Holloway Lane

Preliminary Ground Investigation Report

SUEZ Recycling and Recovery

Prepared by:

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1.0 Introduction

1.1 Appointment

SLR Consulting Ltd (SLR) was commissioned by SUEZ Recycling and Recovery Ltd (SUEZ) to undertake a preliminary ground investigation at Holloway Lane, Harmondsworth, West Drayton UB7 0AE (the site). The investigation is intended to provide initial ground condition information to support the redevelopment of the site as an anaerobic digestion facility. The site location is shown on Drawing 01 (Appendix A).

This report should be read in conjunction with the desk based report '*Holloway Lane: Preliminary Land Quality Risk Assessment' (ref: 416.064581.00001_P1)*, SLR, December 2023.

1.2 Background

The site is approximately 3.11 hectares and is situated within a former sand and gravel extraction quarry. The site is currently in use as a waste recycling facility, occupied by two separate tenants. The western side of the site is used to recycle construction and demolition materials such as concrete, brick, asphalt, and gravels. The eastern side of the site is used to recycle other general waste materials such as wood, plastics, and metal.

The current site layout is shown on Drawings 02 and 03 (Appendix A).

1.3 Proposed Development

SLR understands it is intended to redevelop the site for an anaerobic digestion plant, which would involve:

- Construction / erection of:
  - various tanks for storage (fuel, NaOH, propane);
  - treatment facilities (digesters, peripheral drive settling tanks, sequencing batch reactors);
  - gas works and odour control facilities;
  - swale and catchment lagoons; and
  - associated hardstanding, parking, office facilities and reception hall building (including pre-treatment hall and digestate out hall).

Given the elevation changes across the site, it is likely that there will be a cut and fill exercise undertaken to prepare engineered construction platforms for the development. At this time, no detail has been prepared for this engineering design.

The proposed future site layout is shown on Drawing 04 (Appendix B).

1.4 Objectives

The objective of the preliminary ground investigation is to provide baseline characterisation of near surface ground conditions and to allow further assessment of potential contaminant linkages that were identified within the PLQRA.

1.5 Scope of works

The scope of works required to meet the objectives are summarised below:

- review of the current and historic uses of the site and surrounding area;
- assessment of sensitivity and environmental setting through a review of geological and hydrogeological data and records regarding the quality of nearby surface waters and underlying groundwater;
- preparation of relevant health and safety documentation including a detailed Health & Safety Plan and Risk Assessments for the proposed works;
- clearance of all exploratory locations by an on-site survey utilising a Ground Penetrating Radar (GPR), and Cable Avoidance Tool (C.A.T) and Genny;
- excavate 5No. trial pits to enable characterisation of shallow ground conditions;
- undertake 5No. plate load bearing tests to obtain an equivalent California Bearing Ratio (CBR);
- collection of soil samples for geo-environmental and geotechnical laboratory analysis;
- carry out geochemical and geotechnical laboratory testing to support the preliminary land quality risk assessment and geotechnical assessment; and
- produce a factual and interpretive report detailing the findings of the investigation with recommendations for further work.

2.0 Site Details

2.1 Site Setting

The site details are summarised in Table 2-1.

Table 2-1: Summary of Site Details

Detail	Description	
Location	The site is located at Holloway Lane, Harmondsworth, West Drayton UB7 0AE, approximately 1.2km south of the West Drayton town centre and 1.5km north of Heathrow Airport. The site comprises of approximately 3.11 hectares and is centred on National Grid reference TQ 06715 78026.	
Surrounding Land Use	North	Holloway Lane beyond which is a vacant parcel of land (formally the Holloway Lane North Landfill), and the M4 motorway travelling east to west.
	East	Arable land beyond which are residential homes 200m away. Heathrow Primary School is located 150m to the east.
	South	Arable land, a Landfill Gas to Power plant and Harmondsworth Road. Beyond Harmondsworth Road is a former landfill, known as the Harmondsworth Landfill.
	West	A stormwater retention pond, commercial stores, including a garden centre 20m to the northwest, beyond which is arable land (former Holloway Lane Quarry Landfill). Residential properties are located 380m to the southwest.
Site Description and Use	The site is currently occupied by two separate tenants and is used by both for waste recycling purposes. The main entrance to the site is from the north, off Holloway Lane. An alternative entrance is at the southern end of the site, off Harmondsworth Lane; however, this is securely gated, and entry cannot be gained without access permission. The site can be separated into four main areas. The two areas used by the tenants to operate waste recycling facilities, a vehicle car park in the northeast corner of the site and an associated skip storage area in the northwest corner. At the time of the visit a steel and concrete palisade wall was being constructed around the perimeter of the car park. An approximate 5m high vegetated earth bund is located in the centre of the site running north-south. This separates the operational waste recycling facilities into approximate east and west areas. The western side of the site is used to recycle construction and demolition materials such as concrete, brick, asphalt, and gravels. The eastern side of the site is used to recycle general waste materials such as wood, plastics, and metal. Access between the two recycling facilities is located in the central area of the site at the northern end of the earth bund. At the time of the site walkover, the skips in the northwest corner of the site contained general waste materials such as tyres, concrete, wood and plastic. Beyond the skip storage, further north, is an area of moderate to dense overgrown vegetation. This area is located outside of the site boundary. The site's ground surface is predominantly a mixture of both concrete hardstanding and granular cover. The access road from Holloway Lane which leads into the centre of the site, together with the eastern recycling area of the	

Detail	Description
	site, predominantly comprises of concrete hardstanding. The western operational side of the site and skip storage area in the northwest comprises of compacted granular cover. Within the skip storage area, the ground surface and exposed faces of raised embankments indicate the presence of anthropogenic material.
Site Topography and elevation	The site is located in a topographic low whereby there is an increase in elevation on all sides (the site tends to have a basin shape). This is due to the previous aggregate excavation activities that had taken place within the central site area (the site is understood to have previously been occupied by the quarry aggregate processing plant). The access road from Holloway Lane in the north of the site decreases in elevation until it reaches the low point in the site centre. This is similar to the southern access from Harmondsworth Lane to the south. The southern end of the site lies at an elevation of approximately 29m above Ordnance Datum (m aOD), and the northern end, near the entrance at Holloway Lane is at approximately 28m aOD. The eastern and western boundaries typically have an elevation between 28m and 29m aOD. The low-lying central area has an approximate elevation of 23.7m aOD. The northwest skip area and northeast car park are located on platforms at a higher elevation than the central low point at approximately 28m aOD and 25.5m aOD respectively. The elevation profiles of the site are provided on Drawing 02 (Appendix A).
Drainage	Surface water run-off at the site flows to the low point in the central area, where the drainage can become inundated with a high volume of stormwater from rainfall events. During the site walkover, standing surface water was observed in the area to the east of the central earth bund and in the southwest area of the site. Due to the extraction and removal of gravel beneath the site, and the presence of the underlying low permeability London Clay, it is possible that standing water could be a combination of both surface water and shallow groundwater systems. During the walkover, a stormwater sump was observed in the centre of the site, covered by sheets of plywood. Site workers reported that stormwater runoff was pumped from the centre of the site up to water retention ponds, located off-site adjacent to the western site boundary. It was also indicated that a road sweeper would occasionally visit site and sweep the standing water towards the sump and try and disperse the water in areas towards the north. The majority of gutters connected to building structures appeared to discharge direct to ground. No drainage plans have been provided for the site and therefore the drainage system has not been confirmed.
Fuel and AdBlue tanks	Within the western recycling facility, five above ground storage tanks (ASTs) were observed to be present. Two contained fuel, two contained AdBlue and one had an unknown content. The two fuel storage tanks were estimated to hold approximately 5,000 litres (yellow steel tank) and 9,000 litres (blue steel tank). The AdBlue storage tanks held 1,000 litres (IBC) and 2,500 (blue plastic tank). The black plastic storage tank was estimated to hold approximately 2,500 litres. At the time of the site visit, the two fuel storage tanks were sitting off the ground, in the tray of a lorry. A site worker indicated they were about to be transported to be refuelled and that they would usually be sitting on the ground below. The surface consisted of unprotected ground with no observable hardstanding present.

Detail	Description
	In the eastern area of the site a large 10,000 litre diesel storage tank was present to the south of the site's weighbridge. This tank was elevated off the ground on a steel stilt structure. Standing surface water was observed beneath the tank. Four additional ASTs were observed during the site walkover. One of the storage tanks was located in the southwest of the site and appeared to be disused and in poor condition. The former contents of this tank are unknown. It is estimated to hold 6,000 litres. The second storage tank was located just outside the southeastern boundary. This tank was in poor condition and appeared to be located within a steel bund surrounding its base, which was filled with rainwater. The former contents of this tank are unknown. It is estimated to hold approximately 6,000 litres. Two additional storage tanks were identified, approximately 15m south of the southern access road and approximately 80m south of the main site, outside the site boundary. These tanks were within a Gas to Power facility (a "Landfill Gas Engine") and held 3,000 litres each. The contents of these tanks were clean oil and waste oil. The tanks are located on concrete hardstanding.
Buildings	Various buildings are present onsite. The western recycling facility contained portable offices, a workshop and welfare block constructed from shipping containers. Beneath the welfare block were septic sumps. In the eastern recycling facility area, portable offices and toilets are present, raised off the ground on steel stilts. To the south of the offices is a warehouse, which appeared to house some skips. A small portable cabin is located adjacent to the east of the warehouse.
Geography and Geology	
Regional Topography	The regional topography generally descends towards the River Thames, located approximately 12km south of the site.
Made Ground	The Artificial and Made Ground map (1:10,000), provided in the GroundSure report, indicates the site comprises of both worked and infilled ground. During the site walkover the faces of exposed raised embankments, comprising of anthropogenic material (plastic, wood, metal, concrete etc.), was observed in the northwest area of the site, where the metal skips are currently stored. The thickness of this material is unknown.
Superficial drift deposits	The BGS Geology Viewer[1] indicates the majority of the site is underlain by the Taplow Gravel Formation, which comprises of sand and gravel. The very northern end of the site, near the Holloway Lane entrance, is underlain by the Langley Silt Member (which generally overlies the Taplow Gravel beneath). A nearby borehole, located approximately 470m northeast of the site boundary, identified sandy gravel deposits to approximately 6.4m bgl. Due to the site being a former mineral extraction and processing works, it is anticipated a large proportion of these superficial deposits have been removed from beneath the site.
Solid Geology	Underlying the superficial deposits lies the London Clay Formation. A nearby borehole (BGS reference: TQ07NE200), 150m north of the site, indicated stiff grey-brown fissured indistinctly laminated silty clay at a depth of 6.9mbgl. A further borehole located 1km to the SE (BGS reference: TQ07NE335) recorded

[1] BGS Geology Viewer (BETA)

Detail	Description
	the London Clay Formation to extend to at least 30m depth (-4mAOD). Borehole records can be viewed on the BGS online map[2].
Radon Gas	The site is within a 'less than 1%' zone for properties affected. No radon protection measures are required.
Mining, Ground Workings	There two recorded BritPit entries associated with sand and gravel extraction at the site. These extractions were part of the 'Holloway Lane Quarry'. Several more entries are located within 500m of the site, as part of the Holloway Lane Quarry and Harmondsworth Lane Quarry. The nearest sand and gravel extractions, located within 100m of the site, were located 11m south and 33m southeast. All the recorded extractions within 500m have now ceased.
Ground Stability Hazards	Risks from natural ground within 50m of the site are as follows: • Shrink-swell clays – negligible to very low; • Running sands – very low; • Compressible deposits – negligible to moderate; • Collapsible deposits – very low to low; • Landslides – very low; and Dissolution of soluble rocks – negligible.
Geo-conservation	The site is mapped within the Hillingdon Green Belt. Green Belt areas are designed to prevent urban sprawl by keeping land permanently open. The site is mapped within an SSSI Impact Risk Zone. This zone was developed to allow rapid initial assessment of the potential risks to SSSI's posed by development proposals.
Agricultural land	An agricultural land classification (ALC) mapped majority of the site within a Grade 1 zone, which is defined as, excellent quality agricultural land. The very northern end of the site is mapped as urban land.
UXO	The online Unexploded Ordnance (UXO) risk maps[3], produced by Zetica, indicted the site is within a low-risk zone.
Hydrology[4]	
Surface Water / River Network	The OS Water Network master map depicts no surface water features at the site. The closest mapped surface water feature, located approximately 28m to the west, is a surface water retention pond (this is the water body from which standing water from the site is pumped into). A narrow drainage channel is also mapped approximately 50m to the south and upgradient from the site. The River Colne valley is to the west, with a series of surface water rivers and water bodies present. A large surface water body, Saxon Lake is located 870m west and the Duke of Northumberland's River 1.2km west. Under the Water Framework Directive (WFD), the site is part of the Crane water body catchment. The River Crane is located approximately 3.3km to the east and has an overall rating of moderate, a failing chemical rating and a moderate ecological rating.

[2] GeoIndex - British Geological Survey (bgs.ac.uk)

[3] Risk Maps | Zetica UXO

[4] Flood risk is included within the Groundsure Enviro+Geo Insight report within Appendix D but not discussed within this report which focuses on land quality risks.

Detail	Description
Surface Water Abstractions	No active licensed surface water abstractions are located within 2km of the site. The nearest historical abstraction was located 1.3km to the west and ended in 2007.
Surface Water Sensitivity	Due to the absence of nearby surface water bodies in close proximity to the site and the moderately rated River Crane, 3.3km to the east, the surface water sensitivity is considered to be low. Surface water runoff at the site would not affect the nearby up topographic gradient streams to the south.
Hydrogeology	
Aquifer Status	Under the WFD, the site is mapped within the Lower Thames Gravels groundwater body. This groundwater body has an overall rating of poor, with a good chemical rating. The Taplow Gravel Formation is reported as a Principal aquifer with a medium vulnerability. At the very northern end of the site, the Langley Silt Member is mapped as an Unproductive stratum. The London Clay, beneath the superficial deposits, is mapped as Unproductive stratum.
Groundwater Abstractions	Nine active licensed groundwater abstraction points are located within 2km of the site. The nearest active groundwater abstraction point is located approximately 627m to the southwest of the site. This abstraction is for general farming and domestic use. Two historical licensed abstraction points we located 34m to the southwest, which were used for mineral washing. These licenses expired in 2013.
Source Protection Zones	The site is not mapped within a Source Protection Zone (SPZ). SPZ's define the sensitivity of an area around a potable abstraction site to contamination.
Groundwater sensitivity	Due to the likely removal of a significant thickness of Taplow Gravels beneath the site, the presence of an Unproductive bedrock aquifer and the site not located within an SPZ, the groundwater sensitivity at the site is considered to be low-moderate. The moderate rating is due to the potential presence that a residual thickness of Taplow Gravel could be present beneath the site that is hydraulically connected to gravels that extend off-site.

2.2 Previous Assessment Works

The ground investigation follows on from a desk-based Phase 1 Preliminary Land Quality Risk Assessment (PLQRA) of the site:

- Preliminary Land Quality Risk Assessment (PLQRA) Holloway Lane. SLR Ref:416.064581.00001_P1, Version 1.0, SLR Consulting Ltd, December 2023.

The assessment identified potential sources of contamination on and offsite following a site walkover and review of desk based published information. The PLQRA should be referred to for more detailed information.

A summary of the findings from the PLQRA are provided in the following section.

2.2.1 Preliminary Land Quality Risk Assessment (PLQRA) Findings

UK contaminated land statutory guidance and associated supporting guidance documents, including the LCRM[5], recommend that a qualitative assessment of risk should be provided for each identified PPL to determine any risk management actions.

Table 2-2 summarises the identified potential risks associated with the site's redevelopment for an anaerobic digestion plant use.

[5] Land Contamination Risk Management (LCRM), EA 2020

Table 2-2: Qualitative Risk assessment

Source	Pathway	Receptor	Consequence	Likelihood	Risk
S1 – Contaminated soil / made ground within the site S2 – Stockpiles of waste and construction materials S3 – Localised leaks and spills from ASTs, onsite machinery, and skips S4 – Asbestos from pre-2000 buildings S5 – Possible landfill immediately to east and approximately 75m west, and approximately 100m south of the site. S6 – Infilled gravel pits to north of site	P1 - Direct contact, ingestion or inhalation of contaminated soils and soil dust P2 - Soil gas migration and accumulation of vapours from localised fuel spills / leaks and contaminated made ground P3 – Infiltration and leaching of contaminants to groundwater.	R1 – Human Health (construction workers)	Health Impact – Low/Medium	Moderate	**Low-Moderate Risk** The site has previously been used for mineral extraction/processing and is currently a waste recycling facility. The contents of made ground and infilled pits beneath and near the site is unknown. Soils could contain asbestos, metals and other residual waste materials such as paints, solvents, oils, and fills. Historic and current waste has been / is stockpiled on the site. Runoff from stockpiles may have contaminated near surface soils / groundwater. The presence of heavy machinery and fuel tanks, combined with minimal hardstanding throughout the site, may have also resulted in hydrocarbon contaminated near surface soils and groundwater. Development of the anaerobic digestion plant would involve excavating and disturbing near surface soils and demolishing existing buildings onsite, which in turn would generate dust and increase the risk to construction workers, potentially coming into contact with contaminated soil/shallow groundwater. During redevelopment construction workers will follow a detailed method statement, which would involve dust suppression methods and appropriate PPE for the works which would minimise the health risk. This will be subject to a ground investigation undertaken prior to development to confirm baseline contaminant conditions at the site.
	P1 - Direct contact, ingestion or inhalation of contaminated soils and soil dust	R2 – Human Health (future commercial site users);	Health Impact – Low	Low	**Low Risk** Future commercial site users would have a low possibility of coming into contact with contaminated soil due to the presence of future concrete / asphalt hardstanding forming a physical barrier across majority of the site's surface. In

