- 2 -
- 3 -
- 4 -
- 5 -



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 07/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD114	Location Type TP	Level	Logged By JB	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			BLACKTOP.	
					0.30			Grey slightly clayey gravelly fine to medium SAND. Gravel consists of subangular to subrounded fine to coarse flint and brick. (MADE GROUND)	
					0.50			Grey slightly clayey gravelly fine to medium SAND. Gravel consists of subangular to subrounded flint, brick, glass, ceramic and wood. (MADE GROUND)	
		1.00	ES					Soft greyish brown slightly sandy slightly gravelly CLAY. Gravel subangular to subrounded fine to medium flint, brick, clinker, ceramic with rare coarse brick. (MADE GROUND)	1
		1.20	ES						
		1.45	ES		1.40			Brownish black coarse slag GRAVEL. (MADE GROUND)	
					1.50			End of Trial Pit at 1.500m	2
									3
									4
									5

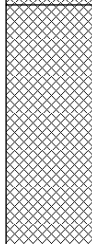
Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Pit sides remained vertically stable					

Remarks	
Groundwater encountered at 1.5m bgl.	



Trial Pit Log

Project Name: Florentia Clothing Village		Client: Florentia Property Unit Trust		Date: 07/12/2022	
Location: Vale Road, London, N4 1TD		Contractor: Belfort Drilling Services Ltd			
Project No. : 23675		Crew Name:		Equipment: Hand Tools	
Location Number HD115	Location Type TP	Level	Logged By JB	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description																																																																																																																																																										
		Depth (m)	Type	Results																																																																																																																																																														
		0.90	ES		0.10			BLACKTOP.	1																																																																																																																																																									
					0.50			Greyish brown sandy subangular to subrounded fine to coarse flint brick sandstone and cermaic GRAVEL. (MADE GROUND)																																																																																																																																																										
								Firm grey slightly sandy CLAY with fabrics. (MADE GROUND)																																																																																																																																																										
										Black slightly clayey slightly sandy subangular to subrounded fine to medium sandstone, blacktop, ceramic and fabric. (MADE GROUND).																																																																																																																																																								
											End of Trial Pit at 1.400m																																																																																																																																																							
		1.20	ES		1.30				2																																																																																																																																																									
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Summary of SPT Data

Project: Florentia Clothing Village

Project Ref : 23675

Date: December 2022

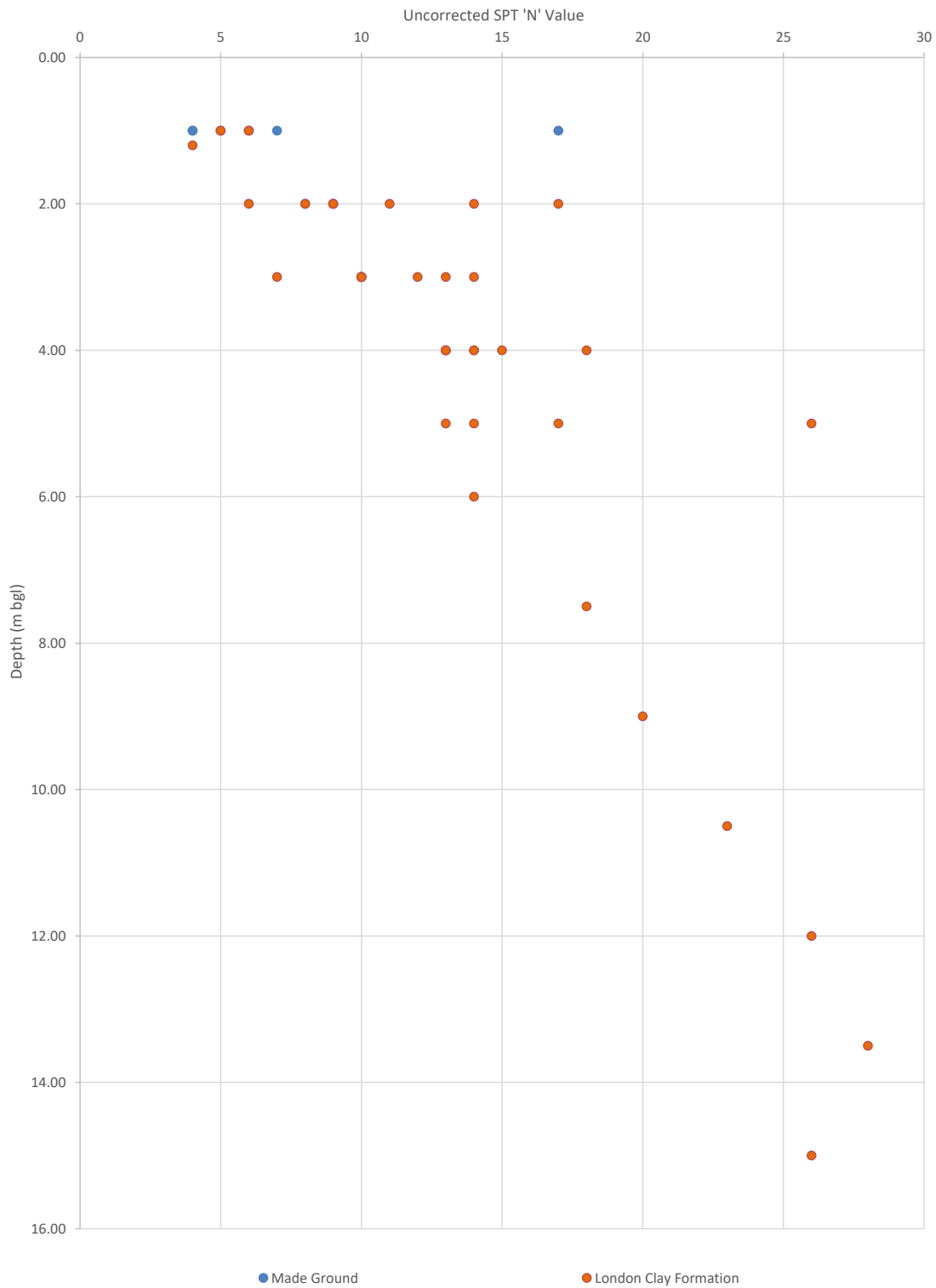
Revision: 1

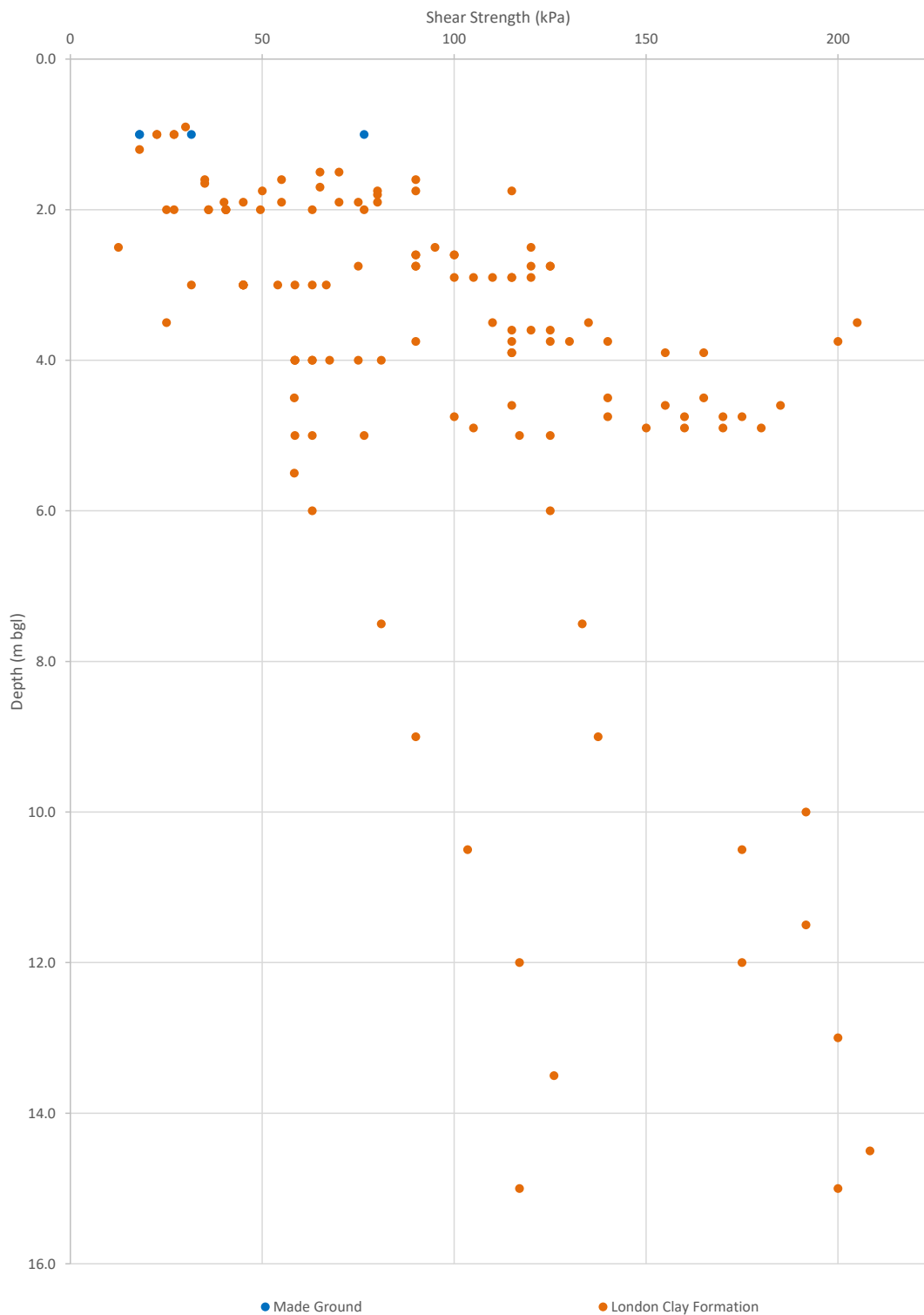


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Appendix C

Chemical Testing



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Analytical Report Number : 22-14297

