



# Aldi, Watling Street, Hinckley

## Phase 2 Geo-environmental Assessment Report

*For Aldi Stores Limited*

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*Date:* 1 October 2023

*Doc ref:* 28640-HYD-XX-XX-RP-GE-0001

# Document control sheet

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# Executive summary

| Site information and setting |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Report Title                 | Phase 2 Geo-environmental Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Client                       | Aldi Stores Limited                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Site name and Location       | Aldi, Watling Street, Hinckley, LE10 3ED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Proposed Development         | Extension of the current Aldi store.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Site Description             | The site is approximately 0.8 Ha in size and is currently occupied by an active Aldi store and associated carpark, with undeveloped grass land along the north and west boundary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Phase 2 Ground Investigation |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Ground Conditions            | <p><u>Site Surfacing:</u></p> <p>The site is primarily surfaced with brick paving hardstanding underlain by a sand subbase and concrete. The paving was found to be 0.10m thick with the sand subbase present to 0.15m below ground level (bgl) across the site.</p> <p>The surface in areas of proposed development was noted to comprise grass over soft clay with rootlets, to depths of between 0.10m and 0.50m.</p> <p><u>Made Ground:</u></p> <p>No Made Ground was encountered in areas of proposed extension development. The presence or absence of Made Ground underlying the car park was unable to be determined due to a concrete obstruction present at 0.15m bgl in all exploratory hole locations across the existing store area.</p> <p><u>Superficial Deposits:</u></p> <p>Superficial deposits were encountered at depths of 0.10m to 0.50m, up to 1.50m and generally comprised of firm orangish brown slightly sandy gravelly clay (Glacial Till). As exception was noted at the location of WS101, located within close proximity to an existing watercourse, when the superficial deposits generally comprised of soft silty, sandy, gravelly clay (Alluvium) to a depth of 1.30m bgl.</p> <p><u>Bedrock Deposits:</u></p> <p>Bedrock deposits generally comprising completely to highly weathered mudstone (Mercia Mudstone); typically recovered as firm to stiff sandy gravelly clay with mudstone lithorelics, were encountered from depths of 0.60m to 1.50m bgl.</p> <p><u>Obstructions:</u></p> <p>Concrete obstructions were encountered below the paving bricks and sand subbase within WS's 102 to 102B, WS103 and WS103A. It is likely that this secondary layer of concrete is consistent across the carpark.</p> <p>WS103 could not be progressed after the health and safety limits of breaking were reached attempting to break through the concrete within the loading bay area</p> |
| Groundwater                  | <p>No significant groundwater was identified at the borehole locations during the investigation works indicating the absence of a continuous shallow groundwater surface (table) below the site.</p> <p>During the investigation works groundwater was encountered in WS106 at 3.98m bgl, which is considered to be attributable a slight seepage at the base of the borehole.</p> <p>From groundwater monitoring completed to date, no groundwater was recorded within WS109, whilst standing water levels of between 1.09m and 1.31m bgl were encountered within WS101, considered to be likely attributable to perched water contained within the superficial deposits.</p> <p>It should also be noted that groundwater levels vary seasonally and that a higher water table than recorded could occur.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



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|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contamination               | <p>No visual or olfactory evidence of contamination was encountered during the investigation and no elevated levels of contamination were recorded from samples screened during the investigation.</p> <p>From the findings of the contamination risk assessment no significant risk is indicated to human health associated with soils across the site and within the area of the proposed extension. In addition, due to the low levels of contaminants recorded within the soils below the site, with the recorded presence of negligibly permeable clay also mitigating available pathways, no significant risk is considered to controlled waters. As a result no further assessment and/or remedial measures are considered necessary for this site.</p> <p>However, as limited investigation works were able to be completed within the area of the existing Aldi car park, with the previous investigation (C. J. Associates 1997) noting made ground within this area, should suspected unexpected contamination be encountered during future excavation works, then further testing will be required to confirm the absence of any localised contaminated soils.</p>                                                                                                                                                                                                                                                                                                                                                |
| Ground Gas / Vapours        | <p>Gas monitoring completed to date includes carbon dioxide readings typically below 5%v/v, indicating a CIRIA C665 and BS8485:2015 Characteristic Situation CS1 classification, which would result in no gas protection being required.</p> <p>However, a further 1 no. gas monitoring visit is planned to meet the minimum recommended number of four visits, and the above conclusions are preliminary and subject to change until completion of the monitoring programme.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Foundations and Floor Slabs | <p>From the findings of the investigation relatively competent natural firm to stiff clay (Glacial Till) and weathered mudstone (Mercia Mudstone) bedrock deposits were identified at shallow depth within the majority of the exploratory holes located within the area of the proposed extension. An exception was noted within WS101, located within close proximity to the south-western corner of the proposed extension, where more variable soft yellowish brown silt clay deposits were recorded to a depth of 1.50m below existing ground level (or 87.54mAOD), which are suspected to be attributable to localised Alluvium resulting from the proximity of Harrow Brook.</p> <p>Based on the findings of the investigation works the use of conventional foundations (i.e. strip and pad) is considered to represent a viable option for the proposed Aldi store. Footings should be taken down through the soft silty clay (Alluvium) deposits encountered within WS101, to be based wholly within the firm to stiff Glacial clay and weathered mudstone (clay) bedrock deposits, where a maximum allowable bearing pressure not exceeding 100kN/m<sup>2</sup> can be adopted.</p> <p>Due to the recorded absence of significant made ground within the area of the proposed extension, a ground bearing floor slab is considered to represent a viable solution subject to re-engineering a suitable fraction of any excavated material and / or replacement of the excavated material with suitable import.</p> |
| Off-Site Disposal           | <p>Following a review of the soil and WAC screening results, generally low levels of contaminants and Total Organic Carbon (TOC) have been recorded for the natural soil samples screened during the investigation works, indicating these materials could potentially be suitable for disposal at an Inert Landfill.</p> <p>However, from the WAC certificates as slightly increased concentrations of Dissolved Organic Carbon (DOC) were recorded for the samples of topsoil and natural clay within WS105 at 0.30m and WS109 at 0.40m, which could result in these materials being characterised as Non-Hazardous for disposal, it is recommended that the results of the analysis be forwarded on to the landfill operator for further comment.</p> <p>Where offsite disposal of waste soils is required, the results of the investigation should be made available to the waste carrier/receiver in order to determine the waste classification, costs for disposal and the requirement for further testing. Sufficient time should be allowed in the site programme to effectively segregate soils based on material type, including the time allowed for any further laboratory classification analysis.</p> <p>Where re-use of site won materials are proposed, the production of a Materials Management Plan, and its approval by a Qualified Person, will also be required to allow reuse of suitable material at the site in accordance with waste regulations.</p>                                               |
| Buried Concrete             | <p>The results of the chemical analyses indicate a BRE Special Digest 1:2005 Design Sulphate Class DS-1 with an ACEC classification AC-1.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Water Supply Pipes          | <p>Due to the absence of any elevated contaminants, barrier pipes are unlikely to be necessary.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Recommendations for further work |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommendations for Further Work | <p>Based upon the findings of the Phase 2 investigation it is considered that the following further works will be required:</p> <ul style="list-style-type: none"><li>• completion and reporting of the ongoing gas monitoring, hence the conclusions in this report relating to ground gas are provisional;</li><li>• if re-use of site won materials are proposed as part of the development; production of a Materials Management Plan relating to reuse of soils and import of soils to the site;</li><li>• should suspected unexpected contamination be encountered during future excavation works, then further testing will be required to confirm the absence of any localised contaminated soils.</li></ul> |

This Executive Summary forms part of Hydrock report number 28640-HYD-XX-XX-RP-GE-0001 and should not be used as a separate document.

## 1. Introduction

### 1.1 Commission

Hydrock Consultants Limited were commissioned by Aldi Stores Limited (the Client) to carry out a Phase 2 ground investigation for a site located at Aldi, Watling Street, Hinckley. This report highlights potential ground related environmental and geotechnical considerations in relation to the proposed development which includes an extension of the current Aldi store, as shown on the proposed site plan (Stoas Architects, drawing ref: K22A02-P003) included in Appendix A.

As part of the proposed development, it is anticipated that much of the existing car park will remain in place, though there will be the addition of drainage and infrastructure features in some areas.

### 1.2 Objectives

This Phase 2 report has been produced to provide an assessment of potential geotechnical and environmental conditions and constraints at the site, to assist with the design of the development.

A Phase 1 Geo-environmental Assessment (Desk Study) was previously completed for the site by Hydrock in June 2023 (report ref: 28640-HYD-XX-XX-RP-G-9000) and it is recommended that this report be read in conjunction with this assessment. Pertinent information from the desk study has been summarised in Section 3 of this report, including a preliminary ground model and Conceptual Site Model of the site.

The objectives of this assessment are:

- to resolve uncertainties identified in the Phase 1 report by refining and updating the preliminary ground model, determining geo-environmental and geotechnical site conditions and identifying key contamination risks by updating and finalising the Conceptual Model in accordance with the principles of EA 'Land Contamination: Risk Management' (LCRM) (2023)'.
  - to determine potential risks posed by any ground or groundwater contamination and to identify any geo-environmental mitigation requirements to enable development to progress.
  - to assess the risk posed by hazardous ground gases.
  - to provide advice and preliminary geotechnical recommendations for design.

### 1.3 Scope

The phase 2 ground investigation works were undertaken on 8<sup>th</sup> and 9<sup>th</sup> August 2023 and comprised the following scope of works:

- a ground investigation including 9 no. mini percussive boreholes; referenced as WS101 to WS109, including WS102A, WS102B and WS103A, to;
  - » obtain data on the ground and groundwater conditions of the site;
  - » allow collection of samples for geotechnical and chemical laboratory analysis;
  - » allow geotechnical in-situ field tests to be undertaken;
  - » install ground gas and groundwater monitoring wells.
- four rounds of gas and groundwater monitoring.
- geotechnical and chemical laboratory analysis.
- updating of the preliminary conceptual site model.
- provision of preliminary geotechnical design recommendations.
- development of an updated Conceptual Site Model (CSM), including identification of any plausible contaminant linkages.



- completion of a generic quantitative risk assessment of any identified chemical contaminants to establish 'suitability for use' under the current planning regime.
- discussion of any potential environmental liabilities associated with land contamination (soil, water and gas); and
- identification of outline mitigation requirements to ensure the site is 'suitable for use'.

## 1.4 Regulatory context and guidance

The investigation work has been carried out in general compliance with recognised best practice, including (but not limited to) BS 5930:2015+A1:2020, BS 10175:2011+A2:2017 and the AGS (2006) 'Good Practice Guidelines for Site Investigations'.

The geo-environmental section of this report is written in broad accordance with BS 10175:2011+A2:2017, EA LCRM (2023) and the AGS (2006) 'Good Practice Guidelines for Site Investigations'.

The methods used follow a risk-based approach, the first stage of which is a Phase 1 desk study, with any potential geo-environmental risks assessed qualitatively. This is done using the 'source-pathway-receptor contaminant linkage' concept to assess risk as introduced in the Environmental Protection Act 1990 (EPA, 1990). Any potential geotechnical risks are also assessed from the Phase 1 assessment and site reconnaissance stage.

Phase 2 comprises intrusive ground investigation work and testing. The factual information from the desk study and the ground investigation are used to develop the Conceptual Site Model (CSM). This CSM is based on a ground model of the site physical conditions and an exposure model of the possible contaminant linkages. The CSM forms the basis for Generic Quantitative Risk Assessment (GQRA) in accordance with current guidelines. This GQRA might lead to more Detailed Quantitative Risk Assessment (DQRA).

The ground gas risk assessment has been undertaken in general accordance with CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings', BS 8485:2015+A1:2019 'Code of practice for the design of protective measures for methane and carbon dioxide for ground gases in new buildings' and BS 8576:2013 'Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs)'.

Professional judgement is used to evaluate the findings of the risk assessments and to provide recommendations for the development.

The geotechnical section of this report is prepared in general accordance with BS EN 1997-1+A1:2013, BS EN 1997-2:2007 and BS 8004:2015. This report constitutes a Ground Investigation Report (GIR) as described in Part 2 of Eurocode 7 (BS EN 1997-2) (EC7) and BS 5930:2015+A1:2020. It is not intended to fulfil the requirements of a Geotechnical Design Report (GDR) as specified in BS 5930:2015+A1:2020 and EC7.

The geo-environmental and geotechnical aspects are discussed in separate sections. Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. Designers should take all aspects of the investigation into account.

Remaining uncertainties and recommendations for further work are listed in Sections 12 and 13.

## 2. The Site

### 2.1 Location and description

The site, centred on National Grid Reference 439660, 293330 is located to the north-east of Watling Street, on the south-western extents of the town of Hinckley. A Site Location Plan (Stoas Architects; drawing ref: K22A02-P001) is included in Appendix A.

The site is approximately 0.8 Hectares (Ha) in area, rectangular in shape and relatively flat with the section of grass land along the north and west boundary approximately 1.5m higher than the current Aldi store and carparking. The site encompasses the area of the existing Aldi store along with an additional 0.21Ha of undeveloped grass land located immediately north and west of the current Aldi boundary.

The area of the existing Aldi store is predominantly occupied by a retail unit with surrounding areas of car parking to the south and east, and loading bay to the north, which is accessed off Watling Street to the south. Areas of vegetation and occasional trees run along the northern and western boundaries of the existing Aldi store site, which are separated from the adjacent grassed land to the north and west by a series of hedgerows.

The undeveloped land located immediately adjacent to the northern and western boundaries of the Aldi store is recorded as predominantly unmanaged grass land with a fence line running adjacent to the boundaries separating this area from the adjacent agricultural field.

From the recent topographical survey a slight fall in gradient is shown across the site to the south-west, with a spot height of around 91.40mAOD shown adjacent to the north-eastern boundary reducing to around 88.8m AOD adjacent to the south-western boundary. Numerous service covers are also shown within the boundary of the existing Aldi store, whilst Harrow Brook (stream) is located immediately adjacent to the south-western corner of the site.

A petrol filling station and Greggs food outlet is located to the south-east of the site, whilst a residential property is located immediately north-east, with these areas separated from the Aldi store site by a series of posts and wooden fencing.

A summary of adjacent land uses is presented below:

- North: Agricultural land.
- South: Watling Street (A5) and agricultural land.
- East: Greggs food outlet, petrol filling station and residential properties.
- West: Agricultural land, Harrow Brook and agricultural land.

### 3. Summary of available reports

Hydrock produced a Phase 1 Geo-Environmental Assessment (Desk Study) for the site in June 2023, as referenced below:

- Hydrock (June 2023); 'Phase 1 Geo-environmental Assessment'. Report Ref: 28640-HYD-XX-XX-RP-G-9000, dated 7 June 2023.

#### 3.1 Phase 1 Geo-environmental Assessment (Hydrock; June 2023)

The following sections provide a summary of pertinent information from the Phase 1 report..

##### 3.1.1 *Site history*

On the earliest available OS plans, dating back to 1888, the site is recorded as undeveloped agricultural land, with Harrow Brook running adjacent to the south-western corner. By 1938, a series of possible residential buildings occupy the south-eastern site area, whilst a garage and petrol filling station are recorded to the south-east.

A series of commercial buildings occupy the majority of the site by 1977 with surrounding areas of hard-standing. The majority of the buildings are recorded as a single factory unit from 1994, whilst land immediately adjacent to the northern and western boundaries remains as undeveloped land. From 1999, the majority of the site is occupied by the existing Aldi store and associated car parking areas to the east and south.

##### 3.1.2 *Geology*

BGS Mapping indicates the site is underlain by superficial deposits of the Thrussington member, typically comprising gravelly clay. Superficial deposits of the Bosworth Clay Member are also shown to extend below the north-east area of site, comprising of clay and silt. Localised Alluvium deposits are also indicated to be present in the south-western corner of the site, associated with the course of Harrow Brook. Bedrock deposits of the Mercia Mudstone Group are recorded underlying the superficial deposits across the site.

During previous site investigation works, completed on site in 1997, superficial deposits comprising firm reddish brown sandy clay, with occasional thin reddish brown clayey sand bands and pockets, were recorded to depths of between 0.70m and 1.70m. These deposits were indicated to be underlain by highly to completely weathered mudstone bedrock deposits; typically recovered as stiff (occasionally locally firm) reddish brown clay, to a maximum depth of 6.12m.

No Made Ground is recorded across the site; however Made Ground should be anticipated in areas of the existing store and carpark associated with historical development and demolition.

##### 3.1.3 *Mining or mineral extraction*

The site is not located within a coal mining area, and there are no quarrying or surface extraction activities recorded within 1km of the site. There is deemed to be negligible risk from mining or mineral abstraction on or below the site with no further assessment considered necessary.

##### 3.1.4 *Environmental setting*

- Harrow Brook (stream) is located adjacent to the south-western corner of the site, which flows in a general southerly direction below the adjacent Watling Street;
- The site is not located within an area recorded by the EA to be at risk from flooding from rivers or the sea;
- The site is located within an area designated by the BGS as being potentially susceptible to groundwater flooding at the surface;

- There are no source protection zones recorded within 1km of the site;
- Superficial deposits are classified as a Secondary Undifferentiated Aquifer (Thrussington Member) and Unproductive Strata (Bosworth Clay Member) whilst the bedrock deposits are classified as a Secondary B Aquifer (Mercia Mudstone Group);
- 1 no. water abstraction licence is recorded within 1km of the site; located 856m north west, associated with extraction of surface water for agricultural purposes, and therefore not considered to be at risk from the site;
- There are no landfill or waste management sites recorded within 250m of site;
- There are no discharge consents within 250m of site; and
- There are no pollution incidents within 250m.

### 3.1.5 Radon

Inspection of radon maps published by UKHSA and BRE, confirms the site is located within an area where radon protection measures are not required.

### 3.1.6 Unexploded ordnance (UXO)

The regional unexploded bomb risk map obtained from Zetica UXO indicates the site is located within a low risk area in relation to potential UXO. A non-specialist UXO screening exercise has indicated that overall no further assessment is required with regard to UXO in relation to ground investigation.

### 3.1.7 Preliminary conceptual site model

Based on the information reviewed as part of the Phase 1 report potential sources of contamination identified for this site included the following:

| Potential Source                       | Potential Contaminative Processes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Potential Contaminants of Concern (PCOC)                                                                                                                           |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-site: Made Ground                   | <p><b>Existing Aldi Site</b></p> <ul style="list-style-type: none"> <li>• Made Ground associated with current and previous site usage, including as a factory and demolition of former buildings.</li> <li>• Potential for localised hydrocarbon contamination resulting from existing usage as a car park.</li> </ul> <p><b>Area of Undeveloped Grass Land (Northern and Western Boundaries)</b></p> <ul style="list-style-type: none"> <li>• Potential for localised area of Made Ground associated with usage as agricultural land.</li> </ul> | <ul style="list-style-type: none"> <li>• Metals</li> <li>• Metalloids</li> <li>• PAH's (USEPA 16)</li> <li>• TPH's (TPH CWG)</li> <li>• Asbestos</li> </ul>        |
| Off-site:                              | <ul style="list-style-type: none"> <li>• Potential for contamination to have migrated onto site from adjacent garage and petrol filling station – low risk considered at this stage due to anticipated low permeability of superficial and bedrock deposits.</li> </ul>                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• Metals</li> <li>• Metalloids</li> <li>• PAH's</li> <li>• TPH's</li> </ul>                                                 |
| Ground gas migration and/or production | <ul style="list-style-type: none"> <li>• Made Ground beneath the site associated with previous site usage.</li> <li>• Potential for ground gas migration and/or production associated with possible organic Alluvium superficial deposits in the area of Harrow Brook.</li> </ul>                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>• Carbon Dioxide (CO<sub>2</sub>)</li> <li>• Methane (CH<sub>4</sub>)</li> <li>• Depleted Oxygen (O<sub>2</sub>)</li> </ul> |



### *Potential Pollutant Pathways*

- Human Health – direct contact, soil ingestion and dust inhalation.
- Controlled Waters – Secondary Undifferentiated Aquifer (Superficial deposits)
- Controlled Waters – Secondary B Aquifer (Bedrock deposits)
- Controlled Waters – Lateral migration into surface water features (Harrow Brook)
- Human Health – vertical and lateral migration, ingress and accumulation of ground gases into building service entries (manholes)
- Direct contact of aggressive soils with building foundations and floor slabs.

### *Receptors*

- Human Health – site end users.
- Human Health – construction workers.
- Controlled Waters – Secondary Undifferentiated Aquifer (Superficial deposits)
- Controlled Waters – Secondary B Aquifer (Bedrock deposits)
- Controlled Waters – Lateral migration into surface water features.
- Buildings, foundations and floor slabs.

When considering the potential risk to human health the preliminary assessment indicates that the risk to human health from any residual contamination can be largely mitigated by use of appropriate PPE during construction and by the use of hardstanding or soil capping throughout the proposed development, if necessary.

Overall, the assessment indicates a low to moderate environmental risk. As a result, it was recommended that appropriate chemical testing of soils and groundwater be undertaken as part of any future investigation works, followed by the completion of associated risk assessments.

The above sources, pathways and receptors have been considered as part of the Preliminary Risk Assessment in accordance with LCRM (2023), are considered to be plausible in the context of this site and have been carried forward for investigation and assessment.

## 4. Method of investigation

### 4.1 General

The Hydrock Phase 2 ground investigation works were undertaken on 8<sup>th</sup> and 9<sup>th</sup> August 2023 and comprised the following:

- » A preliminary service clearance and GPR scan of each exploratory hole location to aid in confirming the absence of unknown services;
- » 9 no. mini percussive boreholes; referenced as WS101 to WS109, including WS102A, WS102B and WS103A, to determine shallow ground conditions within accessible areas of the site, and target areas of potential contaminative concern identified during the previous investigation;
- » Installation of 2 no. gas and groundwater monitoring wells (WS101 and WS109); and
- » 3 no. insitu dynamic cone penetrometer (TRL DCP) tests to provide equivalent CBR vales and aid in initial external design.

The locations of the exploratory holes can be seen on Hydrock Drawing 29145-HYD-XX-XX-DR-GE-0002 located in Appendix A.

All depths recorded are taken from below existing ground level, with the exploratory holes positioned to provide a general coverage across accessible areas of the site. They also take into account existing access constraints, including the locations of existing buildings, and making allowance for buried utilities. Fieldwork and soil descriptions were carried out in general accordance with BS5930:2015+A1:2020 'Code of Practice for Ground Investigations', BS EN ISO 14688-1, BS EN ISO 14689-1 and BS10175:2011+A2:2017 'Investigation of Potentially Contaminated Sites – Code of Practice'.

Ground gas monitoring has also been undertaken in general accordance with CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings', BS8485:2015+A1:2019 'Code of practice for the design of protective measures for methane and carbon dioxide for ground gases in new buildings' and BS8576:2013 'Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs)'.

### 4.2 Investigation Rationale

The mini percussive boreholes were targeted within accessible areas across the site in order to determine the soil profile, target areas of potential contaminative concern and aid in assessing potential environmental constraints. Disturbed samples were recovered as appropriate for soil descriptions and laboratory testing. Where possible, in-situ standard penetration tests (SPT's) were carried out to provide an assessment of the in-situ density of the Made Ground and natural deposits below the site.

In order to suitably assess the potential environmental constraints on the site, a sampling strategy was created on a combined targeted and non-targeted approach based on the findings of the desk study and ground conditions identified during the previous ground investigation works.

The general rationale behind the location of each exploratory hole has been based on the findings of the preliminary risk assessment and observations during the investigation works, details of which are summarised in Table 4.1.

Table 4.1: Investigation Rationale

| Exploratory Hole Location | Rationale and Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WS101                     | Mini percussive borehole to determine presence of potential variable Alluvium extending below the south-western area of site.                                                                                                                                                                                                                                                                                                                                                                                               |
| WS102                     | Mini percussive borehole in the south-east corner of site to assess potential for contamination associated with the adjacent petrol filling station.                                                                                                                                                                                                                                                                                                                                                                        |
| WS103-WS109               | Mini percussive boreholes generally spaced across the proposed store and car park extension, to determine shallow ground conditions and to aid in confirming the presence or absence and nature of any Made Ground and the nature of the underlying bedrock, as well as to allow for the collection of samples for chemical and geotechnical laboratory analysis.<br>Standard penetration tests (SPT's) were undertaken within the mini percussive boreholes to aid in determining the density of the deposits encountered. |
| DCP101-103                | In-situ dynamic cone penetrometer tests were undertaken in the area of the proposed extension to provide equivalent CBR values and aid in initial external design.                                                                                                                                                                                                                                                                                                                                                          |

Standpipes for monitoring groundwater levels and ground gas concentrations were installed at the locations of WS101 and WS109. These comprised slotted 50mm diameter HDPE pipes set within a granular filter, to depths of 2.00m. The wells were sealed at the surface using bentonite and a flush lockable cover was fitted. A summary of the monitoring well installations is presented in Table 4.2.

Table 4.2: Summary of monitoring installations

| Location | Ground level (m OD) | Standpipe / piezometer diameter (mm) | Screen top and base depth (m bgl) | Screen top and base elevation (m OD) | Strata targeted by response zone |
|----------|---------------------|--------------------------------------|-----------------------------------|--------------------------------------|----------------------------------|
| WS101    | 89.944              | 50                                   | 1.00-2.00                         | 88.944-87.944                        | Alluvium/Bedrock                 |
| WS109    | 91.12*              | 50                                   | 1.00-2.00                         | 90.12 – 89.12                        | Bedrock                          |

\*Estimated from known site levels

To date, the standpipes have been monitored for ground gas on three occasions between 24<sup>th</sup> August and 20<sup>th</sup> September 2023, with the results completed to date presented in Appendix C. Monitoring is ongoing and an addendum gas risk assessment report will be issued on completion of the minimum 2 month monitoring period.

### 4.3 Geo-environmental testing

Exploratory hole locations were determined by reference to the site conditions. No specific sampling statistics or grid were utilised. Samples were taken, stored and transported in general accordance with BS 10175:2011+A2:2017.