Source	Pathway	Receptor	Consequence	Likelihood	Risk
S7 – Off-site above ground storage tanks (ASTs)	P2 - Soil gas migration and accumulation of vapours from localised fuel spills / leaks and contaminated made ground				addition, potential contaminated ground would be identified and removed during the construction phase. The accumulation of gas within buildings, arising from contaminated soil, would be low due to new buildings having required ventilation systems and potentially contaminated ground being removed from site during construction phase. Future development design will ensure in-built mitigation measures to prevent potential on-site human health exposure. This will be subject to ground investigation to confirm the contaminant baseline conditions at the site and the level of mitigation required, particularly given the presence of landfill in adjacent areas.
S1 – Contaminated soil / made ground within the site S2 – Stockpiles of waste and construction materials S3 – Localised leaks and spills from ASTs, onsite machinery, and skips S4 – Asbestos from pre-2000 buildings	P1 – Inhalation of contaminated soils and soil dust P2 – Soil gas migration and accumulation of vapours from localised fuel spills / leaks and contaminated made ground;	R3 – Human Health (offsite commercial users); R4 – Human Health (offsite school/residential users);	Health Impact – Low	Low	**Low Risk** The closest off-site commercial users are associated with the garden centre 10m to the northwest. Heathrow Primary School is located 150m to the east. Residential properties are located 200m east and 380m southwest. Development of the anaerobic digestion plant would involve excavating and disturbing near surface soils and demolishing existing buildings onsite, which in turn could generate dust and increase airborne exposure risk to neighbours. Contaminants could be present in near surface groundwater which could be mobilised and transported laterally via groundwater within the Taplow Gravel. During development, the works will be undertaken in accordance with a Construction and Environment Management Plan (CEMP) which will ensure the mitigation of the release of dusts during this phase of works. Where contamination is encountered it will be addressed and removed where necessary, therefore any residual risk from contamination will be low. It is therefore considered that

Source	Pathway	Receptor	Consequence	Likelihood	Risk
					significant risks will not be posed to adjacent human health receptors.
S1 – Contaminated soil / made ground within the site S2 – Stockpiles of waste and construction materials S3 – Localised leaks and spills from ASTs, onsite machinery, and skips	P3 – Infiltration and leaching of contaminants to groundwater. P4 – Vertical and lateral migration of contaminants in groundwater.	R5 – Controlled Waters (groundwater within Taplow Gravel);	Controlled Water Impact – Low/Medium	Moderate	**Low-Moderate Risk** The Taplow Gravel is shown to directly underlie the site and is classified as a Principal aquifer. Whilst the majority of the gravel is likely to have been extracted from beneath the site, there remains the potential for a basal thickness of gravel to remain. If present, it is possible the gravel could be hydraulically connected to the Taplow Gravel formation that surround the site, and therefore there is the potential for contamination that may have impacted the groundwater beneath the site to migrate within the underlying groundwater. The site does not lie within an SPZ and there are no abstractions within 600m of the site, and therefore its sensitivity as a potable resource is low. However, the Taplow Gravel is a Principal aquifer and the unit could provide baseflow to surface waters within the vicinity of the site. Whilst there is no known pollution of the groundwater beneath the site, it is possible that there may some residual impact on groundwater quality from site operations. In addition to this, it is not known if the adjacent landfills have impacted on the water quality beneath the site. This will be subject to ground investigation to confirm the contaminant baseline groundwater quality conditions at the site prior to development particularly given the presence of landfill in adjacent areas.
S1 – Contaminated soil / made ground within the site	P5 – Aggressive ground conditions in soil/groundwater.	R6 – Site buildings and services	Property Impact – Low	Low	**Low Risk** Due to the potential presence of contaminants in soil and groundwater at the site, aggressive ground conditions may

Source	Pathway	Receptor	Consequence	Likelihood	Risk
S2 – Stockpiles of waste and construction materials S3 – Localised leaks and spills from ASTs, onsite machinery, and skips					be present which could degrade or chemically attack structures. Future development design will ensure in-built mitigation measures to prevent potential degradation/attack of structures. This will be subject to ground investigation to confirm the contaminant baseline conditions at the site and the level of mitigation required, particularly given the presence of landfill in adjacent areas.

2.2.2 Preliminary Land Quality Risk Assessment Findings

The preliminary risk assessment and conceptual site model indicates that the site represents a low-medium risk of contamination impacts to human health and low-medium risk to controlled waters. Potential on-site sources of contamination have been identified to include the presence of made ground, fuel and chemical above ground storage tanks (ASTs) and other general site activities such as machinery/vehicle use and waste storage. Off-site sources of contamination are predominantly associated with areas of landfill that surround the site. The potential sources identified should be confirmed as not representing a potential significant risk to users of the proposed development or to controlled waters.

3.0 Ground Investigation

3.1 Rationale

A preliminary ground investigation was undertaken by SLR to baseline the land contamination status of the site and provide geotechnical information for the proposed development design.

The rationale for the investigation was therefore to:

- confirm the extent and composition of made ground underlying the site;
- confirm the presence of superficial deposits underlying the site;
- undertake in-situ testing for both land quality and geotechnical purposes;
- confirm the nature of the ground and collect soil samples for both geochemical and geotechnical analysis;
- confirm if any significant contamination is present onsite; and
- develop an updated understanding of the ground model and subsequently the conceptual site model (CSM) to inform site characterisation.

3.2 Fieldwork Summary

SLR undertook the intrusive works on the 16 and 17 of October 2023. The scope of the investigation included the following:

- clearance of investigation locations for underground services by a specialist utility avoidance contractor;
- excavation of 5No. trial pits (TP01 – TP05) to a maximum depth of 2.8m below ground level (bgl);
- 5No. plate bearing tests (CBR01 – CBR05), conducted adjacent to the trial pits;
- field screening of soil samples for volatile organic compounds (VOC's) utilising a photo-ionisation detector (PID);
- supervision and logging of all exploratory locations in accordance with BS5930:2015 A1:2020[6] by a suitably qualified engineer; and
- recovery of soil samples for geotechnical and geochemical laboratory analysis.

All exploratory and CBR locations are also shown on Drawings 02, 03 and 04.

Geochemical laboratory analysis was undertaken by Element Laboratories Deeside.

Geotechnical laboratory analysis was undertaken by Geolabs Limited.

[6] British Standards Institution (2020). BS 5930:2015+A1: 2020 BSI Standards Publication Code of Practice for Ground Investigations

3.3 Utility Mapping and Exploratory Location Clearance

Prior to intrusive works, SLR procured buried service plans and also carried out a survey utilising a CAT and Genny, and a Ground Penetrating Radar (GPR) for the avoidance of potential below ground utilities/services at exploratory locations.

The service survey and clearance were undertaken by Groundscan Ltd on 16 October 2023.

During ground excavation, a black HDPE pipe was encountered at a depth of 0.9m bgl in TP02. The excavation was terminated and the excavation backfilled. The pipe was not damaged prior to it being covered.

3.4 Ground Conditions

A total of 5No. trial pits (TP01 – TP05) were advanced to a maximum depth of 2.8m bgl across the site.

Trial pits were undertaken at different elevations due to the varying topography across the site. The approximate elevation of each test location is shown in Table 3-1. Elevation profiles are provided on Drawings 02, 03 and 04.

Table 3-1: Approximate Test Pit Elevations

Test Pit No.	Approximate Elevation (m aOD)
TP01	27.8
TP02	24.0
TP03	25.7
TP04	25.4
TP05	24.2

Detailed descriptions of the underlying geology are provided within the trial pit logs in Appendix C. Photographs of the trial pits are included in Appendix D. A summary of the encountered geology is provided within Table 3-2.

Table 3-2: Summary of Encountered Ground Conditions

Ground Type	Strata	Description	Depth Range (m bgl)
Made Ground	Infilled ground / compacted fill	Various mixtures of clay, silt, sand and gravel with occasional glass, plastic, metal, ceramic, timber, wood, asphalt, concrete and brick.	0.0 – 2.80
Reworked Natural Deposits	Reworked Taplow Gravel	Brown very sandy angular to sub-angular fine to coarse gravel of flint. Sand is fine to coarse.	0.1 – 2.20

Made Ground was encountered within all trial pits at various depths. Anthropogenic material included concrete, brick, glass, plastic, metal, ceramic, timber and asphalt.

TP01 was excavated within the skip storage area, located on a raised platform. Made Ground was encountered at this location from ground level to a maximum depth of 2.8m bgl. Anthropogenic materials were abundant at this location, compared to the other trial pits across the site. Made Ground at this location included plastics, timber, wood, ash, metal, glass and ceramics. The trial pit was terminated at 2.8m bgl due to encountering a solid structure (potentially a former building or concrete plinth) at the base of the excavation.

TP02 and TP03 were excavated in the southwest of the site. Made Ground was encountered to depths of 1.0m and 1.70m bgl. Anthropogenic material encountered within these trial pits included concrete, brick, asphalt, ceramic tiles, metal wire, steel nails, and plastic bags.

Gravels were encountered in TP04 and TP05 beneath a surface cover of made ground in the eastern side of the site. It was not clear from site observations if these granular deposits are in-situ natural gravels, or granular material that has been worked and put back in place during previous extraction/processing activities. As it is not possible to confirm the origin of the deposit, it has been logged as a reworked gravel. Further ground investigation may confirm the nature of the material, at which point these logs can be reviewed and updated accordingly. The gravels were encountered beneath the Made Ground at 0.1m bgl to a maximum depth of 2.20m bgl in TP04 and from 0.4m bgl to a maximum depth of 1.0m bgl in TP05. The material comprised of slightly silty very sandy gravel of flint.

TP01 and TP03 were terminated at 2.8m and 1.7m bgl due to solid concrete / a hard surface at the base of the excavations. TP02 was terminated at 1.0m bgl due to encountering a black HDPE pipe at 0.9m bgl. TP04 and TP05 were terminated at 2.20m and 1.0m bgl due to the side walls of the pits collapsing.

3.5 Field / Visual Observations of Contamination

Made Ground was identified within each of the exploratory locations. However, there was no visual evidence of significant contamination, staining and/or olfactory indications of hydrocarbons within any of the exploratory hole locations. However, it was noted that TP01 located on a raised platform comprised of Made Ground material.

Abundant organic matter, with a weak natural organic odour, was identified within TP03 between 1.2m and 1.4m bgl.

Field screening of soil samples from all exploratory locations was undertaken using a Photo Ionisation Detector (PID). The maximum reading, which was encountered in TP01 at 0.7m, was 31.2ppm. Results are presented on the trial pit logs in Appendix C.

3.6 Plate Bearing Tests (CBR's)

Five in-situ plate bearing tests were conducted on the 17 of October 2023. The tests were conducted adjacent to the trial pit locations provided on Drawing 02, 03 and 04. Tests were conducted using a 454mm diameter plate and a 9 tonne JCB as the kentledge. The tests were completed at depths of between 0.1m and 0.15m bgl. Four of the tests were conducted within the Made Ground deposits comprising variable deposits of clay, silt, sand and gravel. CBR4 was conducted at the base of the Made Ground into the underlying reworked Taplow Gravel.

CBR values ranged between 3% and 42%. A maximum applied pressure of 250kPa was applied at four of the five test locations, with 237 kPa applied at CBR4. Settlements ranged

between 0.69mm and 7.52mm. A summary of the results is shown in Table 3-3, with the full results presented in Appendix E.

Table 3-3: Summary of Plate Bearing Tests

Test Location	Depth of test (m bgl)	Maximum Applied Stress (kPa)	Maximum Settlement (mm)	Equivalent CBR value (%)	Modulus of Subgrade Reaction (MN/m^2/m)	Geology
CBR1 (TP01)	0.10	250	1.12*	>42	125	Made Ground: slightly sandy gravelly CLAY.
CBR2 (TP02)	0.10	250	7.52	3	29	Made Ground: silty gravelly SAND.
CBR3 (TP03)	0.10	250	4.41	4	32	Made Ground: slightly clayey slightly sandy gravelly SILT.
CBR4 (TP04)	0.10	237	0.69*	>38	119	Reworked natural: silty very sandy GRAVEL.
CBR5 (TP05)	0.15	250	2.43	12	62	Made Ground: slightly clayey slightly sandy gravelly SILT.

*Deviation: Settlement of ≥1.25mm was not achieved so reported CBR is calculated at the maximum plate stress.

3.7 Groundwater Strikes

Groundwater strikes were encountered in four of the five trial pit locations. Groundwater varied between depths of 0.5m and 2.0m. The depths that groundwater was encountered in trial pits are summarised in Table 3-4.

Table 3-4: Groundwater Strikes

Test Pit No.	Depth of water strike (m)	Approximate Elevation (m AOD)
TP02	0.5	23.5
TP03	1.2	24.5
TP04	2.0	23.4
TP05	1.0	23.2

3.8 Drainage

Surface water run-off at the site flows to the low point in the central area, where the drainage can become inundated with a high volume of stormwater following rainfall events. During the ground investigation, standing surface water was observed in the central/eastern and southwest areas of the site. Due to the extraction and removal of gravel beneath the site, and the presence of the underlying low permeability London Clay, it is possible that standing water could be a combination of both surface water and shallow groundwater systems during these stormwater events.

It has been reported (SLR report ref: PLQRA, 416.064581.00001_P1) that stormwater inundation is managed by a sump pump operating in the central area of the site that pumps standing water up to water retention ponds, located off-site adjacent to the western site boundary (shown on Drawing 02).

No drainage plans have been provided for the site and therefore the drainage system has not been confirmed.

4.0 Chemical Laboratory Results

4.1 Soil Analysis

4.1.1 Soil Analysis Schedule

Table 4-1 summarises the soil chemical analysis scheduled during SLR's preliminary ground investigation. A total of 6No. soil samples were submitted for laboratory analysis.

Table 4-1: Soil Chemical Analysis Schedule

Contaminants	Number of Samples	
	Made Ground	Reworked Natural Ground
Short CLEA Metals	5	1
TPH CWG	5	1
PAH 16	5	1
Asbestos	3	1
SVOC	3	1
Cyanide (Free + Total)	2	-

All samples were stored in cool boxes and transported by courier under chain of custody protocol to Element Material Technology.

4.1.2 Soil Analytical Results

Laboratory certificates are presented in Appendix F. The data trends and key points are summarised below:

- Majority of metal concentrations across the site exceeded the laboratory limit of detection (LOD). The highest metal concentrations were recorded within sample TP01 (0.4m) for analytes arsenic, barium, beryllium, copper, lead, nickel, and zinc. Chromium concentrations were highest in TP04 (2.1m). Mercury concentrations were highest in TP02 (0.3m – 0.4m). Vanadium concentrations were highest in TP03 (1.2m). Cadmium and selenium were below LOD in all samples.
- Petroleum Hydrocarbons (TPH) have been detected in five of the six samples tested. Twenty-six concentrations were recorded greater than the LOD. The sample from TP04 (2.1m), did not record any TPH concentrations that exceeded the laboratory LOD. The highest TPH concentrations (sum of aliphatics & aromatics) were recorded in:
  - TP03 (1.2m) = 1,463 mg/kg
  - TP01 (0.4m) = 1,002 mg/kg
- Polycyclic Aromatic Hydrocarbons (PAH) concentrations were typically above the laboratory LOD. The sample from TP04 (2.1m) did not record any PAH concentrations that exceeded the laboratory LOD.
- Asbestos fibres were detected within samples TP01 (0.4m) and TP01 (1.7m). Asbestos quantification was performed on both samples. The asbestos gravimetric

and phase contrast optical microscopy (PCOM) was 0.002 (mass%) in TP01 (0.4m) and <0.001 (mass%) in TP01 (1.7m).

- Semi-volatile organic compound (SVOC) concentrations were predominantly below the laboratory LOD. SVOCs, listed below, exceeded the laboratory LOD in the following samples:
    - TP01 (1.7m): 2-Methylnapthalne, Bis(2-ethylhexyl) phthalate, Di-n-butyl phthalate, Dimethyl Phthalate, Carbazole and Dibenzofuran;
    - TP02 (0.3m – 0.4m): 2-Methylnapthalne, Carbazole and Dibenzofuran; and
    - TP03 (1.2m): 2-Methylphenol, 2,4-Dimethylphenol, 4-Methylphenol, 2-Methylnaphthalene, Bis(2-ethylhexyl) phthalate, Carbazole and Dibenzofuran.
- Free and total cyanide was recorded below the laboratory LOD.

4.2 Summary of Laboratory Results

Based on the above, the following qualitative conclusions have been made with respect to assessment of contaminants:

- Asbestos fibres have been detected within samples TP01 (0.4m) and TP01 (1.7m). This trial pit location was in the northwestern area of the site, where the skips are stored. The ground in this location consists of a raised platform of Made Ground material. No visible fibre bundles or fragments were observed during sampling.
- Concentrations of contaminants in soils are generally low and exceeded the laboratory LOD.
- TP01 (0.4m) and TP03 (1.2m) contained TPH concentrations (sum of aliphatics and aromatics) of 1,002 mg/kg and 1,463 mg/kg.

5.0 Generic Quantitative Risk Assessment

5.1 Human Health Risk Assessment

5.1.1 Assessment Methodology

Generic assessment criteria (GAC) have been used to assess the significance of soil contaminant concentrations detected. GAC values are determined using the CLEA model applying modelling parameters available from non-statutory guidance or from other publicly available peer reviewed data. SLR uses a combination of assessment criteria that is currently available to assist in the screening of soil data prior to determining whether further action is required. The following assessment criteria (known as generic assessment criteria or GAC) have been used for the assessment of contaminant levels in soil:

- Category 4 Screening Levels (C4SLs) (DEFRA) where available. In 2014 DEFRA commissioned CL:AIRE to produce screening values that would allow an assessment land within Category 4 under Part 2A of the Environmental Protection Act (1990), under the planning regime and the DCLG's Planning Practice Guidance on Land Affected by Contamination, which includes a reference to the use of C4SLs under planning. C4SL's are available for the following contaminants: arsenic, benzene, benzo(a)pyrene (BaP), cadmium, chromium VI, and lead; and
- LQM/CIEH Suitable for Use Levels (S4UL's) – in 2015 Land Quality Management and the Chartered Institute of Environmental Health published S4ULs derived following CLEA technical guidance and using the Environmental Agency's CLEA UK model, with updated toxicological and exposure parameters and land uses following the publication of the S4ULs. Whilst S4ULs utilise the same exposure parameters as C4SLs, the toxicological data utilised comprises the use of benchmark doses (BMDs) where has the C4SLs utilise low levels of toxicological concerns (LLTCs).

If the concentrations recorded on site are lower than the GAC it is generally accepted that the contaminant(s) in question are present at acceptable concentrations which are not capable of placing human health exposure at significant risk; as long as the occupants make use of the site in a relatively standard and normal way. An exceedance of these values indicates that soil contaminant concentrations need to be considered further. Generic assessment criteria combine both authoritative science and policy judgments.

The S4ULs / C4SLs used have been derived using the CLEA model according to several typical land uses:

- residential (with and without vegetable growth);
- allotments;
- commercial / industrial;
- Public Open Space residential (POS1); and,
- Public Open Space park (POS2).

The proposed development at the site is considered a commercial / industrial land use. The most representative screening criteria is therefore *commercial / industrial.*

5.1.2 Risk to Human Health – Soil

5.1.2.1 General Contaminants

The laboratory recorded no exceedances relating to commercial/industrial GACs protective of human health. Screening sheets are attached as Appendix G.