Project / Site name:	Florentia Clothing Village	Samples received on:	20/12/2022
Your job number:	23675	Samples instructed on/ Analysis started on:	20/12/2022
Your order number:		Analysis completed by:	09/01/2023
Report Issue Number:	1	Report issued on:	11/01/2023
Samples Analysed:	2 soil samples		

Signed:

Izabela Wójcik
Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-14297
Project / Site name: Florentia Clothing Village

Lab Sample Number				2539951	2539952
Sample Reference				HD105	HD109
Sample Number				ES	ES
Depth (m)				0.50	0.50
Date Sampled				06/12/2022	06/12/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	25	24
Total mass of sample received	kg	0.001	NONE	0.7	0.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1500	510
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1300	240
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.64	0.12
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	645	118
Organic Matter (automated)	%	0.1	MCERTS	3.8	2.3

Speciated PAHs*

Naphthalene	mg/kg	0.05	NONE	< 0.05	0.43
Acenaphthylene	mg/kg	0.05	NONE	0.07	0.85
Acenaphthene	mg/kg	0.05	NONE	< 0.05	1.1
Fluorene	mg/kg	0.05	NONE	< 0.05	1.3
Phenanthrene	mg/kg	0.05	NONE	0.36	13
Anthracene	mg/kg	0.05	NONE	0.08	3.2
Fluoranthene	mg/kg	0.05	NONE	1.2	18
Pyrene	mg/kg	0.05	NONE	1.1	17
Benzo(a)anthracene	mg/kg	0.05	NONE	0.67	8.8
Chrysene	mg/kg	0.05	NONE	0.72	8.5
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.94	9.4
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.48	4.3
Benzo(a)pyrene	mg/kg	0.05	NONE	0.83	8.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.51	4.5
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.11	0.92
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.51	4.8

Total PAH*

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	7.61	104
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	20	18
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	43
Copper (aqua regia extractable)	mg/kg	1	MCERTS	59	50
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160	230
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.9	0.9
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	120

Petroleum Hydrocarbons

TPH C10 - C40 EH_CU_ID_TOTAL	mg/kg	10	MCERTS	13	130
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 22-14297

Project / Site name: Florentia Clothing Village

Lab Sample Number				2539951	2539952
Sample Reference				HD105	HD109
Sample Number				ES	ES
Depth (m)				0.50	0.50
Date Sampled				06/12/2022	06/12/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and therefore may be unreliable.

Analytical Report Number : 22-14297

Project / Site name: Florentia Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2539951	HD105	ES	0.5	Brown clay and loam with gravel and vegetation.
2539952	HD109	ES	0.5	Brown clay with gravel and vegetation.

Analytical Report Number : 22-14297

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture

correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector

Analytical Report Number : 22-14297

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
-	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

Sample Deviation Report



Analytical Report Number : 22-14297

Project / Site name: Florentia Clothing Village

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HD105	ES	S	2539951	c	Total cyanide in soil	L080-PL	c
HD109	ES	S	2539952	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 23-12340

Project / Site name:	Florentia Clothing Village	Samples received on:	16/01/2023
Your job number:	23675	Samples instructed on/ Analysis started on:	16/01/2023
Your order number:		Analysis completed by:	24/01/2023
Report Issue Number:	1	Report issued on:	24/01/2023
Samples Analysed:	2 soil samples		


Signed:
Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-12340
Project / Site name: Florentia Clothing Village

Lab Sample Number				2556794	2556795
Sample Reference				HD104	HD106
Sample Number				None Supplied	None Supplied
Depth (m)				0.25	0.30
Date Sampled				06/12/2022	06/12/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	3.9
Moisture Content	%	0.01	NONE	20	19
Total mass of sample received	kg	0.001	NONE	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	800	1600
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.16	0.28
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	320	550
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	158	277
Organic Matter (automated)	%	0.1	MCERTS	3.4	1.7

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.48	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.32	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.88	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.74	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	8.3	0.17
Anthracene	mg/kg	0.05	MCERTS	2.4	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	13	0.5
Pyrene	mg/kg	0.05	MCERTS	12	0.51
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.2	0.33
Chrysene	mg/kg	0.05	MCERTS	6.2	0.36
Benzo(b)fluoranthene & Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	12	0.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	7.8	0.43
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.3	0.25
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.77	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	4.6	0.32

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	80.2	3.59
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	32	26
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	41	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	85	48
Lead (aqua regia extractable)	mg/kg	1	MCERTS	360	220
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	33	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	210	91

Petroleum Hydrocarbons

TPH C10 - C40 EPH_CU_ID_TOTAL	mg/kg	10	MCERTS	170	120
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-12340

Project / Site name: Florentia Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2556794	HD104	None Supplied	0.25	Brown clay and loam with gravel and vegetation.
2556795	HD106	None Supplied	0.3	Brown sand with gravel and stones.

Analytical Report Number : 23-12340
Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector

Analytical Report Number : 23-12340

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
-	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

Analytical Report Number : 23-12340

Project / Site name: Florentia Clothing Village

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HD104	None Supplied	S	2556794	c	Hexavalent chromium in soil	L080-PL	c
HD104	None Supplied	S	2556794	c	Organic matter (Automated) in soil	L009-PL	c
HD104	None Supplied	S	2556794	c	Speciated EPA-16 PAHs in soil	L064-PL	c
HD104	None Supplied	S	2556794	c	TPH Banding in Soil by FID	L076-PL	c
HD104	None Supplied	S	2556794	c	Total cyanide in soil	L080-PL	c
HD104	None Supplied	S	2556794	c	pH in soil (automated)	L099-PL	c
HD106	None Supplied	S	2556795	c	Hexavalent chromium in soil	L080-PL	c
HD106	None Supplied	S	2556795	c	Organic matter (Automated) in soil	L009-PL	c
HD106	None Supplied	S	2556795	c	Speciated EPA-16 PAHs in soil	L064-PL	c
HD106	None Supplied	S	2556795	c	TPH Banding in Soil by FID	L076-PL	c
HD106	None Supplied	S	2556795	c	Total cyanide in soil	L080-PL	c
HD106	None Supplied	S	2556795	c	pH in soil (automated)	L099-PL	c

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Analytical Report Number : 23-13362

Project / Site name:	Florentia Clothing Village	Samples received on:	19/01/2023
Your job number:	23675	Samples instructed on/ Analysis started on:	24/01/2023
Your order number:		Analysis completed by:	02/02/2023
Report Issue Number:	1	Report issued on:	02/02/2023
Samples Analysed:	1 soil sample		


Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-13362
Project / Site name: Florentia Clothing Village

Lab Sample Number					2562462
Sample Reference					Composite
Sample Number					HD114 + HD115
Depth (m)					1.00-1.35
Date Sampled					07/12/2022
Time Taken					None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE		< 0.1
Moisture Content	%	0.01	NONE		36
Total mass of sample received	kg	0.001	NONE		2

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6
Total Cyanide	mg/kg	1	MCERTS	5
Total Sulphate as SO ₄	mg/kg	50	MCERTS	7700
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	3900
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.9
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	1930
Organic Matter (automated)	%	0.1	MCERTS	7.8

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.53
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	2.1
Anthracene	mg/kg	0.05	MCERTS	0.37
Fluoranthene	mg/kg	0.05	MCERTS	4.3
Pyrene	mg/kg	0.05	MCERTS	3.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.9
Chrysene	mg/kg	0.05	MCERTS	1.9
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.3
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.24
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.2

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	22.5
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	88
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	1.9
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	53
Copper (aqua regia extractable)	mg/kg	1	MCERTS	220
Lead (aqua regia extractable)	mg/kg	1	MCERTS	4800
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	17
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	52
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	520

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 23-13362

Project / Site name: Florentia Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2562462	Composite	HD114 + HD115	1.00-1.35	Brown clay and loam with gravel and glass.