### 4.4 Geo-environmental laboratory analyses

To provide an assessment of potential contamination, and to also aid in preliminary off-site disposal characterisation, representative samples of superficial deposits and bedrock were recovered from the borehole locations as part of the investigation works. The chemical test certificates are provided in Appendix D. The analyses were carried out at an MCERTS registered and UKAS accredited laboratory.

Table 4.3: Geo-environmental analyses of soils

| Determinand Suite                                                                                                                                                                                             | Topsoil | Superficial | Bedrock |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------|---------|
| General Hydrock Soil Suite; including metals and metalloids: Arsenic, Boron, Copper, Cadmium, Chromium (total), Chromium (VI), Cyanide, Lead, Mercury, Nickel, Selenium, Zinc and Total Organic Carbon (TOC). | 2       | 4           | -       |
| Polycyclic Aromatic Hydrocarbons (USEPA 16)                                                                                                                                                                   | 2       | 4           | -       |
| Total Petroleum Hydrocarbons (TPH CWG including BTEX and MTBE)                                                                                                                                                | 1       | 2           | -       |
| Asbestos (ID)                                                                                                                                                                                                 | 2       | 4           | -       |
| WAC 2 Stage Leachate Suite                                                                                                                                                                                    | 1       | 1           | -       |

## 4.5 Geotechnical testing

Geotechnical testing was carried out on selected samples in accordance with techniques outlined in BS 1377:1990. The geotechnical tests undertaken by Hydrock are summarised in with the test certificates provided in Appendix E.

Table 4.4 Summary of geotechnical tests

| Test                                                           | Topsoil | Superficial | Bedrock |
|----------------------------------------------------------------|---------|-------------|---------|
| Atterberg limits (Plasticity Index - 4 point Liquid Limit)     | -       | 2           | 5       |
| pH and soluble Sulphate as SO <sub>4</sub> (2:1 Water Soluble) | 2       | 4           | 4       |
| Particle Size Distribution (Wet Sieve)                         | 1       | -           | -       |
| Particle Size Distribution (Sedimentation)                     | -       | 1           | -       |

Geotechnical testing was carried out at MCERTS registered and/or UKAS accredited laboratories.



## 5. Results of the investigation

### 5.1 Ground conditions

Detailed descriptions of the materials encountered together with observations of groundwater, the results of in situ testing and sampling information are given on the exploratory hole record sheets included in Appendix B. Exploratory hole locations are shown on Hydrock drawing 28640-HYD-XX-XX-DR-GE-0004.

A generalised succession of the ground profile encountered during the investigation works is summarised below. However, it should be noted that there is a potential for some local variation across the site and reference should be made to individual exploratory hole records.

#### 5.1.1 Site Surfacing

The site is primarily surfaced with brick paving hardstanding underlain by a sand subbase and concrete. The paving was found to be 0.10m thick with the sand subbase present to 0.15m below ground level (bgl) across the site.

The surface in areas of proposed development was noted to comprise grass over soft clay with rootlets, to depths of between 0.10m and 0.50m.

#### 5.1.2 Made Ground

Made Ground was not present in the boreholes located in the field to the north and west of the current Aldi store i.e., the area of proposed extension to the store and car park.

The presence of Made Ground below the carpark is anticipated, but was not confirmed below the site surfacing due to a secondary layer of concrete preventing progression of the hand pits and boreholes in several locations. Further detail is presented in Section 5.2.

During the previous site investigation works completed in 1997 by C.J. Associates, Made Ground comprising gravel surfacing and mudstone gravel with cobbles was recorded within the boundary of the existing Aldi site, to depths of between 0.20m and 0.50m below ground level. In addition, occasional ash fragments were also noted contained within the Made Ground at the location of TP4, sunk within the north-eastern corner of the existing Aldi site, between depths of 0.20m and 0.30m below ground level.

#### 5.1.3 Superficial Deposits

Superficial deposits were encountered at depths of 0.10m to 0.50m, up to 1.50m and generally comprised of firm orangish brown slightly sandy gravelly clay (Glacial Till).

As exception was noted at the location of WS101, located within close proximity to an existing watercourse, when the superficial deposits generally comprised of soft silty, sandy, gravelly clay (Alluvium) to a depth of 1.30m bgl.

#### 5.1.4 Bedrock Deposits

Weathered bedrock was encountered within all of the exploratory hole locations, except those terminated due to obstructions below the car park. The top of the strata was encountered between 0.60m to 1.50m bgl, the weathered bedrock comprised of completely to highly weathered reddish brown, occasionally mottled grey mudstone recovered as a sandy or gravelly clay. The gravels are interpreted as lithorelics of the bedrock within the weathered strata.

A maximum depth of 4.00m bgl was reached during the investigation, with refusal of the mini-percussive sampling barrel and SPT cone on un-weathered bedrock.

## 5.2 Obstructions

Concrete obstructions were encountered below the paving bricks and sand subbase within WS's 102 to 102B, WS103 and WS103A. It is likely that this secondary layer of concrete is consistent across the carpark.

WS103 could not be progressed after the health and safety limits of breaking were reached attempting to break through the concrete within the loading bay area.

## 5.3 Visual and olfactory evidence of contamination (soil)

No olfactory evidence of potentially significant contamination was noted during the investigation.

## 5.4 Groundwater

No significant groundwater was identified at the borehole locations during the investigation works indicating the absence of a continuous shallow groundwater surface (table) below the site.

During the investigation works groundwater was encountered in WS106 at 3.98m bgl, which is considered to be attributable a slight seepage at the base of the borehole.

From groundwater monitoring completed to date, no groundwater was recorded within WS109, whilst standing water levels of between 1.09m and 1.31m bgl were encountered within WS101, considered to be likely attributable to perched water contained within the superficial deposits.

It should also be noted that groundwater levels vary seasonally and that a higher water table than recorded could occur.

## 5.5 Insitu Test Results

### 5.5.1 Standard Penetration Tests (SPT's)

The results of the SPT 'N' values recorded at the mini percussive borehole locations from both ground investigations are summarised in Table 5-1.

Table 5.1 Standard Penetration Tests (SPT's)

| Stratum           | No. of Tests | Depth (m bgl) | SPT 'N' Range | Average SPT 'N' Value |
|-------------------|--------------|---------------|---------------|-----------------------|
| Glacial Till      | 2            | 1.20          | 11-12         | 12                    |
| Alluvium          | 1            | 1.20          | 24            | 24                    |
| Weathered Bedrock | 4            | 1.20          | 17-50         | 32                    |
|                   | 6            | 2.00          | 31-50         | 42                    |
|                   | 3            | 3.00          | 40-50         | 47                    |
|                   | 1            | 4.00          | 50            | 50                    |

In summary, insitu SPT 'N' values of between 11 and 24 were recorded for the Superficial deposits, with an average SPT 'N' value of 12 for the Glacial Till and 24 for the suspected Alluvium.

SPT 'N' values of between 17 and 50 were recorded for the Weathered Bedrock with average values ranging from 32 to 50.

SPT 'N' values of 50 indicate a refusal, assumed to be where the un-weathered bedrock begins.

### 5.5.2 Dynamic Cone Penetrometer Tests (DCP's)

A total of 3 no. Dynamic Cone Penetrometer (DCP) tests were completed from ground level, to provide a measure of the in-situ resistance to penetration of the shallow soil deposits, with the test results being correlated to provide equivalent California Bearing Ratio (CBR) values. The locations of the DCP tests are shown on Hydrock Drawing 29145-HYD-XX-XX-DR-GE-0002 in Appendix A, whilst copies of the DCP Analysis Sheets are included within Appendix B.

The results of the testing provided CBR values of 1-7%.

Table 5.2 Dynamic Cone Penetrometer Tests (DCP's)

| Stratum                   | No. Tests | Method   | CBR % |
|---------------------------|-----------|----------|-------|
| Topsoil                   | 3         | DCP Test | 1-3%  |
| Glacial Till              | 3         | DCP Test | 3-7%  |
| Weathered Mercia Mudstone | 1         | DCP Test | 2%    |

## 5.6 Geotechnical Testing

### 5.6.1 Introduction

The results of the geotechnical testing are presented in Appendix E with the results of the soluble sulphate and pH analysis contained within the chemical test certificates included in Appendix D. The following sections summarise the main findings of the geotechnical testing and provides interpretation where appropriate.

### 5.6.2 Plasticity Index and Volume Change Potential

The volume change potentials have been determined from the results of Atterberg limit tests on representative samples of the natural fine (cohesive) deposits of the weathered bedrock and glacial till recovered during the investigation works.

In total, Atterberg limit determination analysis was undertaken on 5 no. representative samples of the Weathered Mercia Mudstone deposits ranging from depths of between 0.70m and 3.00m bgl. The results of the analysis recorded modified plasticity indices of between 13.77% and 35 which is indicative of cohesive soils with a low to medium volume change potential.

Two Atterberg limit determination analyses were undertaken on representative samples of the Glacial Till from depths of 0.60m and 1.00m bgl. The results recorded modified plasticity indices of 29.4% and 31% respectively. This indicates a medium volume change potential.

### 5.6.3 Sulphate and pH Determinations

Within the topsoil water soluble sulphate concentrations of 6.4mg/l and 12.8mg/l and pH values of 6.3 and 6.8 were recorded. This indicates a BRE Design Special Digest 1:2005 Design Sulphate Class DS-1 with an ACEC site classification AC-2z, when considering a brownfield location.

For the natural clay and bedrock deposits, water soluble sulphate concentrations ranged between 6.2mg/l and 21.7mg/l with pH values between 6.6 and 8.6. This indicates a BRE Design Special Digest 1:2005 Design Sulphate Class DS-1 with an ACEC site classification AC-1.

In consideration that all topsoil will be removed as part of the enabling works and site strip a Design Sulphate Class DS-1 and ACEC Classification of AC-1 is considered applicable for this site.

#### 5.6.4 Particle Size Distribution

Particle Size Distribution test (PSDs) results are summaries in Table 5.2 and summary descriptions and PSD plots of the material analysed are presented in Appendix E.

Table 5.3 Particle Size Distribution Tests (PSD's)

| Stratum      | No. of tests | Silt % | Clay % | Sand % | Gravel % | General Description                   |
|--------------|--------------|--------|--------|--------|----------|---------------------------------------|
| Topsoil      | 1            | 89     |        | 6      | 6        | Brown CLAY with fragments of rootlets |
| Glacial Till | 1            | 30     | 49     | 19     | 2        | Brown CLAY with fragments of rootlets |

## 6. Geo-environmental assessment

### 6.1 Updated conceptual model

The initial conceptual site model developed from the phase 1 geo-environmental assessment produced for the site (summarised in Section 3) has been updated using the findings of the ground investigation. This CSM is the basis for the geo-environmental assessment presented in this section.

#### 6.1.1 Updated exposure model

Based upon observations during the ground investigation works and a review of additional data sources as part of this assessment, the plausible contaminant sources, receptors and pathways identified in the preliminary conceptual site model summarised in Section 3 have been updated or confirmed as follows.

##### 6.1.1.1 Sources

The following sources have been removed from the exposure model:

*Undeveloped Grassland*

- Potential for localised area of Made Ground associated with usage as agricultural land

##### 6.1.1.2 Receptors

No receptors have been removed from or added to the exposure model.

##### 6.1.1.3 Pathways

No pathways have been removed from or added to the exposure model.

### 6.2 Risk assessment approach

Using the updated ground model and exposure model, a Tier 2 generic quantitative risk assessment (GQRA) has been undertaken in accordance with the principles of LCRM (2023), to aid in assessing the potential risk to identified receptors.

The risks associated with the identified potential contaminant linkages have been estimated using standardised methods (typically involving comparison of site data with published 'screening values'). Where screening values are exceeded, the result has been evaluated in an authoritative review of the findings with other pertinent information to determine whether or not the exceedance is or is not acceptable in the site-specific circumstances. The data sets used in the assessment comprise the analytical results obtained by Hydrock as part of the investigation works.

### 6.3 Human Health Risk Assessment

#### 6.3.1 Soils Assessment

##### 6.3.1.1 Generic Assessment Criteria

The soil screening values used are generic assessment criteria (GAC) (i.e. derived in accordance with EA CLEA guidance (2009) using the updated exposure model detailed in Defra SP1010 (2014), with the exception of published C4SL's. The term 'GAC' used in this report is inclusive of all generic soil screening values.

In relation to human health risk generally the results of the analysis have been assessed using the LQM/CIEH Suitable for Use Levels (S4UL's) for Human Health Risk Assessment (Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3170; All rights reserved), which have been derived in accordance with current UK legislation, and national policy using the most recent version of the CLEA software (v1.06).



The derived S4UL's are based on the concept of minimal tolerable risk as described in SR2 (Environment Agency 2009a) which underpins all previous Environment Agency (EA) SGV's and other GAC's. As part of this assessment, it is noted that S4UL's do not incorporate any toxicological parameter changes to the CLEA base model, however recent toxicological data has been incorporated into the contaminant databases.

Furthermore, S4UL GAC's are considered to be equivalent to the previously published Environment agency SGV's, and previous iterations of LQM/CIEH GAC's and as such are suitable for use in generic quantitative risk assessments under both planning and Part IIa regimes. Taking this into account, it is considered that the modified exposure assumptions adopted in S4UL's are sufficiently conservative in relation to assessing the level of potential risk to human health for the development and future end users.

Where no S4UL is available, GAC have been selected based on the following hierarchy, with all GAC used as part of this assessment considered to be sufficiently conservative in relation to assessing the level of potential risk to human health.

- Category 4 Screening Levels (C4SL's), where available.
- EIC/AGS:CL:AIRE GAC's for standard land uses, where available.
- SoBRA Acute GAC for free cyanide, with acute dose toxicity as the primary risk driver.

In consideration of the proposed development, GAC based on a commercial CLEA land use scenario have been adopted. Based on the laboratory results, an SOM of 2.5% has also been used in the assessment. The results of the chemical testing are presented in Appendix D.

#### 6.3.1.2 Assessment Results

The results of the chemical testing are summarised in Table 6.1.

Table 6.1: Human Health Risk Assessment

| Analyte                      | Max. Concentration (mg/kg) | No. samples | GAC <sup>(1)</sup> (mg/kg) | No. samples >GAC |
|------------------------------|----------------------------|-------------|----------------------------|------------------|
| <i>Metals and Metalloids</i> |                            |             |                            |                  |
| Arsenic                      | 12                         | 6           | 640                        | 0                |
| Boron                        | 1.8                        | 6           | 240000                     | 0                |
| Cadmium                      | <0.2                       | 6           | 410                        | 0                |
| Chromium (III)               | 48                         | 6           | 8400                       | 0                |
| Chromium (VI)                | <1.8                       | 6           | 49                         | 0                |
| Copper                       | 17                         | 6           | 68000                      | 0                |
| Lead                         | 30                         | 6           | 2330 <sup>(2)</sup>        | 0                |
| Mercury                      | <0.3                       | 6           | 1100                       | 0                |
| Nickel                       | 53                         | 6           | 980                        | 0                |
| Selenium                     | <1                         | 6           | 12000                      | 0                |
| Zinc                         | 78                         | 6           | 730000                     | 0                |

| Analyte                                            | Max. Concentration (mg/kg) | No. samples | GAC <sup>(1)</sup> (mg/kg) | No. samples >GAC |
|----------------------------------------------------|----------------------------|-------------|----------------------------|------------------|
| <i>Polycyclic Aromatic Hydrocarbons (USEPA 16)</i> |                            |             |                            |                  |
| Acenaphthene                                       | <0.05                      | 6           | 110000                     | 0                |
| Acenaphthylene                                     | <0.05                      | 6           | 110000                     | 0                |
| Anthracene                                         | 0.17                       | 6           | 5400000                    | 0                |
| Benzo(a)anthracene                                 | 0.45                       | 6           | 180                        | 0                |
| Benzo(a)pyrene                                     | 0.50                       | 6           | 77                         | 0                |
| Benzo(b)fluoranthene                               | 0.65                       | 6           | 45                         | 0                |
| Benzo(ghi)perylene                                 | 0.34                       | 6           | 3900                       | 0                |
| Benzo(k)fluoranthene                               | 0.24                       | 6           | 1200                       | 0                |
| Chrysene                                           | 0.48                       | 6           | 350                        | 0                |
| Dibenz(ah)anthracene                               | 0.08                       | 6           | 3.6                        | 0                |
| Fluoranthene                                       | 0.95                       | 6           | 23000                      | 0                |
| Fluorene                                           | <0.05                      | 6           | 72000                      | 0                |
| Indeno(123cd)pyrene                                | 0.29                       | 6           | 510                        | 0                |
| Naphthalene                                        | 0.07                       | 6           | 3900                       | 0                |
| Phenanthrene                                       | 0.61                       | 6           | 23000                      | 0                |
| Pyrene                                             | 0.84                       | 6           | 55000                      | 0                |
| <i>Total Petroleum Hydrocarbons (TPH)</i>          |                            |             |                            |                  |
| TPH ali EC05-EC06                                  | <0.1                       | 3           | 5900                       | 0                |
| TPH ali >EC06-EC08                                 | <0.1                       | 3           | 17000                      | 0                |
| TPH ali >EC08-EC10                                 | <0.1                       | 3           | 4800                       | 0                |
| TPH ali >EC10-EC12                                 | <1                         | 3           | 23000                      | 0                |
| TPH ali >EC12-EC16                                 | <2                         | 3           | 82000 <sup>(6)</sup>       | 0                |
| TPH ali >EC16-EC35                                 | <10                        | 3           | 1700000                    | 0                |
| TPH ali >EC35-EC44                                 | <8.4                       | 3           | 1700000                    | 0                |
| TPH aro EC05-EC07                                  | 0.10                       | 3           | 46000                      | 0                |

| Analyte             | Max. Concentration (mg/kg) | No. samples | GAC <sup>(1)</sup> (mg/kg) | No. samples >GAC |
|---------------------|----------------------------|-------------|----------------------------|------------------|
| TPH aro >EC07-EC08  | <0.1                       | 3           | 110000                     | 0                |
| TPH aro >EC08-EC10  | <0.1                       | 3           | 8100                       | 0                |
| TPH aro >EC10-EC12  | <1                         | 3           | 28000                      | 0                |
| TPH aro >EC12-EC16  | <2                         | 3           | 37000                      | 0                |
| TPH aro >EC16-EC21  | <10                        | 3           | 28000                      | 0                |
| TPH aro >EC21-EC35  | <10                        | 3           | 28000                      | 0                |
| TPH aro >EC35-EC44  | <8.4                       | 3           | 28000                      | 0                |
| Total TPH >EC5-EC44 | <10                        | 3           | N/A                        | 0                |

Notes:

1. LQM/CIEH S4UL for Commercial end use.
2. Category 4 Screening Level (C4SL) for Commercial end use.
3. SoBRA Acute GAC

From the results of the chemical analysis, low levels of contamination have been recorded for all deposits screened as part of the investigation works, indicating an absence of significant risk to human health associated with soils across the site and in the area of the proposed extension. In addition, from the results of the chemical testing no levels of BTEX or MTBE were recorded above detection limit.

### 6.3.2 Asbestos

During the investigation works no visual evidence of suspected Asbestos Containing Material (ACM) was noted within any of the exploratory hole locations. A total of 6 no. soil samples were screened by Hydrock for asbestos fibres, with none detected.

## 6.4 Phytotoxicity risk assessment

### 6.4.1 Risk estimation

Priority phytotoxic chemical concentrations for copper, nickel and zinc have been compared against published values outlined in BS3882:2015 'Specification for topsoil', to determine the potential risk to plant growth (phytotoxic GAC).

For arsenic, boron and chromium (III) the results of the chemical testing have also been compared against guidance values outlined in MAFF 'Code of Good Agricultural Practice for the Protection of Soil' (1998), which provides general guide on practices which will maintain and increase the ability of soil to support plant growth, and ICRL Guidance Note 59/83 (1987), based on a pH in excess of 5 and 6, respectively. The results are summarised in Table 6-2.

Table 6.2 Phytotoxic Risk Assessment (copper, nickel and zinc)

| Analyte | Soil pH range | No. samples | Max. Concentration (mg/kg) | Maximum Permissible Concentration of PTE <sup>(1)</sup> in soil (dependent on soil pH range) (mg/kg) <sup>(2)</sup> |        |      |
|---------|---------------|-------------|----------------------------|---------------------------------------------------------------------------------------------------------------------|--------|------|
|         |               |             |                            | pH<6                                                                                                                | pH 6-7 | pH>7 |
| Copper  | 6.3 – 8.6     | 6           | 17                         | <200                                                                                                                | <200   | <300 |
| Nickel  |               | 6           | 53                         | <100                                                                                                                | <135   | <200 |
| Zinc    |               | 6           | 78                         | <50                                                                                                                 | <75    | <110 |

## Notes:

1. PTE – Phytotoxic Element.
2. BS3882:2007 & DoE Code of Practice for Agricultural use of Sewage Sludge, 1996.

From the results of the chemical testing increased levels of zinc have been occasionally identified within the superficial deposits which could represent a potential phytotoxic risk to future plant growth. However, the maximum concentration of zinc was recorded in WS106 at 0.5m with a pH of 7.2, indicating the level of zinc, 78mg/kg, is below the maximum permissible concentration of PTE in soil based on the pH value. Therefore, no further consideration is necessary.

Table 6.3 Phytotoxic Risk Assessment

| Analyte        | GAC (mg/kg) | Basis for GAC     | No. samples | Max. (mg/kg) | No. samples >GAC |
|----------------|-------------|-------------------|-------------|--------------|------------------|
| Arsenic        | 250         | MAFF 1998         | 6           | 12           | 0                |
| Boron          | 5           | Nable, et al 1997 | 6           | 1.8          | 0                |
| Chromium (III) | 400         | MAFF 1998 (Cr(T)) | 6           | 48           | 0                |

From the results of the chemical testing, no exceedances have been recorded and therefore no further consideration is required.

## 6.5 Geo-environmental Risk Evaluation

### 6.5.1 Human Health

From the findings of the investigation works and contamination risk assessment no significant risk is indicated to human health associated with soils across the site and within the area of the proposed extension. As a result no further assessment and/or remedial measures are considered necessary for this site.

However, as limited investigation works were able to be completed within the area of the existing Aldi car park, with the previous investigation (C. J. Associates 1997) noting made ground within this area, should suspected unexpected contamination be encountered during future excavation works, then further testing will be required to confirm the absence of any localised contaminated soils.

### 6.5.2 Phytotoxicity

No exceedances of the relevant GACs have been recorded in samples screened during the site investigation, as such, the overall risk to plant life is considered to be low.

### 6.5.3 *Controlled Waters*

Previous reporting identifies that the bedrock underlying the site is a Secondary B aquifer and site is not located within a source protection zone. The Phase 1 report also identified that the risk to the bedrock aquifer deposits may also be mitigated by the presence of lower permeability deposits.

Additionally, the majority of the site area is currently covered by hardstanding which prevents high levels of infiltration through the unsaturated zone. This area of hardstanding will increase with the proposed development (extended car park hardstanding and building footprint), although soft-standing will be present in landscaped areas that will allow limited infiltration. The results of chemical testing completed as part of the investigation works show low levels of potential contaminants recorded, with no significant source of leachable contaminants identified within the natural soils.

In summary, when considering the findings of the investigation works, combined with the hydrological and hydrogeological site setting, it is considered that the site does not pose a significant risk to Controlled Waters, with no further assessment or remedial works considered necessary in this regard.



## 7. Ground gas risk assessment

This ground gas risk assessment has been undertaken in general accordance with CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings', BS8485:2015+A1:2019 'Code of practice for the design of protective measures for methane and carbon dioxide for ground gases in new buildings', BS8576:2013 'Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs)' and CL:AIRE (2021) 'Good Practice for risk assessment for coal mine gas emissions'.

### 7.1 Ground gas risk assessment

#### 7.1.1 Data

The findings of the phase 1 report and Phase 2 ground investigation indicates that the gas generation potential at the site is low to medium with the sensitivity of the development (commercial) also low. Consequently, in accordance with CIRIA C665 (Table 5.5a and 5.5b), an appropriate minimum monitoring regime is four readings over minimum two-month period, provided other monitoring requirements are also met, such as prevailing atmospheric pressure conditions (e.g., BS 8485:2015 +A1:2019 suggests monitoring should include a period of falling atmospheric pressure).

To aid in assessing the gas regime below the site, 2 no. combined gas and groundwater monitoring wells were installed across the site, at the locations of WS101 and WS109, with the locations of the monitoring wells shown on drawing 29145-HYD-XX-XX-DR-GE-0002. Further details relating to well construction at each location can also be seen on the exploratory hole record sheets included in Appendix B.

To date, the wells have been monitored on two occasions, with the results of the monitoring included in Appendix C. The conclusions presented below are considered interim, pending a review of the ongoing ground gas monitoring.

#### 7.1.2 Assessment

The risks associated with the ground gases methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>) have been assessed using BS 8485:2015 +A1:2019, which cites the guidelines published by CIRIA (C655, 2007).