5.1.2.2 Asbestos

Asbestos fibres have been recorded by the laboratory in samples from TP01 (0.4m) and TP01 (1.7m). Asbestos was not visually identified during field observations.

The presence of asbestos presents a long-term risk to human health if not correctly managed.

5.1.3 Risks to Human Health – Groundwater

No groundwater was sampled as part of the preliminary ground investigation. However, given the brownfield nature of the site, and nearby landfills, it is considered that risks to human health from groundwater is low to moderate. Groundwater monitoring will need to be undertaken to confirm the risks.

5.1.4 Summary – Risks to Human Health

No exceedances of the screening criteria protective of human health were recorded in the soils sampled at the site in relation to commercial / industrial land use. The concentration of contaminants within samples taken onsite are not considered to present an unacceptable risk to human health for the proposed land use.

No visual and/ or olfactory indications of contamination were recorded in soils or groundwater. One location, TP03 (1.2m – 1.4m), had a weak organic odour due to abundant organic matter within the soil profile.

However, asbestos fibres were detected at TP01 (0.4m) and TP01 (1.7m). The asbestos gravimetric and phase contrast optical microscopy (PCOM) results indicate fibre concentrations of 0.002 (mass%) in TP01 (0.4m) and <0.001 (mass%) in TP01 (1.7m).

5.2 Controlled Water Risk Assessment

5.2.1 Assessment Methodology

In order to assess the potential significance of dissolved phase concentrations of contamination in groundwater, results would be screened against the SoBRA groundwater Generic Assessment Criteria[7] protective of human health under a commercial/industrial end use which are considered appropriate based on the proposed development.

The site is in a location which has a low risk to groundwater and a low to moderate risk to surface water. Screening would be undertaken using the most conservative environmental quality standard (EQS) or drinking water standard (DWS) value for any particular contaminant to ensure that a protective approach to the water environment has been undertaken.

[7] SoBRA, Development of Generic Assessment Criteria for assessing vapour risks to human health from volatile contaminants in groundwater, Version 1.0, February 2017.

5.2.2 Risks to Controlled Waters

No groundwater was sampled as part of the preliminary ground investigations, and therefore such a water quality assessment cannot be completed. Given the previous development of the site, the nearby site uses (historic landfills), and the absence of significant contamination encountered in soils during preliminary ground investigations, it is considered that risks to controlled waters are low to moderate.

Further groundwater investigations are discussed within Section 8.

5.2.3 Summary of Risks to Controlled Waters

No visual and / or olfactory indications of contamination were recorded during the ground investigation. Whilst no groundwater samples were collected as part of these works, given the site is a brownfield, has low background concentrations detected in soils, and has landfills to the east and south of the site, it is considered that controlled waters may show some impact from potential onsite and offsite contamination.

6.0 Revised Conceptual Site Model

The preliminary CSM and PPLs outlined in Section 2.0 have been evaluated in the context of the investigation results presented in Sections 3.0 to 5.0 to assess whether the previously identified source-pathway-receptor linkages remain present, or new linkages have been identified.

6.1 Potential Pollutant Linkages

Soil contaminants within near surface soils impacting human health and controlled waters

Soil contaminant concentrations across the site were below GAC's for commercial / industrial use. However, the full extent of made ground across the site has not been determined, therefore there remains potential for encountering contaminated soils on the site.

Asbestos fibres were detected during laboratory analysis of samples from TP01. It is likely this area of made ground will be removed from the site during the development of engineered platforms or will be completely covered with hardstanding, which will remove the potential human health exposure pathway. Mitigation measures will be necessary during any further ground investigations and / or development enabling works within the area of TP01. Asbestos risk assessments will need to be undertaken given the known presence of asbestos contamination in accordance with CAR-SOIL[8] guidance and incorporated into Control of Asbestos Regulations (CAR) (2012) risk assessments and method statements.

This PPL is therefore still considered plausible due to the fact that the full extent of the made ground has not been determined onsite. Initial characterisation has identified that no contaminant concentrations have been detected above commercial/industrial GAC values and that asbestos has been encountered in near surface soil in one area of the site that can be mitigated during further ground investigation and enabling works.

Inhalation of volatile vapours by future onsite and nearby site users arising from soil and groundwater contamination from on and off-site sources

Volatile soil contaminant concentrations were below GAC in all instances. Groundwater contaminant concentrations are yet to be determined and the full extent of made ground is to be determined. Therefore, the PPL is considered still active and can be confirmed following further ground investigations.

Vertical and lateral migration of contaminants from onsite and offsite sources impacting controlled waters

Soil contaminant concentrations across the site were below GAC's for commercial / industrial use. Groundwater contaminant concentrations and the extent of made ground beneath the site are yet to be determined. Therefore, the PPL is considered still active and can be confirmed following further ground investigations.

Aggressive Ground Conditions affecting structures

Four samples were taken and analysed for pH and soluble sulphate content across the site. These results are discussed in Section 7.0. This PPL is considered still active, as the full extent and contents of made and natural ground across the site is yet to be determined.

[8] CAR-SOIL: *'Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials'* Joint Industry Working Group (JIWG) (2016)

Future ground investigations will help determine future development design against aggressive ground conditions.

6.1.1 Conceptual Site Model

A schematic conceptual site model (CSM) is depicted in Figure 1.

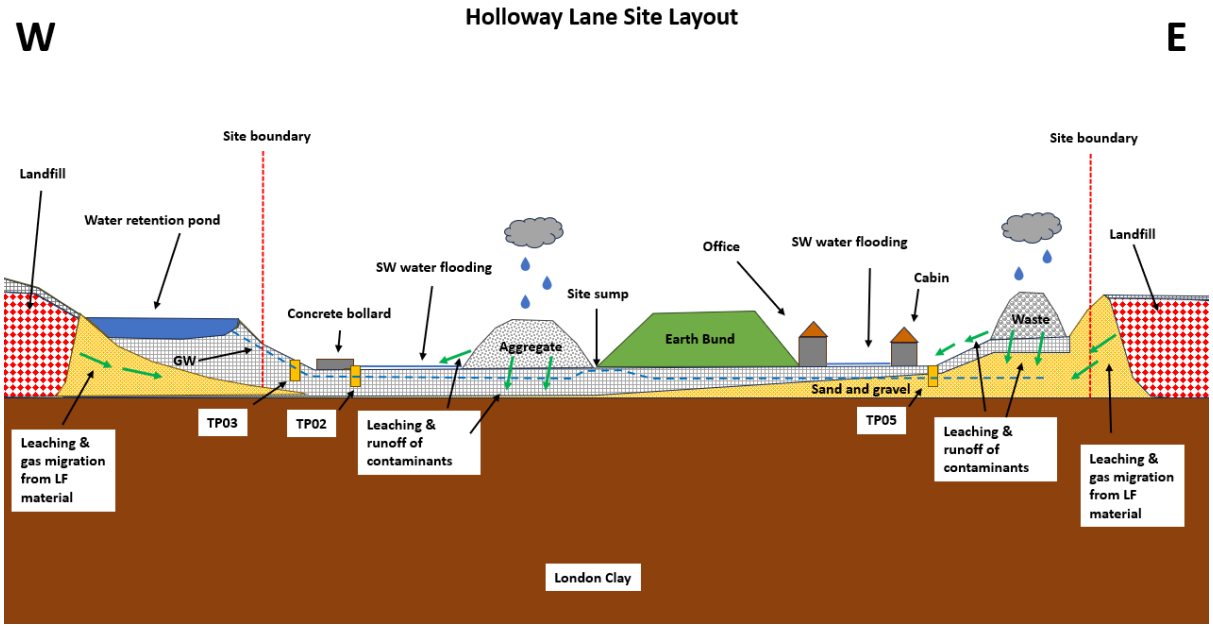


Figure 1: Holloway Lane CSM

7.0 Outline Geotechnical Assessment

7.1 Geotechnical Laboratory Data

On completion of the fieldwork, recovered samples were submitted to an accredited geotechnical laboratory for the following testing:

- water content;
- particle size distribution (wet sieve); and
- pH & water-soluble sulphate content by 2:1 aqueous.

The results of the laboratory testing are discussed in detail below and summarised in Table 7-1 and Table 7-2. Laboratory testing result certificates are presented in Appendix H.

Table 7-1: Water Content (WC) and pH and sulphate content results

Location ID	Depth (m bgl)	Sample Type	WC %	Chemical Tests	
				pH	2:1 W/S SO4 (g/L)
TP01	0.50 – 0.90	B	10.3	-	-
TP01	2.50 – 2.70	B	22.6	8.8	1.2
TP03	0.70 – 1.20	B	9.2	-	-
TP03	1.40 – 1.70	B	17.9	-	-
TP04	1.00 – 1.10	B	5.6	9.1	0.020
TP04	2.10 – 2.20	B	5.5	8.9	< 0.010
TP05	0.50 – 0.70	B	6.9	8.1	0.18

Table 7-2: Particle Size Distribution

Location	Depth (m bgl)	Clay & Silt %	Sand %	Gravel %	Cobbles %
TP04	1.00 – 1.10	3.2	25.8	71.0	0.0
TP04	2.10 – 2.20	2.9	28.3	68.8	0.0
TP05	0.50 – 0.70	3.8	26.3	69.9	0.0

7.2 Discussion of Results

7.2.1 Water content

Water content testing was carried out on seven samples of Made Ground deposits at depths of between 0.50m and 2.70m bgl. Water contents varied between 5.5% and 22.6%. The highest water content was recorded in TP01 (2.5m – 2.70) at 22.6%. Figure 2 shows an increase in water content with depth within the variable Made Ground deposits, and shows limited variability within the gravel deposits.

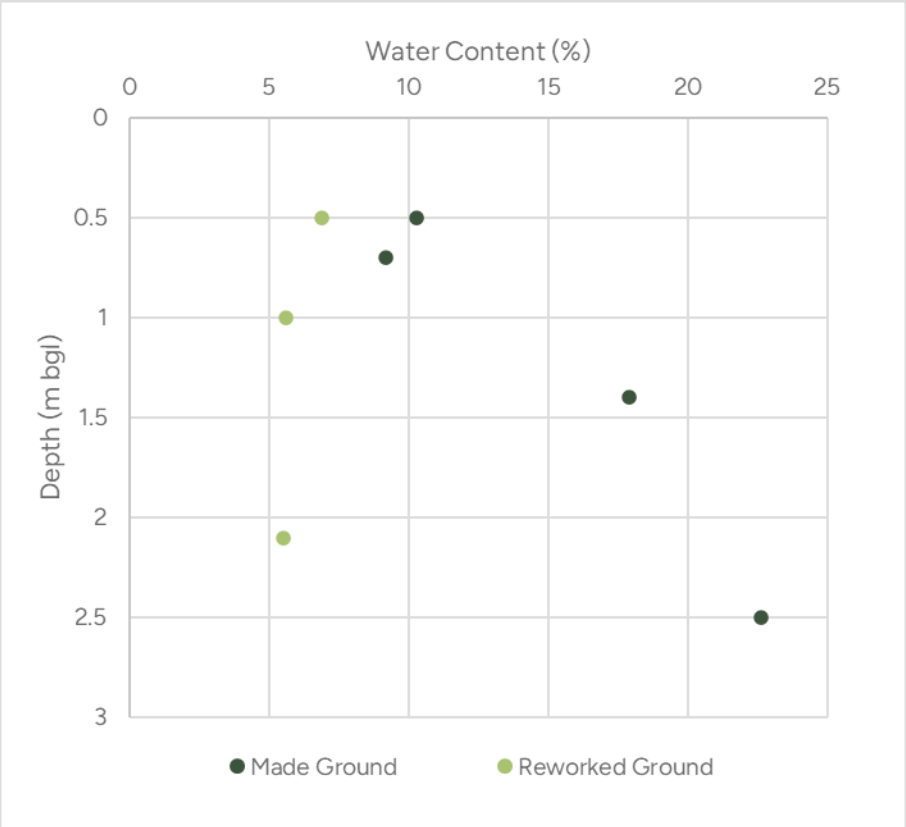


Figure 2: Water Content with Depth

7.2.2 Particle Size Distribution

Particle Size Distribution (PSD) by wet sieve was undertaken on three samples of reworked natural ground. Samples were taken from TP04 (1.0m – 1.1m), TP04 (2.1m – 2.2m) and TP05 (0.5 – 0.7m). All three samples had a similar percentage of gravel, sand, silt, and clay. The results confirmed the field observation made, identifying the granular material as a slightly silty very sandy GRAVEL.

7.2.3 pH and Sulphate

Four samples were submitted for chemical testing. The pH tests record slightly alkali pH between 8.1 and 9.1. Testing to determine soluble sulphate content returned values between <0.010 g/l and 1.2 g/l 2:1 WS SO_4. This needs to be taken into account when selecting the concrete classification for construction. Results are described below.

7.2.3.1 Made Ground

The sample from TP01 (2.5m - 2.7m) was recovered from within the skip storage area, which comprised of Made Ground. Based on BRE guidelines[9] this location is classified as Design Sulphate class DS-2 and as ACEC (aggressive chemical environment for concrete) AC2.

[9] BRE Construction Division. Special Digest 1: Concrete in Aggressive Ground. Third edition 2005

7.2.3.1 Reworked Natural Ground

The samples from TP04 (1.0m – 1.1m), TP04 (2.1m – 2.2m) and TP05 (0.5 – 0.7m) were recovered from the reworked gravels. Based on BRE guidelines, these locations are classified as Design Sulphate DS1 and as ACEC AC-1[d].

8.0 Conclusions

8.1 Summary Findings

The proposed development of the site as an anaerobic digestion plant will likely comprise:

- Construction / erection of:
  - various tanks for storage (fuel, NaOH, propane);
  - treatment facilities (digesters, peripheral drive settling tanks, sequencing batch reactors);
  - gas works and odour control facilities;
  - swale and catchment lagoons; and
  - associated hardstanding, parking, office facilities and reception hall building (including pre-treatment hall and digestate out hall).

Given the elevation changes across the site, it is likely that there will be a cut and fill exercise undertaken to prepare engineered construction platforms for the development. At this time, no detail has been prepared for this engineering design.

Made Ground was encountered throughout the entire extent of TP01, TP02 and TP03. It has also been interpreted that the underlying gravels which were encountered in TP04 and TP05 beneath the Made Ground, at depths of 0.1m and 0.4m bgl, are reworked deposits of the Taplow Gravel Formation.

The extent of Made Ground and reworked gravel deposits were not confirmed during the ground investigation. The surface of the underlying London Clay was not encountered.

Human health receptors include on site construction workers and future commercial site users. The closest off-site commercial users are associated with the garden centre 10m to the northwest and there is a primary school 150m to the east and residential properties 200m east and 380m southwest.

Potential on-site sources of contamination have been identified to include the presence of made ground, fuel and chemical above ground storage tanks (ASTs) and other general site activities such as machinery/vehicle use and waste storage. Off-site sources of contamination are predominantly associated with areas of landfill that surround the site. The potential sources identified should be confirmed as not representing a potential significant risk to users of the proposed development or to controlled waters.

Shallow foundations are not considered suitable for future structures due the presence, extent and thickness of Made Ground. Shallow foundations would need to be excavated to the base of Made Ground into the underlying natural strata to remove the risk of differential settlement caused by varying compositions, thickness and behaviour of the Made Ground deposits.

Due to the unknown extent of Made Ground and the presence of the underlying Taplow Gravel Formation and London Clay beneath the site, further ground investigation works are recommended which are discussed in Section 8.3.

During the ground investigation works, areas of standing water were identified within the central low topographic lying areas of the site. It is understood there is a pumping system in place operating from a sump in the central area, which removes stormwater to a retention pond located off-site adjacent to the western site boundary.

8.1.1 Land Quality

Contamination Observations

Made ground was identified within each trial pit location, however there was no significant evidence of any visual contamination, staining and/or olfactory indications of hydrocarbons. Low photo-ionisation detector (PID) headspace readings were recorded indicating low vapour generation potential throughout the soil profile across the site.

Human Health

No exceedances of the screening criteria protective to human health were recorded in the soils sampled at the site in relation to commercial / industrial land use. Currently, the concentration of contaminants onsite are not considered to present an unacceptable risk to human health for the proposed land use.

However, asbestos fibres were detected by the laboratory in samples TP01 (0.4m) and TP01 (1.7m). The asbestos gravimetric and phase contrast optical microscopy (PCOM) results reported 0.002 (mass%) in TP01 (0.4m) and <0.001 (mass%) in TP01 (1.7m). As such, the potential exposure risk to groundworkers and future users of the site will need to be mitigated in accordance with CAR-SOIL risk assessments and CAR (2012) health and safety procedures as part of any future enabling and construction works at the site.

Controlled Waters

No visual and / or olfactory indications of contamination were recorded during the ground investigation. Whilst no groundwater samples were collected as part of these works, given the previous development of the site, low contaminant concentrations detected in soils, and the presence of landfill to the east and south of the site, it is considered that controlled waters may show some impact from potential onsite and offsite contamination.

Given that the full extent of ground conditions and groundwater quality has not been confirmed, there remains a potential risk to human health and controlled waters that needs to be addressed. The significance of the PPLs cannot be determined until further investigations are undertaken and additional data is collected for assessment.

8.1.2 Geotechnical

Additional ground investigation works are recommended to determine the depth of the Made Ground and the composition and geotechnical properties of the underlying natural soils. Depending on the findings of the additional work, ground improvement solutions may be adequate in areas of the site.

Ground Improvement

A number of ground improvement options exist that, from a theoretical standpoint, are applicable to the site; however, practical constraints may limit their applicability to the proposed development. All the options broadly work to increase the density of the ground, improving bearing capacity of the soils and their resistance to settlement. Options, and their relative merits and constrains are discussed below.

- **Dynamic Compaction** is the process of dropping a mass from a height onto the ground to densify or compact the loose partially saturated soil. Typically, a large weight is repeatedly dropped from a crane onto the prepared site. A suitable working platform is required, and the method creates a large amount of noise and vibration.

- **Vibro Stone / Concrete Columns** are a method of installing additional material into low strength ground, either in the form of gravel or as a concrete column. Both solutions also act to densify the surrounding ground; however, stone columns require a minimum soil strength of around 25kN/m2 prior to treatment.
- **Pre-loading / Surcharge** acts to reduce air or water filled voids in poorly compacted soils. Surcharging requires the import of large volumes of material onto site, placed and held for a period of weeks or months, and then disposed of elsewhere. This is likely to be an expensive operation on a site where this is no need for material to be imported to site and will also significantly impact on the delivery programme for the project.
- **Controlled Modulus Columns** are created in the ground using a lean sand mix or fluid grout pumped down a hollow stem auger to form a semi-rigid structure within the ground. Controlled modulus columns rely on the end bearing performance to provide ground improvement.