Analytical Report Number : 23-13362
Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report



Analytical Report Number : 23-13362

Project / Site name: Florentia Clothing Village

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
Composite	HD114 + HD115	S	2562462	c	Hexavalent chromium in soil	L080-PL	c
Composite	HD114 + HD115	S	2562462	c	Organic matter (Automated) in soil	L009-PL	c
Composite	HD114 + HD115	S	2562462	c	Speciated EPA-16 PAHs in soil	L064-PL	c
Composite	HD114 + HD115	S	2562462	c	Total cyanide in soil	L080-PL	c
Composite	HD114 + HD115	S	2562462	c	pH in soil (automated)	L099-PL	c

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Analytical Report Number : 22-13486

Project / Site name: Florentia Clothing Village

Samples received on: 14/12/2022

Your job number: 23675

**Samples instructed on/
Analysis started on:** 14/12/2022

Your order number:

Analysis completed by: 03/01/2023

Report Issue Number: 1

Report issued on: 03/01/2023

Samples Analysed: 4 10:1 WAC samples

Signed:

Izabela Wójcik

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



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Waste Acceptance Criteria Analytical Results							
Report No:	22-13486						
					Client: JPP		
Location	Florentia Clothing Village						
Lab Reference (Sample Number)	2534709 / 2534710				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	06/12/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	HD103						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	0.7				3%	5%	6%
Loss on Ignition (%) **	2.9				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	34				500	--	--
Total PAH (WAC-17) (mg/kg) ***	17.4				100	--	--
pH (units)**	7.8				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	1.8				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0072			0.0582	0.5	2	25
Barium *	0.0289			0.235	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.024			0.19	0.5	10	70
Copper *	0.034			0.28	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0052			0.0421	0.5	10	30
Nickel *	0.0006			0.0049	0.4	10	40
Lead *	0.0015			0.012	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.015			0.12	4	50	200
Chloride *	6.6			53	800	15000	25000
Fluoride*	0.45			3.6	10	150	500
Sulphate *	580			4700	1000	20000	50000
TDS*	630			5100	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	6.15			50.0	500	800	1000
Leach Test Information							
Stone Content (%)	56						
Sample Mass (kg)	0.80						
Dry Matter (%)	89						
Moisture (%)	11						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			
***Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.							
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							



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Waste Acceptance Criteria Analytical Results							
Report No:	22-13486						
					Client: JPP		
Location	Florentia Clothing Village						
Lab Reference (Sample Number)	2534711 / 2534712				Landfill Waste Acceptance Criteria		
Sampling Date	06/12/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	HD104						
Depth (m)	0.75						
Solid Waste Analysis							
TOC (%)**	1.6				3%	5%	6%
Loss on Ignition (%) **	7.4				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg) ***	4.37				100	--	--
pH (units)**	7.7				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	2.8				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0032			0.0235	0.5	2	25
Barium *	0.0158			0.117	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0019			0.014	0.5	10	70
Copper *	0.020			0.15	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0059			0.0436	0.5	10	30
Nickel *	0.0029			0.021	0.4	10	40
Lead *	0.0056			0.042	0.5	10	50
Antimony *	0.0086			0.063	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.015			0.11	4	50	200
Chloride *	13			95	800	15000	25000
Fluoride*	0.90			6.6	10	150	500
Sulphate *	30			220	1000	20000	50000
TDS*	71			530	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	25.9			192	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	75						
Moisture (%)	25						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
				*= UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			
***Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.							
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							



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Waste Acceptance Criteria Analytical Results							
Report No:	22-13486						
					Client: JPP		
Location	Florentia Clothing Village						
Lab Reference (Sample Number)	2534713 / 2534714				Landfill Waste Acceptance Criteria		
Sampling Date	06/12/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	HD106						
Depth (m)	0.60						
Solid Waste Analysis							
TOC (%)**	1.8				3%	5%	6%
Loss on Ignition (%) **	7.6				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg) ***	6.15				100	--	--
pH (units)**	7.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	1.2				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0022			0.0176	0.5	2	25
Barium *	0.0312			0.247	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0009			0.0074	0.5	10	70
Copper *	0.026			0.20	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0108			0.0856	0.5	10	30
Nickel *	0.0014			0.011	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.013			0.10	4	50	200
Chloride *	8.3			66	800	15000	25000
Fluoride*	0.90			7.1	10	150	500
Sulphate *	20			160	1000	20000	50000
TDS*	83			660	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	25.4			202	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	76						
Moisture (%)	24						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		
***Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.							
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							



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Waste Acceptance Criteria Analytical Results							
Report No:	22-13486						
					Client: JPP		
Location	Florentia Clothing Village						
Lab Reference (Sample Number)	2534715 / 2534716				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	06/12/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	HD110						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	2.4				3%	5%	6%
Loss on Ignition (%) **	4.9				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	95				500	--	--
Total PAH (WAC-17) (mg/kg) ***	67.8				100	--	--
pH (units)**	8.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	9.1				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0067			0.0581	0.5	2	25
Barium *	0.0275			0.238	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.018			0.16	0.5	10	70
Copper *	0.019			0.16	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0016			0.0135	0.5	10	30
Nickel *	0.0014			0.013	0.4	10	40
Lead *	0.018			0.15	0.5	10	50
Antimony *	0.0076			0.065	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.025			0.21	4	50	200
Chloride *	2.1			18	800	15000	25000
Fluoride*	0.37			3.2	10	150	500
Sulphate *	31			270	1000	20000	50000
TDS*	88			760	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	12.1			104	500	800	1000
Leach Test Information							
Stone Content (%)	32						
Sample Mass (kg)	0.80						
Dry Matter (%)	84						
Moisture (%)	16						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					*= UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		
***Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.							
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							



Analytical Report Number : 22-13486
Project / Site name: Florentia Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2534709	HD103	None Supplied	0.5	Brown clay and sand with gravel and stones.
2534711	HD104	None Supplied	0.75	Brown clay and sand.
2534713	HD106	None Supplied	0.6	Brown clay and sand.
2534715	HD110	None Supplied	0.3	Brown clay and sand with gravel and stones.

Analytical Report Number : 22-13486
Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031	W	ISO 17025

Analytical Report Number : 22-13486
 Project / Site name: Florentia Clothing Village

Water matrix abbreviations:
 Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
 For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
 For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
 Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 22-13486
Project / Site name: Florentia Clothing Village

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HD103	None Supplied	S	2534709	b	BTEX in soil (Monoaromatics)	L073B-PL	b
HD103	None Supplied	S	2534709	b	Total BTEX in soil (Poland)	L073-PL	b
HD104	None Supplied	S	2534711	b	BTEX in soil (Monoaromatics)	L073B-PL	b
HD104	None Supplied	S	2534711	b	Total BTEX in soil (Poland)	L073-PL	b
HD106	None Supplied	S	2534713	b	BTEX in soil (Monoaromatics)	L073B-PL	b
HD106	None Supplied	S	2534713	b	Total BTEX in soil (Poland)	L073-PL	b
HD110	None Supplied	S	2534715	b	BTEX in soil (Monoaromatics)	L073B-PL	b
HD110	None Supplied	S	2534715	b	Total BTEX in soil (Poland)	L073-PL	b

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Analytical Report Number : 23-12345

Project / Site name:	Florentia Clothing Village	Samples received on:	17/01/2023
Your job number:	23675	Samples instructed on/ Analysis started on:	17/01/2023
Your order number:		Analysis completed by:	24/01/2023
Report Issue Number:	1	Report issued on:	24/01/2023
Samples Analysed:	1 leachate sample - 1 soil sample		

Signed:


Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



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Waste Acceptance Criteria Analytical Results							
Report No:	23-12345						
					Client: JPP		
Location	Florentia Clothing Village						
Lab Reference (Sample Number)	2556814 / 2556815				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	06/12/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	HD110						
Depth (m)	0.90						
Solid Waste Analysis							
TOC (%)**	1.9				3%	5%	6%
Loss on Ignition (%) **	6.7				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	14.7				100	--	--
pH (units)**	7.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.00				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0027			0.0203	0.5	2	25
Barium *	0.0382			0.289	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0007			0.0053	0.5	10	70
Copper *	0.016			0.12	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0022			0.0170	0.5	10	30
Nickel *	0.0009			0.0067	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.019			0.14	4	50	200
Chloride *	1.1			8.7	800	15000	25000
Fluoride*	0.92			7.0	10	150	500
Sulphate *	53			400	1000	20000	50000
TDS*	160			1200	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	11.7			88.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.50						
Dry Matter (%)	81						
Moisture (%)	19						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
* = UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = MCFRTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



Analytical Report Number : 23-12345
Project / Site name: Florentia Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2556814	HD110	None Supplied	0.9	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 23-12345
Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance [™]	L046-PL	W
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073-PL	W
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil [™]	L039-PL	W
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination [®]	L033B-PL	W
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil [™]	L039-PL	W
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031	W

Analytical Report Number : 23-12345
Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided to the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



Accreditation Status
NONE
NONE
MCERTS
NONE
NONE
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MCERTS
ISO 17025
ISO 17025
ISO 17025
ISO 17025
ISO 17025



Accreditation Status
ISO 17025
NONE

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Analytical Report Number : 23-12345

Project / Site name: Florentia Clothing Village

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HD110	None Supplied	S	2556814	bc	Acid neutralisation capacity of soil	L046-PL	c
HD110	None Supplied	S	2556814	bc	BTEX in soil (Monoaromatics)	L073B-PL	bc
HD110	None Supplied	S	2556814	bc	Loss on ignition of soil @ 450oC	L047-PL	c
HD110	None Supplied	S	2556814	bc	Mineral Oil (Soil) C10 - C40	L076-PL	c
HD110	None Supplied	S	2556814	bc	Organic matter (Automated) in soil	L009-PL	c
HD110	None Supplied	S	2556814	bc	PCB's By GC-MS in soil	L027-PL	c
HD110	None Supplied	S	2556814	bc	Speciated WAC-17 PAHs in soil	L064-PL	c
HD110	None Supplied	S	2556814	bc	Total BTEX in soil (Poland)	L073-PL	bc
HD110	None Supplied	S	2556814	bc	Total organic carbon (Automated) in soil	L009-PL	c
HD110	None Supplied	S	2556814	bc	pH at 20oC in soil	L005-PL	c

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Analytical Report Number : 23-13365