The assessment guidelines set out in Table 2 of BS 8485:2015 are based on interpretation of the gas concentrations and the gas flow rates. The quantitative assessment has been carried out by comparing a worst-case gas screening values (GSV's) assessment with the published CS thresholds (BS 8485 Table 2 in accordance with section 6.3.7 of BS 8485. The three monitoring rounds completed so far, between 24<sup>th</sup> August and 20<sup>th</sup> September 2023, featured low atmospheric pressure, but without a worst-case scenario of sharply falling pressure in the 48 hours immediately preceding the monitoring. The result of the gas monitoring completed to date, along with the preliminary calculated GSV's are summarised in Table 7.1

Table 7.1: Ground gas risk assessment

|                         | Min | Max | Comment                                                                             |
|-------------------------|-----|-----|-------------------------------------------------------------------------------------|
| Steady Flow Rate (L/hr) | 0.1 | 0.1 | All flow rates have been at the positive flow limit of detection (LOD) of 0.1 L/hr. |
| Methane (%v/v)          | 0.1 | 0.1 | The maximum methane concentration recorded to date is less than 1%.                 |
| Carbon Dioxide (%v/v)   | 0.1 | 3.1 | The maximum recorded levels of carbon dioxide is below 5%.                          |

|                                                                                                                                                                                                                                                                                                                                                 | Min    | Max  | Comment                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Carbon Monoxide (ppm)                                                                                                                                                                                                                                                                                                                           | 1      | 12   | The maximum recorded carbon monoxide reading is 12.0ppm, in WS101 on one occasion during the first round of monitoring. No other CO reading to date has been above 2ppm and the elevated reading is not considered to be representative.                                                                |
| Hydrogen Sulphide (ppm)                                                                                                                                                                                                                                                                                                                         | 0      | 0    | -                                                                                                                                                                                                                                                                                                       |
| Oxygen (%v/v)                                                                                                                                                                                                                                                                                                                                   | 16.4   | 20.1 | During the initial monitoring visit completed on 24.08.23 slightly depleted Oxygen was recorded within WS101 to a minimum 16.4%v/v, which is considered to be likely attributable to biological oxidation processes in the clay deposits. As a result no significant risk is considered in this regard. |
| Preliminary Carbon Dioxide GSV based Maximum flow (L/hr) and Concentration (%v/v) across all holes recorded to date                                                                                                                                                                                                                             | 0.0031 |      | Preliminary CS1                                                                                                                                                                                                                                                                                         |
| Preliminary Methane GSV based on Maximum Flow (L/hr) and Concentration (%v/v) across all holes recorded to date                                                                                                                                                                                                                                 | 0.0001 |      | Preliminary CS1                                                                                                                                                                                                                                                                                         |
| It is assumed that values are considered to be atypical if 95% or more of the remaining data are less than the value under consideration.<br>For the purposes of the calculation, where the recorded gas flow rate or concentrations are below the limit of detection for the instrument used, the detection limit of 0.1L/hr has been adopted. |        |      |                                                                                                                                                                                                                                                                                                         |

Due to a combination of no flows being recorded above the limit of detection, and relatively low gas concentrations recorded during both monitoring rounds, the preliminary worst-case GSVs based on maximum individual flow and maximum individual concentration across all locations are very low at 0.0001 for methane and 0.0031 for carbon dioxide.

Therefore it is preliminarily concluded that the gas regime identified on site warrants classification as CIRIA C665 and BS8485:2015+A1:2019 characteristic situation 1 (CS1), which would result in no gas protection being required.

However, a further 1 no. gas monitoring visit is planned to meet the minimum recommended number of four visits, and the above conclusions are preliminary and subject to change until completion of the monitoring programme.

The monitoring results and gas risk assessment tables can be found in Appendix C.

## 8. Construction materials risk assessment

### 8.1.1 Water pipelines

A formal water pipe investigation and risk assessment is beyond the scope of this report. However, the findings of this investigation have been compared to the threshold values in Water UK HBF (2014), Table 1 as far as is practicable.

Following a review of chemical testing, no elevated levels of organic contamination (petroleum hydrocarbons) were recorded, indicating barrier pipes would not be required.

Confirmation should also be sought from the water supply company at the earliest opportunity.

### 8.1.2 Other construction materials

Plastic pipes for drains and sewers are manufactured from unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) or polyethylene (PE). These materials may be affected by the presence of organic compounds in the soil.

In accordance with the British Plastics Federation Guidance (August, 2018), the concentrations of PAH and TPH are below the recommended limits, and therefore no special design or materials are required with respect to organic contamination.

## 8.2 Contamination risks to ground workers

### 8.2.1 Introduction

Whilst risks to construction workers are not discussed in detail, the following section discusses potential risks that should be considered. Information presented in this document is provided to assist in managing the risk associated with contamination in soil and groundwater at the site but is not definitive. The Contractors are responsible for undertaking their own assessments and assessing what risks are present and what control measures are required.

Task specific risk assessments and method statements should be in place, and risks and required mitigation measures communicated to all relevant personnel prior to the works commencing. Appropriate PPE and, if required, RPE should be provided and utilised.

### 8.2.2 Metals, metalloids, PAH and petroleum hydrocarbons

From the results of the human health risk assessment, there is not a risk posed to workers.

### 8.2.3 Ground Gas

It is noted that occasional concentrations of carbon dioxide (an asphyxiant) in the soil exceed HSE Workplace Exposure Limits for personnel in the working environment of 1.5% for short term (15 minutes) exposure and 0.50% for long-term exposure.

Soil gas concentrations are not necessarily reflected by those in the breathing zone, as such, all Contractors and maintenance workers should be made aware of the possible presence of carbon dioxide and should take all necessary health and safety precautions when working in trenches or confined spaces.

### 8.2.4 Vapours

In addition to the potential for nuisance odours, should unidentified localised and potentially volatile contamination be identified within soils in the area of the existing building or carpark, there is a risk of volatilisation, especially in confined spaces and risk assessments and method statements

should be in place if vapours and odours are identified during excavation. Additional guidance can be found in EH40/2005 Workplace Exposure Limits (HSE 2011).

### 8.2.5 Asbestos

Although no Asbestos Containing Materials (ACMs) or asbestos fibres were identified within representative Made Ground samples screened as part of the investigation works, as a precautionary measure it is recommended that site staff be made aware that there is a potential of encountering unidentified asbestos containing materials within the Made Ground anywhere on the site, and at any stage of the development. It is advised that the Contractor should supply suitable and sufficient 'Asbestos Awareness' training (specific to asbestos in soils) to all site staff who could foreseeably encounter asbestos containing materials during the course of their work.

The Contractor for each stage of works must undertake a suitable and sufficient Risk Assessment in accordance the Regulation 6 of the Control of Asbestos Regulations 2012 (CAR2012). The results of the assessment should be used to compile a methodology in accordance with Regulation 7 of CAR2012, which limits potential exposure and spread of asbestos fibre. Appropriate training should be provided to all site staff identified within the risk assessment as having the potential to be exposed or encounter asbestos during their work in accordance with Regulation 10 of CAR2012.

It is the responsibility of the Contractor to ensure that mitigation measures are suitable and sufficient to prevent exposure to airborne asbestos so far as is reasonably practicable in accordance with Regulation 11 of CAR2012.

It is recommended that any asbestos cement sheeting encountered is hand-picked under controlled conditions in accordance with HSG210 'Asbestos Essentials'. Hand picking needs to be undertaken by suitably qualified Contractors in accordance with HSE guidance and an Environmental Permit. All ACM must be suitably packaged, placed in a dedicated, covered and lockable skip pending off-site disposal to a suitably licensed waste facility.

The Contractors for each stage of works must manage the risks in accordance with HSE Guidance and CAR 2012. However, the asbestos fibres detected at the site are within a soil matrix, and if this is kept damp, this should assist in minimising the risk of the release of airborne fibres.

## 9. Modified Conceptual Site Model (CSM)

The initial conceptual site model, based upon the findings of the intrusive ground investigation works, has been modified based upon the findings of the contamination risk assessment. The potential sources, pathways and receptors identified in Section 6 have been investigated and assessed, and a Source-Pathway-Receptor (SPR) linkage assessment has been undertaken, with a summary of the SPR contaminant linkages for which the risks may be unacceptable and require mitigation included in Table 9.2.

### 9.1 Findings of the Geo-environmental risk assessment

From the risk assessment low levels of contamination were recorded for all soils samples screened as part of the investigation works, indicating a low risk to human health. In addition, no asbestos was identified within any of the samples screened.

When considering the findings of the investigation works, combined with the hydrological and hydrogeological site setting, it is considered that the site does not pose a significant risk to Controlled Waters, with no further assessment or remedial works considered necessary.

### 9.2 Findings of the ground gas risk assessment

Gas monitoring completed to date indicates the absence of a significant ground gas regime below the site, with no flow recorded and the preliminary GSV indicating a CIRIA C665 and BS8485:2015 Characteristic Situation CS1 classification.

These results are preliminary and are subject to review once the full monitoring schedule has been completed.

### 9.3 Summary of potential contamination linkages

Table 9.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2023) and additional risk assessment is required. Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland *et al* 2001) but modified to add a 'no linkage' category and to remove low/moderate risk (See Table 9.1).

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table 9.1 Consequence versus probability assessment

|             |                 | Consequence    |               |               |               |
|-------------|-----------------|----------------|---------------|---------------|---------------|
| Probability |                 | Severe         | Medium        | Mild          | Minor         |
|             | High Likelihood | Very high risk | High risk     | Moderate risk | Low risk      |
|             | Likely          | High risk      | Moderate risk | Low risk      | Very low risk |
|             | Low Likelihood  | Moderate risk  | Low risk      | Low risk      | Very low risk |
|             | Unlikely        | Low risk       | Very low risk | Very low risk | Very low risk |
|             | No Linkage      | No risk        |               |               |               |

Based upon the findings of the risk assessments and investigation works completed the following are considered applicable for this site:



Table 9.2 Exposure model – final source-pathway-receptor contaminant linkages

| Sources                                                                                                                  | Possible Pathways                                     | Receptors                                | Probability    | Consequence | Risk Level    | Comments                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------|----------------|-------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Made Ground, associated with current and previous site usage, including as a factory and demolition of former buildings. | Direct contact, ingestion, dust and vapour inhalation | Human Health Risk - Construction workers | Low Likelihood | Medium      | Low           | No elevated levels of contaminants were recorded in areas of proposed extension. However, contaminants could be present in areas inaccessible at the time of the investigation, e.g. current car park. The risk could be mitigated by adopting appropriate measures, i.e. PPE, managing exposure times etc. |
|                                                                                                                          | Direct contact, ingestion and dust inhalation         | Human Health Risk – End users            | Low Likelihood | Medium      | Low           | No elevated levels of contaminants were recorded in areas of proposed extension and it is understood that the majority of the site will be hardstanding.                                                                                                                                                    |
|                                                                                                                          | Root Uptake by plant                                  | Ecological (plant life)                  | Unlikely       | Medium      | Very low risk | The phytotoxicity risk assessment found no elevated levels of contaminants that could pose a risk to plant Life.                                                                                                                                                                                            |
|                                                                                                                          | Direct contact                                        | Water supply pipes.                      | Low Likelihood | Medium      | Low           | No elevated levels of TPH were recorded in areas of proposed extension. However, there is potential for elevated TPH's to be present in the area of existing car park that was inaccessible during the site investigation.                                                                                  |
|                                                                                                                          | Lateral and vertical migration                        | Controlled waters                        | Low Likelihood | Medium      | Low           | Vertical migration of contaminants is unlikely due to cohesive nature of the natural deposits and no elevated levels of contaminants were recorded in areas of proposed extension.                                                                                                                          |
| Ground gases and vapours                                                                                                 | Migration, build up and asphyxiation.                 | Site users                               | Low Likelihood | Medium      | Low           | Ground gas monitoring to date indicates CS1 conditions. This conclusion is provisional until the completion of the recommended post demolition investigation works.                                                                                                                                         |

| Sources | Possible Pathways | Receptors  | Probability    | Consequence | Risk Level | Comments                |
|---------|-------------------|------------|----------------|-------------|------------|-------------------------|
|         |                   | Neighbours | Low likelihood | Medium      | Low        | No mitigation required. |

## 9.4 Summary

From the findings of the contamination risk assessment no significant risk is indicated to human health associated with soils across the site and within the area of the proposed extension. In addition, due to the low levels of contaminants recorded within the soils below the site, with the recorded presence of negligibly permeable clay also mitigating available pathways, no significant risk is considered to controlled waters. As a result no further assessment and/or remedial measures are considered necessary for this site.

However, as limited investigation works were able to be completed within the area of the existing Aldi car park, with the previous investigation (C. J. Associates 1997) noting made ground within this area, should suspected unexpected contamination be encountered during future excavation works, then further testing will be required to confirm the absence of any localised contaminated soils,

Gas monitoring completed to date includes carbon dioxide readings typically below 5%v/v, indicating a CIRIA C665 and BS8485:2015 Characteristic Situation CS1 classification, which would result in no gas protection being required. However, a further 1 no. gas monitoring visit is planned to meet the minimum recommended number of four visits, and the above conclusions are preliminary and subject to change until completion of the monitoring programme.

## 10. Waste and materials management

### 10.1 Introduction

The Waste Framework Directive (WFD) (2009/98/EC) defines waste as '*any substance which the holder discards or intends to discard.*' In a geo-environmental context, the waste is most often 'soil' and the two main scenarios are offsite disposal of the material as a waste and/or reuse of the material on site.

### 10.2 Preliminary off-site disposal characterisation

As part of the investigation waste acceptance criteria (WAC) testing was undertaken on representative samples of Topsoil and Superficial deposits recovered from the exploratory hole locations, the results of which are included in Appendix D. In addition, the results of the chemical analyses have also been reviewed to allow an initial assessment to be made in relation to potential off-site disposal characterisation.

Following a review of the soil and WAC screening results, generally low levels of contaminants and Total Organic Carbon (TOC) have been recorded for the natural soil samples screened during the investigation works, indicating these materials could potentially be suitable for disposal at an Inert Landfill. However, from the WAC certificates as slightly increased concentrations of Dissolved Organic Carbon (DOC) were recorded for the samples of topsoil and natural clay within WS105 at 0.30m and WS109 at 0.40m, which could result in these materials being characterised as Non-Hazardous for disposal, it is recommended that the results of the analysis be forwarded on to the landfill operator for further comment.

#### 10.2.1 General waste comments

It should be noted that:

- It is the waste producer's responsibility to segregate the waste at source and waste producers must not mix waste materials/streams or dilute hazardous components, for example by mixing with less or non-hazardous waste on site to meet WAC limit values.
- The above preliminary assessment has been made on the basis of the soils tested as part of the ground investigation, using WAC and chemical testing. However, the formal classification of waste can only be undertaken on the material to be disposed of, and by the waste producer and the receiving landfill as license conditions vary from landfill to landfill.
- Basic Characterisation should be undertaken in accordance with Environment Agency guidance by the waste producer. Hydrock can assist if required and this report will assist the characterisation. However, Basic Characterisation does not form part of the current commission and would require further assessment and testing on the wastes actually to be disposed.
- Once the waste producer has undertaken an initial Basic Characterisation on each waste stream, they can manage the soils as part of the on-site processing programme (for example, stockpiling, treatment, screening and separation). The waste producer and landfill operator will then need to agree the suite of compliance testing for regularly generated waste to demonstrate compliance with the initial Basic Characterisation prior to disposal.
- At the time of disposal, additional testing on the excavated soils to be disposed of, will likely be necessary.
- Non-hazardous and hazardous soils require pre-treatment (separation, sorting and screening) prior to disposal.
- The costs for disposal of non-hazardous and hazardous soils are significant compared to disposal of inert material.

- In addition to disposal costs, landfill tax will be applicable. Non-hazardous and hazardous waste will generally be subject to the Standard Rate Landfill Tax. Inert or inactive waste will generally be subject to the Lower Rate Landfill Tax. The landfill tax value changes each April and can be found at <https://www.gov.uk/government/publications/rates-and-allowances-landfill-tax/landfill-tax-rates-from-1-april-2013>.
- Before a waste producer can move waste to a landfill site for disposal, they need to check the landfill site has the appropriate permit and must have completed the following<sup>1</sup>:
  - » Duty of care transfer note / Hazardous Waste consignment note, including comment as to if pre-treatment has been undertaken; and
  - » Basic Characterisation of the waste, to include: description of the waste; waste code (using list of wastes); composition of the waste (by testing, if necessary) and; WAC testing (if required).

## 10.3 Materials management

### 10.3.1 Introduction

Soils that are to remain on site, should be managed and reused in accordance with a Materials Management Plan (MMP), prepared in accordance with 'The Definition of Waste: Development Industry Code of Practice', Version 2 (CL:AIRE), known as the DoWCoP. Where all aspects of the DoWCoP are followed the soils are considered not to be waste, because they were never discarded in the first place.

Version 2 of the DoWCoP clearly sets out the principles and an outline of the requirements of a MMP. The following compliance criteria must be seen to apply to the MMP for the site:

- Factor 1: Protection of human health and protection of the environment.
- Factor 2: Suitability for use, without further treatment.
- Factor 3: Certainty of Use.
- Factor 4: Fixed Quantity of Material.

The reuse of soils at sites should be considered during the planning and development design process so that compliance with issues such as fixed quantity and certainty of use clearly relate to agreed site levels. Suitability of Use is normally evident from the remediation strategy or the design statement, which form an integral part of a MMP. However, some soils may need to be tested post-excavation to prove they are suitable for use.

Once the MMP is finalised, it must be declared by a Qualified Person (QP). The Declaration is an on-line submission as part of which the QP is required to confirm that the declaration is being made before the relevant works have commenced (i.e. it is not a retrospective application).

Once all material movements have been completed in accordance with the MMP a verification report must be produced, kept for 2 years and provided to the EA on request.

It should be noted that failure to comply with the requirements of the DoWCoP when re-using materials has potentially significant consequences for the waste holder. The risk is that the reused materials are still regarded as a waste that has been illegally deposited. From 1 April 2018, the scope of Landfill Tax has been extended to sites operating without the appropriate environmental disposal permit, and operators of illegal waste sites will now be liable for Landfill Tax. Further

<sup>1</sup> ENVIRONMENT AGENCY. November 2010. Guidance on waste acceptance procedures and criteria. Waste acceptance at landfills. The Environment Agency.

information is available at: <https://www.gov.uk/government/publications/landfill-tax-disposals-not-made-at-landfill-sites/landfill-tax-disposals-not-made-at-landfill-sites>.

If soils are excavated and reused on sites (or moved to another site) without a MMP, exemption, or appropriate Permit in place, anyone who knowingly facilitates the disposal may be '*jointly and severally liable*' to any assessment of tax, fines or prosecution.

## 10.4 Materials that cannot be re-used under DoWCoP

The following materials are outside the scope of the DoWCoP:

- Soil and mineral materials that have been discarded or classified as waste.
- Soils which have been contaminated with injurious invasive weeds except for soils that are used on the site of production in accordance with relevant best practice guidance, e.g. Japanese Knotweed Code of Practice.
- Specific excavated infrastructure material, such as pipework and storage tanks.
- General construction wastes, e.g. plasterboard, glass, wood, etc.
- Demolition wastes with exception of crushed brick and concrete.
- Extractive waste within the scope of Mining Waste Directive (2006), for which alternative regulatory provisions have been made.
- Colliery spoil including red shale, ash & clinker..

### 10.4.1 Materials management scenarios

The materials management scenarios present on site are discussed below. It should be noted that more than one scenario may apply, dependent upon where the soils are proposed for reuse.

#### 10.4.1.1 Clean, naturally occurring materials – transferred to other sites

Where soils are naturally occurring, uncontaminated and are transferred to other sites (i.e. direct transfer), they will not become waste as long as the transfer is undertaken in accordance with the DoWCoP. A MMP must be prepared for the receiving site and the materials movement must be noted in the MMP of the Donor site. This movement must have been declared to CL:AIRE prior to the works commencing.

#### 10.4.1.2 Made Ground and other contaminated soils

On sites where Made Ground or contaminated soils are present, any soils excavated will be a waste as soon as they are excavated (even if they are clean, naturally occurring materials), unless they are subject to reuse in accordance with the DoWCoP. As such, for any brownfield site or a site where Made Ground is present and soils are being moved and reused, the materials could be deemed a waste, subject to either:

- a Materials Management Plan (MMP), to prevent the material being classified as a waste following reuse; or
- an exemption (for limited volumes); or
- an environmental permit, dependant on its status.

Other commonly occurring circumstances are:

If Made Ground is being moved between sites, it must be ensured that appropriate permits are in place to ensure the soils are not classified as a waste. Made Ground cannot be moved between sites under DoWCoP alone and would require relevant permits as part of the MMP documentation for the Hub site the material is being treated at.



All recycled materials (6F2 etc.) must be produced under the 2013 WRAP 'Quality Protocol: Aggregates from inert waste', whether on site or off-site. If they are not, they will be deemed a waste and can only be used on site under a permit. More information can be found at <https://www.gov.uk/government/publications/quality-protocol-production-of-aggregates-from-inert-waste>.

#### *10.4.1.3 Geotechnical improvement requirements*

Construction activities carried out on uncontaminated soils solely for the purpose of improving geotechnical properties e.g. lime / cement modification, are not generally regarded as waste treatment operations and do not require a permit.

However, should processing be needed (such as screening, treatment or improvement), that would constitute a waste activity and require a mobile treatment permit. This may be as simple as removing oversize material with an excavator bucket, to using a riddle bucket to remove hardcore to full mechanical screening.

## 11. Geotechnical Appraisal

Development proposals include the extension of the current Aldi Store and car parking and with soft landscaping. This investigation was carried out to provide geotechnical information with respect to foundations for the proposed development.

Eurocode 7, Section 2 advocates the use of geotechnical categorization of the proposed structures to establish the design requirements. Based on the above, for the purposes of this investigation, the proposed structures have been classed as Geotechnical Category 2.

### 11.1 Foundations

From the findings of the investigation relatively competent natural firm to stiff clay (Glacial Till) and weathered mudstone (Mercia Mudstone) bedrock deposits were identified at shallow depth within the majority of the exploratory holes located within the area of the proposed extension. An exception was noted within WS101, located within close proximity to the south-western corner of the proposed extension, where more variable soft yellowish brown silt clay deposits were recorded to a depth of 1.50m below existing ground level (or 87.54mAOD), which are suspected to be attributable to localised Alluvium resulting from the proximity of Harrow Brook.

Based on the findings of the investigation works the use of conventional foundations (i.e. strip and pad) is considered to represent a viable option for the proposed Aldi store. Footings should be taken down through the soft silty clay (Alluvium) deposits encountered within WS101, to be based wholly within the firm to stiff Glacial clay and weathered mudstone (clay) bedrock deposits, where a maximum allowable bearing pressure not exceeding 100kN/m<sup>2</sup> can be adopted.

Foundations should be suitably reinforced in order to minimise against differential settlements occurring between the natural glacial clay and weathered clay mudstone bedrock deposits. In addition, deepening of foundations may also be required for foundations within the influencing distance of existing and/or proposed trees.

### 11.2 Groundworks

#### 11.2.1 Site preparation

The development will involve the extension of the existing Aldi store and car park. This should be undertaken to an appropriate specification to ensure any asset materials generation are geotechnically acceptable for use.

#### 11.2.2 Earthworks/reuse of site-won materials

To allow for the extension and additional car parking spaces, it is likely that there will be a requirement to alter site levels in the area currently undeveloped to match existing site levels.

Where it is proposed to reuse site won materials as an engineered fill it is recommended that an appropriate site-specific earthworks specification be produced. The basis for the Specification should be BS 6031:2009 and the latest version of the Specification of Highway Works, Series 600 (SHW Series 600). Once site proposals have been defined more specific consideration will need to be given to the reuse of materials and reference should be made back to Hydrock.

Where re-use of site won materials are proposed, the production of a Materials Management Plan (MMP), and its approval by a Qualified Person, will be required to allow reuse of suitable material at the site in accordance with waste regulations (DoWCoP).

### 11.3 Floor Slabs

Due to the recorded absence of significant made ground within the area of the proposed extension, a ground bearing floor slab is considered to represent a viable solution subject to re-engineering a suitable fraction of any excavated material and / or replacement of the excavated material with suitable import (i.e. must conform to a suitable engineering specification).

### 11.4 External Works

From insitu dynamic cone penetrometer (DCP) tests completed as part of the investigation works (discounting the surface topsoil deposits which are anticipated to be removed as part of the enabling works and site strip), equivalent insitu CBR values recorded for the natural and upper weathered bedrock deposits were noted to range between 2 and 7%.

As a result, at this stage it is recommended that a conservative CBR value of 2% be adopted for the subgrade for the design of any new hardstanding. This should be reviewed following the completion of in-situ plate load (CBR) tests during the initial stages of the development works when the final formation level has been confirmed.

In accordance with current guidance and best practice it is also recommended that proof rolling of the formation level be undertaken, and where encountered any soft spots be removed and replaced with an engineered fill. The formation level will also need to be protected during inclement weather from deterioration. In addition, where applicable it is also recommended that a suitably experienced geotechnical engineer from Hydrock be in attendance during proof rolling.

In accordance with SHW Series 600 methodology (layer thickness and number of passes of roller) for the works will be based on the nature and type of materials. Dependent on the nature of material it is also generally recommended that the works be undertaken using a vibratory roller (min. over 700kg category) with layer thicknesses to be determined in accordance with SHW Series 600.

The design of external works should also be fully compliant with Aldi UK Standard Store Specification Chapter 11, Section 11.3, for Hard Landscaping dated 26/06/2020, which notes that the design shall generally comply with current British Standard recommendations, and as a minimum be capable of taking 42 tonnes triple axle vehicle traffic.

### 11.5 Excavations and Dewatering

If manned entry is proposed into excavations the use of support to excavation sides is recommended, in line with health and safety guidelines.

No significant groundwater was encountered during the ground investigation and post investigation monitoring encountering water in one location, the risk for significant groundwater ingress to occur within the excavations is considered unlikely.

Any groundwater or rainwater ingress that does occur should be controlled adequately by localised pumping from sumps within excavations.

### 11.6 Sulphate Attack on Buried Concrete

The results of the chemical analyses indicate a BRE Special Digest 1:2005 Design Sulphate Class DS-1 with an ACEC classification AC-1.

## 12. Uncertainties and limitations

### 12.1 Site-specific comments

The boreholes planned in the existing carpark area could not be completed due to a concrete obstruction present at 0.15mbgl, underneath the brick paving and sand subbase.

The gas monitoring is ongoing and the conclusions of this report will be updated following completion of the scheduled monitoring.

### 12.2 General comments

Hydrock Consultants Limited have prepared this report in accordance with the instructions of Aldi Stores Limited (the Client) under the terms of appointment for Hydrock, for the sole and specific use of the Client and parties commissioned by them to undertake work where reliance is placed on this report. Any third parties who use the information contained herein do so at their own risk. Hydrock shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared or for use of the report by any parties not defined in Hydrock's appointment. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and Hydrock do not owe them any Duty of Care or Skill.