Ground improvement techniques would not be recommended in areas of Made Ground containing abundant amounts of anthropogenic material.

Piling Foundation Options

Another potential option for future foundations would include a piled foundation solution into the underlying London Clay formation. This would remove the risk of differential settlement across the site caused by variable thickness and composition of Made Ground deposits

It is recommended that a cost benefit analysis is conducted to compare the two options of either a piled solution or shallow foundations with ground improvement techniques after further ground investigations have been completed.

The depth to London Clay and its geotechnical parameters is yet to be determined and therefore further advice on pile foundations cannot be provided.

Hardstanding Design

The proposed development will include the construction of new hardstanding across the site, and along the proposed access roads. CBR values were derived from five plate bearing tests.

Tests were conducted from between 0.1m and 0.15m bgl, after removing any Topsoil or loose ground surface. CBR values ranged between 3% and approximately 42%. CBR01, resulted in the CBR value of >42%, CBR02 3%, CBR03 4%, and CBR05 12%. These tests were conducted on compacted Made Ground. It is unlikely this surface will be used for hardstanding and may potentially be removed from the site.

CBR04 was conducted in the existing carpark area. The Made Ground layer, of 0.1m, was removed and the test was conducted within the underlying reworked gravels. The CBR value at this location was calculated at >38%.

However, it is likely the site will be reprofiled prior to construction. Therefore, in-situ plate bearing or CBR tests should be conducted at formation level in areas of hardstanding structures immediately prior to construction. Tests should be carried out immediately following excavation with no significant delay between excavation and testing. Similarly, the final 100mm of excavation to formation level should be carried out immediately prior to commencing placement of the road construction materials.

9.0 Recommendations

In order to confirm the ground conditions at the site prior to development, a more detailed ground investigation will need to be undertaken. The objectives of the investigation would be to:

- Determine the depth and distribution of Made Ground and natural strata beneath the site;
- Target potential identified contamination sources and confirm soil, groundwater and ground gas/vapour conditions prior to development;
- Determine the density profile of the Taplow Gravel Formation across the site;
- Determine the nature and geotechnical properties of the London Clay and assess the risk to future development from shrink swell potential;
- Determine the depth and level of groundwater within the Taplow Gravel Formation beneath the site, and its interaction with surface water drainage;
- Determine ground stiffness/CBR properties of the natural soils for access road pavement design;
- Allow further soil sampling for chemical and geotechnical laboratory testing;
- Allow further soil classification to allow geotechnical characterisation and determine acceptability for reuse of soils within earthworks, if required; and
- Obtain further information in terms of Aggressive Chemical Environment for Concrete Class (ACEC Class).

Following the investigation, assessment will be required to:

- Update the ground model and conceptual site model (CSM);
- Provide a contaminant Generic Quantitative Risk Assessment (GQRA) for soil, groundwater and ground gas/vapours;
- Provide a geotechnical risk register;
- Provide geotechnical design parameters; and
- Provide land contamination and geotechnical design recommendations for the future development.

Given the presence of standing water on the site observed during the ground investigation following storm events, the drainage capacity of the site should be reviewed and the interaction between surface water drainage and shallow groundwater assessed to inform future drainage design purposes.

Before intrusive ground investigations are undertaken, an asbestos risk assessment and a detailed method statement must be developed outlining how works will be undertaken due to the identified presence of asbestos.

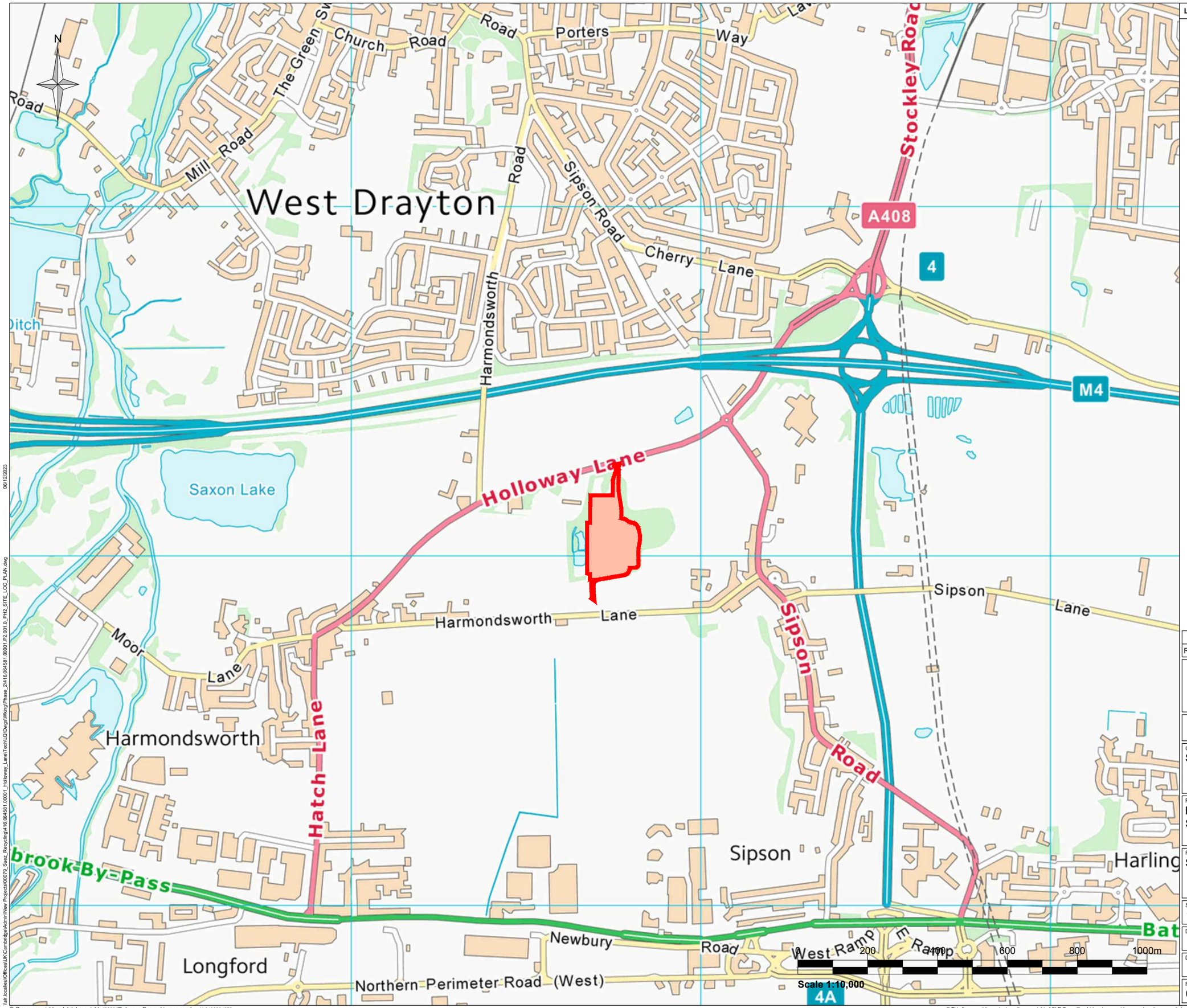
Appendix A Drawings

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2



Legend:

SITE BOUNDARY

Rev	Amendments	Date	By	Chk	Auth

SLR

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Client
SUEZ RECYCLING AND RECOVERY

Project
HOLLOWAY LANE
SITE INVESTIGATION

Figure Title
SITE LOCATION PLAN

Scale	SLR Project No.
1:10,000 @ A3	416.064581.00001.P2

Designed	Drawn	Checked	Authorised
	TKS	ML	
Date	Date	Date	Date
	NOV 2023	NOV 2023	

Figure Number
01

Rev.
0

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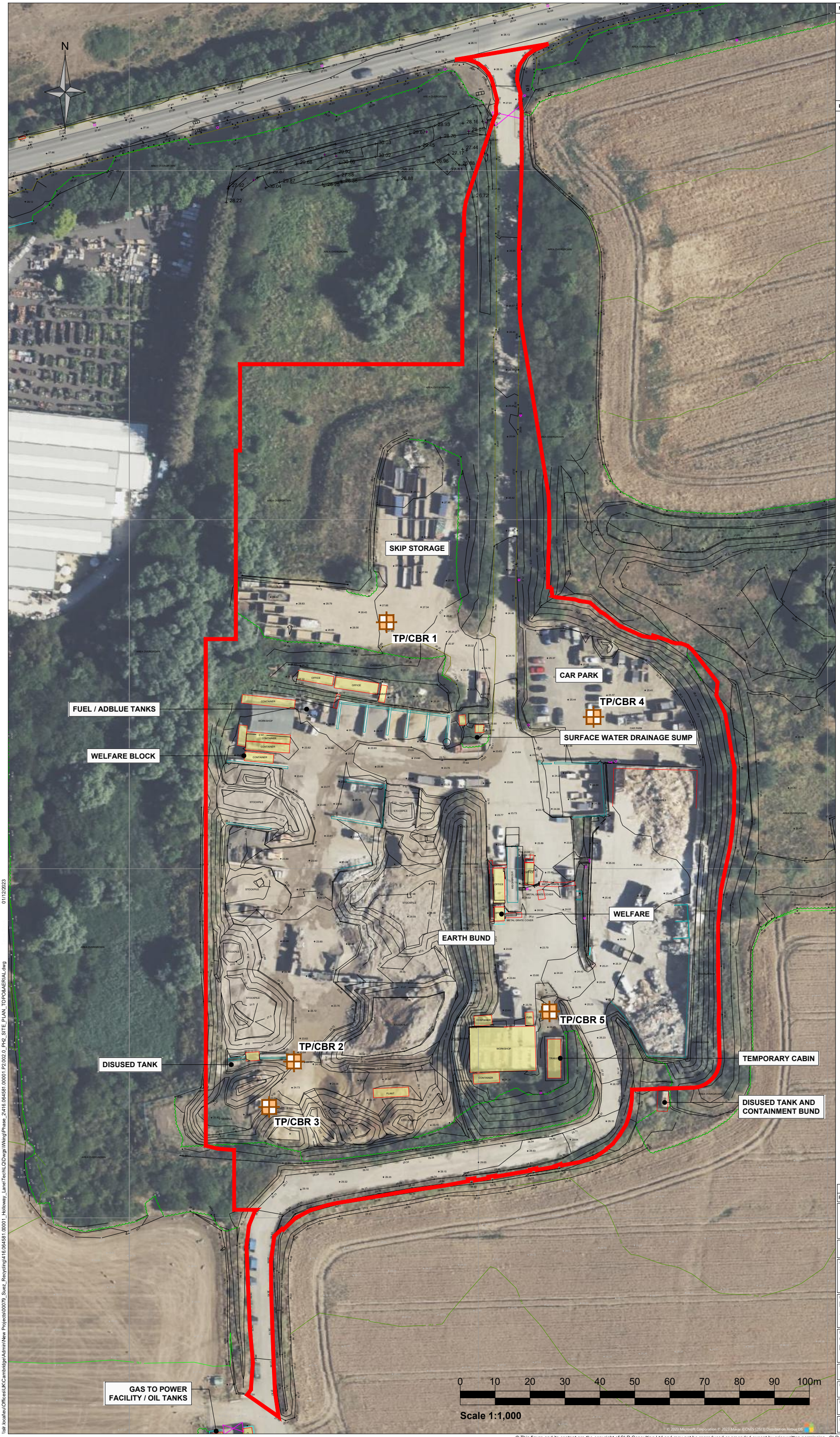
\\slr.local\eu\Offices\UK\Cambridge\Admin\New Projects\000079_Suez_Recycling\416.064581.00001_Holloway_Lane\Tech\LO\Dwgs\Wilting\Phase_2\416.064581.00001 P2.001.0_PH2_SITE_LOC_PLAN.dwg

06/12/2023



Notes:

1. DRAWINGS IS BASED ON SLR TOPOGRAPHICAL SURVEY, REF: 00079.00321.045.09.001.0 HOLLOWAY LANE 0921, REF: SEPTEMBER 2021.

Legend:

- SITE BOUNDARY
- TRIAL PIT

Rev	Amendments	Date	By	Chk	Auth

SLR

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Client: SUEZ RECYCLING AND RECOVERY

Project: HOLLOWAY LANE
SITE INVESTIGATION

Figure Title: CURRENT SITE LAYOUT - INVESTIGATION LOCATIONS

Scale		SLR Project No.
1:1000	@ A3	416.64581.00001.P2

Designed	Drawn	Checked	Authorised
	TKS	ML	
Date	Date	Date	Date
	NOV 2023	NOV 2023	

Figure Number: 02 Rev.: 0

01/12/2023

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N

SKIP STORAGE

TP/CBR 1

CAR PARK

TP/CBR 4

FUEL / ADBLUE TANKS

SURFACE WATER DRAINAGE SUMP

WELFARE BLOCK

WELFARE

EARTH BUND

TP/CBR 5

TP/CBR 2

TEMPORARY CABIN

DISUSED TANK

DISUSED TANK AND CONTAINMENT BUND

TP/CBR 3

GAS TO POWER FACILITY / OIL TANKS

APPROXIMATE LOCATIONS OF WATER BODIES

APPROXIMATE LOCATIONS OF WATER BODIES

AREA OVERGROWN

OVERGROWN

STOCKPILE

WORKSHOP

OFFICE

CONTAINER

GENERATOR

PLANT

TRAILER

FUEL

WEIGHBRIDGE

METAL GRATE COVER

CAR PARK

0 10 20 30 40 50 60 70 80 90 100m

Scale 1:1,000

Notes:

1. DRAWINGS IS BASED ON SLR TOPOGRAPHICAL SURVEY, REF: 00079.00321.045.09.001.0 HOLLOWAY LANE 0921, REF: SEPTEMBER 2021.

Legend:

SITE BOUNDARY

TRIAL PIT

Rev	Amendments	Date	By	Chk	Auth

SLR

www.slrconsulting.com

Client: SUEZ RECYCLING AND RECOVERY

Project: HOLLOWAY LANE
SITE INVESTIGATION

Figure Title: CURRENT SITE LAYOUT - INVESTIGATION LOCATIONS

Scale		SLR Project No.
1:1000	@ A3	416.64581.00001.P2

Designed	Drawn	Checked	Authorised
	TKS	ML	
Date	Date	Date	Date
	NOV 2023	NOV 2023	

Figure Number: 03 Rev.: 0

01/12/2023

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Appendix B Proposed Site Layout

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2

Notes:

1. DRAWINGS IS BASED ON GSDA PROPOSED SITE LAYOUT PLAN, REF: 1451 PL 100, DATED: 23/01/13.

Legend:

SITE BOUNDARY

TRIAL PIT

N

Existing Entrance Gates and Fencing Retained

+25.5m AOD

Swale / Catchment Lagoon

Ramp 1 in 15

Ramp 1 in 10

Possible Retaining wall

AREA OVERGROWN

2.16m bund wall or banking

NaOH Tank

Digester

Digester

Digester

TP/CBR 1

Ferric Store

Slip Road

3.1m

Retaining wall

Banking Regraded to Meet New Surface Level

30.57m Top of Retaining wall

Retaining Wall

+25.5m AOD

Gas Flare

Propane Tanks

24m

25.5m

Gas to Grid

Gas Upgrading

TP/CBR 4

Carbon Capture

CHP

Banking Regraded to Meet New Surface Level

Potential Retaining Wall

30m

+24m AOD

Fuel Tank

Pasturisation Plant

SBR Tank

Boiler

Buffer Tank

Storage Tank

SBR Feed

PDST

PDST

Buffer Tank

Odour Control

+24m AOD

26.75m Top of Retaining wall

2.16m bund wall or banking

APPROXIMATE LOCATIONS OF WATER BODIES

Chiller

Compressors

Digestate Out

Reception Hall

Pre-Treatment

Trans.

LV Dist

Maintenance Workshop

Permit Office

WEIGH BRIDGE (OUT)

OFFICE

WEIGH BRIDGE (IN)

Third Party Construction and Demolition Material Recycling

Electrical, Workshop, Permit Office

TP/CBR 5

+24m AOD

TP/CBR 2

TP/CBR 3

Banking Regraded to Meet New Road Edge

+24m AOD

+24.15m AOD

Swale / Catchment Lagoon

Bin Store

Cycle Shelter

1 2 3 4 5 6 7

8 9 10 11 12 13 14

+26.5m AOD

Banking Regraded to Meet New Road Edge

Banking Regraded to Meet New Road Edge

30m

Stepped retaining wall

+24.15m AOD

+29m AOD

Banking Regraded to Meet New Road Edge

0 10 20 30 40 50 60 70 80 90 100m

Scale 1:1,000

28/11/2023

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Rev	Amendments	Date	By	Chk	Auth

SLR

www.slrconsulting.com

Client: SUEZ RECYCLING AND RECOVERY

Project: HOLLOWAY LANE
SITE INVESTIGATION

Figure Title: PROPOSED SITE LAYOUT - INVESTIGATION LOCATIONS

Scale		SLR Project No.	
1:1000	@ A3	416.064581.00001.P2	
Designed	Drawn: TKS	Checked: ML	Authorised
Date	Date: NOV 2023	Date: NOV 2023	Date

Figure Number: 04 | Rev.: 0

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Appendix C Trial Pit Logs

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2

TRIAL PIT LOG

TRIAL PIT No **TP01**

Client: **SUEZ Recycling & Recovery**

Project: **Holloway Lane**

Project No:	Date:	Ground Level:	Co-ordinates:	Sheet
416.064581.00001_P2	16/10/2023	27.80m	E506727 N178100	1 of 1

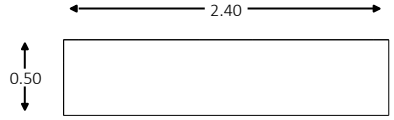
SAMPLES & TESTS				Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
					27.60		(0.20) 0.20	(MADE GROUND) Firm brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of flint, sandstone and brick.	
0.40	ES	HS	4.9ppm		27.10		(0.50) 0.70	(MADE GROUND) Soft brown slightly clayey slightly sandy gravelly SILT with occasional glass shards, tile ceramics, plastic bags, ash, burnt newspaper, timber, metal sheet and metal bar. Sand is fine to coarse. Gravel is angular to sub-angular fine to coarse of flint, brick and concrete.	
		HS	31.2ppm						
1					25.90		(1.20) 1.90	(MADE GROUND) Soft black mottled brown slightly gravelly clayey SILT with low cobble content and occasional timber, wood and plastic bags. Gravel is angular to sub-rounded fine to coarse of flint, brick and concrete. Cobbles are sub-angular of brick and concrete	
1.70	ES	HS	26.3ppm						
2					25.00		(0.90) 2.80	(MADE GROUND) Light brown slightly clayey gravelly fine to coarse SAND with low cobble content and occasional ceramic tile and wood. Gravel is angular to sub-rounded fine to coarse of flint, brick and concrete. Cobbles are sub-angular of brick and concrete.	
2.50 - 2.70	LB								
2.70	ES	HS	6.1ppm					Trial Pit Complete at 2.80m	

GENERAL REMARKS:

Trial Pit terminated due to concrete at base of excavation. Refer to site plan for location of Trial Pit.
Ground level approximate based on cross reference to Topo survey.