Project / Site name:	Florentia Clothing Village	Samples received on:	19/01/2023
Your job number:	23675	Samples instructed on/ Analysis started on:	24/01/2023
Your order number:		Analysis completed by:	03/02/2023
Report Issue Number:	1	Report issued on:	03/02/2023
Samples Analysed:	1 leachate sample - 1 soil sample		


Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



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Waste Acceptance Criteria Analytical Results									
Report No:		23-13365							
						Client: JPP			
Location		Florentia Clothing Village							
Lab Reference (Sample Number)		2562481 / 2562482				Landfill Waste Acceptance Criteria			
						Limits			
Sampling Date		07/12/2022							
Sample ID		Composite HD114 + HD115							
Depth (m)		1-1.35				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Solid Waste Analysis									
TOC (%)**		4.5				3%	5%	6%	
Loss on Ignition (%) **		12.1				--	--	10%	
BTEX (µg/kg) **		< 5.0				6000	--	--	
Sum of PCBs (mg/kg) **		< 0.007				1	--	--	
Mineral Oil (mg/kg) EH, ID, CU, AL		< 10				500	--	--	
Total PAH (WAC-17) (mg/kg)		22.0				100	--	--	
pH (units)**		7.7				--	>6	--	
Acid Neutralisation Capacity (mmol / kg)		8.5				--	To be evaluated	To be evaluated	
Eluate Analysis		10:1			10:1	Limit values for compliance leaching test			
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
Arsenic *		0.0012			< 0.0100	0.5	2	25	
Barium *		0.0666			0.530	20	100	300	
Cadmium *		< 0.0001			< 0.0008	0.04	1	5	
Chromium *		< 0.0004			< 0.0040	0.5	10	70	
Copper *		0.0090			0.072	2	50	100	
Mercury *		< 0.0005			< 0.0050	0.01	0.2	2	
Molybdenum *		0.0243			0.194	0.5	10	30	
Nickel *		0.0047			0.038	0.4	10	40	
Lead *		0.0083			0.066	0.5	10	50	
Antimony *		< 0.0017			< 0.017	0.06	0.7	5	
Selenium *		< 0.0040			< 0.040	0.1	0.5	7	
Zinc *		0.041			0.33	4	50	200	
Chloride *		3.4			27	800	15000	25000	
Fluoride*		0.28			2.2	10	150	500	
Sulphate *		250			2000	1000	20000	50000	
TDS*		350			2800	4000	60000	100000	
Phenol Index (Monohydric Phenols) *		< 0.010			< 0.10	1	-	-	
DOC		4.71			37.5	500	800	1000	
Leach Test Information									
Stone Content (%)		< 0.1							
Sample Mass (kg)		1.5							
Dry Matter (%)		64							
Moisture (%)		36							
Results are expressed on a dry weight basis, after correction for moisture content where applicable.									
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation									
** = MCFRTS accredited									

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 23-13365

Project / Site name: Florentia Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2562481	Composite	HD114 + HD115	1-1.35	Brown clay and loam with gravel and glass.

Analytical Report Number : 23-13365

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031	W	ISO 17025

Analytical Report Number : 23-13365

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 23-13365

Project / Site name: Florentia Clothing Village

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
Composite	HD114 + HD115	S	2562481	bc	Acid neutralisation capacity of soil	L046-PL	c
Composite	HD114 + HD115	S	2562481	bc	BTEX in soil (Monoaromatics)	L073B-PL	bc
Composite	HD114 + HD115	S	2562481	bc	Loss on ignition of soil @ 450oC	L047-PL	c
Composite	HD114 + HD115	S	2562481	bc	Mineral Oil (Soil) C10 - C40	L076-PL	c
Composite	HD114 + HD115	S	2562481	bc	Organic matter (Automated) in soil	L009-PL	c
Composite	HD114 + HD115	S	2562481	bc	PCB's By GC-MS in soil	L027-PL	c
Composite	HD114 + HD115	S	2562481	bc	Speciated WAC-17 PAHs in soil	L064-PL	c
Composite	HD114 + HD115	S	2562481	bc	Total BTEX in soil (Poland)	L073-PL	bc
Composite	HD114 + HD115	S	2562481	bc	Total organic carbon (Automated) in soil	L009-PL	c
Composite	HD114 + HD115	S	2562481	bc	pH at 20oC in soil	L005-PL	c

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Analytical Report Number : 22-13493

Project / Site name:	Florentina Clothing Village	Samples received on:	15/12/2022
Your job number:	23675	Samples instructed on/ Analysis started on:	15/12/2022
Your order number:		Analysis completed by:	02/01/2023
Report Issue Number:	1	Report issued on:	02/01/2023
Samples Analysed:	4 soil samples		

Izabela Wójcik
Signed:
Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-13493
Project / Site name: Florentina Clothing Village

Lab Sample Number				2534780	2534781	2534782	2534783
Sample Reference				BH101	BH101	BH101	BH101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.50	5.50	10.50	13.50
Date Sampled				08/12/2022	08/12/2022	08/12/2022	08/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	24	20	17	16
Total mass of sample received	kg	0.001	NONE	1	1	1	1

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	8.1	8.1	8.4
Total Sulphate as SO ₄	%	0.005	MCERTS	0.094	0.438	0.102	0.082*
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.3	1.9	0.38	0.66
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	48	110	100	110
Total Sulphur	%	0.005	MCERTS	0.182	0.189	0.485	0.449*
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	170	750	110	120
Magnesium (leachate equivalent)	mg/l	2.5	NONE	84	370	56	60

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Despite repeating Total Sulphate and Total Sulphur analysis, the results remain contradictory.

Analytical Report Number : 22-13493

Project / Site name: Florentina Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2534780	BH101	None Supplied	2.5	Brown clay.
2534781	BH101	None Supplied	5.5	Brown clay.
2534782	BH101	None Supplied	10.5	Brown clay.
2534783	BH101	None Supplied	13.5	Brown clay.

Analytical Report Number : 22-13493

Project / Site name: Florentina Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.



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Analytical Report Number : 22-13946

Project / Site name:	Florentia Clothing Village	Samples received on:	15/12/2022
Your job number:	23675	Samples instructed on/ Analysis started on:	19/12/2022
Your order number:		Analysis completed by:	04/01/2023
Report Issue Number:	1	Report issued on:	05/01/2023
Samples Analysed:	1 leachate sample - 1 soil sample		

Signed:

Izabela Wójcik

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-13946
Project / Site name: Florentia Clothing Village

Lab Sample Number				2537717
Sample Reference				HD112
Sample Number				None Supplied
Depth (m)				0.80
Date Sampled				07/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	26
Total mass of sample received	kg	0.001	NONE	0.3

General Inorganics

Organic Matter (automated)	%	0.1	MCERTS	1.4
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Monoaromatics & Oxygenates

Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic (EC5 - EC35) _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 22-13946
Project / Site name: Florentia Clothing Village

Lab Sample Number				2537718
Sample Reference				HD112
Sample Number				None Supplied
Depth (m)				0.80
Date Sampled				07/12/2022
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

Total Cyanide	µg/l	10	ISO 17025	< 10
Sulphate as SO ₄	mg/l	0.1	ISO 17025	16.2
Nitrate as N	mg/l	0.01	NONE	0.07

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	1.4
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	3.6
Copper (dissolved)	µg/l	0.7	ISO 17025	12
Lead (dissolved)	µg/l	1	ISO 17025	7.5
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	4.5
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	5.8

Petroleum Hydrocarbons

TPH1 (C10 - C40) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number : 22-13946
Project / Site name: Florentia Clothing Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2537717	HD112	None Supplied	0.8	Brown clay with gravel.

Analytical Report Number : 22-13946

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Nitrate as N in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Analytical Report Number : 22-13946

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
----------------------	-------------------------------	-----------------------------	---------------	--------------------	----------------------

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 22-13946

Project / Site name: Florentia Clothing Village

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HD112	None Supplied	S	2537717	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
HD112	None Supplied	S	2537717	b	TPHCWG (Soil)	L088/76-PL	b



Jake Bhangal
JPP
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NN6 9UD

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7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: jake.bhangal@jppuk.net

Analytical Report Number : 22-13958

Project / Site name:	Florentia Clothing Village	Samples received on:	15/12/2022
Your job number:	23675	Samples instructed on/ Analysis started on:	19/12/2022
Your order number:		Analysis completed by:	03/01/2023
Report Issue Number:	1	Report issued on:	05/01/2023
Samples Analysed:	2 soil samples		

Signed:

Izabela Wójcik

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 22-13958

Project / Site name: Florentia Clothing Village

Lab Sample Number				2537766	2537774
Sample Reference				HD114	HD115
Sample Number				None Supplied	None Supplied
Depth (m)				1.00	1.35
Date Sampled				06/12/2022	07/12/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SFS	SFS

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number : 22-13958

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.



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Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-12862

Project / Site name:	Florentia Clothing Village	Samples received on:	20/01/2023
Your job number:	23675	Samples instructed on/ Analysis started on:	20/01/2023
Your order number:		Analysis completed by:	24/01/2023
Report Issue Number:	1	Report issued on:	24/01/2023
Samples Analysed:	1 soil sample		


Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 23-12862

Project / Site name: Florentia Clothing Village

Lab Sample Number				2559791
Sample Reference				HD103
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				06/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number : 23-12862

Project / Site name: Florentia Clothing Village

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.