This report presents the factual information available during this appraisal, interpretation of the data obtained and recommendations relevant to the outlined scope of works. It has been assumed in the production of this report that the site is to be developed for a commercial end use.

This report details the findings of work carried out in August 2023. The report has been prepared by Hydrock on the basis of available information obtained during the investigation period. Although every reasonable effort has been made to gather all relevant information, not all potential environmental constraints or liabilities associated with the site may have been revealed. Responsibility cannot be accepted for any conditions not revealed and which have not been taken into account by this report.

Hydrock has used reasonable skill, care and diligence in the design of the investigation of the site and in its interpretation of the information obtained. The inherent variation of ground conditions allows only definition of the actual conditions at the locations and depths of trial pits and boreholes at the time of the investigation. At intermediate locations, conditions can only be inferred.

Any diagram or opinion relating to site geology, contamination or other spatially variable features between or beyond investigation positions is conjectural and provided for guidance only. Confirmation of ground conditions between exploratory holes should be undertaken if deemed necessary. Evaluation of ground gas and groundwater is based on observations made at the time of the investigation and any monitoring visits, and it should be noted that levels may vary due to seasonal effects.

Plans that provide assessment of foundation types and depths are indicative and subject to further design. This design should incorporate a detailed assessment of the influence of trees, influence of cut to fill proposals and geological conditions.

Plans that provide assessment of foundation types and depths are indicative and subject to further design. This design should incorporate a detailed assessment of the influence of trees, influence of cut to fill proposals and geological conditions.

Unless otherwise stated, the recommendations in this report assume that ground levels will remain as existing. If there is to be any re-profiling (e.g., to create development platforms or for flood alleviation) then the recommendations may not apply.

Information provided by third parties has been used in good faith and is taken at face value; however, Hydrock cannot guarantee its accuracy or completeness.

Where the existing report(s) prepared by others have been provided by the Client, it is assumed that these have been either commissioned by the Client, or can be assigned to the Client, and can be relied upon by Hydrock. Should this not be the case Hydrock should be informed immediately as additional work may be required. Hydrock is not responsible for any factual errors or omissions in the supplied data, or for the opinions and recommendations of others. It is possible that the conditions described may have since changed through natural processes or later activities.

The work has been carried out in general accordance with recognised best practice. Unless otherwise stated, no assessment has been made for the presence of radioactive substances or unexploded ordnance. Where the phrase 'suitable for use' is used in this report, it is in keeping with the terminology used in planning control and does not imply any specific warranty or guarantee offered by Hydrock.

The chemical analyses reported were scheduled for the purposes of risk assessment with respect to human health, plant life and controlled waters as discussed in the report. Whilst the results may be useful in applying the Hazardous Waste Assessment Methodology given in Environment Agency Technical Guidance WM3, they are not primarily intended for that purpose and additional analysis will be required at the time of disposal to fully classify waste. Discussion and comment with regards to waste classification are preliminary and do not form the requirements of 'Basic Characterisation' as required.

Unless otherwise stated, at the time of this investigation the future routes of water supply pipes had not been established. This investigation and sampling strategy may not be fully compliant with UKWIR recommendations. Consequently, a targeted investigation and specific sampling and chemical testing may be required at a later date once the routes of the supply pipes are known. In addition, it is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

Whilst the preliminary risk assessment process has identified potential risks to construction workers, consideration of occupational health and safety issues is beyond the scope of this report.

References to possible asbestos containing material made within this report do not constitute an asbestos survey. Please note that notwithstanding any site observations concerning the presence or otherwise of archaeological sites, asbestos-containing materials, invasive weeds or ecology, this report does not constitute a formal survey of these potential constraints and specialist advice should be sought.

Any site boundary line depicted on plans does not imply legal ownership of land.



### 13. Recommendations for further work

Following the ground investigation works undertaken to date, the following further works will be required:

- completion and reporting of the ongoing gas monitoring, hence the conclusions in this report relating to ground gas are provisional, subject to the completion of ground gas monitoring;
- if re-use of site won materials are proposed as part of the redevelopment; production of a Materials Management Plan relating to reuse of soils at the site and import of soils to the site;

## *Appendix A Drawings*



| ID     | Type | X (Easting) | Y (Northing) | Proposed Depth (m) | Installation | Soakaway |
|--------|------|-------------|--------------|--------------------|--------------|----------|
| WS103  | WS   | 439665.17   | 293362.61    | 5                  | Y            |          |
| WS102  | WS   | 439662.92   | 293277.46    | 5                  | Y            |          |
| WS104  | WS   | 439642.47   | 293374.93    | 5                  |              |          |
| WS105  | WS   | 439697.85   | 293363.66    | 5                  |              |          |
| WS106  | WS   | 439626.38   | 293331.95    | 5                  |              |          |
| WS108  | WS   | 439633.14   | 293352.23    | 5                  |              |          |
| WS107  | WS   | 439660.99   | 293383.78    | 5                  |              |          |
| DCP101 | TRL  | 439657.93   | 293385.39    |                    |              |          |
| DCP102 | TRL  | 439634.54   | 293366.62    |                    |              |          |
| DCP103 | TRL  | 439701.23   | 293361.89    |                    |              |          |
| WS101  | WS   | 439618.17   | 293310.02    | 5                  | Y            |          |

KEY PLAN

Site Specific Information - needs 'make permanent' to project file

- Site boundary
- Proposed Locations
- Window Sampling
- TRL PROBE
- Installation

NOTES

1. Contains OS data © Crown copyright and database right (2022)

REVISIONS

| REV. | DRAWN BY INITIALS | CHECKED BY INITIALS | DATE       | REVISION NOTES/COMMENTS |
|------|-------------------|---------------------|------------|-------------------------|
| P01  | RC                | RC                  | 03/08/2022 | First Issue             |



CLIENT  
Aldi Stores Limited

PROJECT  
Aldi, Watling Street

TITLE  
PROPOSED GROUND INVESTIGATION PLAN

HYDROCK PROJECT NO. 28640

SCALE @ A3  
1:600

PURPOSE OF ISSUE  
SUITABLE FOR INFORMATION

STATUS  
S2

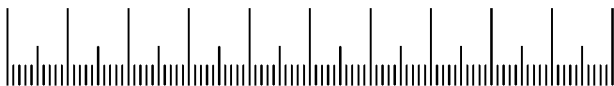
DRAWING NO.  
24680-HYD-XX-XX-DR-GE-0002

REVISIC  
P01



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0 100 200 300 400 500 600 700 800 900 1000m



LINEAR SCALE 1:1250

| Revision | Description | Date | Drawn | Checked |
|----------|-------------|------|-------|---------|
|----------|-------------|------|-------|---------|

**STOAS Architects Ltd**  
**PLANNING**

CLIENT **ALDI STORES LIMITED**

PROJECT **WATLING STREET,  
HINCKLEY, LEICESTERSHIRE**

TITLE **SITE LOCATION PLAN**



**STOAS**  
ARCHITECTS

THE LODGE - COLESHILL MANOR - BIRMINGHAM - B46 1DL - TEL 0121 747 1943  
1 DUNSTON PLACE - DUNSTON ROAD - CHESTERFIELD - S41 8NL - TEL 01246 389 860

SCALE **1:1250 @ A4** DRAWN **SI**

DATE **05.01.2022** CHECKED **SB**

NORTH



DWG No.

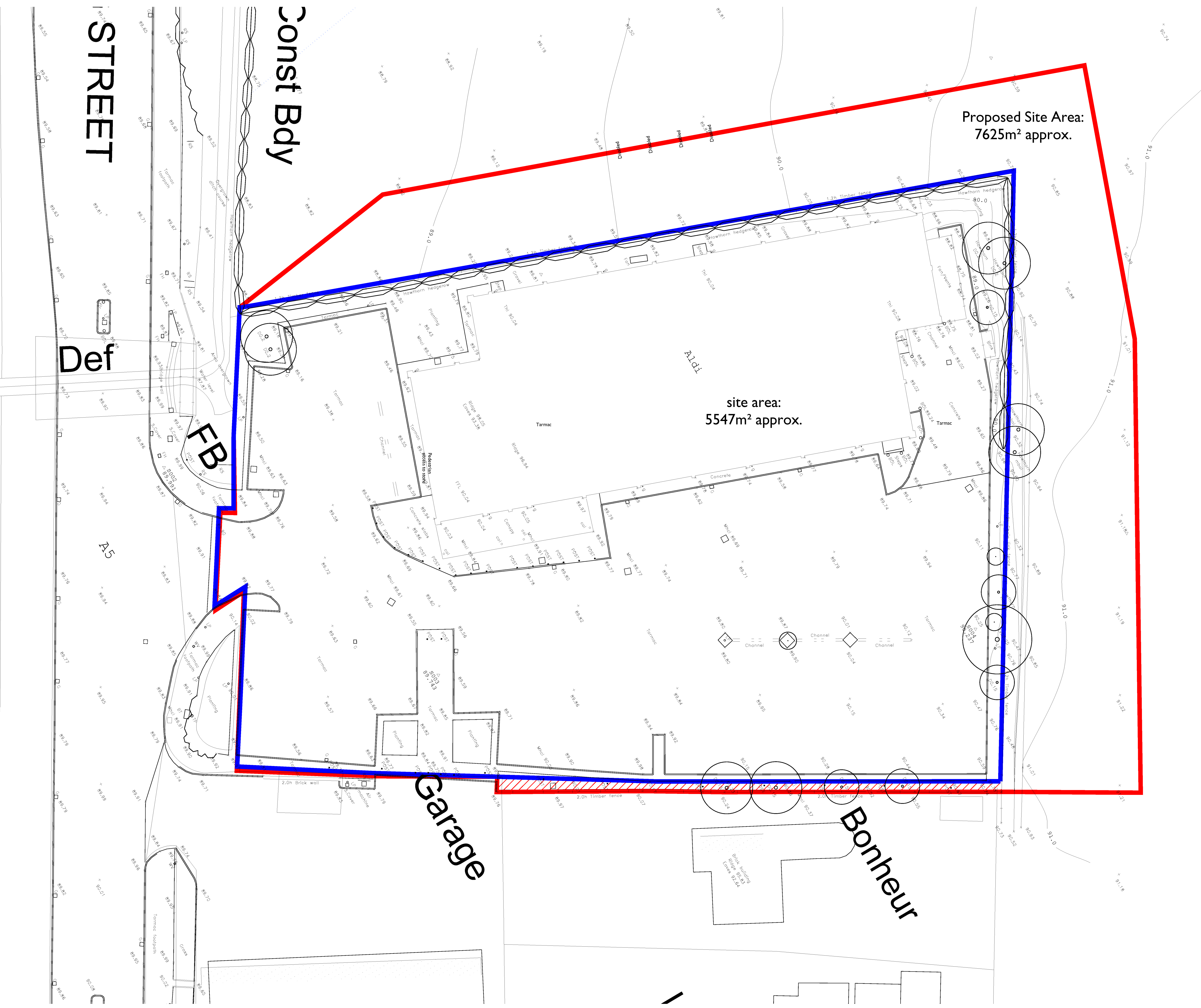
**K22A02 - P001**

REV

-

ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO ANY SHOP OR SITE WORKS BEING COMMENCED. ANY DISCREPANCIES TO BE REPORTED TO STOAS ARCHITECTS BEFORE ANY WORK IS PUT IN HAND. DO NOT SCALE FROM THIS DRAWING. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH RELEVANT CONSULTANTS' AND SPECIALISTS' DRAWINGS. THIS DRAWING IS THE PROPERTY OF STOAS ARCHITECTS. COPYRIGHT IS RESERVED BY THEM AND THE DRAWING IS ISSUED ON THE CONDITION THAT IT IS NOT COPIED, REPRODUCED, RETAINED OR DISCLOSED TO ANY UNAUTHORISED PERSON EITHER WHOLLY OR IN PART WITHOUT THE WRITTEN CONSENT OF STOAS ARCHITECTS.



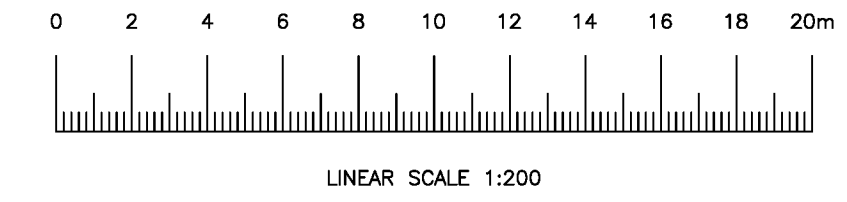


Planning Boundary

Existing Ownership Boundary

Unregistered land to be acquired under option

| SITE AREA:          |                              |
|---------------------|------------------------------|
| EXISTING:           | 5547 sq m (1.3 acres approx) |
| PROPOSED:           | 7625 sq m (1.8 acres approx) |
| CUSTOMER CAR SPACES | 88 No. Approx. (2.4 x 4.8m)  |
| CYCLE SPACES        | 8 No.                        |



| Revision | Description | Date | Drawn | Checked |
|----------|-------------|------|-------|---------|
|----------|-------------|------|-------|---------|

STOAS Architects Ltd

PLANNING

STOAS

ARCHITECTS

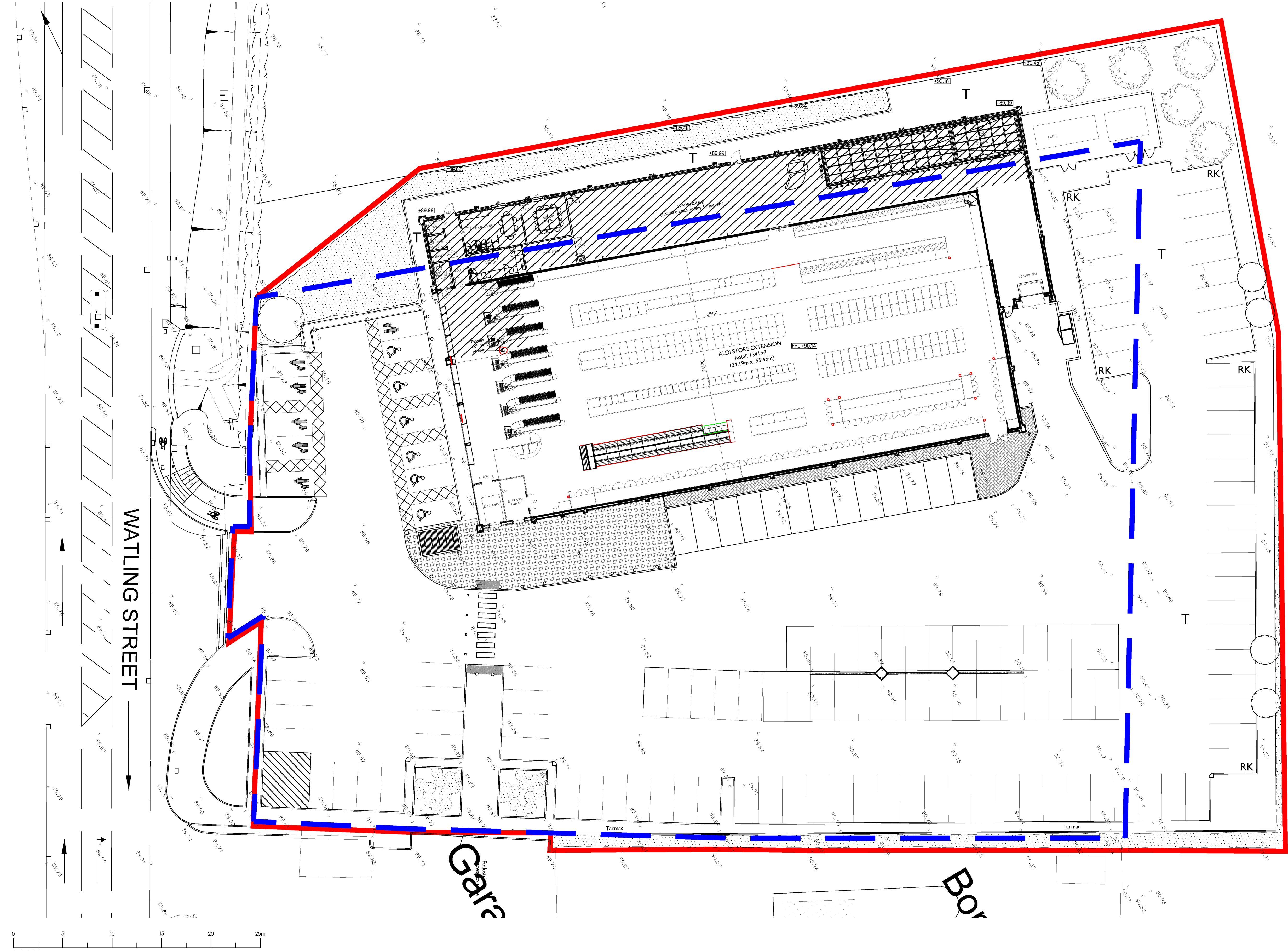
THE LODGE - COLESHILL MANOR - BIRMINGHAM - B46 1DL - TEL 0121 747 1943  
1 DUNSTON PLACE - DUNSTON ROAD - CHESTERFIELD - S41 8NL - TEL 01246 389 860

|         |                                          |
|---------|------------------------------------------|
| CLIENT  | ALDI STORES LIMITED                      |
| PROJECT | WATLING STREET, HINCKLEY, LEICESTERSHIRE |
| TITLE   | EXISTING SITE PLAN                       |

|         |               |          |            |
|---------|---------------|----------|------------|
| DATE    | 05.01.2022    | SCALE    | 1:200 @ A1 |
| DRAWN   | SI            | CHECKED  | SB         |
| NORTH   |               |          |            |
| DWG No. | K22A02 - P002 | REVISION | -          |

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**ACCESS ARRANGEMENTS**

This statement relates to the access arrangements for the Aldi Food Retail Store and details the arrangements for all modes of transport to and from the store. It also includes details of how level access arrangements are achieved and how the entrance to the store operates. This statement is to be read in conjunction with the separate Design and Access statement.

There are a total of 135No. proposed car parking spaces including 6No. Disabled parking spaces and 6No. Parent and Child parking spaces.

The store access is under a glazed canopy with a set automatic sliding entrance doors with a clear opening of 1100 mm and glazing manifestation giving full access to all customers and staff. The junction between the retail store finished floor level and the external floor is a flush transition detail.

The general car parking is laid out to a gradient of no more than 1:40 (1:60 across disabled bays) which prevents any loss of loaded trolleys and also allows for easy access to the store frontage from any area within the car park.

Pedestrian access is provided from Watling St, via footpaths separated from the car parking areas.

Contained within the site is a dedicated delivery yard with loading bay, service areas, bin storage and turning facilities for the HGV and rigid commercial (milk) vehicle.

| HARD LANDSCAPING LEGEND |                                      |
|-------------------------|--------------------------------------|
| RK                      | RAISED KERB                          |
| EK                      | EDGING KERB                          |
| FK                      | FLUSH KERB                           |
| DK                      | DROP KERB                            |
| TK                      | TRANSITION KERB                      |
| TRK                     | TRIEF (SAFETY KERB) KERB             |
| TTK                     | TRIEF (SAFETY KERB) TRANSITION KERB  |
| TP                      | TACTILE PAVING                       |
| BC                      | BRUSHED CONCRETE                     |
| T                       | TARMAC                               |
| SSB                     | STAINLESS STEEL BOLLARD              |
| HDB                     | HEAVY DUTY BOLLARD                   |
| TB                      | TELESCOPIC BOLLARDS AT SITE ENTRANCE |
| DC                      | DRAINAGE CHANNEL                     |
| G                       | NEW STORM WATER DRAINAGE GULLY       |

|  |                              |
|--|------------------------------|
|  | SINGLE LIGHT LIGHTING COLUMN |
|  | DOUBLE LIGHT LIGHTING COLUMN |
|  | EXISTING TREES               |
|  | NEW TREES                    |
|  | LOW LEVEL LANDSCAPING        |
|  | PROPOSED LEVELS              |
|  | EXISTING LEVELS              |

|                                              |                                      |                        |
|----------------------------------------------|--------------------------------------|------------------------|
| SITE AREA                                    | 7625 sq m (1.8 acres approx)         |                        |
| CAR PARKING                                  | Existing: 88 no Approx. (2.4 x 4.8m) |                        |
|                                              | Proposed: 135 No Approx.             |                        |
| CYCLE SPACES                                 | 10 No.                               |                        |
| GROSS EXTERNAL AREA (GEA)                    | 1907 sq m                            | 20,526 sq ft           |
| GROSS INTERNAL AREA (GIA)                    | 1842 sq m                            | 19,827 sq ft           |
| RETAIL AREA 55.45m (L) x 24.19m (W)          | 1340 sq m                            | 14,423 sq ft           |
| WELFARE BLOCK (including Plant Room)         | 101 sq m                             | 1,087 sq ft            |
| WAREHOUSE (including Loading Bay & Freezers) | 386 sq m                             | 4154 sq ft             |
|                                              | PROPOSED EXTENSION                   | EXISTING SITE BOUNDARY |

|          |              |          |       |         |
|----------|--------------|----------|-------|---------|
| 1        | Rev Details. | 00/00/00 | ABC   | ABC     |
| Revision | Description  | Date     | Drawn | Checked |

## STOAS Architects Ltd PLANNING



THE LODGE - COLESHILL MANOR - BIRMINGHAM - B46 1DL - TEL 0121 747 1943  
1 DUNSTON PLACE - DUNSTON ROAD - CHESTERFIELD - S41 8NL - TEL 01746 389 860

CLIENT **ALDI STORES LTD**

PROJECT **WATLING ST  
HINCKLEY  
LEICESTERSHIRE**

TITLE **PROPOSED SITE PLAN**

DATE **26.01.2022** SCALE **1:200 @A1**

DRAWN **SI** CHECKED **SB**

NORTH

DWG No. **K22A02 - P003** REVISION **-**

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## *Appendix B Exploratory hole record sheets and dynamic cone penetrometer (DCP) analysis sheets*

General Remarks:  
1. Hand dug inspection pit to 1.20m bgl. 2. Complete at 2.00m bgl due to refusal on bedrock. 3. No groundwater encountered. 4. No visual or olfactory evidence of contamination.



Drilled By:

|                      |
|----------------------|
| Rig: Premier Compact |
|----------------------|

Scale: 1:30

General Remarks:  
1. Hand dug inspection pit to 0.15m bgl. 2. Terminated at 0.15m bgl on concrete obstruction.



General Remarks:  
1. Hand dug inspection pit to 0.15m bgl. 2. Terminated at 0.15m bgl on concrete obstruction.





| Sample Run Info |       |          | Testing   |      |                                                                                                                                                                            | Water-Strikes                                                                                                                                                                                  | Stratum Description                                                                                                                                                                         | Depth<br>m(gl) | Thickness<br>(m)                                                                    | Level<br>m OD                                                                       | Legend                                                                              | Instrumentation / Backfill                                                          |
|-----------------|-------|----------|-----------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Sample Run      | Run Ø | Recovery | Depth (m) | Type | Results                                                                                                                                                                    |                                                                                                                                                                                                |                                                                                                                                                                                             |                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                 |       |          | 0.40      | ES   | 0.0ppm                                                                                                                                                                     |                                                                                                                                                                                                | Grass over soft dark brown gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse of mixed lithologies including sandstone, quartzite and chert.<br>(TOPSOIL) | 0.20           | (0.20)                                                                              | 90.28                                                                               |  |  |
|                 |       |          | 0.50      | PID  |                                                                                                                                                                            | Firm orangish brown mottled grey slightly gravelly CLAY. Gravel is well rounded and rounded fine to coarse of mixed lithologies including sandstone, mudstone and quartzite.<br>(GLACIAL TILL) | 0.60                                                                                                                                                                                        | (0.40)         | 89.86                                                                               |  |                                                                                     |                                                                                     |
|                 |       |          | 0.70      | D    | Stiff reddish brown mottled grey slightly gravelly CLAY with rare pockets of reddish brown medium sand. Gravel is angular fine of mudstone.<br>(WEATHERED MERCIA MUDSTONE) | 1                                                                                                                                                                                              | (0.60)                                                                                                                                                                                      |                |  |                                                                                     |                                                                                     |                                                                                     |
|                 |       |          | 1.20      | SPT  | 50/255mm<br>(7,10,13,13,15,9)                                                                                                                                              | -----<br>End of Borehole at 1.20m                                                                                                                                                              |                                                                                                                                                                                             |                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                 |       |          |           |      |                                                                                                                                                                            |                                                                                                                                                                                                |                                                                                                                                                                                             | 2              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                 |       |          |           |      |                                                                                                                                                                            |                                                                                                                                                                                                |                                                                                                                                                                                             | 3              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                 |       |          |           |      |                                                                                                                                                                            |                                                                                                                                                                                                |                                                                                                                                                                                             | 4              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                 |       |          |           |      |                                                                                                                                                                            |                                                                                                                                                                                                |                                                                                                                                                                                             | 5              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                 |       |          |           |      |                                                                                                                                                                            |                                                                                                                                                                                                |                                                                                                                                                                                             | 6              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Logged in general accordance with BS5930:2015

HoleBASE SI - Hydrock Dynamic Sampling Template v3



Method: Window Sampler

Date(s): 08/08/2023

Logged By: BH

Drilled By: RGI

Client: Aldi Stores Limited

Co-ords: 439626.38, 293331.95

Checked By: RC

Rig: Premier Compact

Hydrock Project No: 28640

Ground Level: 89.42m OD

Scale: 1:30

| Sample Run Info          |       |          | Testing              |                 |                                    | Water-Strikes | Stratum Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Depth m bgl  | Thickness (m)    | Level m OD     | Legend | Instrumentation / Backfill |
|--------------------------|-------|----------|----------------------|-----------------|------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|----------------|--------|----------------------------|
| Sample Run               | Run Ø | Recovery | Depth (m)            | Type            | Results                            |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |                  |                |        |                            |
|                          |       |          | 0.50<br>0.50         | ES<br>PID       | 0.0ppm                             |               | Grass over soft dark brown gravelly CLAY with frequent rootlets. Gravel is subangular to rounded fine to coarse of mixed lithologies including sandstone, quartzite and chert.<br>(TOPSOIL)<br>Firm orangish brown mottled grey slightly gravelly CLAY. Gravel is well rounded and rounded fine to coarse of mixed lithologies including sandstone, mudstone and quartzite.<br>(GLACIAL TILL)<br>Stiff red mottled grey slightly gravelly CLAY. Gravel is angular fine of mudstone.<br>(WEATHERED MERCIA MUDSTONE) | 0.20<br>0.50 | (0.20)<br>(0.30) | 89.22<br>88.92 |        |                            |
| 1.20 - 2.00              |       | 100%     | 1.20                 | SPT             | N=37<br>(8,8,10,7,10,10)           |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              | (1.30)           |                |        |                            |
| 2.00 - 3.00              |       | 100%     | 2.00                 | SPT             | N=39<br>(4,6,10,9,10,10)           |               | Very stiff red mottled grey sandy CLAY.<br>(WEATHERED MERCIA MUDSTONE)                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.80         |                  | 87.62          |        |                            |
| 3.00 - 4.00              |       | 100%     | 3.00<br>3.00<br>3.00 | SPT<br>D<br>PID | N=40<br>(3,4,10,10,9,11)<br>0.0ppm |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              | (2.20)           |                |        |                            |
|                          |       |          | 4.00                 | SPT             | 50/265mm<br>(3,6,10,12,18,10)      |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4.00         |                  | 85.42          |        |                            |
| End of Borehole at 4.00m |       |          |                      |                 |                                    |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |                  |                |        |                            |

## General Remarks:

1. Hand dug inspection pit to 1.20m bgl. 2. Complete at 4.00m bgl due to refusal on bedrock. 3. Groundwater encountered at 3.98m bgl. 4. No visual or olfactory evidence of contamination.