KEY
V = Hand Vane Shear Strength
PP = Pocket Penetrometer Shear Strength
J = Jar Sample
D = Disturbed Sample
B = Large Bulk Sample
HS = Head Space Measurement

Trial Pit Dimensions:



Shoring/Support:

Stability: Stable

All dimensions in metres	Contractor: L-Lynch	Method: Trial pit/trench	Logged By:	Approved By:
Scale 1:20	Plant: JCB 3CX		J.H	M.L

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

TRIAL PIT LOG

TRIAL PIT No
TP02

Client:
SUEZ Recycling & Recovery

Project:
Holloway Lane

Project No:	Date:	Ground Level:	Co-ordinates:	Sheet
416.064581.00001_ P2	16/10/2023	24.00m	E506701 N177975	1 of 1

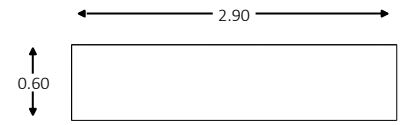
SAMPLES & TESTS				Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.30 - 0.40	ES	HS	14.4ppm				(0.50)	(MADE GROUND) Dark brown silty gravelly fine to coarse SAND with low cobble content and rare ceramic tile and metal wire. Gravel is angular to rounded fine to coarse of flint, concrete and brick. Cobbles are sub-angular of brick and concrete	
0.50 - 0.90	LB			▼	23.50		0.50		
							(0.50)	(MADE GROUND) Brown sandy sub-angular to rounded medium to coarse GRAVEL of various lithologies. Sand is fine to coarse. *0.50 - 1.00 Gravel presumed to be placed during pipe construction*	
1					23.00		1.00	*0.90 ~500mm diameter pipe encountered at 0.9mbgl in southern half of trench. No damage to pipe* Trial Pit Complete at 1.00m	
2									

GENERAL REMARKS:

Trial Pit terminated due to pipe in southern half of trench. Refer to site plan for location of Trial Pit.
Ground level approximate based on cross reference to Topo survey.

KEY
V = Hand Vane Shear Strength
PP = Pocket Penetrometer Shear Strength
J = Jar Sample
D = Disturbed Sample
B = Large Bulk Sample
HS = Head Space Measurement

Trial Pit Dimensions:



Shoring/Support:

Stability: Collapsing

All dimensions in metres	Contractor: L-Lynch	Method: Trial pit/trench	Logged By:	Approved By:
Scale 1:20	Plant: JCB 3CX		J.H	M.L

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

TRIAL PIT LOG

TRIAL PIT No **TP03**

Client: **SUEZ Recycling & Recovery**

Project: **Holloway Lane**

Project No:	Date:	Ground Level:	Co-ordinates:	Sheet
416.064581.00001_P2	16/10/2023	25.70m	E506693 N177962	1 of 1

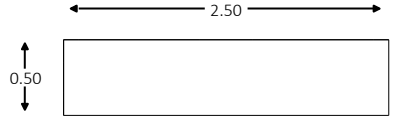
SAMPLES & TESTS				Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
					25.70		(0.70)	(MADE GROUND) Soft dark brown slightly clayey slightly sandy gravelly SILT with rare steel nail. Gravel is angular to sub-rounded fine to coarse of flint, brick and cement.	
0.50	ES	HS	26.2ppm						
0.70 - 1.20	LB				25.00		0.70		
							(0.50)	(MADE GROUND) Greyish brown mottled black slightly gravelly fine to coarse SAND. Gravel is sub-angular to rounded fine to medium of flint, brick and asphalt.	
1									
1.20 - 1.30	ES	HS	12.3ppm	▼	24.50		1.20		
							(0.20)	(MADE GROUND) Black slightly sandy sub-angular to sub-rounded fine to coarse GRAVEL of flint with abundant organic matter. Sand is fine to coarse. Weak organic odour.	
1.40 - 1.70	LB				24.30		1.40		
		HS	2.3ppm				(0.30)	(MADE GROUND) Black sandy angular to sub-rounded fine to coarse GRAVEL of flint and concrete with low cobble content and rare wood and plastic bag. Sand is fine to coarse. Cobbles are sub-angular of concrete.	
					24.00		1.70		
								Trial Pit Complete at 1.70m	
2									

GENERAL REMARKS:

Trial pit terminated due to hard surface at base of excavation. Refer to site plan for location of Trial Pit.
Ground level approximate based on cross reference to Topo survey.

KEY
V = Hand Vane Shear Strength
PP = Pocket Penetrometer Shear Strength
J = Jar Sample
D = Disturbed Sample
B = Large Bulk Sample
HS = Head Space Measurement

Trial Pit Dimensions:



Shoring/Support:

Stability: Collapsing

All dimensions in metres	Contractor: L-Lynch	Method: Trial pit/trench	Logged By:	Approved By:
Scale 1:20	Plant: JCB 3CX		J.H	M.L

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

TRIAL PIT LOG

TRIAL PIT No **TP04**

Client: **SUEZ Recycling & Recovery**

Project: **Holloway Lane**

Project No:	Date:	Ground Level:	Co-ordinates:	Sheet
416.064581.00001_P2	16/10/2023	25.40m	E506786 N178073	1 of 1

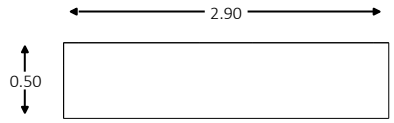
SAMPLES & TESTS				Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00 - 0.10	ES	HS	0.0ppm		25.30		(0.10) 0.10	(MADE GROUND) Dark brown slightly sandy clayey angular to sub-angular fine to coarse GRAVEL of flint, brick and sandstone. Sand is fine to coarse.	
1.00 1 1.00 - 1.10	ES LB	HS	0.0ppm				(1.90)	Brown slightly silty very sandy angular to sub-angular fine to coarse GRAVEL of flint. Sand is fine to coarse. (REWORKED TAPLOW GRAVEL FORMATION)	
2				▼	23.40		2.00		
2.10 2.10 - 2.20	ES LB	HS	0.0ppm		23.20		(0.20) 2.20	Brown slightly silty very sandy angular to rounded fine to coarse GRAVEL of flint. Sand is fine to coarse. (REWORKED TAPLOW GRAVEL FORMATION)	
								Trial Pit Complete at 2.20m	

GENERAL REMARKS:

Trial Pit terminated due to walls collapsing. Refer to site plan for location of Trial Pit.
Ground level approximate based on cross reference to Topo survey.

KEY
V = Hand Vane Shear Strength
PP = Pocket Penetrometer Shear Strength
J = Jar Sample
D = Disturbed Sample
B = Large Bulk Sample
HS = Head Space Measurement

Trial Pit Dimensions:



Shoring/Support:

Stability: Collapsing

All dimensions in metres	Contractor: L-Lynch	Method: Trial pit/trench	Logged By:	Approved By:
Scale 1:20	Plant: JCB 3CX		J.H	M.L

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

TRIAL PIT LOG

TRIAL PIT No **TP05**

Client: **SUEZ Recycling & Recovery**

Project: **Holloway Lane**

Project No:	Date:	Ground Level:	Co-ordinates:	Sheet
416.064581.00001_P2	16/10/2023	24.20m	E506774 N177989	1 of 1

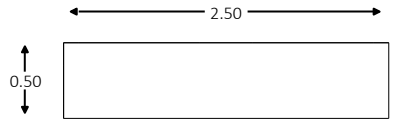
SAMPLES & TESTS				Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.20 - 0.30	ES	HS	0.0ppm		23.80		(0.40) 0.40	(MADE GROUND) Soft dark brown slightly clayey slightly sandy gravelly SILT with grass rootlets and occasional plastic. Sand is fine to coarse. Gravel is angular to sub-rounded fine to coarse of flint, brick and concrete.	
0.50 - 0.70	ES LB	HS	0.0ppm	▼	23.20		(0.60) 1.00	Brown slightly silty very sandy angular to rounded fine to coarse GRAVEL of flint. Sand is fine to coarse. (REWORKED TAPLOW GRAVEL FORMATION)	
1								Trial Pit Complete at 1.00m	
2									

GENERAL REMARKS:

Trial Pit terminated due to walls collapsing. Refer to site plan for location of Trial Pit.
Ground level approximate based on cross reference to Topo survey.

KEY
V = Hand Vane Shear Strength
PP = Pocket Penetrometer Shear Strength
J = Jar Sample
D = Disturbed Sample
B = Large Bulk Sample
HS = Head Space Measurement

Trial Pit Dimensions:



Shoring/Support:

Stability: Collapsing

All dimensions in metres	Contractor: L-Lynch	Method: Trial pit/trench	Logged By:	Approved By:
Scale 1:20	Plant: JCB 3CX		J.H	M.L

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

Appendix D Trial Pit Photographs

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2

Trial Pit Photographs

Photo 1: TP01 (16/10/23)

Photo 2: TP01 (16/10/23)

Photo 3: TP02 (16/10/23)

Photo 4: TP02 (16/10/23)

Photo 5: TP03 (16/10/23)

Photo 6: TP03 (16/03/23)

Photo 7: TP04 (16/10/23)

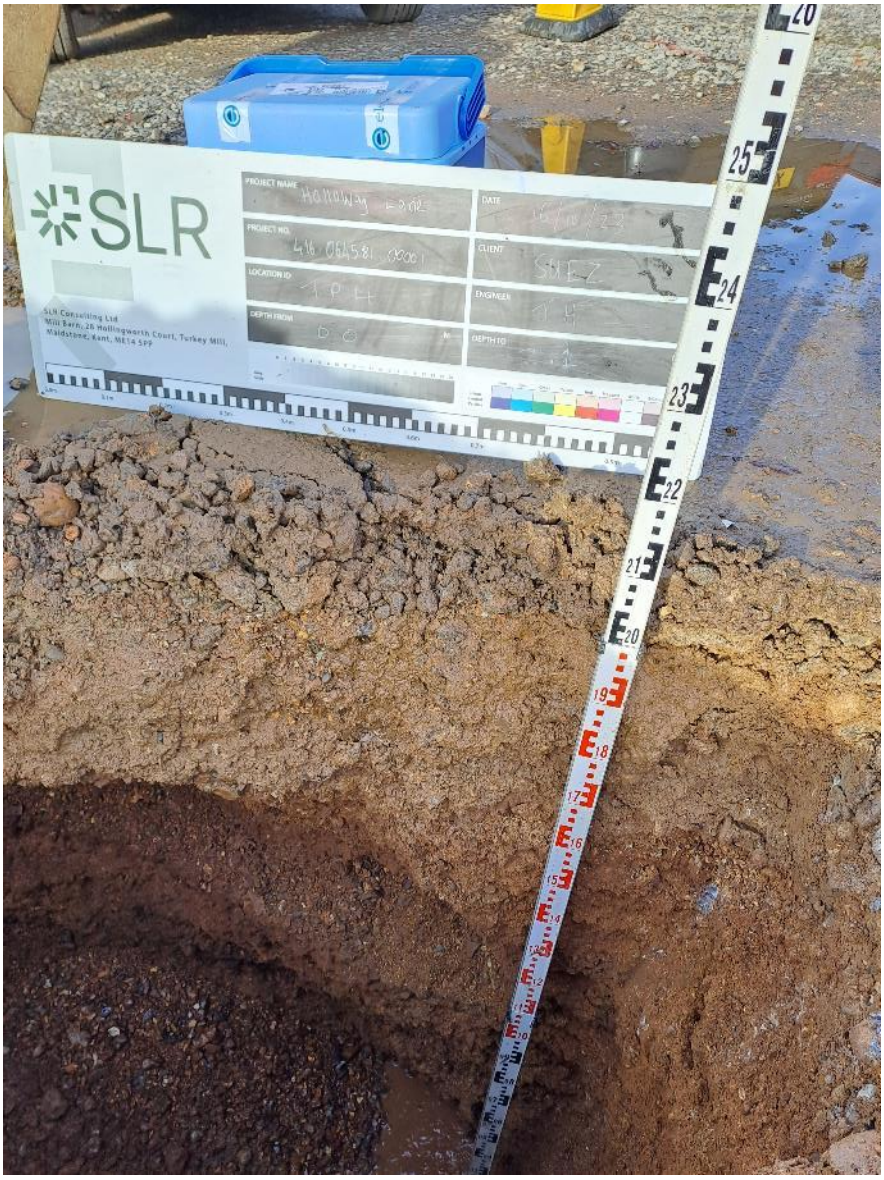


Photo 8: TP04 (16/10/23)

Photo 9: TP05 (16/10/23)

Photo 10: TP05 (16/10/23)

Appendix E Plate Bearing Results

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2

Hixtra Ltd
Unit 103, Caxton Court
Garamonde Drive
Milton Keynes
MK8 8DD

Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 10642-1
Report Date: 17/10/2023
Client: SLR Consulting Ltd
Address: Floor 3, The Cursitor Building
38 Chancery Lane
London
WC2A 1EN
Site: Powerday, off Holloway Lane, Sipson, West Drayton, UB7 0AE

Test Details

Test Location: CBR 1
Date of Test: 17/10/2023
Description: Crushed Brick and Concrete
Reaction Load: 9 Tonne JCB
Material Class: Subbase
Weather: Dry
Layer: 100mm BGL
Plate Diameter (mm): 454
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

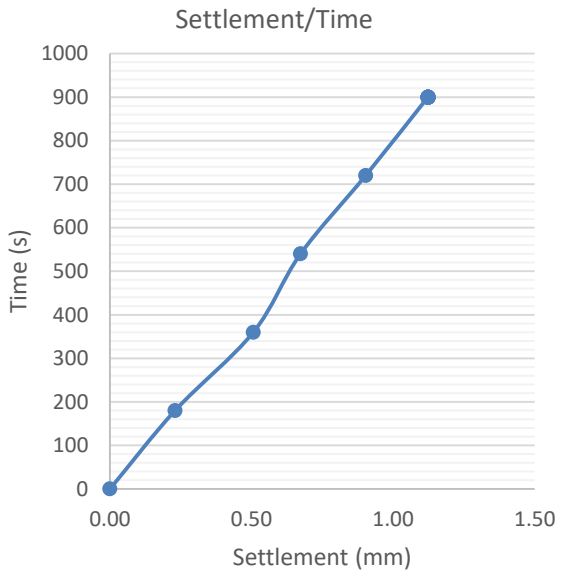
Test Results

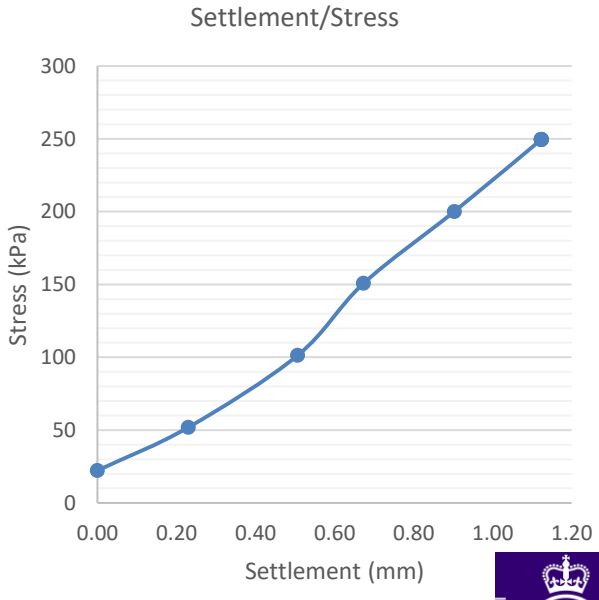
Deviation: Settlement of ≥1.25mm was not achieved so reported CBR is calculated at the maximum plate stress

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	0.23	52
360	0.51	101
540	0.67	151
720	0.90	200
900	1.12	250

Maximum Applied Stress (kPa):	250
Maximum Settlement (mm):	1.12
Equivalent CBR Value (%):	>42
Modulus of Subgrade Reaction, k_{762} (MN/m²/m):	125

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)





For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory

UKAS TESTING
8996

Issued subject to Hixtra Terms and Conditions available at www.hixtra.com

Hixtra Ltd
Unit 103, Caxton Court
Garamonde Drive
Milton Keynes
MK8 8DD

Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 10642-2
Report Date: 17/10/2023
Client: SLR Consulting Ltd
Address: Floor 3, The Cursitor Building
38 Chancery Lane
London
WC2A 1EN
Site: Powerday, off Holloway Lane, Sipson, West Drayton, UB7 0AE

Test Details

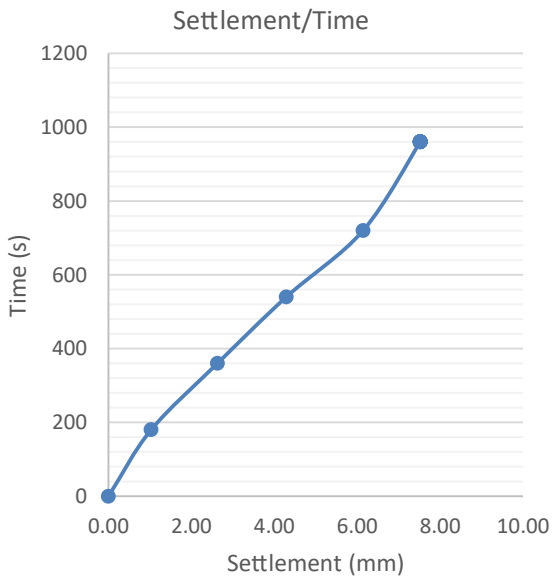
Test Location: CBR 2
Date of Test: 17/10/2023
Description: Dark Brown Gravelly Clay with occasional Crushed Brick
Reaction Load: 9 Tonne JCB
Material Class: Subbase
Weather: Dry
Layer: 100mm BGL
Plate Diameter (mm): 454
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