Appendix D Geotechnical Testing

4041

Client: JPP
Client Address: 4 Ironstone Way, Brixworth,
Northampton, NN6 9UD

Contact: Jake Bhargal
Site Address: Florentia Clothing Village

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 23675
Job Number: 22-13494
Date Sampled: 08/12/2022
Date Received: 15/12/2022
Date Tested: 28/12/2022
Sampled By: Not Given

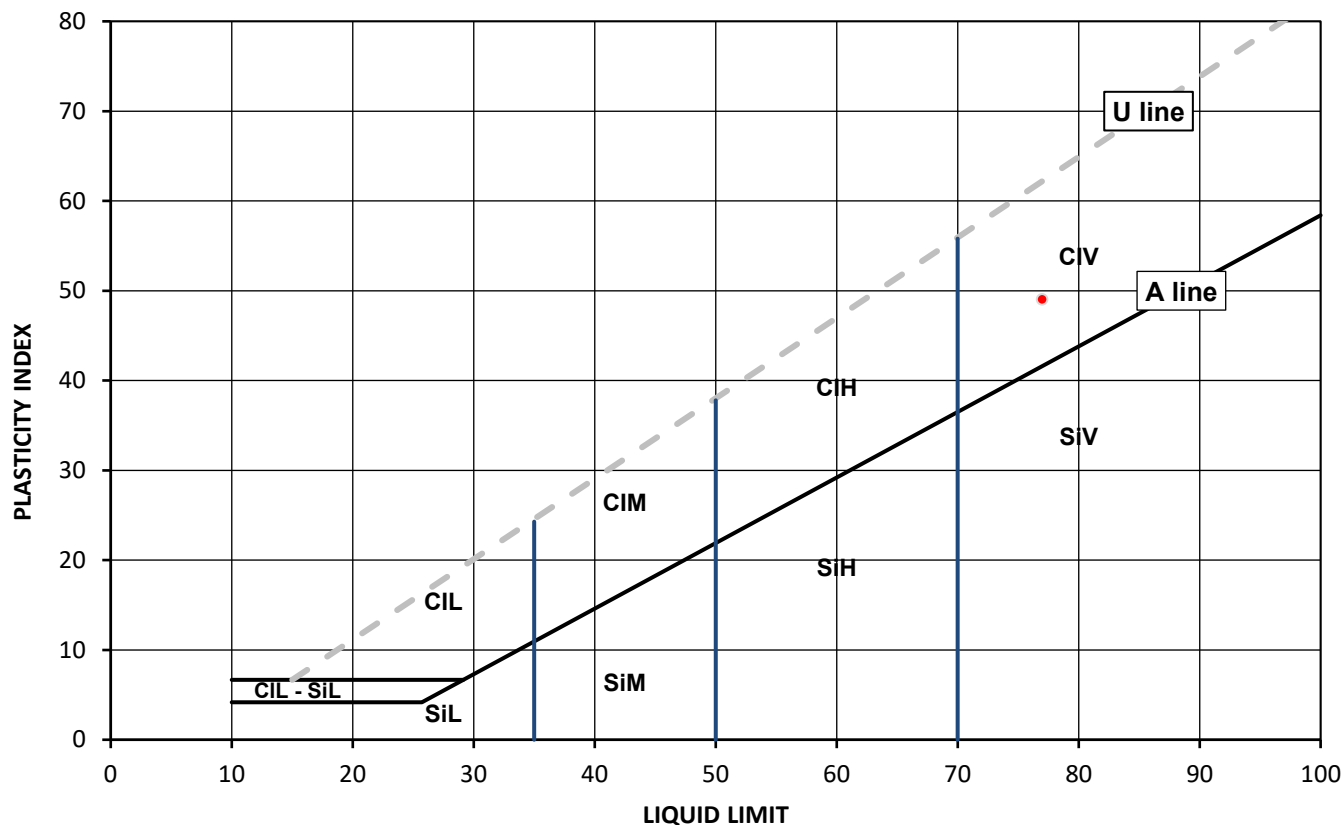
Test Results:

Laboratory Reference: 2534784
Hole No.: BH101
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
36	77	28	49	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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4041

Client: JPP
Client Address: 4 Ironstone Way, Brixworth,
Northampton, NN6 9UD

Contact: Jake Bhargal
Site Address: Florentia Clothing Village

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 23675
Job Number: 22-13494
Date Sampled: 08/12/2022
Date Received: 15/12/2022
Date Tested: 28/12/2022
Sampled By: Not Given

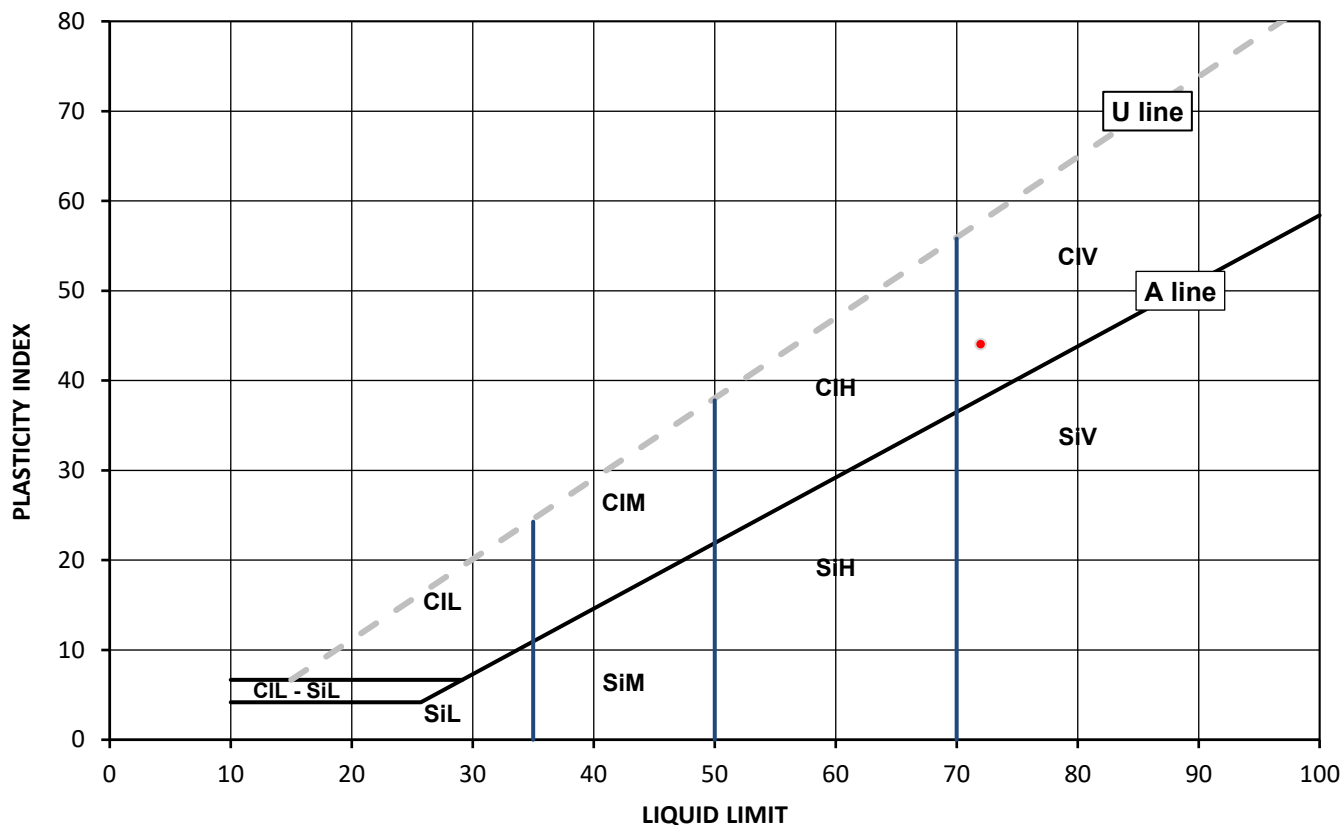
Test Results:

Laboratory Reference: 2534785
Hole No.: BH101
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 5.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
31	72	28	44	100



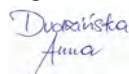
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
		H High 50 to 70
		V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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4041

Client: JPP
Client Address: 4 Ironstone Way, Brixworth,
Northampton, NN6 9UD

Contact: Jake Bhargal
Site Address: Florentia Clothing Village

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 23675
Job Number: 22-13494
Date Sampled: 08/12/2022
Date Received: 15/12/2022
Date Tested: 28/12/2022
Sampled By: Not Given