Drilled By: RGI

|                      |
|----------------------|
| Rig: Premier Compact |
|----------------------|

Scale: 1:30

General Remarks:  
1. Hand dug inspection pit to 1.20m bgl. 2. Complete at 3.00m bgl due to refusal on bedrock. 3. No groundwater encountered. 4. No visual or olfactory evidence of contamination.

Drilled By: RGI

|                      |
|----------------------|
| Rig: Premier Compact |
|----------------------|

Scale: 1:30

General Remarks:  
1. Hand dug inspection pit to 1.20m bgl. 2. Complete at 2.00m bgl due to refusal on bedrock. 3. No groundwater encountered. 4. No visual or olfactory evidence of contamination.

Drilled By: RGI

|                      |
|----------------------|
| Rig: Premier Compact |
|----------------------|

Scale: 1:30

General Remarks:  
1. Hand dug inspection pit to 1.20m bgl. 2. Complete at 2.00m bgl due to refusal on bedrock. 3. No groundwater encountered. 4. No visual or olfactory evidence of contamination.

## TEST CERTIFICATE

### Determination of TRL Dynamic Cone Penetrometer

Tested in accordance with In TRL Road Note 31 & 8 and IAN 73/06 (2009 amendment)

Construction  
Infrastructure  
Environment

3 Hawthorn Park  
Holdenby Road  
Spratton  
Northampton  
NN6 8LD

United Kingdom

Tel: +44 (0)1604 842888  
Fax: +44 (0)1604 842666

Email: northampton@hydrock.com

Client: Aldi Stores

Client Address:

Postcode:

Contact:

Site Name: Aldi, Hinckley

Site Address:

Certificate Number:

Client Reference: Aldi Stores

Job Number: 28640

Date Received:

Date Tested: 08/08/2023

#### Test Results:

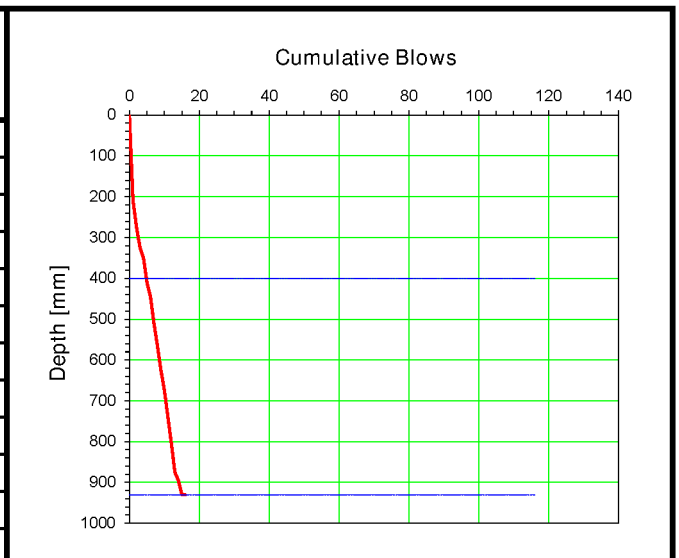
Sample Description: Natural Ground

Sample Number: DCP101

Start Depth [mm]:

Test Location: DCP101

| Layer   | No of Blows | Cumulative Blows | CBR [%] | Layer Thickness [mm] | Total Depth [mm] |
|---------|-------------|------------------|---------|----------------------|------------------|
| Layer 1 | 1           | 1                | 1       | 400                  | 400              |
| Layer 2 | 15          | 16               | 7       | 530                  | 930              |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |



Comments: TRL Equation :  $\log_{10}(\text{CBR}) = 2.480 - 1.057 \times \log_{10}(\text{Strength})$

Approved Signatory: C.Vincett  
I. Gardner

Name: Becky Homer

Signed:

Position: Consultant

Date Reported: 08 August 2023  
Form Number: HD-TRL-DCP

Page 1 of 1

for and behalf of

**Hydrock**  
Registered Office:  
Hydrock Consultants Ltd  
Over Court Barns  
Over Lane Almondsbury  
Bristol BS32 4DF U.K.



## TEST CERTIFICATE

### Determination of TRL Dynamic Cone Penetrometer

Tested in accordance with In TRL Road Note 31 & 8 and IAN 73/06 (2009 amendment)

Construction  
Infrastructure  
Environment

3 Hawthorn Park  
Holdenby Road  
Spratton  
Northampton  
NN6 8LD

United Kingdom

Tel: +44 (0)1604 842888  
Fax: +44 (0)1604 842666

Email: northampton@hydrock.com

Client: Aldi Stores

Client Address:

Postcode:

Contact: Aldi, Hinckley

Site Name:

Site Address:

Certificate Number:

Client Reference:

Job Number: 28640

Date Received:

Date Tested: 08/08/2023

### Test Results:

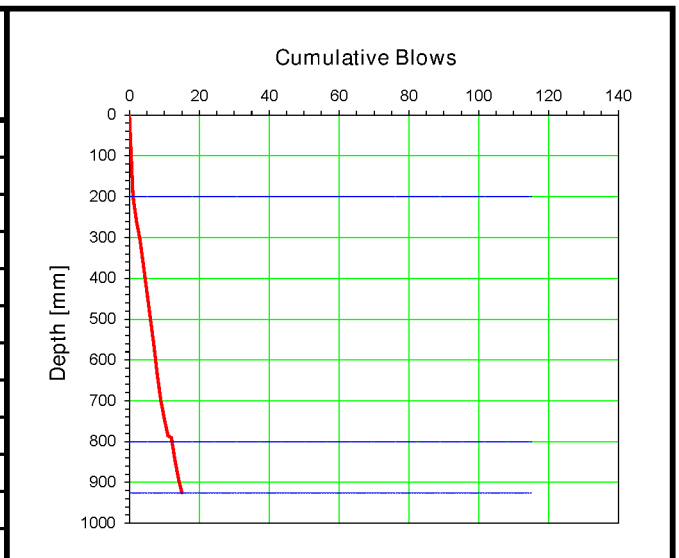
Sample Description: Natural Ground

Sample Number: DCP102

Start Depth [mm]:

Test Location: DCP102

| Layer   | No of Blows | Cumulative Blows | CBR [%] | Layer Thickness [mm] | Total Depth [mm] |
|---------|-------------|------------------|---------|----------------------|------------------|
| Layer 1 | 1           | 1                | 1       | 200                  | 200              |
| Layer 2 | 7           | 8                | 3       | 600                  | 800              |
| Layer 3 | 7           | 15               | 2       | 845                  | 925              |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |



Comments: TRL Equation :  $\text{Log}_{10}(\text{CBR}) = 2.480 - 1.057 \times \text{Log}_{10}(\text{Strength})$

## TEST CERTIFICATE

### Determination of TRL Dynamic Cone Penetrometer

Tested in accordance with In TRL Road Note 31 & 8 and IAN 73/06 (2009 amendment)

Construction  
Infrastructure  
Environment

3 Hawthorn Park  
Holdenby Road  
Spratton  
Northampton  
NN6 8LD

United Kingdom

Tel: +44 (0)1604 842888  
Fax: +44 (0)1604 842666

Email: northampton@hydrock.com

Client: Aldi Stores

Client Address:

Postcode:

Contact:

Site Name: Aldi, Hinckley

Site Address:

Certificate Number:

Client Reference: RGI

Job Number: 28640

Date Received:

Date Tested: 08/08/2023

#### Test Results:

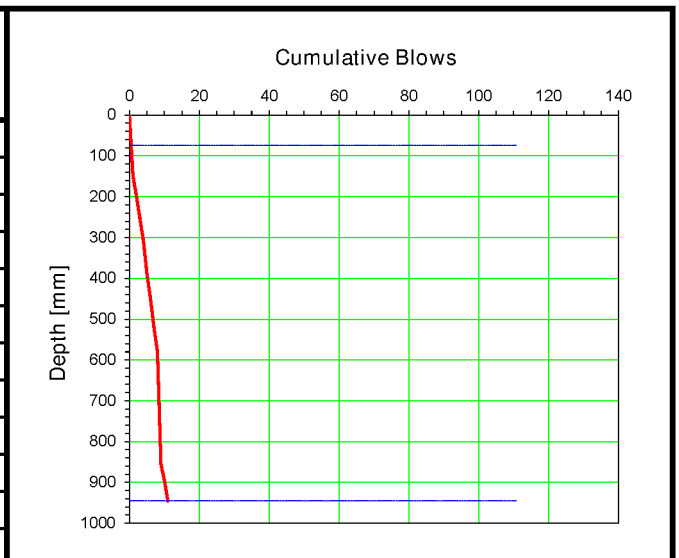
Sample Description: Natural Ground

Sample Number: DCP103

Start Depth [mm]:

Test Location: DCP103

| Layer   | No of Blows | Cumulative Blows | CBR [%] | Layer Thickness [mm] | Total Depth [mm] |
|---------|-------------|------------------|---------|----------------------|------------------|
| Layer 1 | 7           | 7                | 3       | 500                  | 75               |
| Layer 2 | 4           | 11               | 2       | 445                  | 945              |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |
|         |             |                  |         |                      |                  |



Comments: TRL Equation :  $\log_{10}(\text{CBR}) = 2.480 - 1.057 \times \log_{10}(\text{Strength})$

## *Appendix C Ground gas and water monitoring results*

[illegible]

## *Appendix D Chemical Test Results*



**Rob Crookes**

Hydrock Consultants Ltd  
4 Lakeside  
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Stoke on Trent  
ST1 5RY

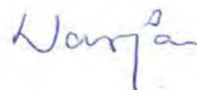
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## **Analytical Report Number : 23-50873**

|                             |                |                                                        |            |
|-----------------------------|----------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Aldi Hinckley  | <b>Samples received on:</b>                            | 10/08/2023 |
| <b>Your job number:</b>     | 28640          | <b>Samples instructed on/<br/>Analysis started on:</b> | 10/08/2023 |
| <b>Your order number:</b>   | PO27939        | <b>Analysis completed by:</b>                          | 18/08/2023 |
| <b>Report Issue Number:</b> | 1              | <b>Report issued on:</b>                               | 18/08/2023 |
| <b>Samples Analysed:</b>    | 4 soil samples |                                                        |            |

**Signed:**

Dominika Warjan  
Reporting Specialist  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

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

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

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

Analytical Report Number: 23-50873  
Project / Site name: Aldi Hinckley  
Your Order No: PO27939

| Lab Sample Number                       |       |                    |                         | 2780757       | 2780758       | 2780759       | 2780760       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | WS104         | WS108         | WS106         | WS109         |
| Sample Number                           |       |                    |                         | 2             | 1             | 2             | 2             |
| Depth (m)                               |       |                    |                         | 0.70          | 2.00          | 3.00          | 1.00          |
| Date Sampled                            |       |                    |                         | Deviating     | Deviating     | Deviating     | Deviating     |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |
| Stone Content                           | %     | 0.1                | NONE                    | < 0.1         | < 0.1         | < 0.1         | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                    | 12            | 11            | 12            | 16            |
| Total mass of sample received           | kg    | 0.001              | NONE                    | 0.5           | 0.3           | 0.4           | 0.4           |

#### General Inorganics

|                                                                         |          |         |        |        |        |        |        |
|-------------------------------------------------------------------------|----------|---------|--------|--------|--------|--------|--------|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 7.6    | 8.5    | 8.6    | 7.3    |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.0122 | 0.0103 | 0.0148 | 0.0217 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25    | MCERTS | 12.2   | 10.3   | 14.8   | 21.7   |

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

**Analytical Report Number : 23-50873**

**Project / Site name: Aldi Hinckley**

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

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

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description *                            |
|-------------------|------------------|---------------|-----------|-------------------------------------------------|
| 2780757           | WS104            | 2             | 0.7       | Brown clay with vegetation.                     |
| 2780758           | WS108            | 1             | 2         | Brown clay and sand with gravel.                |
| 2780759           | WS106            | 2             | 3         | Brown clay and sand with gravel and vegetation. |
| 2780760           | WS109            | 2             | 1         | Brown clay with vegetation.                     |

Analytical Report Number : 23-50873

Project / Site name: Aldi Hinckley

Water matrix abbreviations:

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

| Analytical Test Name                               | Analytical Method Description                                                                                                                             | Analytical Method Reference                                                | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Moisture Content                                   | Moisture content, determined gravimetrically. (30 oC)                                                                                                     | In house method.                                                           | L019-UK/PL    | W                  | NONE                 |
| pH in soil (automated)                             | Determination of pH in soil by addition of water followed by automated electrometric measurement.                                                         | In house method.                                                           | L099-PL       | D                  | MCERTS               |
| Stones content of soil                             | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.                               | In-house method based on British Standard Methods and MCERTS requirements. | L019-UK/PL    | D                  | NONE                 |
| Sulphate, water soluble, in soil (16hr extraction) | Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent). | In house method.                                                           | L038-PL       | D                  | MCERTS               |
| Sulphate, water soluble, in soil                   | Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent). | In house method.                                                           | L038-PL       | D                  | MCERTS               |

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

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

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

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

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

## Sample Deviation Report



**Analytical Report Number : 23-50873**

**Project / Site name: Aldi Hinckley**

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

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

| Sample ID | Other ID | Sample Type | Lab Sample Number | Sample Deviation | Test Name     | Test Ref      | Test Deviation |
|-----------|----------|-------------|-------------------|------------------|---------------|---------------|----------------|
| WS104     | 2        | S           | 2780757           | a                | None Supplied | None Supplied | None Supplied  |
| WS106     | 2        | S           | 2780759           | a                | None Supplied | None Supplied | None Supplied  |
| WS108     | 1        | S           | 2780758           | a                | None Supplied | None Supplied | None Supplied  |
| WS109     | 2        | S           | 2780760           | a                | None Supplied | None Supplied | None Supplied  |

**Rob Crookes**

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## **Analytical Report Number : 23-50880**

Replaces Analytical Report Number: 23-50880, issue no. 1

Additional analysis undertaken.

Asbestos screen added as per client's request

|                             |                |                                                        |            |
|-----------------------------|----------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Aldi, Hinckley | <b>Samples received on:</b>                            | 10/08/2023 |
| <b>Your job number:</b>     | 28640          | <b>Samples instructed on/<br/>Analysis started on:</b> | 14/08/2023 |
| <b>Your order number:</b>   | PO27939        | <b>Analysis completed by:</b>                          | 30/08/2023 |
| <b>Report Issue Number:</b> | 2              | <b>Report issued on:</b>                               | 30/08/2023 |
| <b>Samples Analysed:</b>    | 6 soil samples |                                                        |            |

**Signed:**

Dominika Warjan  
Reporting Specialist  
**For & on behalf of i2 Analytical Ltd.**

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

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

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

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

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

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



Analytical Report Number: 23-50880  
Project / Site name: Aldi, Hinckley  
Your Order No: PO27939

| Lab Sample Number                       |       |                    |                         | 2780788       | 2780789       | 2780790       | 2780791       | 2780792       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference                        |       |                    |                         | WS105         | WS107         | WS104         | WS106         | WS101         |
| Sample Number                           |       |                    |                         | ES1           | ES2           | ES1           | ES1           | ES3           |
| Depth (m)                               |       |                    |                         | 0.30          | 0.60          | 0.40          | 0.50          | 0.30          |
| Date Sampled                            |       |                    |                         | Deviating     | Deviating     | Deviating     | Deviating     | Deviating     |
| Time Taken                              |       |                    |                         | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |               |               |               |               |
| Stone Content                           | %     | 0.1                | NONE                    | < 0.1         | < 0.1         | < 0.1         | < 0.1         | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                    | 14            | 13            | 13            | 11            | 11            |
| Total mass of sample received           | kg    | 0.001              | NONE                    | 0.8           | 0.7           | 0.7           | 0.8           | 0.7           |

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

#### General Inorganics

|                                                                         |          |         |        |        |        |        |        |        |
|-------------------------------------------------------------------------|----------|---------|--------|--------|--------|--------|--------|--------|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 6.3    | 7.6    | 6.6    | 7.2    | 6.8    |
| Free Cyanide                                                            | mg/kg    | 1       | MCERTS | < 1.0  | < 1.0  | < 1.0  | < 1.0  | < 1.0  |
| Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)         | mg/kg    | 2.5     | MCERTS | 26     | 24     | 12     | 25     | 13     |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.0128 | 0.0121 | 0.0062 | 0.0125 | 0.0064 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25    | MCERTS | 12.8   | 12.1   | 6.2    | 12.5   | 6.4    |
| Total Organic Carbon (TOC) - Automated                                  | %        | 0.1     | MCERTS | 1.9    | 0.4    | 0.5    | 0.2    | 0.8    |

#### Speciated PAHs

|                        |       |      |           |        |        |        |        |        |
|------------------------|-------|------|-----------|--------|--------|--------|--------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | 0.07   | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.61   | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.17   | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | 0.05   | < 0.05 | < 0.05 | 0.95   | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | 0.05   | < 0.05 | < 0.05 | 0.84   | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.45   | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.48   | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | < 0.05 | < 0.05 | < 0.05 | 0.65   | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | < 0.05 | < 0.05 | < 0.05 | 0.24   | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.5    | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.29   | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.08   | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | < 0.05 | < 0.05 | < 0.05 | 0.34   | < 0.05 |

#### Total PAH

|                             |       |     |           |        |        |        |     |        |
|-----------------------------|-------|-----|-----------|--------|--------|--------|-----|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | < 0.80 | < 0.80 | < 0.80 | 5.6 | < 0.80 |
|-----------------------------|-------|-----|-----------|--------|--------|--------|-----|--------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |       |       |       |       |
|-----------------------------------|-------|-----|--------|-------|-------|-------|-------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 9     | 6.6   | 9.4   | 12    | 8.2   |
| Boron (water soluble)             | mg/kg | 0.2 | MCERTS | 1.8   | 0.8   | 1.2   | 0.7   | 1     |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 1.8 | MCERTS | < 1.8 | < 1.8 | < 1.8 | < 1.8 | < 1.8 |
| Chromium (III)                    | mg/kg | 1   | NONE   | 24    | 26    | 33    | 48    | 29    |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 26    | 26    | 34    | 48    | 29    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 16    | 14    | 16    | 17    | 14    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 30    | 11    | 15    | 14    | 16    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 18    | 26    | 21    | 53    | 25    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 61    | 39    | 47    | 78    | 55    |

Analytical Report Number: 23-50880  
Project / Site name: Aldi, Hinckley  
Your Order No: PO27939

|                                         |               |                    |                         |               |               |
|-----------------------------------------|---------------|--------------------|-------------------------|---------------|---------------|
| Lab Sample Number                       | 2780788       | 2780789            | 2780790                 | 2780791       | 2780792       |
| Sample Reference                        | WS105         | WS107              | WS104                   | WS106         | WS101         |
| Sample Number                           | ES1           | ES2                | ES1                     | ES1           | ES3           |
| Depth (m)                               | 0.30          | 0.60               | 0.40                    | 0.50          | 0.30          |
| Date Sampled                            | Deviating     | Deviating          | Deviating               | Deviating     | Deviating     |
| Time Taken                              | None Supplied | None Supplied      | None Supplied           | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units         | Limit of detection | Accreditation<br>Status |               |               |

#### Monoaromatics & Oxygenates

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

#### Petroleum Hydrocarbons

|                                                 |       |     |        |        |   |        |   |   |
|-------------------------------------------------|-------|-----|--------|--------|---|--------|---|---|
| TPH-CWG - Aliphatic > EC5 - EC8 HS 1D AL        | mg/kg | 0.1 | NONE   | < 0.10 | - | < 0.10 | - | - |
| TPH-CWG - Aliphatic > EC6 - EC8 HS 1D AL        | mg/kg | 0.1 | NONE   | < 0.10 | - | < 0.10 | - | - |
| TPH-CWG - Aliphatic > EC8 - EC10 HS 1D AL       | mg/kg | 0.1 | NONE   | < 0.10 | - | < 0.10 | - | - |
| TPH-CWG - Aliphatic > EC10 - EC12 EH CU 1D AL   | mg/kg | 1   | MCERTS | < 1.0  | - | < 1.0  | - | - |
| TPH-CWG - Aliphatic > EC12 - EC16 EH CU 1D AL   | mg/kg | 2   | MCERTS | < 2.0  | - | < 2.0  | - | - |
| TPH-CWG - Aliphatic > EC16 - EC21 EH CU 1D AL   | mg/kg | 8   | MCERTS | < 8.0  | - | < 8.0  | - | - |
| TPH-CWG - Aliphatic > EC21 - EC35 EH CU 1D AL   | mg/kg | 8   | MCERTS | < 8.0  | - | < 8.0  | - | - |
| TPH-CWG - Aliphatic > EC16 - EC35 EH CU 1D AL   | mg/kg | 10  | MCERTS | < 10   | - | < 10   | - | - |
| TPH-CWG - Aliphatic > EC35 - EC44 EH CU 1D AL   | mg/kg | 8.4 | NONE   | < 8.4  | - | < 8.4  | - | - |
| TPH-CWG - Aliphatic (EC5 - EC35) EH CU+HS 1D AL | mg/kg | 10  | NONE   | < 10   | - | < 10   | - | - |
| TPH-CWG - Aliphatic (EC5 - EC44) EH CU+HS 1D AL | mg/kg | 10  | NONE   | < 10   | - | < 10   | - | - |

|                                                |       |     |        |        |   |        |   |   |
|------------------------------------------------|-------|-----|--------|--------|---|--------|---|---|
| TPH-CWG - Aromatic > EC5 - EC7 HS 1D AR        | mg/kg | 0.1 | NONE   | < 0.10 | - | < 0.10 | - | - |
| TPH-CWG - Aromatic > EC7 - EC8 HS 1D AR        | mg/kg | 0.1 | NONE   | < 0.10 | - | < 0.10 | - | - |
| TPH-CWG - Aromatic > EC8 - EC10 HS 1D AR       | mg/kg | 0.1 | NONE   | < 0.10 | - | < 0.10 | - | - |
| TPH-CWG - Aromatic > EC10 - EC12 EH CU 1D AR   | mg/kg | 1   | MCERTS | < 1.0  | - | < 1.0  | - | - |
| TPH-CWG - Aromatic > EC12 - EC16 EH CU 1D AR   | mg/kg | 2   | MCERTS | < 2.0  | - | < 2.0  | - | - |
| TPH-CWG - Aromatic > EC16 - EC21 EH CU 1D AR   | mg/kg | 10  | MCERTS | < 10   | - | < 10   | - | - |
| TPH-CWG - Aromatic > EC21 - EC35 EH CU 1D AR   | mg/kg | 10  | MCERTS | < 10   | - | < 10   | - | - |
| TPH-CWG - Aromatic > EC35 - EC44 EH CU 1D AR   | mg/kg | 8.4 | NONE   | < 8.4  | - | < 8.4  | - | - |
| TPH-CWG - Aromatic (EC5 - EC35) EH CU+HS 1D AR | mg/kg | 10  | NONE   | < 10   | - | < 10   | - | - |
| TPH-CWG - Aromatic (EC5 - EC44) EH CU+HS 1D AR | mg/kg | 10  | NONE   | < 10   | - | < 10   | - | - |

|                                      |       |    |      |      |   |      |   |   |
|--------------------------------------|-------|----|------|------|---|------|---|---|
| TPH Total C5 - C44 EH CU+HS 1D TOTAL | mg/kg | 10 | NONE | < 10 | - | < 10 | - | - |
|--------------------------------------|-------|----|------|------|---|------|---|---|

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

Analytical Report Number: 23-50880  
Project / Site name: Aldi, Hinckley  
Your Order No: PO27939

| Lab Sample Number                       |       |                    |                         | 2780793       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|
| Sample Reference                        |       |                    |                         | WS109         |
| Sample Number                           |       |                    |                         | ES1           |
| Depth (m)                               |       |                    |                         | 0.40          |
| Date Sampled                            |       |                    |                         | Deviating     |
| Time Taken                              |       |                    |                         | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |
| Stone Content                           | %     | 0.1                | NONE                    | < 0.1         |
| Moisture Content                        | %     | 0.01               | NONE                    | 13            |
| Total mass of sample received           | kg    | 0.001              | NONE                    | 0.7           |