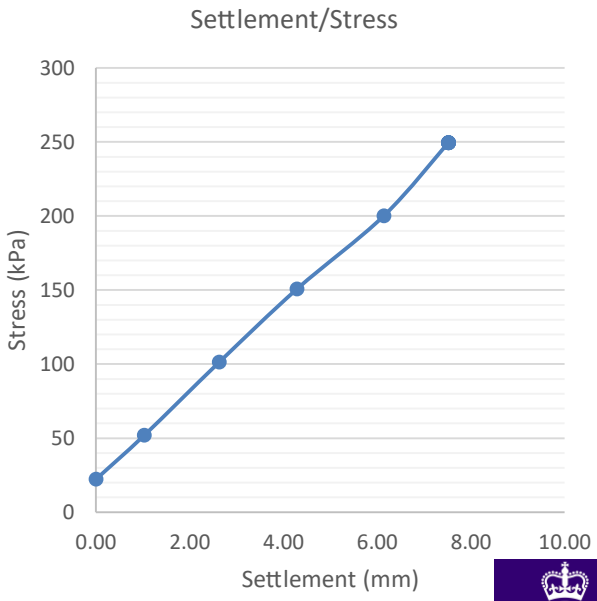
Test Results

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	1.03	52
360	2.63	101
540	4.29	151
720	6.14	200
960	7.52	250

Maximum Applied Stress (kPa):	250
Maximum Settlement (mm):	7.52
Equivalent CBR Value (%):	3
Modulus of Subgrade Reaction, k_{762} ($MN/m^2/m$):	29

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)





For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory

UKAS TESTING
8996

Issued subject to Hixtra Terms and Conditions available at www.hixtra.com

Hixtra Ltd
Unit 103, Caxton Court
Garamonde Drive
Milton Keynes
MK8 8DD

Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 10642-3
Report Date: 17/10/2023
Client: SLR Consulting Ltd
Address: Floor 3, The Cursitor Building
38 Chancery Lane
London
WC2A 1EN
Site: Powerday, off Holloway Lane, Sipson, West Drayton, UB7 0AE

Test Details

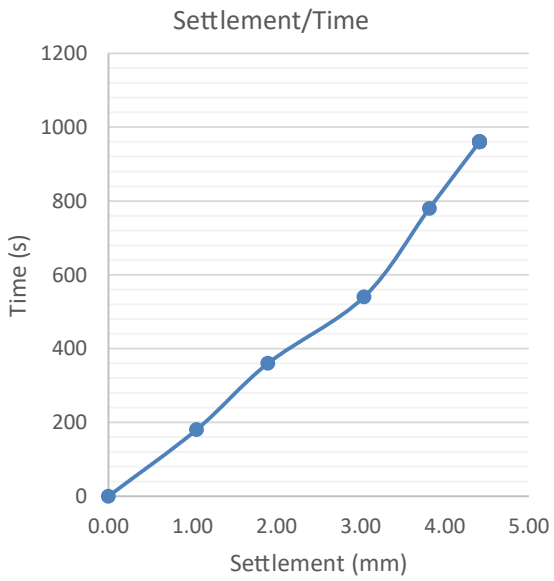
Test Location: CBR 3
Date of Test: 17/10/2023
Description: Dark Brown Gravelly Clay with occasional Crushed Brick
Reaction Load: 9 Tonne JCB
Material Class: Subbase
Weather: Dry
Layer: 100mm BGL
Plate Diameter (mm): 454
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

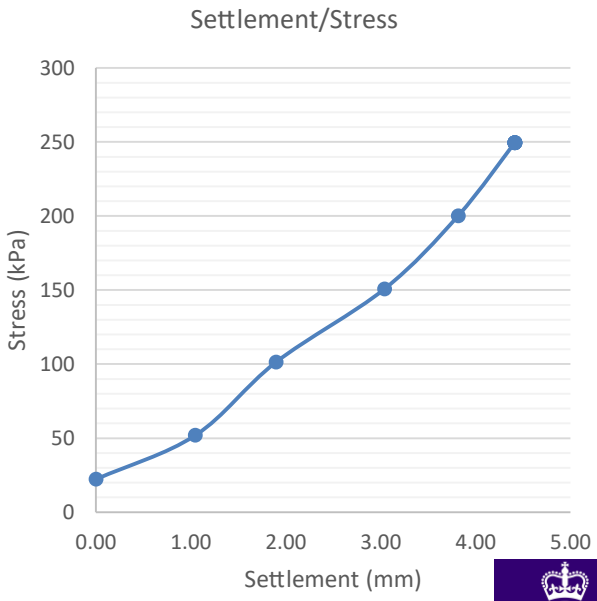
Test Results

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	1.05	52
360	1.90	101
540	3.04	151
780	3.82	200
960	4.41	250

Maximum Applied Stress (kPa):	250
Maximum Settlement (mm):	4.41
Equivalent CBR Value (%):	4
Modulus of Subgrade Reaction, k_{762} ($MN/m^2/m$):	32

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)





For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory

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Hixtra Ltd
Unit 103, Caxton Court
Garamonde Drive
Milton Keynes
MK8 8DD

Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 10642-4
Report Date: 17/10/2023
Client: SLR Consulting Ltd
Address: Floor 3, The Cursitor Building
38 Chancery Lane
London
WC2A 1EN
Site: Powerday, off Holloway Lane, Sipson, West Drayton, UB7 0AE

Test Details

Test Location: CBR 4
Description: Gravelly Crushed Rock
Material Class: Subbase
Layer: 100mm BGL
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

Date of Test: 17/10/2023
Reaction Load: 9 Tonne JCB
Weather: Dry
Plate Diameter (mm): 454

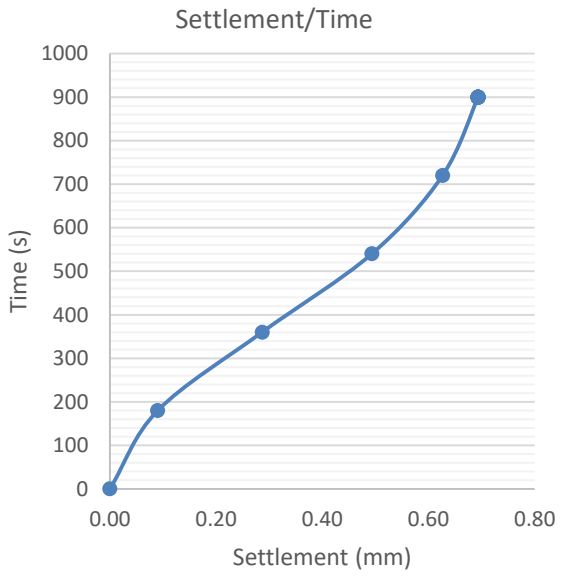
Test Results

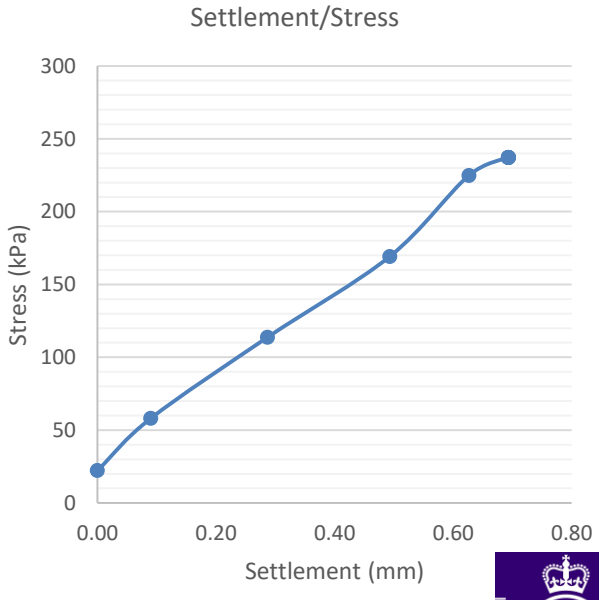
Deviation: Settlement of ≥1.25mm was not achieved so reported CBR is calculated at the maximum plate stress

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	0.09	58
360	0.29	114
540	0.49	169
720	0.63	225
900	0.69	237

Maximum Applied Stress (kPa):	237
Maximum Settlement (mm):	0.69
Equivalent CBR Value (%):	>38
Modulus of Subgrade Reaction, k_{762} (MN/m²/m):	119

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)





For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory

UKAS TESTING
8996

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Hixtra Ltd
Unit 103, Caxton Court
Garamonde Drive
Milton Keynes
MK8 8DD

Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377: Part 9: 1990

Report No: 10642-5
Report Date: 17/10/2023
Client: SLR Consulting Ltd
Address: Floor 3, The Cursitor Building
38 Chancery Lane
London
WC2A 1EN
Site: Powerday, off Holloway Lane, Sipson, West Drayton, UB7 0AE

Test Details

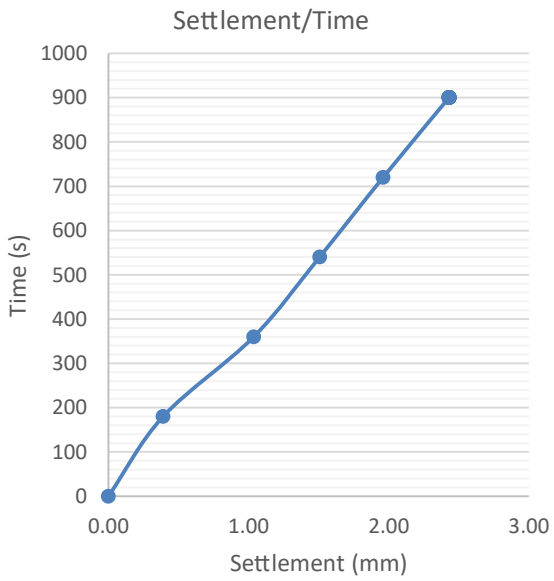
Test Location: CBR 5
Date of Test: 17/10/2023
Description: Clayey Sandy Gravel
Reaction Load: 9 Tonne JCB
Material Class: Subbase
Weather: Dry
Layer: 150mm BGL
Plate Diameter (mm): 454
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

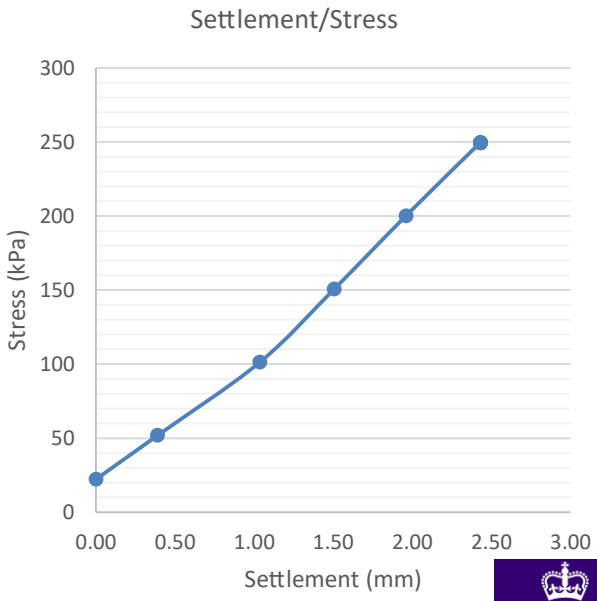
Test Results

Time, s	Settlement, mm	Plate Stress, kPa
0	0.00	22
180	0.39	52
360	1.04	101
540	1.51	151
720	1.96	200
900	2.43	250

Maximum Applied Stress (kPa):	250
Maximum Settlement (mm):	2.43
Equivalent CBR Value (%):	12
Modulus of Subgrade Reaction, k_{762} ($MN/m^2/m$):	62

Note: Supplemental test method, calculation of Nominal CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)





For and on behalf of Hixtra Ltd

Kevin Shorthouse
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8996

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Appendix F Chemical Laboratory Certifcates

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

SLR Consulting Ltd
97 Tottenham Court Rd
London
United Kingdom
W1T 4TP

Attention :	Matt Logan
Date :	30th October, 2023
Your reference :	416.064581.00001
Our reference :	Test Report 23/17252 Batch 1
Location :	Holloway Lane
Date samples received :	18th October, 2023
Status :	Final Report
Issue :	1

Eleven samples were received for analysis on 18th October, 2023 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 13.684 kg of CO2

Scope 1&2&3 emissions - 32.338 kg of CO2

Authorised By:

Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name: SLR Consulting Ltd
Reference: 416.064581.00001
Location: Holloway Lane
Contact: Matt Logan
EMT Job No: 23/17252

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-4	5-8	13-16	21-24	32-34	35-38					LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP03	TP04	TP05							
Depth	0.40	1.70	0.30-0.40	1.20	2.10	0.20-0.30							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	16/10/2023	16/10/2023	16/10/2023	16/10/2023	16/10/2023	16/10/2023							
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay							
Batch Number	1	1	1	1	1	1							
Date of Receipt	18/10/2023	18/10/2023	18/10/2023	18/10/2023	18/10/2023	18/10/2023							
Arsenic #M	12.5	9.4	10.3	7.4	9.3	11.2					<0.5	mg/kg	TM30/PM15
Barium #M	160	88	69	90	22	81					<1	mg/kg	TM30/PM15
Beryllium	1.2	0.6	0.6	0.6	<0.5	0.7					<0.5	mg/kg	TM30/PM15
Cadmium #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/kg	TM30/PM15
Chromium #M	85.9	82.9	83.6	49.2	150.8	122.7					<0.5	mg/kg	TM30/PM15
Copper #M	57	18	14	32	6	22					<1	mg/kg	TM30/PM15
Lead #M	179	48	73	27	6	46					<5	mg/kg	TM30/PM15
Mercury #M	<0.1	<0.1	0.2	<0.1	<0.1	<0.1					<0.1	mg/kg	TM30/PM15
Nickel #M	27.3	13.5	11.2	10.7	13.7	19.4					<0.7	mg/kg	TM30/PM15
Selenium #M	<1	<1	<1	<1	<1	<1					<1	mg/kg	TM30/PM15
Vanadium	41	29	32	67	27	37					<1	mg/kg	TM30/PM15
Zinc #M	203	86	52	75	19	77					<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #M	<0.04	0.05	<0.04	1.31 AA	<0.04	0.09					<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.06	0.04	0.07	0.59 AA	<0.03	0.31					<0.03	mg/kg	TM4/PM8
Acenaphthene #M	<0.05	0.07	0.12	1.86 AA	<0.05	0.81					<0.05	mg/kg	TM4/PM8
Fluorene #M	<0.04	0.08	0.12	2.41 AA	<0.04	1.04					<0.04	mg/kg	TM4/PM8
Phenanthrene #M	0.30	0.71	1.10	12.56 AA	<0.03	18.78					<0.03	mg/kg	TM4/PM8
Anthracene #	0.09	0.13	0.35	3.35 AA	<0.04	4.51					<0.04	mg/kg	TM4/PM8
Fluoranthene #M	0.85	1.15	2.35	14.53 AA	<0.03	25.92					<0.03	mg/kg	TM4/PM8
Pyrene #	0.76	0.95	2.06	11.91 AA	<0.03	19.75					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.46	0.51	1.07	5.25 AA	<0.06	9.52					<0.06	mg/kg	TM4/PM8
Chrysene #M	0.56	0.56	1.14	5.35 AA	<0.02	9.56					<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #M	1.08	0.93	1.95	8.53 AA	<0.07	14.54					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.58	0.50	1.14	5.31 AA	<0.04	8.56					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #M	0.47	0.35	0.72	3.19 AA	<0.04	5.53					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.10	0.10	0.13	0.79 AA	<0.04	1.31					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.50	0.37	0.76	3.16 AA	<0.04	5.57					<0.04	mg/kg	TM4/PM8
PAH 16 Total	5.8	6.5	13.1	80.1 AA	<0.6	125.8					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.78	0.67	1.40	6.14 AA	<0.05	10.47					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.30	0.26	0.55	2.39 AA	<0.02	4.07					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	98	98	97	99 AA	96	98					<0	%	TM4/PM8

Element Materials Technology

Client Name: SLR Consulting Ltd
Reference: 416.064581.00001
Location: Holloway Lane
Contact: Matt Logan
EMT Job No: 23/17252

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-4	5-8	13-16	21-24	32-34	35-38					LOD/LOR	Units	Method No.
Sample ID	TP01	TP01	TP02	TP03	TP04	TP05							
Depth	0.40	1.70	0.30-0.40	1.20	2.10	0.20-0.30							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	16/10/2023	16/10/2023	16/10/2023	16/10/2023	16/10/2023	16/10/2023							
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay							
Batch Number	1	1	1	1	1	1							
Date of Receipt	18/10/2023	18/10/2023	18/10/2023	18/10/2023	18/10/2023	18/10/2023							
TPH CWG													
Aliphatics													
>C5-C6 #M	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C6-C8 #M	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C12 #M	10.9	<0.2	11.8	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	25	<4	11	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	47	26	<7	23	<7	<7					<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	459	268	58	337	<7	55					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	542	294	81	360	<19	55					<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 #	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	<0.1 SV	<0.1	<0.1	<0.1 SV	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	5.3	1.1	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	14	<4	<4	21	<4	<4					<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	40	14	29	156	<7	35					<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	406	270	262	925	<7	183					<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	460	284	296	1103	<19	218					<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	1002	578	377	1463	<38	273					<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	<0.005 SV	<0.005	<0.005	<0.005 SV	<0.005	<0.005					<0.005	mg/kg	TM36/PM12
Benzene #	<0.005 SV	<0.005	<0.005	<0.005 SV	<0.005	<0.005					<0.005	mg/kg	TM36/PM12
Toluene #	<0.005 SV	<0.005	<0.005	<0.005 SV	<0.005	<0.005					<0.005	mg/kg	TM36/PM12
Ethylbenzene #	<0.005 SV	0.009	<0.005	<0.005 SV	<0.005	<0.005					<0.005	mg/kg	TM36/PM12
m/p-Xylene #	<0.005 SV	<0.005	<0.005	<0.005 SV	<0.005	<0.005					<0.005	mg/kg	TM36/PM12
o-Xylene #	<0.005 SV	0.012	<0.005	<0.005 SV	<0.005	<0.005					<0.005	mg/kg	TM36/PM12
Xylenes (sum of isomers) #	<0.01 SV	0.01	<0.01	<0.01 SV	<0.01	<0.01					<0.01	mg/kg	TM36/PM12
Natural Moisture Content	14.5	9.4	11.4	5.3	4.5	10.9					<0.1	%	PM4/PM0
Free Cyanide	-	<0.5	-	<0.5	-	-					<0.5	mg/kg	TM89/PM45
Total Cyanide #M	-	<0.5	-	<0.5	-	-					<0.5	mg/kg	TM89/PM45
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay						None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown						None	PM13/PM0
Other Items	stones, vegetation, plastic, glass, tile	stones, brick	stones, vegetation	stones	stones	stones, vegetation						None	PM13/PM0