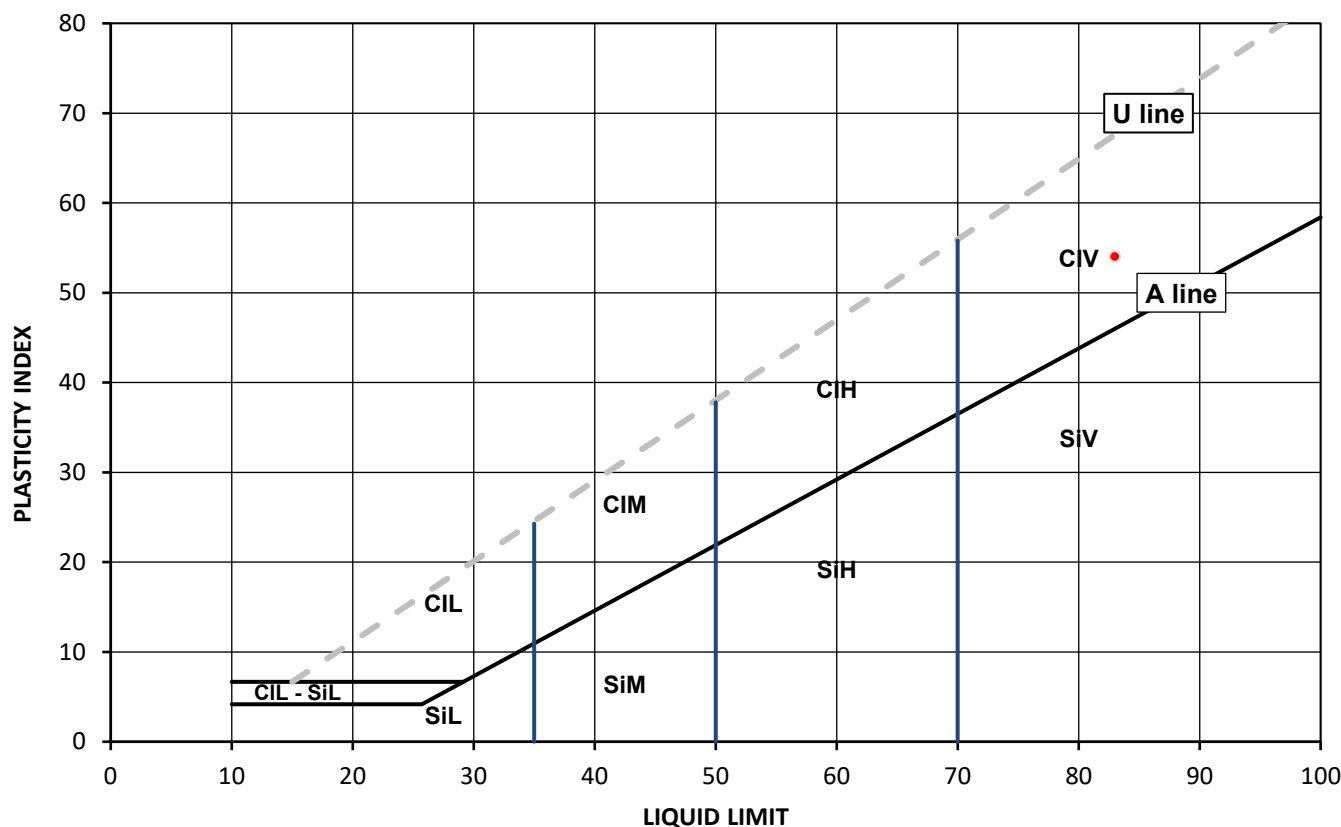
Test Results:

Laboratory Reference: 2534786
Hole No.: BH101
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 10.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
31	83	29	54	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
		H High 50 to 70
		V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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4041

Client: JPP
Client Address: 4 Ironstone Way, Brixworth,
Northampton, NN6 9UD

Contact: Jake Bhargal
Site Address: Florentia Clothing Village

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 23675
Job Number: 22-13494
Date Sampled: 08/12/2022
Date Received: 15/12/2022
Date Tested: 28/12/2022
Sampled By: Not Given

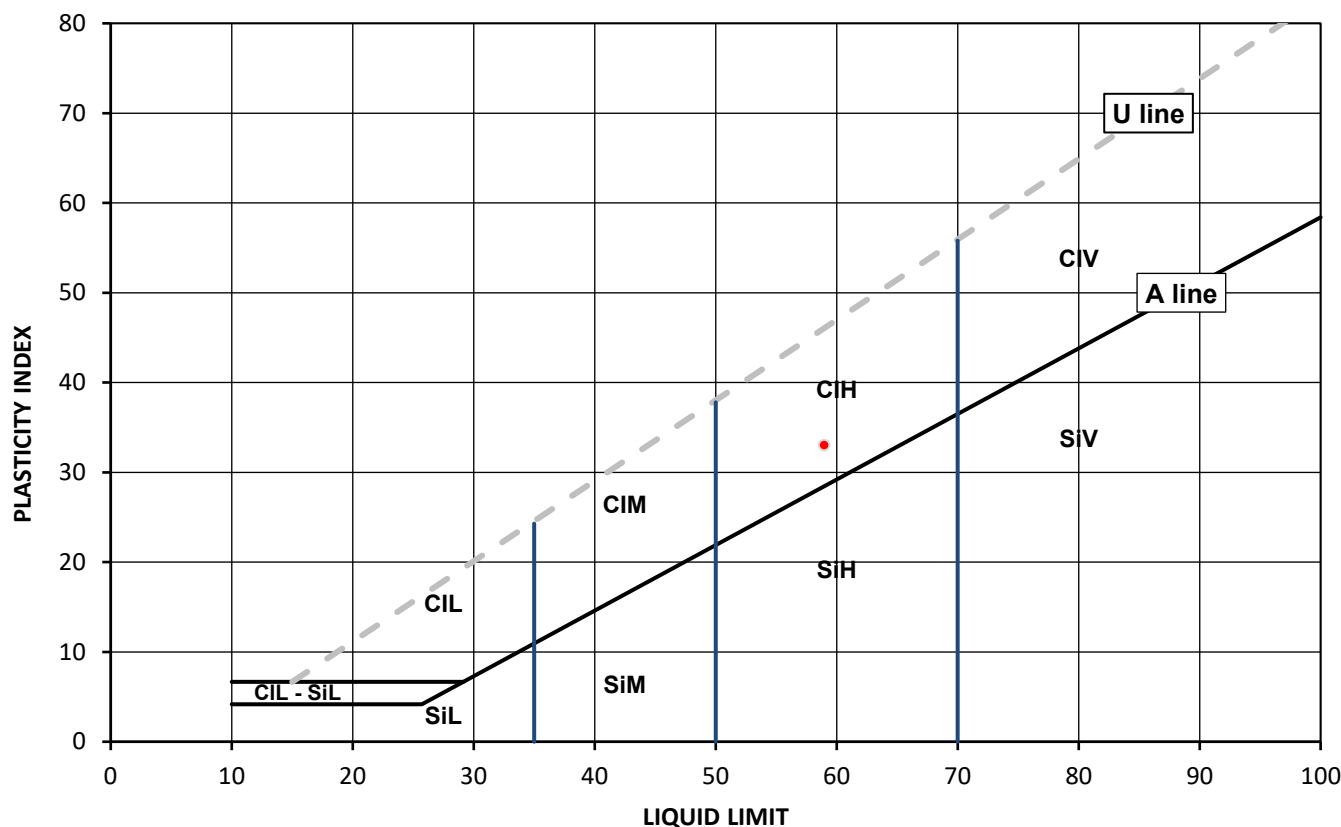
Test Results:

Laboratory Reference: 2534787
Hole No.: BH101
Sample Reference: Not Given
Sample Description: Brownish grey slightly gravelly slightly sandy CLAY

Depth Top [m]: 15.00
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested after >425um removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	59	26	33	97



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	
	V Very high	
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



4041

Client: JPP
Client Address: 4 Ironstone Way, Brixworth,
Northampton, NN6 9UD

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990:
Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2:
1990: Clause 8.2

Client Reference: 23675
Job Number: 22-13494
Date Sampled: 08/12/2022
Date Received: 15/12/2022
Date Tested: 28/12/2022
Sampled By: Not Given

Contact: Jake Bhangal
Site Address: Florentia Clothing Village

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-1 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	WL	Wp	Ip	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2534784	BH101	Not Given	2.00	Not Given	D	Brownish grey CLAY	Atterberg 1 Point	36		100	77	28	49						
2534785	BH101	Not Given	5.00	Not Given	D	Brownish grey CLAY	Atterberg 1 Point	31		100	72	28	44						
2534786	BH101	Not Given	10.00	Not Given	D	Brown CLAY	Atterberg 1 Point	31		100	83	29	54						
2534787	BH101	Not Given	15.00	Not Given	D	Brownish grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	26		97	59	26	33						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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4041

Client: JPP

Client Address: 4 Ironstone Way, Brixworth,
Northampton, NN6 9UD

Contact: Jake Bhangal

Site Address: Florentia Clothing Village

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client Reference: 23675

Job Number: 22-13494

Date Sampled: 08/12/2022

Date Received: 15/12/2022

Date Tested: 28/12/2022

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2534784	BH101	Not Given	2.00	Not Given	D	Brownish grey CLAY		36	Sample was quartered, oven dried at 109 °C			
2534785	BH101	Not Given	5.00	Not Given	D	Brownish grey CLAY		31	Sample was quartered, oven dried at 109 °C			
2534786	BH101	Not Given	10.00	Not Given	D	Brown CLAY		31	Sample was quartered, oven dried at 109 °C			
2534787	BH101	Not Given	15.00	Not Given	D	Brownish grey slightly gravelly slightly sandy CLAY		26	Sample was quartered, oven dried at 109 °C			

Comments:

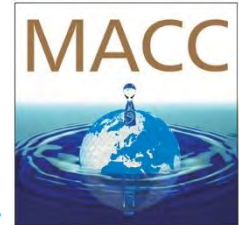
Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



**Appendix E
Unexploded Ordnance Preliminary Risk Review**



MACC International Ltd, Camilla Court, Nacton, Ipswich, Suffolk, IP10 0EU, UK

Peter Mason
Associate Director
HOO Geotechnical and Environmental Ltd

Your Reference:

Our Reference: JM/7405/03

Email 1st Instance: Peter.Mason@jppuk.net

Date: 28/09/2021

Unexploded Ordnance Preliminary Risk Review
Vale Road, London, N4 1TD

MACC International Ltd (MACC) has conducted a preliminary risk review for the site footprint. The review has drawn on open source and in-house information, references have been provided where available (See Annex A).