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

#### General Inorganics

|                                                                         |          |         |        |        |
|-------------------------------------------------------------------------|----------|---------|--------|--------|
| pH - Automated                                                          | pH Units | N/A     | MCERTS | 7      |
| Free Cyanide                                                            | mg/kg    | 1       | MCERTS | < 1.0  |
| Water Soluble Sulphate as SO <sub>4</sub> 16hr extraction (2:1)         | mg/kg    | 2.5     | MCERTS | 17     |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | g/l      | 0.00125 | MCERTS | 0.0085 |
| Water Soluble SO <sub>4</sub> 16hr extraction (2:1 Leachate Equivalent) | mg/l     | 1.25    | MCERTS | 8.5    |
| Total Organic Carbon (TOC) - Automated                                  | %        | 0.1     | MCERTS | 0.7    |

#### Speciated PAHs

|                        |       |      |           |        |
|------------------------|-------|------|-----------|--------|
| Naphthalene            | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Acenaphthylene         | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Acenaphthene           | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Fluorene               | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Phenanthrene           | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Anthracene             | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Fluoranthene           | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Pyrene                 | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Benzo(a)anthracene     | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Chrysene               | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Benzo(b)fluoranthene   | mg/kg | 0.05 | ISO 17025 | < 0.05 |
| Benzo(k)fluoranthene   | mg/kg | 0.05 | ISO 17025 | < 0.05 |
| Benzo(a)pyrene         | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Dibenz(a,h)anthracene  | mg/kg | 0.05 | MCERTS    | < 0.05 |
| Benzo(ghi)perylene     | mg/kg | 0.05 | MCERTS    | < 0.05 |

#### Total PAH

|                             |       |     |           |        |
|-----------------------------|-------|-----|-----------|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | < 0.80 |
|-----------------------------|-------|-----|-----------|--------|

#### Heavy Metals / Metalloids

|                                   |       |     |        |       |
|-----------------------------------|-------|-----|--------|-------|
| Arsenic (aqua regia extractable)  | mg/kg | 1   | MCERTS | 7.1   |
| Boron (water soluble)             | mg/kg | 0.2 | MCERTS | 1     |
| Cadmium (aqua regia extractable)  | mg/kg | 0.2 | MCERTS | < 0.2 |
| Chromium (hexavalent)             | mg/kg | 1.8 | MCERTS | < 1.8 |
| Chromium (III)                    | mg/kg | 1   | NONE   | 23    |
| Chromium (aqua regia extractable) | mg/kg | 1   | MCERTS | 23    |
| Copper (aqua regia extractable)   | mg/kg | 1   | MCERTS | 10    |
| Lead (aqua regia extractable)     | mg/kg | 1   | MCERTS | 15    |
| Mercury (aqua regia extractable)  | mg/kg | 0.3 | MCERTS | < 0.3 |
| Nickel (aqua regia extractable)   | mg/kg | 1   | MCERTS | 15    |
| Selenium (aqua regia extractable) | mg/kg | 1   | MCERTS | < 1.0 |
| Zinc (aqua regia extractable)     | mg/kg | 1   | MCERTS | 40    |

Analytical Report Number: 23-50880  
Project / Site name: Aldi, Hinckley  
Your Order No: PO27939

| Lab Sample Number                       |       |                    |                         | 2780793       |
|-----------------------------------------|-------|--------------------|-------------------------|---------------|
| Sample Reference                        |       |                    |                         | WS109         |
| Sample Number                           |       |                    |                         | ES1           |
| Depth (m)                               |       |                    |                         | 0.40          |
| Date Sampled                            |       |                    |                         | Deviating     |
| Time Taken                              |       |                    |                         | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Limit of detection | Accreditation<br>Status |               |
| <b>Monoaromatics &amp; Oxygenates</b>   |       |                    |                         |               |
| Benzene                                 | µg/kg | 5                  | MCERTS                  | < 5.0         |
| Toluene                                 | µg/kg | 5                  | MCERTS                  | < 5.0         |
| Ethylbenzene                            | µg/kg | 5                  | MCERTS                  | < 5.0         |
| p & m-xylene                            | µg/kg | 5                  | MCERTS                  | < 5.0         |
| o-xylene                                | µg/kg | 5                  | MCERTS                  | < 5.0         |
| MTBE (Methyl Tertiary Butyl Ether)      | µg/kg | 5                  | NONE                    | < 5.0         |

#### Petroleum Hydrocarbons

|                                                 |       |     |        |        |
|-------------------------------------------------|-------|-----|--------|--------|
| TPH+CWG - Aliphatic > EC5 - EC8 HS 1D AL        | mg/kg | 0.1 | NONE   | < 0.10 |
| TPH+CWG - Aliphatic > EC6 - EC8 HS 1D AL        | mg/kg | 0.1 | NONE   | < 0.10 |
| TPH+CWG - Aliphatic > EC8 - EC10 HS 1D AL       | mg/kg | 0.1 | NONE   | < 0.10 |
| TPH+CWG - Aliphatic > EC10 - EC12 EH CU 1D AL   | mg/kg | 1   | MCERTS | < 1.0  |
| TPH+CWG - Aliphatic > EC12 - EC16 EH CU 1D AL   | mg/kg | 2   | MCERTS | < 2.0  |
| TPH+CWG - Aliphatic > EC16 - EC21 EH CU 1D AL   | mg/kg | 8   | MCERTS | < 8.0  |
| TPH+CWG - Aliphatic > EC21 - EC35 EH CU 1D AL   | mg/kg | 8   | MCERTS | < 8.0  |
| TPH+CWG - Aliphatic > EC16 - EC35 EH CU 1D AL   | mg/kg | 10  | MCERTS | < 10   |
| TPH+CWG - Aliphatic > EC35 - EC44 EH CU 1D AL   | mg/kg | 8.4 | NONE   | < 8.4  |
| TPH+CWG - Aliphatic (EC5 - EC35) EH CU+HS 1D AL | mg/kg | 10  | NONE   | < 10   |
| TPH+CWG - Aliphatic (EC5 - EC44) EH CU+HS 1D AL | mg/kg | 10  | NONE   | < 10   |

|                                                |       |     |        |        |
|------------------------------------------------|-------|-----|--------|--------|
| TPH+CWG - Aromatic > EC5 - EC7 HS 1D AR        | mg/kg | 0.1 | NONE   | < 0.10 |
| TPH+CWG - Aromatic > EC7 - EC8 HS 1D AR        | mg/kg | 0.1 | NONE   | < 0.10 |
| TPH+CWG - Aromatic > EC8 - EC10 HS 1D AR       | mg/kg | 0.1 | NONE   | < 0.10 |
| TPH+CWG - Aromatic > EC10 - EC12 EH CU 1D AR   | mg/kg | 1   | MCERTS | < 1.0  |
| TPH+CWG - Aromatic > EC12 - EC16 EH CU 1D AR   | mg/kg | 2   | MCERTS | < 2.0  |
| TPH+CWG - Aromatic > EC16 - EC21 EH CU 1D AR   | mg/kg | 10  | MCERTS | < 10   |
| TPH+CWG - Aromatic > EC21 - EC35 EH CU 1D AR   | mg/kg | 10  | MCERTS | < 10   |
| TPH+CWG - Aromatic > EC35 - EC44 EH CU 1D AR   | mg/kg | 8.4 | NONE   | < 8.4  |
| TPH+CWG - Aromatic (EC5 - EC35) EH CU+HS 1D AR | mg/kg | 10  | NONE   | < 10   |
| TPH+CWG - Aromatic (EC5 - EC44) EH CU+HS 1D AR | mg/kg | 10  | NONE   | < 10   |

|                                      |       |    |      |      |
|--------------------------------------|-------|----|------|------|
| TPH Total C5 - C44 EH CU+HS 1D TOTAL | mg/kg | 10 | NONE | < 10 |
|--------------------------------------|-------|----|------|------|

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

**Analytical Report Number : 23-50880**

**Project / Site name: Aldi, Hinckley**

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

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

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description *                           |
|-------------------|------------------|---------------|-----------|------------------------------------------------|
| 2780788           | WS105            | ES1           | 0.3       | Brown day and loam with gravel and vegetation. |
| 2780789           | WS107            | ES2           | 0.6       | Brown day and sand with vegetation.            |
| 2780790           | WS104            | ES1           | 0.4       | Brown day.                                     |
| 2780791           | WS106            | ES1           | 0.5       | Brown day.                                     |
| 2780792           | WS101            | ES3           | 0.3       | Brown day and sand.                            |
| 2780793           | WS109            | ES1           | 0.4       | Brown day and loam with gravel and vegetation. |

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Project / Site name: Aldi, Hinckley

Water matrix abbreviations:

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

| Analytical Test Name                               | Analytical Method Description                                                                                                                             | Analytical Method Reference                                                                                     | Method number | Wet / Dry Analysis | Accreditation Status |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Metals in soil by ICP-OES                          | Determination of metals in soil by aqua-regia digestion followed by ICP-OES.                                                                              | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.                            | L038-PL       | D                  | MCERTS               |
| Sulphate, water soluble, in soil (16hr extraction) | Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent). | In house method.                                                                                                | L038-PL       | D                  | MCERTS               |
| Asbestos identification in soil                    | Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.                                    | In house method based on HSG 248                                                                                | A001-PL       | D                  | ISO 17025            |
| Boron, water soluble, in soil                      | Determination of water soluble boron in soil by hot water extract followed by ICP-OES.                                                                    | In-house method based on Second Site Properties version 3                                                       | L038-PL       | D                  | MCERTS               |
| Free cyanide in soil                               | Determination of free cyanide by distillation followed by colorimetry.                                                                                    | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | MCERTS               |
| Moisture Content                                   | Moisture content, determined gravimetrically. (30 °C)                                                                                                     | In house method.                                                                                                | L019-UK/PL    | W                  | NONE                 |
| Speciated EPA-16 PAHs in soil                      | Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.    | In-house method based on USEPA 8270                                                                             | L064-PL       | D                  | MCERTS               |
| pH in soil (automated)                             | Determination of pH in soil by addition of water followed by automated electrometric measurement.                                                         | In house method.                                                                                                | L099-PL       | D                  | MCERTS               |
| Stones content of soil                             | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.                               | In-house method based on British Standard Methods and MCERTS requirements.                                      | L019-UK/PL    | D                  | NONE                 |
| Total organic carbon (Automated) in soil           | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.                             | In house method.                                                                                                | L009-PL       | D                  | MCERTS               |
| BTEX and MTBE in soil (Monoaromatics)              | Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited                                                                 | In-house method based on USEPA8260                                                                              | L073B-PL      | W                  | MCERTS               |
| TPH Chromatogram in Soil                           | TPH Chromatogram in Soil.                                                                                                                                 | In-house method                                                                                                 | L064-PL       | D                  | NONE                 |
| Cr (III) in soil                                   | In-house method by calculation from total Cr and Cr VI.                                                                                                   | In-house method by calculation                                                                                  | L080-PL       | W                  | NONE                 |
| TPHCWG (Soil)                                      | Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.                                                                                 | In-house method with silica gel split/clean up.                                                                 | L088/76-PL    | W                  | MCERTS               |
| TPH in (Soil)                                      | Determination of TPH bands by HS-GC-MS/GC-FID                                                                                                             | In-house method, TPH with carbon banding and silica gel split/clean up.                                         | L076-PL       | D                  | MCERTS               |
| Hexavalent chromium in soil                        | Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.                         | In-house method                                                                                                 | L080-PL       | W                  | MCERTS               |



Analytical Report Number : 23-50880  
Project / Site name: Aldi, Hinckley

**Water matrix abbreviations:**

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

| Analytical Test Name                             | Analytical Method Description                                                                                                                             | Analytical Method Reference            | Method number | Wet / Dry Analysis | Accreditation Status |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------|--------------------|----------------------|
| D.O. for Gravimetric Quant if Screen/ID positive | Dependent option for Gravimetric Quant if Screen/ID positive scheduled.                                                                                   | In house asbestos methods A001 & A006. | A006-PL       | D                  | NONE                 |
| Sulphate, water soluble, in soil                 | Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent). | In house method.                       | L038-PL       | D                  | MCERTS               |

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

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

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

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

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

## Information in Support of Analytical Results

### List of HWOL Acronyms and Operators

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

## Sample Deviation Report



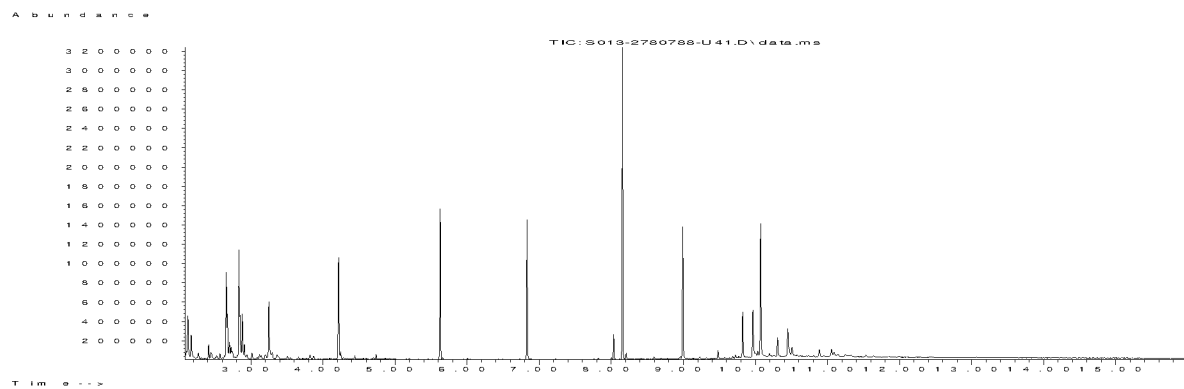
**Analytical Report Number : 23-50880**

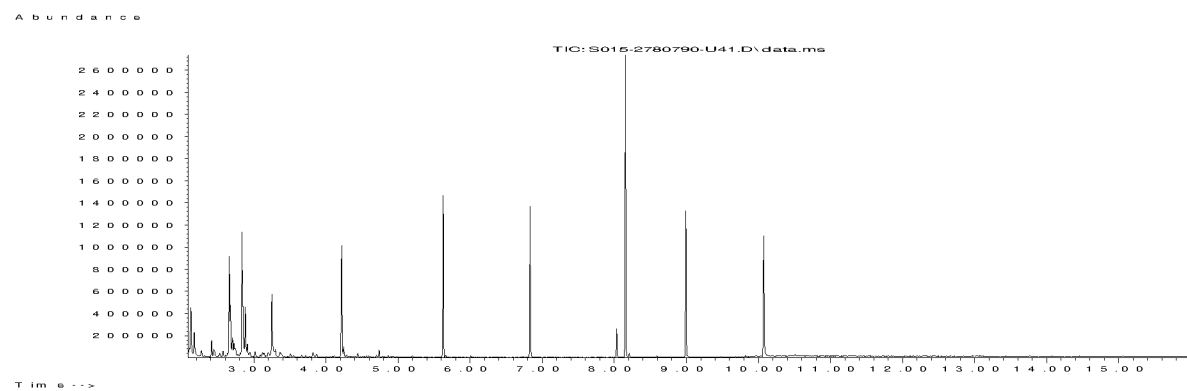
**Project / Site name: Aldi, Hinckley**

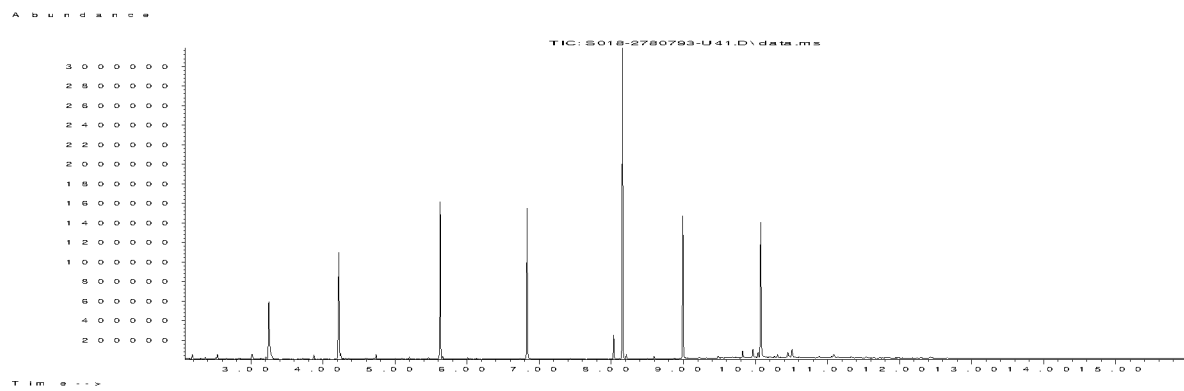
This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

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

| Sample ID | Other ID | Sample Type | Lab Sample Number | Sample Deviation | Test Name     | Test Ref      | Test Deviation |
|-----------|----------|-------------|-------------------|------------------|---------------|---------------|----------------|
| WS101     | ES3      | S           | 2780792           | a                | None Supplied | None Supplied | None Supplied  |
| WS104     | ES1      | S           | 2780790           | a                | None Supplied | None Supplied | None Supplied  |
| WS105     | ES1      | S           | 2780788           | a                | None Supplied | None Supplied | None Supplied  |
| WS106     | ES1      | S           | 2780791           | a                | None Supplied | None Supplied | None Supplied  |
| WS107     | ES2      | S           | 2780789           | a                | None Supplied | None Supplied | None Supplied  |
| WS109     | ES1      | S           | 2780793           | a                | None Supplied | None Supplied | None Supplied  |







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## Analytical Report Number : 23-50882

|                      |                    |                                                |            |
|----------------------|--------------------|------------------------------------------------|------------|
| Project / Site name: | Aldi, Hinckley     | Samples received on:                           | 10/08/2023 |
| Your job number:     | 28640              | Samples instructed on/<br>Analysis started on: | 14/08/2023 |
| Your order number:   | PO27939            | Analysis completed by:                         | 21/08/2023 |
| Report Issue Number: | 1                  | Report issued on:                              | 21/08/2023 |
| Samples Analysed:    | 2 10:1 WAC samples |                                                |            |

Signed:

Joanna Szwarzak  
Junior Reporting Specialist  
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



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| Waste Acceptance Criteria Analytical Results                                                                         |                   |  |  |                                    |                                                               |                          |        |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--|--|------------------------------------|---------------------------------------------------------------|--------------------------|--------|
| Report No:                                                                                                           | 23-50882          |  |  |                                    |                                                               |                          |        |
|                                                                                                                      |                   |  |  | Client: HYDROCK                    |                                                               |                          |        |
|                                                                                                                      |                   |  |  |                                    |                                                               |                          |        |
| Location                                                                                                             | Aldi, Hinckley    |  |  |                                    |                                                               |                          |        |
| Lab Reference (Sample Number)                                                                                        | 2780794 / 2780795 |  |  | Landfill Waste Acceptance Criteria |                                                               |                          |        |
| Sampling Date                                                                                                        |                   |  |  | Limits                             |                                                               |                          |        |
| Sample ID                                                                                                            | WS105 ESI         |  |  | Inert Waste Landfill               | Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill | Hazardous Waste Landfill |        |
| Depth (m)                                                                                                            | 0.30              |  |  |                                    |                                                               |                          |        |
| Solid Waste Analysis                                                                                                 |                   |  |  |                                    |                                                               |                          |        |
| TOC (%)**                                                                                                            | 1.9               |  |  | 3%                                 | 5%                                                            | 6%                       |        |
| Loss on Ignition (%) **                                                                                              | 5.0               |  |  | --                                 | --                                                            | 10%                      |        |
| BTEX (µg/kg)**                                                                                                       | < 5.0             |  |  | 6000                               | --                                                            | --                       |        |
| Sum of PCBs (mg/kg)**                                                                                                | < 0.007           |  |  | 1                                  | --                                                            | --                       |        |
| Mineral Oil (mg/kg) <sub>BH, 10, CU, AL</sub>                                                                        | < 10              |  |  | 500                                | --                                                            | --                       |        |
| Total PAH (WAC-17) (mg/kg)                                                                                           | < 0.85            |  |  | 100                                | --                                                            | --                       |        |
| pH (units)**                                                                                                         | 7.1               |  |  | --                                 | > 6                                                           | --                       |        |
| Add Neutralisation Capacity (mmol / kg)                                                                              | 0.11              |  |  | --                                 | To be evaluated                                               | To be evaluated          |        |
| Eluate Analysis                                                                                                      | 10:1              |  |  | 10:1                               | Limit values for compliance leaching test                     |                          |        |
| (BS EN 12457 - 2 preparation utilising end over end leaching procedure)                                              | mg/l              |  |  | mg/kg                              | using BS EN 12457-2 at L/S 10 l/kg (mg/kg)                    |                          |        |
| Arsenic *                                                                                                            | < 0.0010          |  |  | < 0.0100                           | 0.5                                                           | 2                        | 25     |
| Barium *                                                                                                             | 0.0063            |  |  | 0.0629                             | 20                                                            | 100                      | 300    |
| Cadmium *                                                                                                            | < 0.0001          |  |  | < 0.0008                           | 0.04                                                          | 1                        | 5      |
| Chromium *                                                                                                           | 0.0005            |  |  | 0.0051                             | 0.5                                                           | 10                       | 70     |
| Copper *                                                                                                             | 0.022             |  |  | 0.22                               | 2                                                             | 50                       | 100    |
| Mercury *                                                                                                            | < 0.0005          |  |  | < 0.0050                           | 0.01                                                          | 0.2                      | 2      |
| Molybdenum *                                                                                                         | < 0.0004          |  |  | < 0.0040                           | 0.5                                                           | 10                       | 30     |
| Nickel *                                                                                                             | 0.0019            |  |  | 0.020                              | 0.4                                                           | 10                       | 40     |
| Lead *                                                                                                               | 0.0013            |  |  | 0.013                              | 0.5                                                           | 10                       | 50     |
| Antimony *                                                                                                           | < 0.0017          |  |  | < 0.017                            | 0.06                                                          | 0.7                      | 5      |
| Selenium *                                                                                                           | < 0.0040          |  |  | < 0.040                            | 0.1                                                           | 0.5                      | 7      |
| Zinc *                                                                                                               | 0.010             |  |  | 0.10                               | 4                                                             | 50                       | 200    |
| Chloride *                                                                                                           | 0.66              |  |  | 6.6                                | 800                                                           | 15000                    | 25000  |
| Fluoride*                                                                                                            | 0.59              |  |  | 5.9                                | 10                                                            | 150                      | 500    |
| Sulphate *                                                                                                           | 3.2               |  |  | 32                                 | 1000                                                          | 20000                    | 50000  |
| TDS*                                                                                                                 | 14                |  |  | 140                                | 4000                                                          | 60000                    | 100000 |
| Phenol Index (Monohydric Phenols) *                                                                                  | < 0.010           |  |  | < 0.10                             | 1                                                             | -                        | -      |
| DOC                                                                                                                  | 61.5              |  |  | 615                                | 500                                                           | 800                      | 1000   |
|                                                                                                                      |                   |  |  |                                    |                                                               |                          |        |
| Leach Test Information                                                                                               |                   |  |  |                                    |                                                               |                          |        |
|                                                                                                                      |                   |  |  |                                    |                                                               |                          |        |
| Stone Content (%)                                                                                                    | < 0.1             |  |  |                                    |                                                               |                          |        |
| Sample Mass (kg)                                                                                                     | 0.80              |  |  |                                    |                                                               |                          |        |
| Dry Matter (%)                                                                                                       | 86                |  |  |                                    |                                                               |                          |        |
| Moisture (%)                                                                                                         | 14                |  |  |                                    |                                                               |                          |        |
|                                                                                                                      |                   |  |  |                                    |                                                               |                          |        |
|                                                                                                                      |                   |  |  |                                    |                                                               |                          |        |
| Results are expressed on a dry weight basis, after correction for moisture content where applicable.                 |                   |  |  |                                    |                                                               |                          |        |
| * = UKAS accredited (liquid eluate analysis only)                                                                    |                   |  |  |                                    |                                                               |                          |        |
| Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation |                   |  |  |                                    |                                                               |                          |        |
| ** = MCERTS accredited                                                                                               |                   |  |  |                                    |                                                               |                          |        |

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

i2 Analytical  
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Watford, WD18 8YS