Client Name: SLR Consulting Ltd
Reference: 416.064581.00001
Location: Holloway Lane
Contact: Matt Logan
EMT Job No: 23/17252

SVOC Report : **Solid**

EMT Sample No.	5-8	13-16	21-24	32-34							LOD/LOR	Units	Method No.
Sample ID	TP01	TP02	TP03	TP04									
Depth	1.70	0.30-0.40	1.20	2.10									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	16/10/2023	16/10/2023	16/10/2023	16/10/2023									
Sample Type	Clay	Clayey Sand	Clay	Clayey Sand									
Batch Number	1	1	1	1									
Date of Receipt	18/10/2023	18/10/2023	18/10/2023	18/10/2023									
SVOC MS													
Phenols													
2-Chlorophenol #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
2-Methylphenol	<0.01	<0.01	0.03	<0.01							<0.01	mg/kg	TM16/PM8
2-Nitrophenol	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
2,4-Dichlorophenol #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
2,4-Dimethylphenol	<0.01	<0.01	0.05	<0.01							<0.01	mg/kg	TM16/PM8
2,4,5-Trichlorophenol	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
2,4,6-Trichlorophenol	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
4-Chloro-3-methylphenol	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
4-Methylphenol	<0.01	<0.01	0.11	<0.01							<0.01	mg/kg	TM16/PM8
4-Nitrophenol	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Pentachlorophenol	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Phenol #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #M	<0.01+	<0.01+	<0.01+	<0.01+							<0.01	mg/kg	TM16/PM8
2-Methylnaphthalene #M	0.02	0.03	0.59	<0.01							<0.01	mg/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	2.2	<0.1	0.2	<0.1							<0.1	mg/kg	TM16/PM8
Butylbenzyl phthalate	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM16/PM8
Di-n-butyl phthalate	0.2	<0.1	<0.1	<0.1							<0.1	mg/kg	TM16/PM8
Di-n-Octyl phthalate	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM16/PM8
Diethyl phthalate	<0.1	<0.1	<0.1	<0.1							<0.1	mg/kg	TM16/PM8
Dimethyl phthalate #M	0.2	<0.1	<0.1	<0.1							<0.1	mg/kg	TM16/PM8
Other SVOCs													
1,2-Dichlorobenzene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
1,2,4-Trichlorobenzene #M	<0.01+	<0.01+	<0.01+	<0.01+							<0.01	mg/kg	TM16/PM8
1,3-Dichlorobenzene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
1,4-Dichlorobenzene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
2-Nitroaniline	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
2,4-Dinitrotoluene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
2,6-Dinitrotoluene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
3-Nitroaniline	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
4-Bromophenylphenylether #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
4-Chloroaniline	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
4-Chlorophenylphenylether	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
4-Nitroaniline	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Azobenzene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Bis(2-chloroethyl)ether	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Carbazole	0.06	0.11	1.93	<0.01							<0.01	mg/kg	TM16/PM8
Dibenzofuran #M	0.04	0.10	1.76	<0.01							<0.01	mg/kg	TM16/PM8
Hexachlorobenzene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Hexachlorobutadiene #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Hexachlorocyclopentadiene	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Hexachloroethane	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Isophorone #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
N-nitrosodi-n-propylamine #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Nitrobenzene #M	<0.01	<0.01	<0.01	<0.01							<0.01	mg/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	122	123	123	115							<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	122	125	126	109							<0	%	TM16/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: SLR Consulting Ltd
Reference: 416.064581.00001
Location: Holloway Lane
Contact: Matt Logan

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/17252	1	TP01	0.40	3	Catherine Coles	30/10/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	30/10/2023	**Asbestos Fibres**	Fibre Bundles
					Catherine Coles	30/10/2023	**Asbestos Fibres (2)**	Fibre Bundles
					Catherine Coles	30/10/2023	**Asbestos ACM**	NAD
					Catherine Coles	30/10/2023	**Asbestos ACM (2)**	NAD
					Catherine Coles	30/10/2023	**Asbestos Type**	Chrysotile
					Catherine Coles	30/10/2023	**Asbestos Type (2)**	Amosite
23/17252	1	TP01	1.70	7	Catherine Coles	30/10/2023	**General Description (Bulk Analysis)**	brown soil,stone
					Catherine Coles	30/10/2023	**Asbestos Fibres**	Fibre Bundles
					Catherine Coles	30/10/2023	**Asbestos Fibres (2)**	Fibre Bundles
					Catherine Coles	30/10/2023	**Asbestos ACM**	NAD
					Catherine Coles	30/10/2023	**Asbestos ACM (2)**	NAD
					Catherine Coles	30/10/2023	**Asbestos Type**	Chrysotile
					Catherine Coles	30/10/2023	**Asbestos Type (2)**	Amosite
23/17252	1	TP02	0.30-0.40	15	Bart Kuznicki	30/10/2023	**General Description (Bulk Analysis)**	Brown loose soil with stones
					Bart Kuznicki	30/10/2023	**Asbestos Fibres**	NAD
					Bart Kuznicki	30/10/2023	**Asbestos ACM**	NAD
					Bart Kuznicki	30/10/2023	**Asbestos Type**	NAD
23/17252	1	TP03	1.20	23	Bart Kuznicki	30/10/2023	**General Description (Bulk Analysis)**	Brown loose soil with stones
					Bart Kuznicki	30/10/2023	**Asbestos Fibres**	NAD
					Bart Kuznicki	30/10/2023	**Asbestos ACM**	NAD
					Bart Kuznicki	30/10/2023	**Asbestos Type**	NAD
23/17252	1	TP04	2.10	34	Bart Kuznicki	30/10/2023	**General Description (Bulk Analysis)**	Brown loose soil with stones
					Bart Kuznicki	30/10/2023	**Asbestos Fibres**	NAD
					Bart Kuznicki	30/10/2023	**Asbestos ACM**	NAD
					Bart Kuznicki	30/10/2023	**Asbestos Type**	NAD

Client Name: SLR Consulting Ltd
Reference: 416.064581.00001
Location: Holloway Lane
Contact: Matt Logan

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/17252						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/17252

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x10 Dilution

EMT Job No: 23/17252

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes

EMT Job No: 23/17252

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes	Yes	AR	Yes

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SLR Consulting Ltd
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London
United Kingdom
W1T 4TP

Attention :	Matt Logan
Date :	7th November, 2023
Your reference :	416.064581.00001
Our reference :	Test Report 23/17252 Batch 1 Schedule B
Location :	Holloway Lane
Date samples received :	18th October, 2023
Status :	Final Report
Issue :	1

Eleven samples were received for analysis on 18th October, 2023 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 0.724 kg of CO2

Scope 1&2&3 emissions - 1.711 kg of CO2

Authorised By:

Simon Gomery BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name: SLR Consulting Ltd
Reference: 416.064581.00001
Location: Holloway Lane
Contact: Matt Logan

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/17252	1	TP01	0.40	3	Catherine Coles	02/11/2023	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Catherine Coles	02/11/2023	**Total Detailed Gravimetric Quantification (% Asb)**	0.002 (mass %)
					Catherine Coles	02/11/2023	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	0.002 (mass %)
					Remigiusz Blichowski	02/11/2023	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	02/11/2023	**Asbestos Gravimetric & PCOM Total**	0.002 (mass %)
23/17252	1	TP01	1.70	7	Catherine Coles	02/11/2023	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Catherine Coles	02/11/2023	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Catherine Coles	02/11/2023	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	02/11/2023	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Remigiusz Blichowski	02/11/2023	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)

Element Materials Technology

Notification of Deviating Samples

Client Name: SLR Consulting Ltd
Reference: 416.064581.00001
Location: Holloway Lane
Contact: Matt Logan

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/17252						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.
It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/17252

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/17252

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes

Appendix G GAC Screening Sheets

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2

Generic Risk Assessment - Soils
Lab Data Screening

SLR

Exceeds GAC
Exceeds LOD

Client Name	SUEZ
Site Name	Holloway Lane
Job Number	416.064581.00001
Date	28.11.23
Description of Data Assessment / Zoning	
Selected Screening Value and Land Use	GAC - Commercial

Sample ID	TP01	TP01	TP02	TP03	TP04	TP05
Depth	0.4	1.7	0.30-0.40	1.2	2.1	0.20-0.30
Sample Type	Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay
Sampled Date	16/10/2023	16/10/2023	16/10/2023	16/10/2023	16/10/2023	16/10/2023
Sample Received Date	18/10/2023	18/10/2023	18/10/2023	18/10/2023	18/10/2023	18/10/2023
EMT Sample No	1-4	5-8	13-16	21-24	32-34	35-38
Batch Number	1	1	1	1	1	1
Strata / Zone	-	-	-	-	-	-

Test	**Units**	**LOD**	**Selected GAC**	**No. Above GAC**						
Arsenic	mg/kg	<0.5	640	0	12.5	9.4	10.3	7.4	9.3	11.2
Barium	mg/kg	<1	22000	0	160	88	69	90	22	81
beryllium	mg/kg	<0.5	420	0	1.2	0.6	0.6	0.6	<0.5	0.7
Cadmium	mg/kg	<0.1	348	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	mg/kg	<0.5	30400	0	85.9	82.9	83.6	49.2	150.8	122.7
Copper	mg/kg	<1	71700	0	57	18	14	32	6	22
Lead	mg/kg	<5	2330	0	179	48	73	27	6	46
Mercury	mg/kg	<0.1	3600	0	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	<0.7	1800	0	27.3	13.5	11.2	10.7	13.7	19.4
Selenium	mg/kg	<1	13000	0	<1	<1	<1	<1	<1	<1
vanadium	mg/kg	<1	3160	0	41	29	32	67	27	37
Zinc	mg/kg	<5	665000	0	203	86	52	75	19	77
					-	-	-	-	-	-
PAH MS					-	-	-	-	-	-
Naphthalene	mg/kg	<0.04	200	0	<0.04	0.05	<0.04	1.31	<0.04	0.09
Acenaphthylene	mg/kg	<0.03	84000	0	0.06	0.04	0.07	0.59	<0.03	0.31
Acenaphthene	mg/kg	<0.05	85000	0	<0.05	0.07	0.12	1.86	<0.05	0.81
Fluorene	mg/kg	<0.04	64000	0	<0.04	0.08	0.12	2.41	<0.04	1.04
Phenanthrene	mg/kg	<0.03	22000	0	0.3	0.71	1.1	12.56	<0.03	18.78
Anthracene	mg/kg	<0.04	530000	0	0.09	0.13	0.35	3.35	<0.04	4.51
Fluoranthene	mg/kg	<0.03	23000	0	0.85	1.15	2.35	14.53	<0.03	25.92
Pyrene	mg/kg	<0.03	54000	0	0.76	0.95	2.06	11.91	<0.03	19.75
Benzo(a)anthracene	mg/kg	<0.06	90	0	0.46	0.51	1.07	5.25	<0.06	9.52
Chrysene	mg/kg	<0.02	140	0	0.56	0.56	1.14	5.35	<0.02	9.56
Benzo(bk)fluoranthene	mg/kg	<0.07			1.08	0.93	1.95	8.53	<0.07	14.54
Benzo(a)pyrene	mg/kg	<0.04	14	0	0.58	0.5	1.14	5.31	<0.04	8.56
Indeno(123cd)pyrene	mg/kg	<0.04	60	0	0.47	0.35	0.72	3.19	<0.04	5.53
Dibenzo(ah)anthracene	mg/kg	<0.04	13	0	0.1	0.1	0.13	0.79	<0.04	1.31
Benzo(ghi)perylene	mg/kg	<0.04	650	0	0.5	0.37	0.76	3.16	<0.04	5.57
PAH 16 Total	mg/kg	<0.6			5.8	6.5	13.1	80.1	<0.6	125.8
Benzo(b)fluoranthene	mg/kg	<0.05	100	0	0.78	0.67	1.4	6.14	<0.05	10.47
Benzo(k)fluoranthene	mg/kg	<0.02	140	0	0.3	0.26	0.55	2.39	<0.02	4.07
PAH Surrogate % Recovery	%	<0			98	98	97	99	96	98
Phenols				0	-	-	-	-	-	-
2-Chlorophenol	mg/kg	<0.01	3500	0	-	<0.01	<0.01	<0.01	<0.01	-
2-Methylphenol	mg/kg	<0.01	-	0	-	<0.01	<0.01	0.03	<0.01	-
2-Nitrophenol	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
2,4-Dichlorophenol	mg/kg	<0.01	3500	0	-	<0.01	<0.01	<0.01	<0.01	-
2,4-Dimethylphenol	mg/kg	<0.01	16000	0	-	<0.01	<0.01	0.05	<0.01	-
2,4,5-Trichlorophenol	mg/kg	<0.01	3500	0	-	<0.01	<0.01	<0.01	<0.01	-
2,4,6-Trichlorophenol	mg/kg	<0.01	3500	0	-	<0.01	<0.01	<0.01	<0.01	-
4-Chloro-3-methylphenol	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
4-Methylphenol	mg/kg	<0.01	-	0	-	<0.01	<0.01	0.11	<0.01	-
4-Nitrophenol	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
Pentachlorophenol	mg/kg	<0.01	1200	0	-	<0.01	<0.01	<0.01	<0.01	-
	mg/kg	<0.01			-	<0.01	<0.01	<0.01	<0.01	-
PAHs					-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	<0.01	390	0	-	<0.01	<0.01	<0.01	<0.01	-
2-Methylnaphthalene	mg/kg	<0.01	-	0	-	0.02	0.03	0.59	<0.01	-
Phthalates				0	-	-	-	-	-	-
Bis(2-ethylhexyl) phthalate	mg/kg	<0.1			-	2.2	<0.1	0.2	<0.1	-
Butylbenzyl phthalate	mg/kg	<0.1	940000	0	-	<0.1	<0.1	<0.1	<0.1	-
Di-n-butyl phthalate	mg/kg	<0.1	15000	0	-	0.2	<0.1	<0.1	<0.1	-
Di-n-octyl Phthalate	mg/kg	<0.1	89000	0	-	<0.1	<0.1	<0.1	<0.1	-
Diethyl Phthalate	mg/kg	<0.1	150000	0	-	<0.1	<0.1	<0.1	<0.1	-
Dimethyl Phthalate	mg/kg	<0.1	-	0	-	0.2	<0.1	<0.1	<0.1	-
Other SVOCs					-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	<0.01	2100	0	-	<0.01	<0.01	<0.01	<0.01	-
1,2,4-Trichlorobenzene	mg/kg	<0.01	230	0	-	<0.01	<0.01	<0.01	<0.01	-
1,3-Dichlorobenzene	mg/kg	<0.01	32	0	-	<0.01	<0.01	<0.01	<0.01	-
1,4-Dichlorobenzene	mg/kg	<0.01	4500	0	-	<0.01	<0.01	<0.01	<0.01	-
2-Nitroaniline	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
2,4-Dinitrotoluene	mg/kg	<0.01	3700	0	-	<0.01	<0.01	<0.01	<0.01	-
2,6-Dinitrotoluene	mg/kg	<0.01	1900	0	-	<0.01	<0.01	<0.01	<0.01	-
3-Nitroaniline	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
4-Bromophenylphenylether	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
4-Chloroaniline	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
4-Chlorophenylphenylether	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
4-Nitroaniline	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
Azobenzene	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
Bis(2-chloroethoxy) methane	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
Bis(2-chloroethyl)ether	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
Carbazole	mg/kg	<0.01	-	0	-	0.06	0.11	1.93	<0.01	-
Dibenzofuran	mg/kg	<0.01	-	0	-	0.04	0.1	1.76	<0.01	-
Hexachlorobenzene	mg/kg	<0.01	48	0	-	<0.01	<0.01	<0.01	<0.01	-
Hexachlorobutadiene	mg/kg	<0.01	32	0	-	<0.01	<0.01	<0.01	<0.01	-
Hexachlorocyclopentadiene	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
Hexachloroethane	mg/kg	<0.01	22	0	-	<0.01	<0.01	<0.01	<0.01	-
Isophorone	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
N-nitrosodi-n-propylamine	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
Nitrobenzene	mg/kg	<0.01	-	0	-	<0.01	<0.01	<0.01	<0.01	-
	%	<0			-	122	123	123	115	-
	%	<0			-	122	125	126	109	-
					-	-	-	-	-	-
TPH CWG					-	-	-	-	-	-
Aliphatics					-	-	-	-	-	-
aliphatics >C5-C6	mg/kg	<0.1	3400	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
aliphatics >C6-C8	mg/kg	<0.1	8300	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
aliphatics >C8-C10	mg/kg	<0.1	2100	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
aliphatics >C10-C12	mg/kg	<0.2	10000	0	10.9	<0.2	11.8	<0.2	<0.2	<0.2
aliphatics >C12-C16	mg/kg	<4	61000	0	25	<4	11	<4	<4	<4
aliphatics >C16-C21	mg/kg	<7	1600000	0	47	26	<7	23	<7	<7
aliphatics >C21-C35	mg/kg	<7	1600000	0	459	268	58	337	<7	55
Total aliphatics C5-35	mg/kg	<19			542	294	81	360	<19	55
Aromatics					-	-	-	-	-	-
aromatics >EC5-EC7	mg/kg	<0.1	28000	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
aromatics >EC7-EC8	mg/kg	<0.1	59000	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
aromatics >EC8-EC10	mg/kg	<0.1	3700	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
aromatics >EC10-EC12	mg/kg	<0.2	17000	0	<0.2	<0.2	5.3	1.1	<0.2	<0.2
aromatics >EC12-EC16	mg/kg	<4	36000	0	14	<4	<4	21	<4	<4
aromatics >EC16-EC21	mg/kg	<7	28000	0	40	14	29	156	<7	35
aromatics >EC21-EC35	mg/kg	<7	28000	0	406	270	262	925	<7	183
Total aromatics C5-35	mg/kg	<19			460	284	296	1103	<19	218
Total aliphatics and aromatics(C5-35)	mg/kg	<38			1002	578	377	1463	<38	273
					-	-	-	-	-	-
Methyl Tertiary Butyl Ether	mg/kg	<0.005	7900	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene	mg/kg	<0.005	28	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	mg/kg	<0.005	869	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	mg/kg	<0.005	518	0	<0.005	0.009	<0.005	<0.005	<0.005	<0.005
m & p Xylene	mg/kg	<0.005	576	0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
o-Xylene	mg/kg	<0.005	576	0	<0.005	0.012	<0.005	<0.005	<0.005	<0.005
Total Xylenes	mg/kg	<0.01			<0.01	0.01	<0.01	<0.01	<0.01	<0.01
					-	-	-	-	-	-
Natural Moisture Content	%	<0.1			14.5	9.4	11.4	5.3	4.5	10.9
					-	-	-	-	-	-
Free Cyanide	mg/kg	<0.5		0	-	<0.5	-	<0.5	-	-
Total Cyanide	mg/kg	<0.5		0	-	<0.5	-	<0.5	-	-
					-	-	-	-	-	-
Sample Type	None				Clay	Clay	Clayey Sand	Clay	Clayey Sand	Clay
Sample Colour	None				Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown
Other Items	None				stones, vegetation, plastic, glass, tile	stones, brick	stones, vegetation	stones	stones	stones, vegetation
					-	-	-	-	-	-
					-	-	-	-	-	-
	None				brown soil,stone	brown soil,stone	Brown loose soil with stones	Brown loose soil with stones	Brown loose soil with stones	-
	None				Fibre Bundles	Fibre Bundles	NAD	NAD	NAD	-
	None				Fibre Bundles	Fibre Bundles	-	-	-	-
	None				NAD	NAD	NAD	NAD	NAD	-
	None				NAD	NAD	-	-	-	-
	None				Chrysotile	Chrysotile	NAD	NAD	NAD	-
	None				Amosite	Amosite	-	-	-	-