The review has been conducted to provide JPP Geotechnical and Environmental Ltd with a review of the risk which may be posed by UXO while conducting investigations on the site.

This document has been produced in the United Kingdom by MACC International Limited and has been provided solely as an aid in decision making. It is not intended to be used by any person for any purpose other than that specified. Any liability arising out of use by a third party of this document for purposes not wholly connected with the above shall be the responsibility of that party, who shall indemnify MACC International Limited against all claims, costs, damages and losses arising out of such use.

Although the surrounding area did suffer enemy bombing raids during WWII, no records were found to indicate a bomb strike within the footprint. Whilst considering the history of the site and the level of post-war development, the following conclusions have been reached:

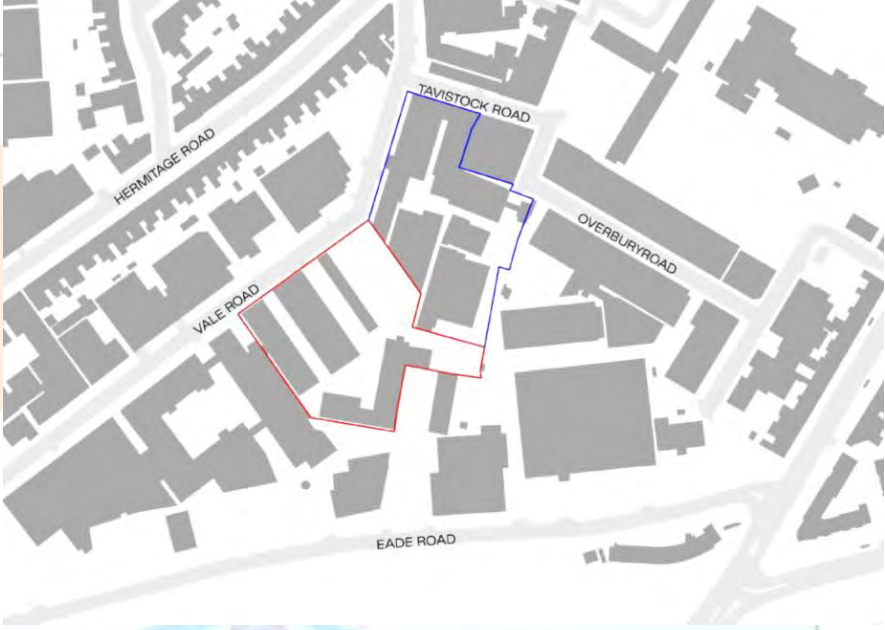
- It is considered that there is not a credible likelihood of encountering UXO on the plot. Consequently, the UXO risk is considered to be LOW within the site boundary.
- Nevertheless, it is recommended that:
 - o All site personnel are provided with a UXO Safety Awareness Talk before intrusive works are commenced.

I trust this document has provided you with sufficient information to meet your immediate needs, should you require anything further, please do not hesitate to contact me.

Yours Sincerely

John Morrison
Operations Manager

Unexploded Ordnance Preliminary Risk Review

Site location 	Site Address: Vale Road, London, N4 1TD Grid Reference: 532528, 188034 Site Footprint in Red: 
Scope of Intended works	Preliminary review of the risk that may be posed by UXO to geotechnical investigations.
History	Wartime Use: The site was within a recreation ground of a school during WWII. Post War Development: The site appears to have undergone a moderate level of post-war development with the demolition of the recreation ground/school and the development of a storage facility.
Wartime History	Enemy Bombing: Although the surrounding area did suffer from enemy bombing during WWII, no records were found to indicate a bomb strike within the site footprint. The nearest recorded significant bomb damage (shown on LCC Bomb Damage Map 21) was approximately 150m south at Sevensisters Road. Anti-Aircraft Guns: No guns were recorded to have been positioned on site. The nearest Heavy Anti-Aircraft battery was positioned approximately 2.2km south-east of the site footprint. Military Use: No records were found to confirm military use of the site footprint or immediate surrounding area.
Unexploded Ordnance (UXO) Finds	No records were found to indicate that items of UXO have been found within the site footprint.



**Appendix F
HazWaste Online**

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:

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



69DXP-UFCE4-M34D8

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

Job name

Florentia Clothing Village - 23675

Description/Comments

Project

Site

Vale Road, London

Classified by

Name: **Tom McGrath**
 Date: **30 Jan 2023 09:20 GMT**
 Telephone:
 Company: **JPP Geotechnical & Environmental Ltd**

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

Hazardous Waste Classification

Date

-

Purpose of classification

4 - Classification of Waste Products

Address of the waste

Post Code

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Description of the specific process, sub-process and/or activity that created the waste

Description of the waste



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	HD105	0.50	Non Hazardous		3
2	HD109	0.50	Non Hazardous		5
3	HD112	0.80	Non Hazardous		7
4	HD104	0.25	Non Hazardous		8
5	HD106	0.30	Non Hazardous		10

Related documents

#	Name	Description
1	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Tom McGrath

Created date: 30 Jan 2023 09:20 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	12
Appendix B: Rationale for selection of metal species	13
Appendix C: Version	13

Classification of sample: HD105

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

Sample details

Sample name:	LoW Code:
HD105	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
25%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 25% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	26.407 mg/kg		0.00264 %		
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg		<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				38 mg/kg	1.462	55.539 mg/kg		0.00555 %		
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8 mg/kg	2.27	<4.086 mg/kg		<0.000409 %		<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				59 mg/kg	1.126	66.427 mg/kg		0.00664 %		
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	160 mg/kg	1.56	249.57 mg/kg		0.016 %		
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.9 mg/kg	1.353	1.218 mg/kg		0.000122 %		
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				24 mg/kg	2.976	71.43 mg/kg		0.00714 %		
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg		<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg		0.0277 %		
	024-007-00-3	236-878-9	13530-65-9								
11	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 mg/kg	1.884	<1.884 mg/kg		<0.000188 %		<LOD
	006-007-00-5										
12	pH				7.1 pH		7.1 pH		7.1 pH		
			PH								
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.07 mg/kg		0.07 mg/kg		0.000007 %		
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.36 mg/kg		0.36 mg/kg	0.000036 %		
18	anthracene	204-371-1	120-12-7		0.08 mg/kg		0.08 mg/kg	0.000008 %		
19	fluoranthene	205-912-4	206-44-0		1.2 mg/kg		1.2 mg/kg	0.00012 %		
20	pyrene	204-927-3	129-00-0		1.1 mg/kg		1.1 mg/kg	0.00011 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.67 mg/kg		0.67 mg/kg	0.000067 %		
22	chrysene	601-048-00-0	205-923-4		0.72 mg/kg		0.72 mg/kg	0.000072 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.94 mg/kg		0.94 mg/kg	0.000094 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.48 mg/kg		0.48 mg/kg	0.000048 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.83 mg/kg		0.83 mg/kg	0.000083 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.51 mg/kg		0.51 mg/kg	0.000051 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.11 mg/kg		0.11 mg/kg	0.000011 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.51 mg/kg		0.51 mg/kg	0.000051 %		
Total:								0.0675 %		

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 Determinand - 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

Classification of sample: HD109

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

Sample details

Sample name:	LoW Code:
HD109	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
24%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 24% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				18 mg/kg	1.32	23.766 mg/kg	0.00238 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				43 mg/kg	1.462	62.847 mg/kg	0.00628 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				50 mg/kg	1.126	56.294 mg/kg	0.00563 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	230 mg/kg	1.56	358.757 mg/kg	0.023 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.9 mg/kg	1.353	1.218 mg/kg	0.000122 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				27 mg/kg	2.976	80.359 mg/kg	0.00804 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				120 mg/kg	2.774	332.898 mg/kg	0.0333 %			
	024-007-00-3	236-878-9	13530-65-9								
11	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 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
12	pH				8.2 pH		8.2 pH	8.2 pH			
			PH								
13	naphthalene				0.43 mg/kg		0.43 mg/kg	0.000043 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.85 mg/kg		0.85 mg/kg	0.000085 %			
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	• acenaphthene	201-469-6	83-32-9		1.1 mg/kg		1.1 mg/kg	0.00011 %		
16	• fluorene	201-695-5	86-73-7		1.3 mg/kg		1.3 mg/kg	0.00013 %		
17	• phenanthrene	201-581-5	85-01-8		13 mg/kg		13 mg/kg	0.0013 %		
18	• anthracene	204-371-1	120-12-7		3.2 mg/kg		3.2 mg/kg	0.00032 %		
19	• fluoranthene	205-912-4	206-44-0		18 mg/kg		18 mg/kg	0.0018 %		
20	• pyrene	204-927-3	129-00-0		17 mg/kg		17 mg/kg	0.0017 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		8.8 mg/kg		8.8 mg/kg	0.00088 %		
22	chrysene	601-048-00-0	205-923-4		8.5 mg/kg		8.5 mg/kg	0.00085 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		9.4 mg/kg		9.4 mg/kg	0.00094 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		4.3 mg/kg		4.3 mg/kg	0.00043 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		8.5 mg/kg		8.5 mg/kg	0.00085 %		
26	• indeno[123-cd]pyrene	205-893-2	193-39-5		4.5 mg/kg		4.5 mg/kg	0.00045 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.92 mg/kg		0.92 mg/kg	0.000092 %		
28	• benzo[ghi]perylene	205-883-8	191-24-2		4.8 mg/kg		4.8 mg/kg	0.00048 %		
Total:								0.0901 %		