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| Waste Acceptance Criteria Analytical Results                                                                         |                   |  |  |          |                                                   |                                                               |                          |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--|--|----------|---------------------------------------------------|---------------------------------------------------------------|--------------------------|
| Report No:                                                                                                           | 23-50882          |  |  |          |                                                   |                                                               |                          |
|                                                                                                                      |                   |  |  |          |                                                   |                                                               |                          |
|                                                                                                                      |                   |  |  |          | Client: HYDROCK                                   |                                                               |                          |
|                                                                                                                      |                   |  |  |          |                                                   |                                                               |                          |
| Location                                                                                                             | Aldi, Hinckley    |  |  |          |                                                   |                                                               |                          |
| Lab Reference (Sample Number)                                                                                        | 2780796 / 2780797 |  |  |          | Landfill Waste Acceptance Criteria                |                                                               |                          |
| Sampling Date                                                                                                        |                   |  |  |          | Limits                                            |                                                               |                          |
| Sample ID                                                                                                            | WS109 ESI         |  |  |          | Inert Waste Landfill                              | Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill | Hazardous Waste Landfill |
| Depth (m)                                                                                                            | 0.40              |  |  |          |                                                   |                                                               |                          |
| Solid Waste Analysis                                                                                                 |                   |  |  |          |                                                   |                                                               |                          |
| TOC (%)**                                                                                                            | 0.7               |  |  |          | 3%                                                | 5%                                                            | 6%                       |
| Loss on Ignition (%) **                                                                                              | 2.9               |  |  |          | --                                                | --                                                            | 10%                      |
| BTEX (µg/kg)**                                                                                                       | < 5.0             |  |  |          | 6000                                              | --                                                            | --                       |
| Sum of PCBs (mg/kg)**                                                                                                | < 0.007           |  |  |          | 1                                                 | --                                                            | --                       |
| Mineral Oil (mg/kg) <small>BS EN 12457-2</small>                                                                     | < 10              |  |  |          | 500                                               | --                                                            | --                       |
| Total PAH (WAC-17) (mg/kg)                                                                                           | < 0.85            |  |  |          | 100                                               | --                                                            | --                       |
| pH (units)**                                                                                                         | 7.7               |  |  |          | --                                                | > 6                                                           | --                       |
| Add Neutralisation Capacity (mmol / kg)                                                                              | 1.3               |  |  |          | --                                                | To be evaluated                                               | To be evaluated          |
| Eluate Analysis                                                                                                      | 10:1              |  |  | 10:1     | Limit values for compliance leaching test         |                                                               |                          |
| (BS EN 12457 - 2 preparation utilising end over end leaching procedure)                                              | mg/l              |  |  | mg/kg    | using BS EN 12457-2 at L/S 10 l/kg (mg/kg)        |                                                               |                          |
| Arsenic *                                                                                                            | < 0.0010          |  |  | < 0.0100 | 0.5                                               | 2                                                             | 25                       |
| Barium *                                                                                                             | 0.0040            |  |  | 0.0396   | 20                                                | 100                                                           | 300                      |
| Cadmium *                                                                                                            | < 0.0001          |  |  | < 0.0008 | 0.04                                              | 1                                                             | 5                        |
| Chromium *                                                                                                           | < 0.0004          |  |  | < 0.0040 | 0.5                                               | 10                                                            | 70                       |
| Copper *                                                                                                             | 0.013             |  |  | 0.13     | 2                                                 | 50                                                            | 100                      |
| Mercury *                                                                                                            | < 0.0005          |  |  | < 0.0050 | 0.01                                              | 0.2                                                           | 2                        |
| Molybdenum *                                                                                                         | < 0.0004          |  |  | < 0.0040 | 0.5                                               | 10                                                            | 30                       |
| Nickel *                                                                                                             | 0.0018            |  |  | 0.018    | 0.4                                               | 10                                                            | 40                       |
| Lead *                                                                                                               | < 0.0010          |  |  | < 0.010  | 0.5                                               | 10                                                            | 50                       |
| Antimony *                                                                                                           | < 0.0017          |  |  | < 0.017  | 0.06                                              | 0.7                                                           | 5                        |
| Selenium *                                                                                                           | < 0.0040          |  |  | < 0.040  | 0.1                                               | 0.5                                                           | 7                        |
| Zinc *                                                                                                               | 0.0053            |  |  | 0.054    | 4                                                 | 50                                                            | 200                      |
| Chloride *                                                                                                           | 2.2               |  |  | 22       | 800                                               | 15000                                                         | 25000                    |
| Fluoride*                                                                                                            | 0.58              |  |  | 5.8      | 10                                                | 150                                                           | 500                      |
| Sulphate *                                                                                                           | 1.8               |  |  | 18       | 1000                                              | 20000                                                         | 50000                    |
| TDS*                                                                                                                 | 17                |  |  | 170      | 4000                                              | 60000                                                         | 100000                   |
| Phenol Index (Monohydric Phenols) *                                                                                  | < 0.010           |  |  | < 0.10   | 1                                                 | -                                                             | -                        |
| DOC                                                                                                                  | 65.3              |  |  | 653      | 500                                               | 800                                                           | 1000                     |
|                                                                                                                      |                   |  |  |          |                                                   |                                                               |                          |
| Leach Test Information                                                                                               |                   |  |  |          |                                                   |                                                               |                          |
|                                                                                                                      |                   |  |  |          |                                                   |                                                               |                          |
| Stone Content (%)                                                                                                    | < 0.1             |  |  |          |                                                   |                                                               |                          |
| Sample Mass (kg)                                                                                                     | 0.70              |  |  |          |                                                   |                                                               |                          |
| Dry Matter (%)                                                                                                       | 87                |  |  |          |                                                   |                                                               |                          |
| Moisture (%)                                                                                                         | 13                |  |  |          |                                                   |                                                               |                          |
|                                                                                                                      |                   |  |  |          |                                                   |                                                               |                          |
|                                                                                                                      |                   |  |  |          |                                                   |                                                               |                          |
| Results are expressed on a dry weight basis, after correction for moisture content where applicable.                 |                   |  |  |          | * = UKAS accredited (liquid eluate analysis only) |                                                               |                          |
| Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation |                   |  |  |          | ** = MCERTS accredited                            |                                                               |                          |

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

Analytical Report Number : 23-50882

Project / Site name: Aldi, Hinckley

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

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

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description *                            |
|-------------------|------------------|---------------|-----------|-------------------------------------------------|
| 2780794           | WSI05            | ESI           | 0.3       | Brown clay and loam with gravel and vegetation. |
| 2780796           | WSI09            | ESI           | 0.4       | Brown clay and loam with gravel and vegetation. |

Analytical Report Number : 23-50882  
Project / Site name: Aldi, Hinckley

Water matrix abbreviations:

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

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

Analytical Report Number : 23-50882  
Project / Site name: Aldi, Hinckley

Water matrix abbreviations:

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

| Analytical Test Name              | Analytical Method Description                                                       | Analytical Method Reference                                                                            | Method number | Wet / Dry Analysis | Accreditation Status |
|-----------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Sulphate 10:1 WAC                 | Determination of sulphate in leachate by ICP-OES                                    | In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil*                   | L039-PL       | W                  | ISO 17025            |
| Total dissolved solids 10:1 WAC   | Determination of total dissolved solids in water by EC probe using a factor of 0.6. | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L031-PL       | W                  | ISO 17025            |
| Monohydric phenols 10:1 WAC       | Determination of phenols in leachate by distillation followed by colorimetry.       | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L080-PL       | W                  | ISO 17025            |
| Dissolved organic carbon 10:1 WAC | Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.   | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L037-PL       | W                  | NONE                 |

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

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

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

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

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

## Information in Support of Analytical Results

### List of HWOL Acronyms and Operators

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

## Sample Deviation Report



Analytical Report Number : 23-50882

Project / Site name: Aldi, Hinckley

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

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

| Sample ID | Other ID | Sample Type | Lab Sample Number | Sample Deviation | Test Name     | Test Ref      | Test Deviation |
|-----------|----------|-------------|-------------------|------------------|---------------|---------------|----------------|
| WSI05     | ESI      | L           | 2780795           | a                | None Supplied | None Supplied | None Supplied  |
| WSI05     | ESI      | S           | 2780794           | a                | None Supplied | None Supplied | None Supplied  |
| WSI09     | ESI      | L           | 2780797           | a                | None Supplied | None Supplied | None Supplied  |
| WSI09     | ESI      | S           | 2780796           | a                | None Supplied | None Supplied | None Supplied  |

## *Appendix E Geotechnical Test Results*



# TEST CERTIFICATE

## DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

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

4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
Stoke on Trent, ST1 5RY

Contact: Rob Crookes  
Site Address: Aldi, Hinckley

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 09/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

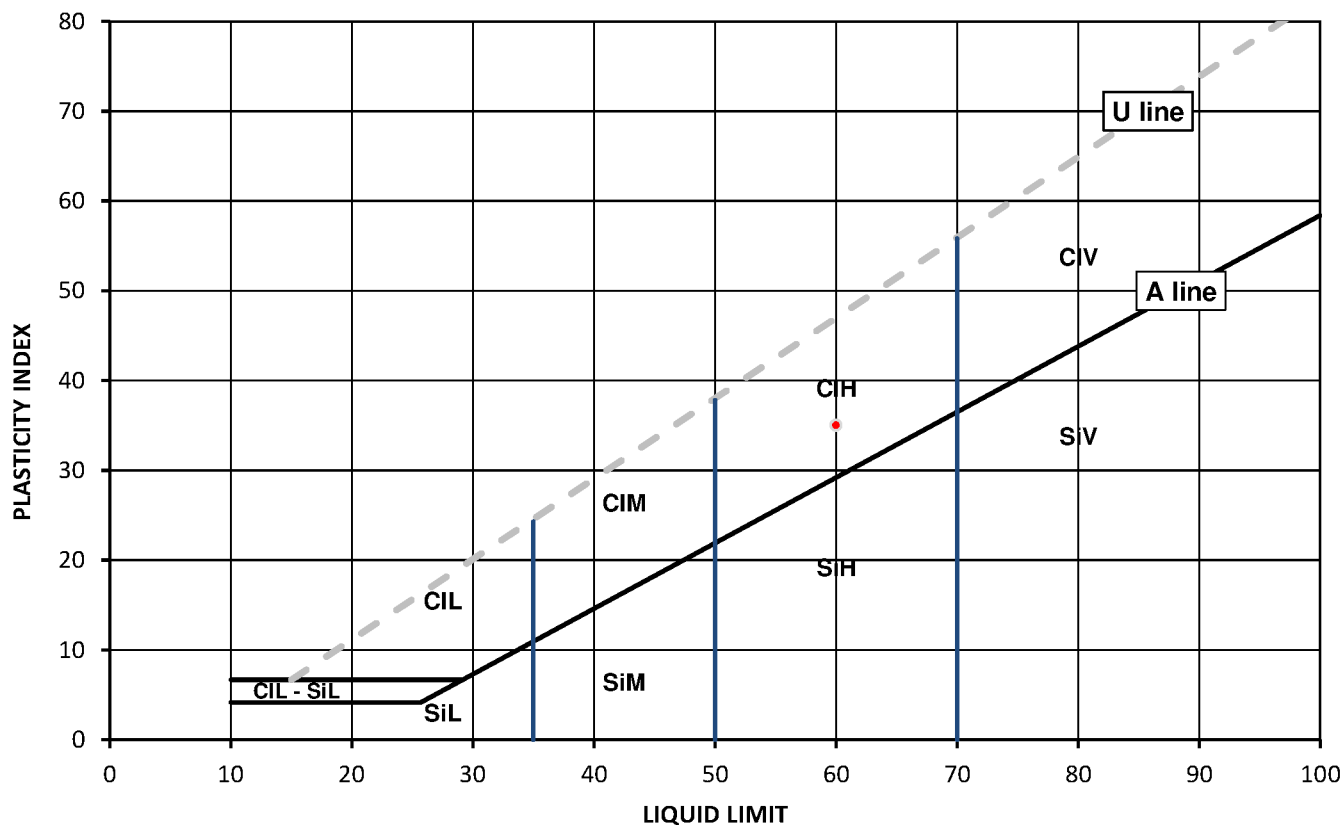
### Test Results:

Laboratory Reference: 2780929  
Hole No.: WS109  
Sample Reference: 2  
Sample Description: Brown CLAY

Depth Top [m]: 1.00  
Depth Base [m]: Not Given  
Sample Type: D

Sample Preparation: Tested in natural condition

| As Received Water Content [ W ] % | Liquid Limit [ WL ] % | Plastic Limit [ Wp ] % | Plasticity Index [ Ip ] % | % Passing 425µm BS Test Sieve |
|-----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|
| 25                                | 60                    | 25                     | 35                        | 100                           |



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

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

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

Remarks:

Signed:

Katarzyna Koziel  
Reporting Specialist  
for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

## DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

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



Environmental Science

4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
Stoke on Trent, ST1 5RY

Contact: Rob Crookes  
Site Address: Aldi, Hinckley

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 09/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

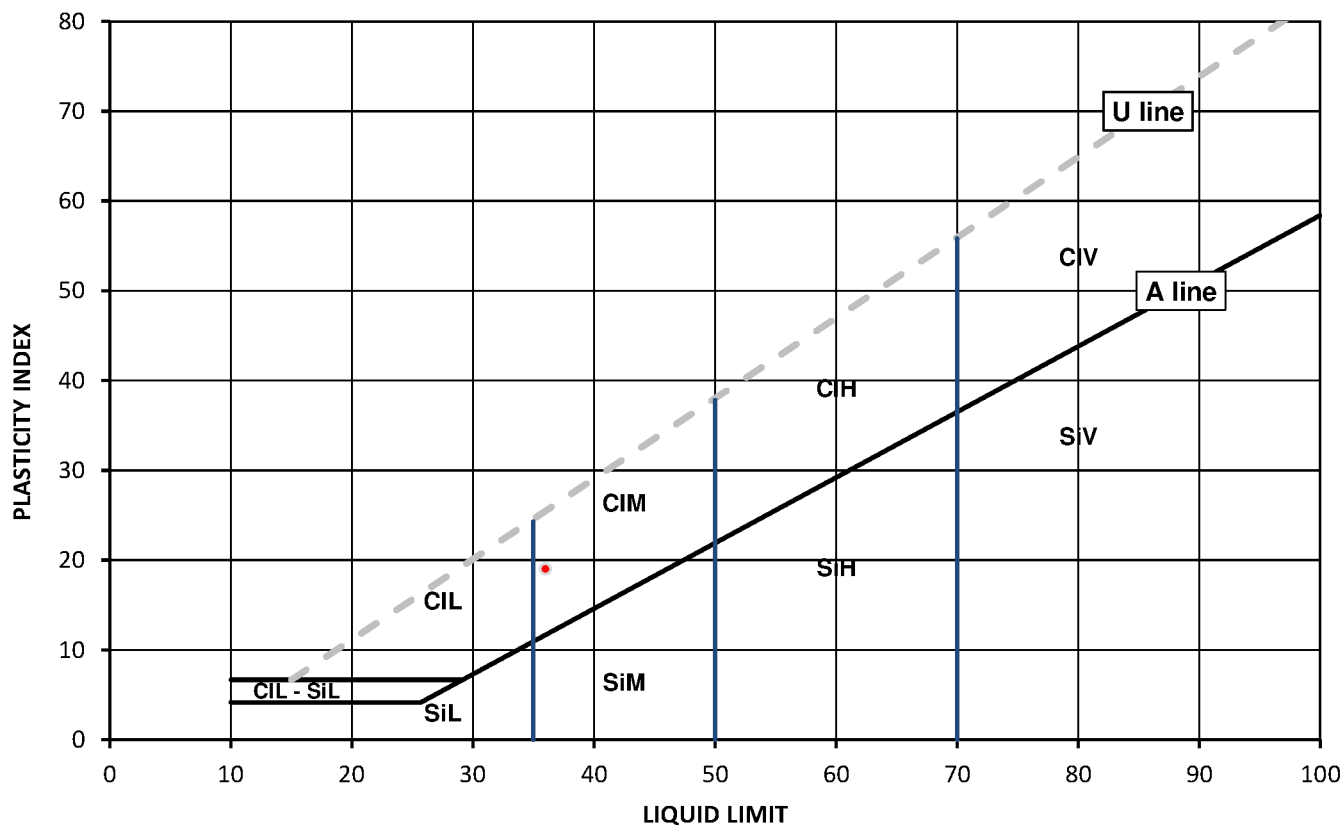
### Test Results:

Laboratory Reference: 2780930  
Hole No.: WS109  
Sample Reference: 3  
Sample Description: Reddish brown slightly gravelly sandy CLAY

Depth Top [m]: 1.80  
Depth Base [m]: Not Given  
Sample Type: D

Sample Preparation: Tested after >425um removed by hand

| As Received Water Content [ W ] % | Liquid Limit [ WL ] % | Plastic Limit [ Wp ] % | Plasticity Index [ Ip ] % | % Passing 425µm BS Test Sieve |
|-----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|
| 12                                | 36                    | 17                     | 19                        | 95                            |



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

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

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

Remarks:

Signed:

Katarzyna Koziel

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# TEST CERTIFICATE

## DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

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Site Address: Aldi, Hinckley

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

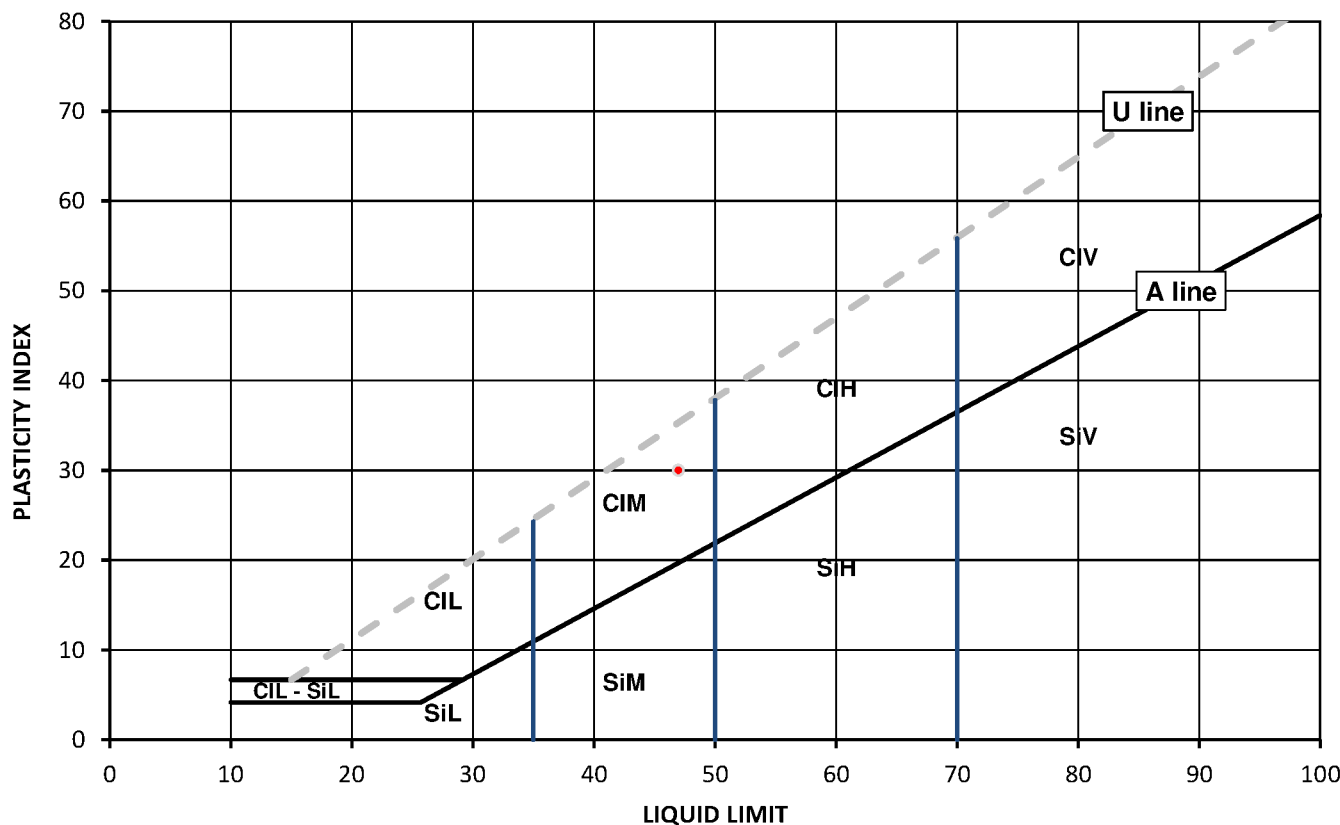
### Test Results:

Laboratory Reference: 2780931  
Hole No.: WS105  
Sample Reference: 2  
Sample Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.60  
Depth Base [m]: Not Given  
Sample Type: D

Sample Preparation: Tested after >425um removed by hand

| As Received Water Content [ W ] % | Liquid Limit [ WL ] % | Plastic Limit [ Wp ] % | Plasticity Index [ Ip ] % | % Passing 425µm BS Test Sieve |
|-----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|
| 18                                | 47                    | 17                     | 30                        | 98                            |



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

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

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

Remarks:

Signed:

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## DETERMINATION OF LIQUID AND PLASTIC LIMITS

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Date Tested: 21/08/2023  
Sampled By: Client- BH

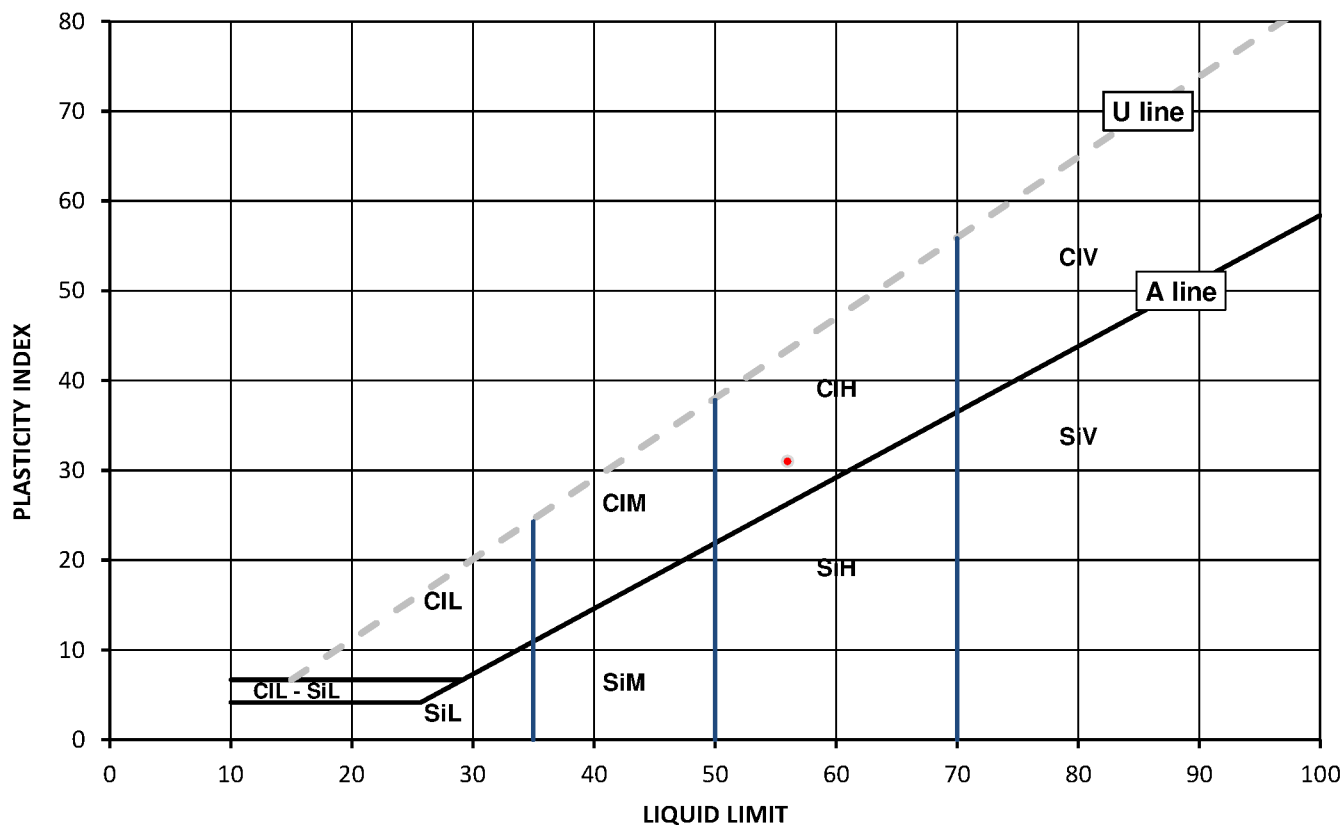
### Test Results:

Laboratory Reference: 2780933  
Hole No.: WS107  
Sample Reference: 3  
Sample Description: Brown slightly sandy CLAY

Depth Top [m]: 1.00  
Depth Base [m]: Not Given  
Sample Type: D

Sample Preparation: Tested in natural condition

| As Received Water Content [ W ] % | Liquid Limit [ WL ] % | Plastic Limit [ Wp ] % | Plasticity Index [ Ip ] % | % Passing 425µm BS Test Sieve |
|-----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|
| 25                                | 56                    | 25                     | 31                        | 100                           |



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

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

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

Remarks:

Signed:



Katarzyna Koziel  
Reporting Specialist  
for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

## DETERMINATION OF LIQUID AND PLASTIC LIMITS

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Environmental Science

4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
Stoke on Trent, ST1 5RY

Contact: Rob Crookes  
Site Address: Aldi, Hinckley

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

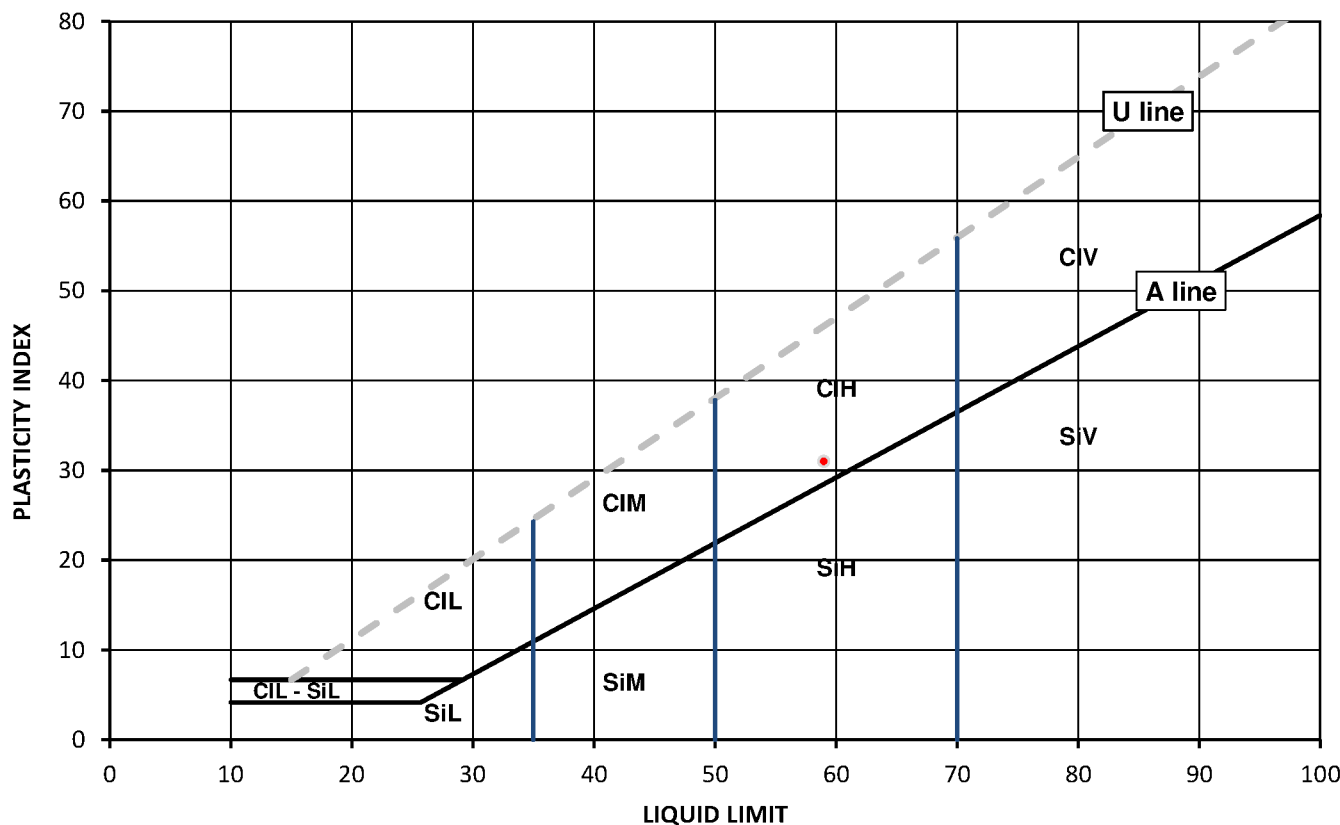
### Test Results:

Laboratory Reference: 2780934  
Hole No.: WS104  
Sample Reference: 2  
Sample Description: Brownish grey slightly sandy CLAY

Depth Top [m]: 0.70  
Depth Base [m]: Not Given  
Sample Type: D

Sample Preparation: Tested in natural condition

| As Received Water Content [ W ] % | Liquid Limit [ WL ] % | Plastic Limit [ Wp ] % | Plasticity Index [ Ip ] % | % Passing 425µm BS Test Sieve |
|-----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|
| 20                                | 59                    | 28                     | 31                        | 100                           |



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

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

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

Remarks:

Signed:

Katarzyna Koziel  
Reporting Specialist  
for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

## DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

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



Environmental Science

4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
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Contact: Rob Crookes  
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Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

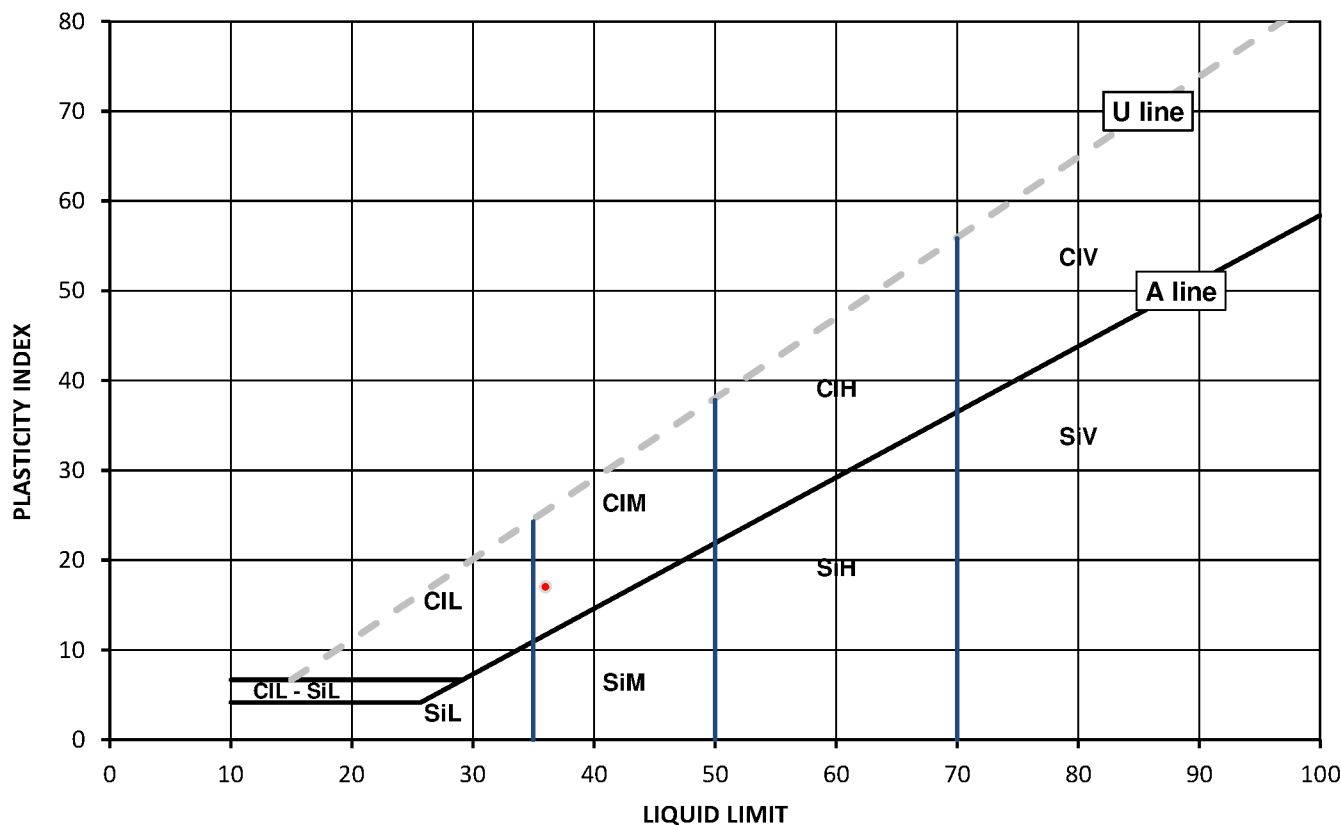
### Test Results:

Laboratory Reference: 2780935  
Hole No.: WS108  
Sample Reference: 1  
Sample Description: Brown slightly gravelly sandy CLAY

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

Sample Preparation: Tested after >425um removed by hand

| As Received Water Content [ W ] % | Liquid Limit [ WL ] % | Plastic Limit [ Wp ] % | Plasticity Index [ Ip ] % | % Passing 425µm BS Test Sieve |
|-----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|
| 17                                | 36                    | 19                     | 17                        | 81                            |



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

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

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

Remarks:

Signed:

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# TEST CERTIFICATE

## DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

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

4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
Stoke on Trent, ST1 5RY

Contact: Rob Crookes  
Site Address: Aldi, Hinckley

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

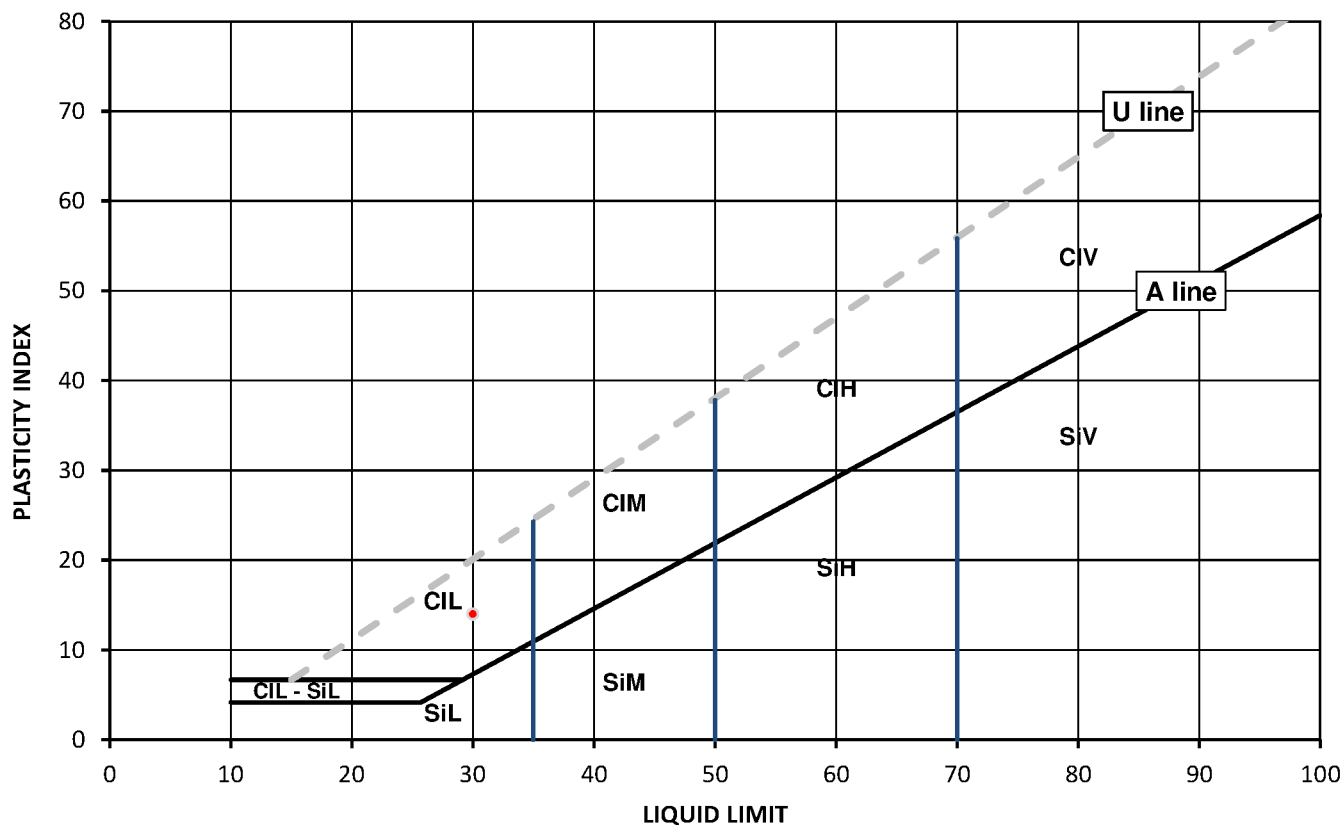
### Test Results:

Laboratory Reference: 2780936  
Hole No.: WS106  
Sample Reference: 2  
Sample Description: Reddish brown very sandy CLAY

Depth Top [m]: 3.00  
Depth Base [m]: Not Given  
Sample Type: D

Sample Preparation: Tested in natural condition

| As Received Water Content [ W ] % | Liquid Limit [ WL ] % | Plastic Limit [ Wp ] % | Plasticity Index [ Ip ] % | % Passing 425µm BS Test Sieve |
|-----------------------------------|-----------------------|------------------------|---------------------------|-------------------------------|
| 18                                | 30                    | 16                     | 14                        | 100                           |



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

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

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

Remarks:

Signed:

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Reporting Specialist  
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# SUMMARY REPORT

## SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

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



4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
Stoke on Trent, ST1 5RY

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08 - 09/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

Contact: Rob Crookes  
Site Address: Aldi, Hinckley

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

### Test results

| Laboratory Reference | Hole No. | Sample    |           |            |      | Description                                 | Remarks           | Water Content<br>BS 1377-2 [ W ]<br>% | Water Content<br>BS EN ISO 17892-2<br>[ W ]<br>% | Atterberg       |    |    |    | Density |       |       | Total Porosity#<br>% |  |  |
|----------------------|----------|-----------|-----------|------------|------|---------------------------------------------|-------------------|---------------------------------------|--------------------------------------------------|-----------------|----|----|----|---------|-------|-------|----------------------|--|--|
|                      |          | Reference | Depth Top | Depth Base | Type |                                             |                   |                                       |                                                  | % Passing 425um | WL | Wp | Ip | bulk    | dry   | PD    |                      |  |  |
|                      |          |           | m         | m          |      |                                             |                   |                                       |                                                  | %               | %  | %  | %  | Mg/m3   | Mg/m3 | Mg/m3 |                      |  |  |
| 2780929              | WS109    | 2         | 1.00      | Not Given  | D    | Brown CLAY                                  | Atterberg 4 Point | 25                                    |                                                  | 100             | 60 | 25 | 35 |         |       |       |                      |  |  |
| 2780930              | WS109    | 3         | 1.80      | Not Given  | D    | Reddish brown slightly gravelly sandy CLAY  | Atterberg 4 Point | 12                                    |                                                  | 95              | 36 | 17 | 19 |         |       |       |                      |  |  |
| 2780931              | WS105    | 2         | 0.60      | Not Given  | D    | Brown slightly gravelly slightly sandy CLAY | Atterberg 4 Point | 18                                    |                                                  | 98              | 47 | 17 | 30 |         |       |       |                      |  |  |
| 2780933              | WS107    | 3         | 1.00      | Not Given  | D    | Brown slightly sandy CLAY                   | Atterberg 4 Point | 25                                    |                                                  | 100             | 56 | 25 | 31 |         |       |       |                      |  |  |
| 2780934              | WS104    | 2         | 0.70      | Not Given  | D    | Brownish grey slightly sandy CLAY           | Atterberg 4 Point | 20                                    |                                                  | 100             | 59 | 28 | 31 |         |       |       |                      |  |  |
| 2780935              | WS108    | 1         | 2.00      | Not Given  | D    | Brown slightly gravelly sandy CLAY          | Atterberg 4 Point | 17                                    |                                                  | 81              | 36 | 19 | 17 |         |       |       |                      |  |  |
| 2780936              | WS106    | 2         | 3.00      | Not Given  | D    | Reddish brown very sandy CLAY               | Atterberg 4 Point | 18                                    |                                                  | 100             | 30 | 16 | 14 |         |       |       |                      |  |  |
|                      |          |           |           |            |      |                                             |                   |                                       |                                                  |                 |    |    |    |         |       |       |                      |  |  |
|                      |          |           |           |            |      |                                             |                   |                                       |                                                  |                 |    |    |    |         |       |       |                      |  |  |
|                      |          |           |           |            |      |                                             |                   |                                       |                                                  |                 |    |    |    |         |       |       |                      |  |  |

Note: # Non accredited; NP - Non plastic

Comments:

Signed:



Katarzyna Koziel  
Reporting Specialist  
for and on behalf of i2 Analytical Ltd

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## SUMMARY REPORT

### DETERMINATION OF WATER CONTENT

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

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



4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
Stoke on Trent, ST1 5RY

Contact: Rob Crookes  
Site Address: Aldi, Hinckley

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08 - 09/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

### Test results

| Laboratory Reference | Hole No. | Sample    |                |                 |      | Description                                 | Remarks | WC | Sample preparation / Oven temperature at the time of testing |  |  |  |
|----------------------|----------|-----------|----------------|-----------------|------|---------------------------------------------|---------|----|--------------------------------------------------------------|--|--|--|
|                      |          | Reference | Depth Top<br>m | Depth Base<br>m | Type |                                             |         |    |                                                              |  |  |  |
| 2780929              | WS109    | 2         | 1.00           | Not Given       | D    | Brown CLAY                                  |         | 25 | Sample was quartered, oven dried at 106 °C                   |  |  |  |
| 2780930              | WS109    | 3         | 1.80           | Not Given       | D    | Reddish brown slightly gravelly sandy CLAY  |         | 12 | Sample was quartered, oven dried at 106 °C                   |  |  |  |
| 2780931              | WS105    | 2         | 0.60           | Not Given       | D    | Brown slightly gravelly slightly sandy CLAY |         | 18 | Sample was quartered, oven dried at 106 °C                   |  |  |  |
| 2780933              | WS107    | 3         | 1.00           | Not Given       | D    | Brown slightly sandy CLAY                   |         | 25 | Sample was quartered, oven dried at 106 °C                   |  |  |  |
| 2780934              | WS104    | 2         | 0.70           | Not Given       | D    | Brownish grey slightly sandy CLAY           |         | 20 | Sample was quartered, oven dried at 106 °C                   |  |  |  |
| 2780935              | WS108    | 1         | 2.00           | Not Given       | D    | Brown slightly gravelly sandy CLAY          |         | 17 | Sample was quartered, oven dried at 106 °C                   |  |  |  |
| 2780936              | WS106    | 2         | 3.00           | Not Given       | D    | Reddish brown very sandy CLAY               |         | 18 | Sample was quartered, oven dried at 106 °C                   |  |  |  |
|                      |          |           |                |                 |      |                                             |         |    |                                                              |  |  |  |
|                      |          |           |                |                 |      |                                             |         |    |                                                              |  |  |  |
|                      |          |           |                |                 |      |                                             |         |    |                                                              |  |  |  |

Comments:

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Signed:



Katarzyna Koziel  
Reporting Specialist  
for and on behalf of i2 Analytical Ltd



# TEST CERTIFICATE

## DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

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



Environmental Science

4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
Stoke on Trent, ST1 5RY

Contact: Rob Crookes  
Site Address: Aldi, Hinckley

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

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

### Test Results:

Laboratory Reference: 2780932

Hole No.: WS107

Sample Reference: 1

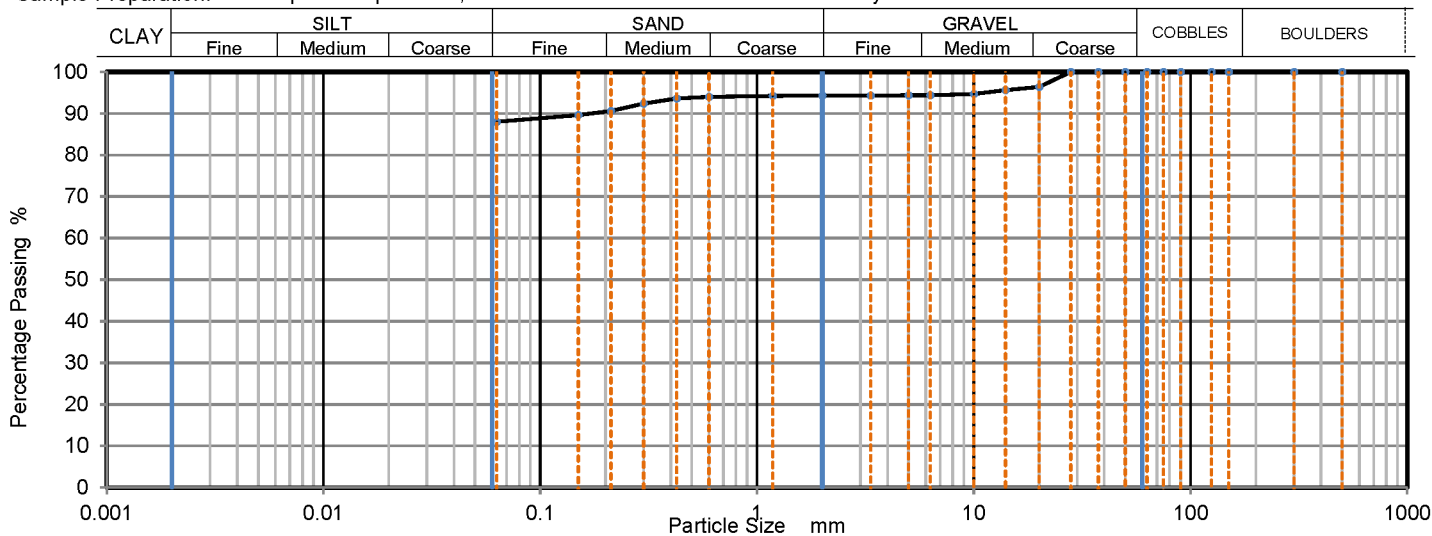
Sample Description: Brown CLAY with fragments of rootlets

Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 0.20

Depth Base [m]: Not Given

Sample Type: B



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 500              | 100       |                  |           |
| 300              | 100       |                  |           |
| 150              | 100       |                  |           |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 100       |                  |           |
| 28               | 100       |                  |           |
| 20               | 96        |                  |           |
| 14               | 96        |                  |           |
| 10               | 95        |                  |           |
| 6.3              | 94        |                  |           |
| 5                | 94        |                  |           |
| 3.35             | 94        |                  |           |
| 2                | 94        |                  |           |
| 1.18             | 94        |                  |           |
| 0.6              | 94        |                  |           |
| 0.425            | 94        |                  |           |
| 0.3              | 92        |                  |           |
| 0.212            | 91        |                  |           |
| 0.15             | 90        |                  |           |
| 0.063            | 89        |                  |           |

| Sample Proportions | % dry mass |
|--------------------|------------|
| Very coarse        | 0          |
| Gravel             | 6          |
| Sand               | 6          |
| Fines <0.063mm     | 89         |

| Grading Analysis       |     |
|------------------------|-----|
| D100                   | mm  |
| D60                    | mm  |
| D30                    | mm  |
| D10                    | mm  |
| Uniformity Coefficient | N/A |
| Curvature Coefficient  |     |

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



Katarzyna Koziel  
Reporting Specialist  
for and on behalf of i2 Analytical Ltd

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# TEST CERTIFICATE

## DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

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



Environmental Science

4041

Client: Hydrock Consultants Ltd  
Client Address: 4 Lakeside, Festival Park,  
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Contact: Rob Crookes  
Site Address: Aldi, Hinckley

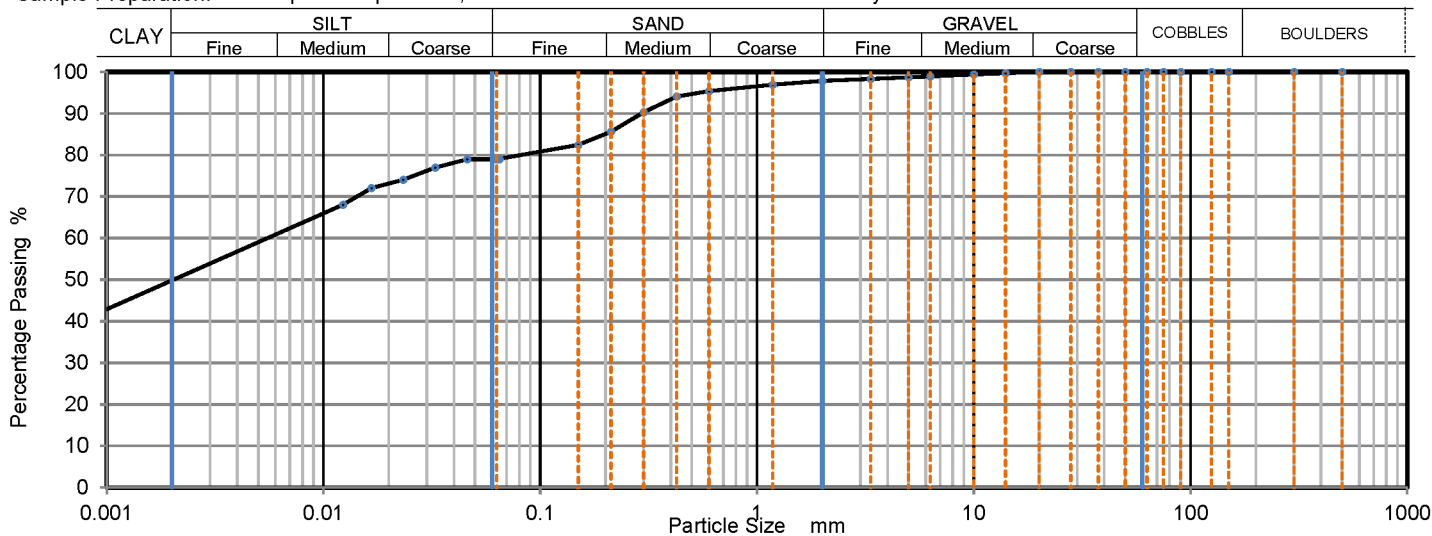
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Client Reference: 28640  
Job Number: 23-50908-1  
Date Sampled: 08/08/2023  
Date Received: 10/08/2023  
Date Tested: 21/08/2023  
Sampled By: Client- BH

### Test Results:

Laboratory Reference: 2780937  
Hole No.: WS101  
Sample Reference: 2  
Sample Description: Brown CLAY with fragments of rootlets  
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 0.30  
Depth Base [m]: Not Given  
Sample Type: B



| Sieving          |           | Sedimentation                            |           |
|------------------|-----------|------------------------------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm                         | % Passing |
| 500              | 100       | 0.0650                                   | 79        |
| 300              | 100       | 0.0459                                   | 79        |
| 150              | 100       | 0.0327                                   | 77        |
| 125              | 100       | 0.0233                                   | 74        |
| 90               | 100       | 0.0166                                   | 72        |
| 75               | 100       | 0.0123                                   | 68        |
| 63               | 100       | 0.0008                                   | 41        |
| 50               | 100       |                                          |           |
| 37.5             | 100       |                                          |           |
| 28               | 100       |                                          |           |
| 20               | 100       |                                          |           |
| 14               | 100       |                                          |           |
| 10               | 99        |                                          |           |
| 6.3              | 99        |                                          |           |
| 5                | 99        |                                          |           |
| 3.35             | 98        | Particle density (assumed)<br>2.65 Mg/m3 |           |
| 2                | 98        |                                          |           |
| 1.18             | 97        |                                          |           |
| 0.6              | 95        |                                          |           |
| 0.425            | 94        |                                          |           |
| 0.3              | 90        |                                          |           |
| 0.212            | 86        |                                          |           |
| 0.15             | 82        |                                          |           |
| 0.063            | 79        |                                          |           |

| Sample Proportions | % dry mass |
|--------------------|------------|
| Very coarse        | 0          |
| Gravel             | 2          |
| Sand               | 19         |
| Silt               | 30         |
| Clay               | 49         |

| Grading Analysis       |     |
|------------------------|-----|
| D100                   | mm  |
| D60                    | mm  |
| D30                    | mm  |
| D10                    | mm  |
| Uniformity Coefficient | > 7 |
| Curvature Coefficient  |     |

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:

Katarzyna Koziel  
Reporting Specialist  
for and on behalf of i2 Analytical Ltd

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