Appendix H Geotechncial Laboratory Certificates

Holloway Lane

Preliminary Ground Investigation

SUEZ Recycling and Recovery

SLR Project No.: 416.064581.00001_P2

GEOLABS Limited
Bucknalls Lane
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WD25 9XX

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38 Chancery Lane,
London
United Kingdom

WC2A 1EN

For the attention of Mr J Hammond

17 November 2023
Report No : GEO/39192/01

Date samples received	18/10/2023
Date written instructions received	01/11/2023
Date testing commenced	02/11/2023
Date of sample disposal	**15/12/2023**

Our ref **GEO / 39192**
Your Ref **416.064581.00001**

Project **HOLLOWAY LANE**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Geotechnical Test Summary
~	7	Water Content
~	4	pH Value & Water Soluble Sulphate Content as SO4
2	3	Particle Size Distribution

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**

S Burke
Senior Technician

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SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
TP01	2.50-2.70		B	Brown clayey sandy fine to coarse GRAVEL.	22.6											8.8	1.2		
TP02	0.50-0.90		B	Dark brown sandy gravelly CLAY.	10.3														
TP03	0.70-1.20		B	Brown and black sandy gravelly CLAY.	9.2														
TP03	1.40-1.70		B	Brown and dark grey slightly sandy gravelly CLAY	17.9														
TP04	1.00-1.10		B	Brown very sandy GRAVEL.	5.6											9.1	0.020		Particle Size Distribution
TP04	2.10-2.20		B	Brown very sandy GRAVEL.	5.5											8.9	< 0.010		Particle Size Distribution
TP05	0.50-0.70		B	Brown very sandy GRAVEL.	6.9											8.1	0.18		Particle Size Distribution

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

S Burke

S Burke - Senior Technician
17/11/2023

Project Number:

GEO / 39192

Project Name:

HOLLOWAY LANE
416.064581.00001

GEOLABS®

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

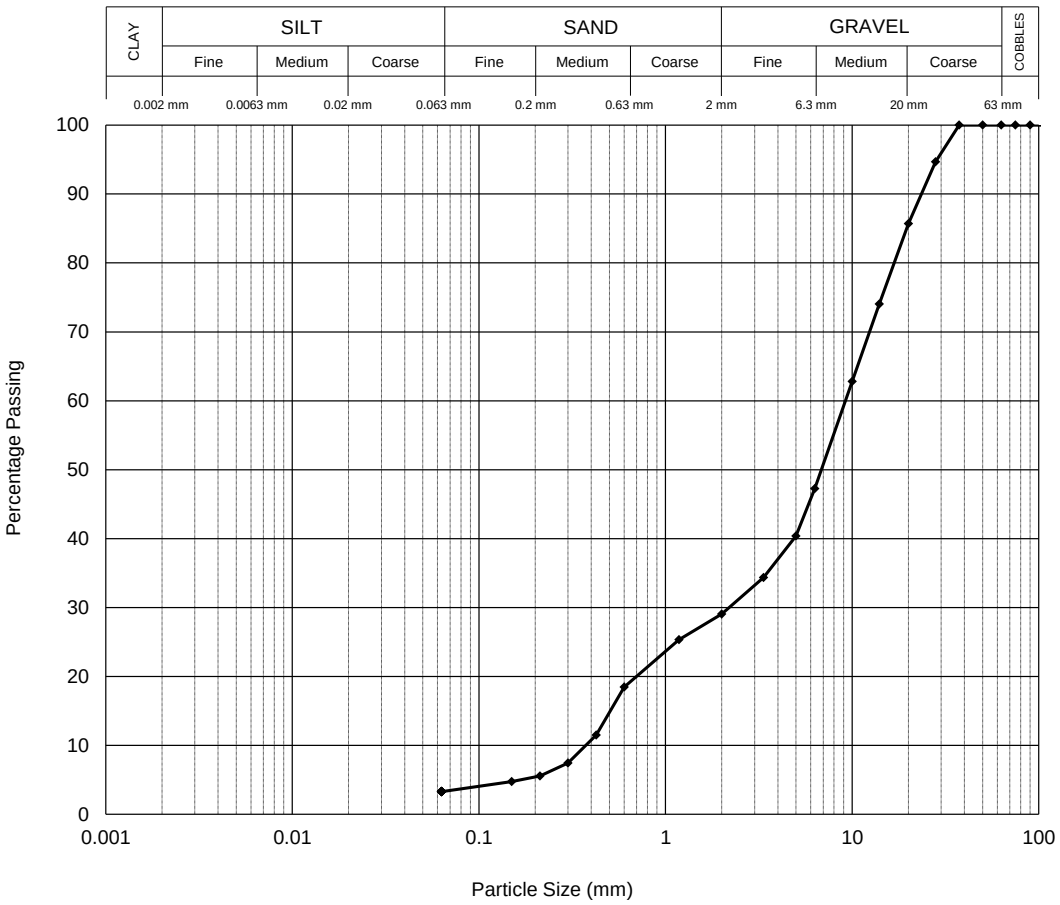
Location	TP04
Depth (m)	1.00-1.10
Sample Type	B

Description

Brown very sandy GRAVEL.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	95
20.0 mm	86
14.0 mm	74
10.0 mm	63
6.30 mm	47
5.00 mm	40
3.35 mm	34
2.00 mm	29
1.18 mm	25
600 µm	18
425 µm	12
300 µm	7
212 µm	6
150 µm	5
63 µm	3



Particle Proportions	
Cobbles	0.0
Gravel	71.0
Sand	25.8
Silt & Clay	3.2

Tested by AW
Checked and Approved by

S Burke

S Burke - Senior Technician
17/11/2023

Project Number:

GEO / 39192

Project Name:

HOLLOWAY LANE
416.064581.00001

GEOLABS ®
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1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

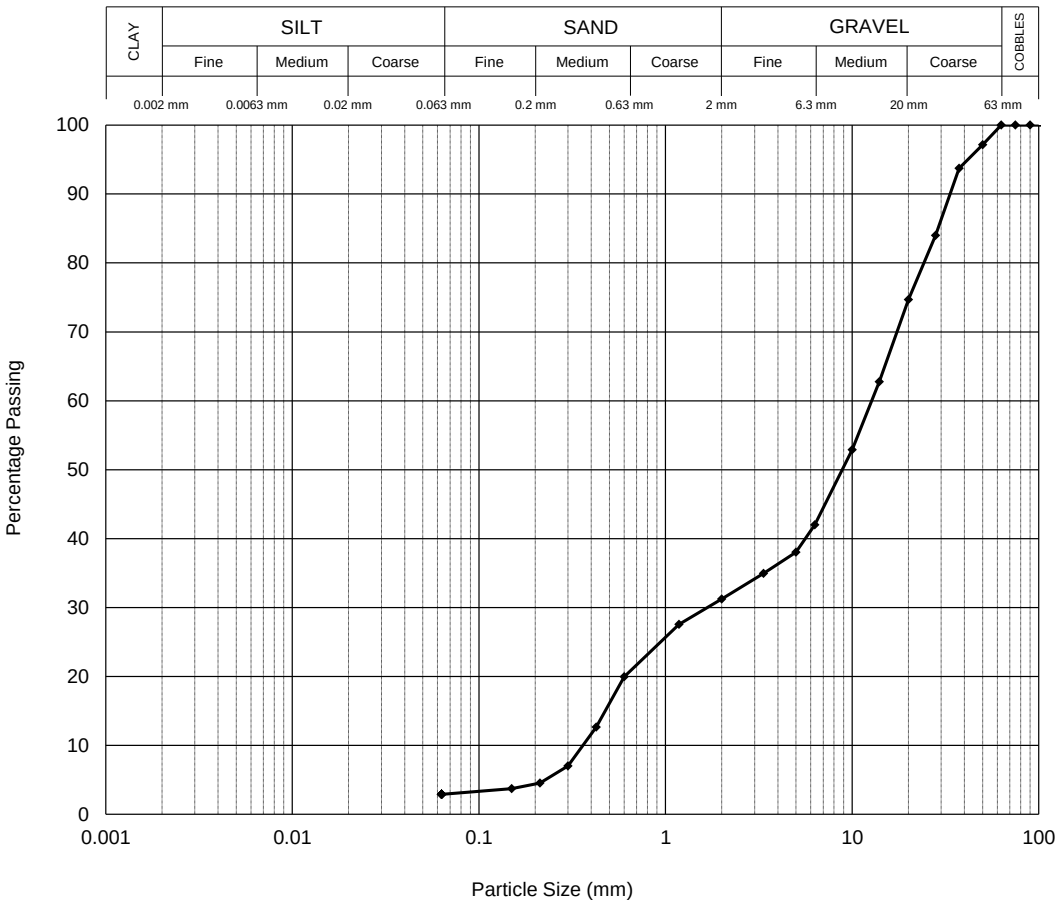
Location	TP04
Depth (m)	2.10-2.20
Sample Type	B

Description

Brown very sandy GRAVEL.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	97
37.5 mm	94
28.0 mm	84
20.0 mm	75
14.0 mm	63
10.0 mm	53
6.30 mm	42
5.00 mm	38
3.35 mm	35
2.00 mm	31
1.18 mm	28
600 µm	20
425 µm	13
300 µm	7
212 µm	5
150 µm	4
63 µm	3



Particle Proportions	
Cobbles	0.0
Gravel	68.8
Sand	28.3
Silt & Clay	2.9

Tested by AW
Checked and Approved by

S Burke - Senior Technician
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BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

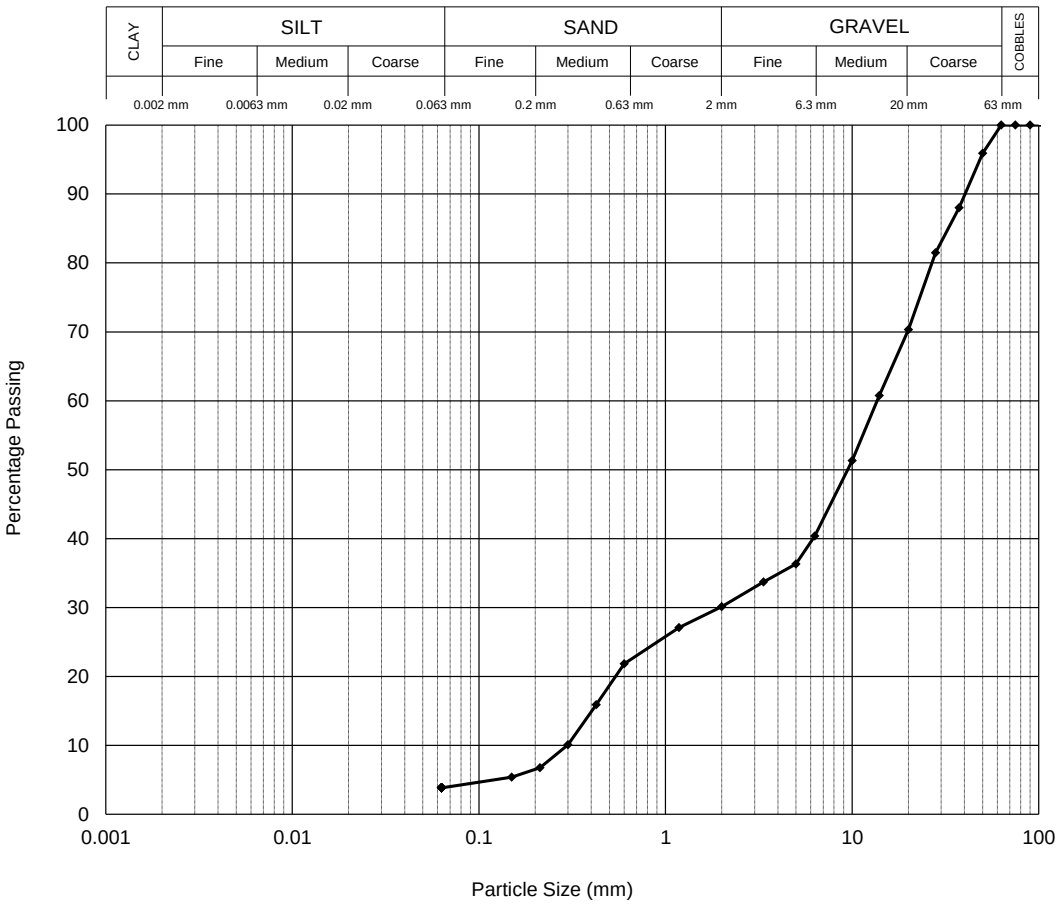
Location	TP05
Depth (m)	0.50-0.70
Sample Type	B

Description

Brown very sandy GRAVEL.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	96
37.5 mm	88
28.0 mm	81
20.0 mm	70
14.0 mm	61
10.0 mm	51
6.30 mm	40
5.00 mm	36
3.35 mm	34
2.00 mm	30
1.18 mm	27
600 µm	22
425 µm	16
300 µm	10
212 µm	7
150 µm	5
63 µm	4



Particle Proportions	
Cobbles	0.0
Gravel	69.9
Sand	26.3
Silt & Clay	3.8

Tested by AW
Checked and Approved by

S Burke - Senior Technician
17/11/2023

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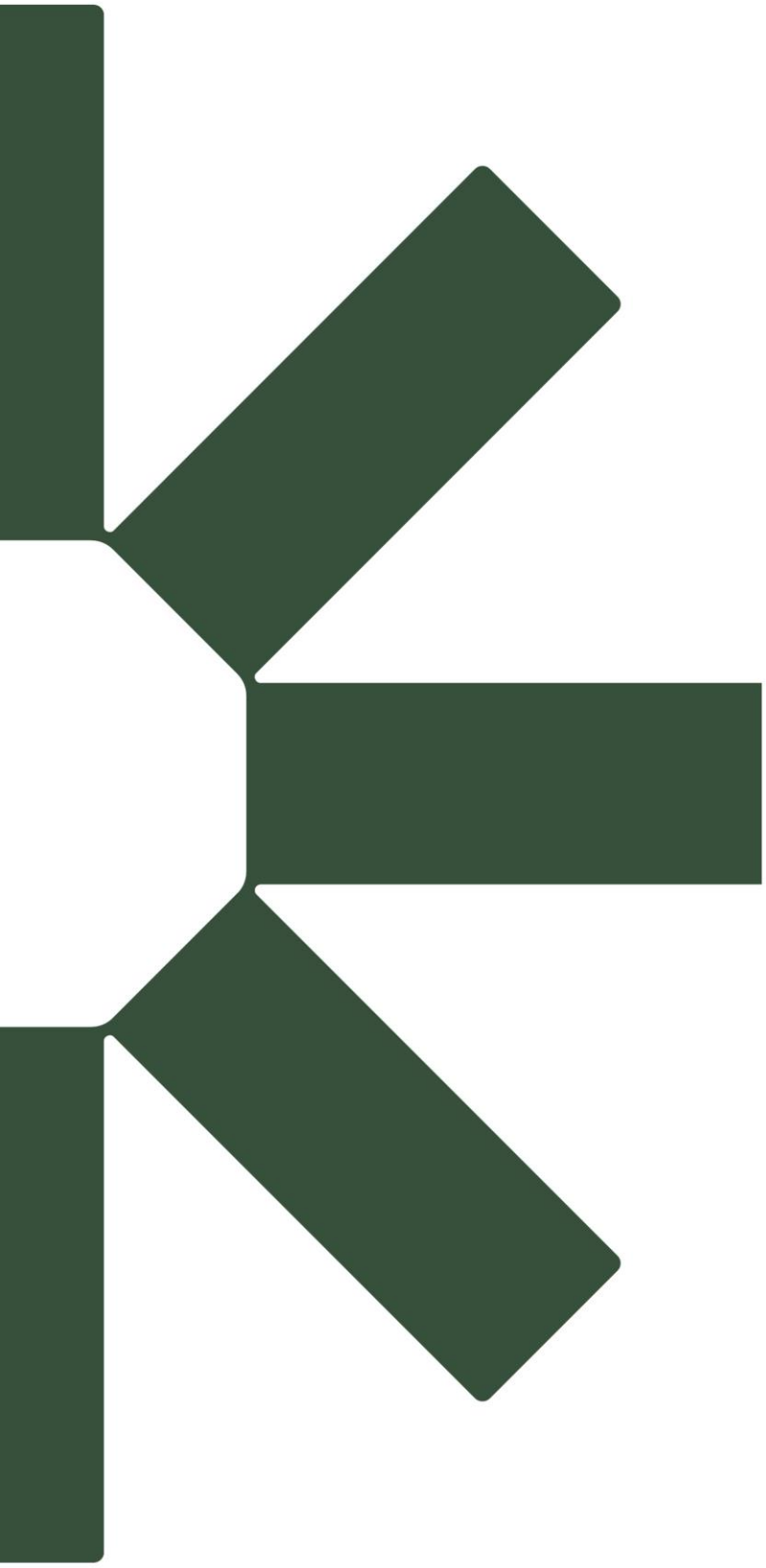

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