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 Determinand - 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

Classification of sample: HD112

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

Sample details

Sample name:	LoW Code:
HD112	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.80 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
26%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 26% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4							
2		benzene				<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2							
3		toluene				<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3							
4	●	ethylbenzene				<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4							
5		xylene				<5 mg/kg		<5 mg/kg	<0.0005 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
Total:									0.0025 %		

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)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: HD104

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

Sample details

Sample name:	LoW Code:
HD104	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.25 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
20%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				32 mg/kg	1.32	42.25 mg/kg	0.00423 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				41 mg/kg	1.462	59.924 mg/kg	0.00599 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				85 mg/kg	1.126	95.701 mg/kg	0.00957 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	360 mg/kg	1.56	561.533 mg/kg	0.036 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				2.7 mg/kg	1.353	3.654 mg/kg	0.000365 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				33 mg/kg	2.976	98.217 mg/kg	0.00982 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				210 mg/kg	2.774	582.571 mg/kg	0.0583 %			
	024-007-00-3	236-878-9	13530-65-9								
11	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 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
12	pH				7.2 pH		7.2 pH	7.2 pH			
			PH								
13	naphthalene				0.48 mg/kg		0.48 mg/kg	0.000048 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.32 mg/kg		0.32 mg/kg	0.000032 %			
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	■ acenaphthene	201-469-6	83-32-9		0.88 mg/kg		0.88 mg/kg	0.000088 %		
16	■ fluorene	201-695-5	86-73-7		0.74 mg/kg		0.74 mg/kg	0.000074 %		
17	■ phenanthrene	201-581-5	85-01-8		8.3 mg/kg		8.3 mg/kg	0.00083 %		
18	■ anthracene	204-371-1	120-12-7		2.4 mg/kg		2.4 mg/kg	0.00024 %		
19	■ fluoranthene	205-912-4	206-44-0		13 mg/kg		13 mg/kg	0.0013 %		
20	■ pyrene	204-927-3	129-00-0		12 mg/kg		12 mg/kg	0.0012 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	7.2 mg/kg		7.2 mg/kg	0.00072 %		
22	chrysene	601-048-00-0	205-923-4	218-01-9	6.2 mg/kg		6.2 mg/kg	0.00062 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	12 mg/kg		12 mg/kg	0.0012 %		
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	7.8 mg/kg		7.8 mg/kg	0.00078 %		
25	■ indeno[123-cd]pyrene	205-893-2	193-39-5		4.3 mg/kg		4.3 mg/kg	0.00043 %		
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.77 mg/kg		0.77 mg/kg	0.000077 %		
27	■ benzo[ghi]perylene	205-883-8	191-24-2		4.6 mg/kg		4.6 mg/kg	0.00046 %		
Total:								0.133 %		

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 Determinand - 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

Classification of sample: HD106

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

Sample details

Sample name:	LoW Code:
HD106	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.30 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **19% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				26 mg/kg	1.32	34.328 mg/kg	0.00343 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				30 mg/kg	1.462	43.847 mg/kg	0.00438 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %			<LOD
	024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				48 mg/kg	1.126	54.043 mg/kg	0.0054 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	220 mg/kg	1.56	343.159 mg/kg	0.022 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				23 mg/kg	2.976	68.454 mg/kg	0.00685 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				91 mg/kg	2.774	252.447 mg/kg	0.0252 %			
	024-007-00-3	236-878-9	13530-65-9								
11	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 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
12	pH				7.6 pH		7.6 pH	7.6 pH			
			PH								
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	■ acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	■ fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	■ phenanthrene	201-581-5	85-01-8		0.17 mg/kg		0.17 mg/kg	0.000017 %		
18	■ anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	■ fluoranthene	205-912-4	206-44-0		0.5 mg/kg		0.5 mg/kg	0.00005 %		
20	■ pyrene	204-927-3	129-00-0		0.51 mg/kg		0.51 mg/kg	0.000051 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.33 mg/kg		0.33 mg/kg	0.000033 %		
22	chrysene	601-048-00-0	205-923-4	218-01-9	0.36 mg/kg		0.36 mg/kg	0.000036 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.7 mg/kg		0.7 mg/kg	0.00007 %		
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.43 mg/kg		0.43 mg/kg	0.000043 %		
25	■ indeno[123-cd]pyrene	205-893-2	193-39-5		0.25 mg/kg		0.25 mg/kg	0.000025 %		
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
27	■ benzo[ghi]perylene	205-883-8	191-24-2		0.32 mg/kg		0.32 mg/kg	0.000032 %		
Total:								0.0686 %		

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 Determinand - 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

Appendix A: Classifier defined and non GB MCL 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

■ salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - 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

▪ **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

Appendix B: Rationale for selection of metal species

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)

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)

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)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2023.25.5511.10206 (25 Jan 2023)

HazWasteOnline Database: 2023.25.5511.10206 (25 Jan 2023)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

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 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

GB MCL List - version 1.1 of 09 June 2021

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:

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



G4WTU-6D9UP-LZPL3

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

Job name

Florentia Clothing Village - 23675[1]

Description/Comments

Project

Site

Vale Road, London

Classified by

Name: **Tom McGrath** Company: **JPP Geotechnical & Environmental Ltd**
 Date: **06 Feb 2023 10:15 GMT**
 Telephone:

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

Hazardous Waste Classification

Date

-

Purpose of classification

4 - Classification of Waste Products

Address of the waste

Post Code

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Description of the specific process, sub-process and/or activity that created the waste

Description of the waste



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	Composite	1.00-1.35	Hazardous	HP 7, HP 10, HP 14	3

Related documents

#	Name	Description
1	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Tom McGrath

Created date: 06 Feb 2023 10:15 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	6
Appendix B: Rationale for selection of metal species	7
Appendix C: Version	7

Classification of sample: Composite

 **Hazardous Waste**
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:	
Composite	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 03 * (Soil and stones containing hazardous substances)
1.00-1.35 m		
Moisture content:		
36%		
(no correction)		

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

zinc chromate: (compound conc.: 0.144%)

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

lead chromate: (Note 1 conc.: 0.48%)

HP 10: Toxic for reproduction "waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring"

Hazard Statements hit:

Repr. 1A; H360Df "May damage the unborn child. Suspected of damaging fertility."

Because of determinand:

lead chromate: (Note 1 conc.: 0.48%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinands:

lead chromate: (Note 1 conc.: 0.48%)

zinc chromate: (compound conc.: 0.144%)

Determinands

Moisture content: **36%** No Moisture Correction applied (MC)

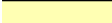
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	 arsenic { arsenic trioxide }				88 mg/kg	1.32	116.189	mg/kg	0.0116 %		
	033-003-00-0	215-481-4	1327-53-3								
2	 cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		53 mg/kg	1.462	77.462 mg/kg	0.00775 %			
4	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			1.9 mg/kg	2.27	4.313 mg/kg	0.000431 %			
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	220 mg/kg	1.126	247.695 mg/kg	0.0248 %			
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	4800 mg/kg	1.56	7487.113 mg/kg	0.48 %			
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7	17 mg/kg	1.353	23.009 mg/kg	0.0023 %			
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7	52 mg/kg	2.976	154.766 mg/kg	0.0155 %			
9	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5	<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
10	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9	520 mg/kg	2.774	1442.556 mg/kg	0.144 %			
11	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			5 mg/kg	1.884	9.42 mg/kg	0.000942 %			
12	pH		PH		7.6 pH		7.6 pH	7.6 pH			
13	naphthalene	601-052-00-2	202-049-5	91-20-3	0.53 mg/kg		0.53 mg/kg	0.000053 %			
14	acenaphthylene		205-917-1	208-96-8	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
15	acenaphthene		201-469-6	83-32-9	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
16	fluorene		201-695-5	86-73-7	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
17	phenanthrene		201-581-5	85-01-8	2.1 mg/kg		2.1 mg/kg	0.00021 %			
18	anthracene		204-371-1	120-12-7	0.37 mg/kg		0.37 mg/kg	0.000037 %			
19	fluoranthene		205-912-4	206-44-0	4.3 mg/kg		4.3 mg/kg	0.00043 %			
20	pyrene		204-927-3	129-00-0	3.6 mg/kg		3.6 mg/kg	0.00036 %			
21	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	1.9 mg/kg		1.9 mg/kg	0.00019 %			
22	chrysene	601-048-00-0	205-923-4	218-01-9	1.9 mg/kg		1.9 mg/kg	0.00019 %			
23	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	2.3 mg/kg		2.3 mg/kg	0.00023 %			
24	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	1.1 mg/kg		1.1 mg/kg	0.00011 %			
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	2 mg/kg		2 mg/kg	0.0002 %			
26	indeno[123-cd]pyrene		205-893-2	193-39-5	1.1 mg/kg		1.1 mg/kg	0.00011 %			
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.24 mg/kg		0.24 mg/kg	0.000024 %			
28	benzo[ghi]perylene		205-883-8	191-24-2	1.2 mg/kg		1.2 mg/kg	0.00012 %			
Total:									0.69 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - 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	

Appendix A: Classifier defined and non GB MCL 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

■ salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - 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

Appendix B: Rationale for selection of metal species

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)

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) Worst 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)

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)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021

HazWasteOnline Classification Engine Version: 2023.25.5511.10206 (25 Jan 2023)

HazWasteOnline Database: 2023.25.5511.10206 (25 Jan 2023)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

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 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

GB MCL List - version 1.1 of 09 June 2021