



Land East of Lodge Road, Hurst Minerals Safeguarding Assessment

For Mactaggart and Mickel

Date: 25 January 2023

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DOCUMENT CONTROL SHEET

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1.0 Introduction

In December 2022, Hydrock Consultants Limited (Hydrock) was commissioned by Mactaggart and Mickel to prepare a Minerals Safeguarding Assessment for the proposed commercial development of Land East of Lodge Road, Hurst RG10 0DP. The assessment is required in support of a planning application for the proposed development, which will comprise the construction of low-rise residential structures and associated infrastructure. A current master plan of the proposed development is unavailable at the time of writing. This report has been produced to assess the extent of mineral potential beneath the subject site.

A minerals safeguarding assessment is understood to be required by the Joint Strategic Planning Unit (Bracknell Forest Borough Council, Reading Borough Council, Windsor and Maidenhead Borough Council, Slough Borough Council, West Berkshire Borough Council and Wokingham Borough Council) acting as Local Planning Authority, in order to demonstrate that the development will be in accordance with Policy 2 of the Replacement Minerals Local Plan issued by the Joint Strategic Planning Unit in December 1997 and adopted in May 2001 and within Policy 2 of the Central and Eastern Berkshire Joint Minerals & Waste Plan Proposed Submission Plan, August 2020. The wording of the requirement from the Replacement Minerals Local Plan is reproduced below:

"The local planning authorities will oppose development proposals which would cause the sterilisation of mineral deposits on the proposed development site, or which would prejudice the future working of minerals on adjacent sites, except where it is demonstrated that

(i) the mineral deposit is of no commercial interest, and is unlikely to be so in the future; or
(ii) having regard to all relevant planning considerations, there is an overriding case in favour of allowing the proposed development to proceed without the prior extraction of the mineral; or
(iii) extraction of the mineral would be subject to such strong environmental or other objection that it would be highly unlikely that it would ever be permitted in any circumstances."

It is noted that an emerging Central and Eastern Berkshire Joint Minerals and Waste Plan is currently being reviewed but has not yet been adopted (Central and Eastern Berkshire Joint Minerals & Waste Plan, Proposed Submission Plan, August 2020).

The site is located within an identified Minerals Safeguarding Area as shown on the Central & Eastern Berkshire – Joint Minerals & Waste Plan Draft Policies Map (June 2020) which is presented in Appendix D.

Figure 1 below, reproduced from the Central & Eastern Berkshire – Joint Minerals & Waste Plan Draft Policies Map (June 2020), shows the location of the mineral safeguarding are in relation to the site.

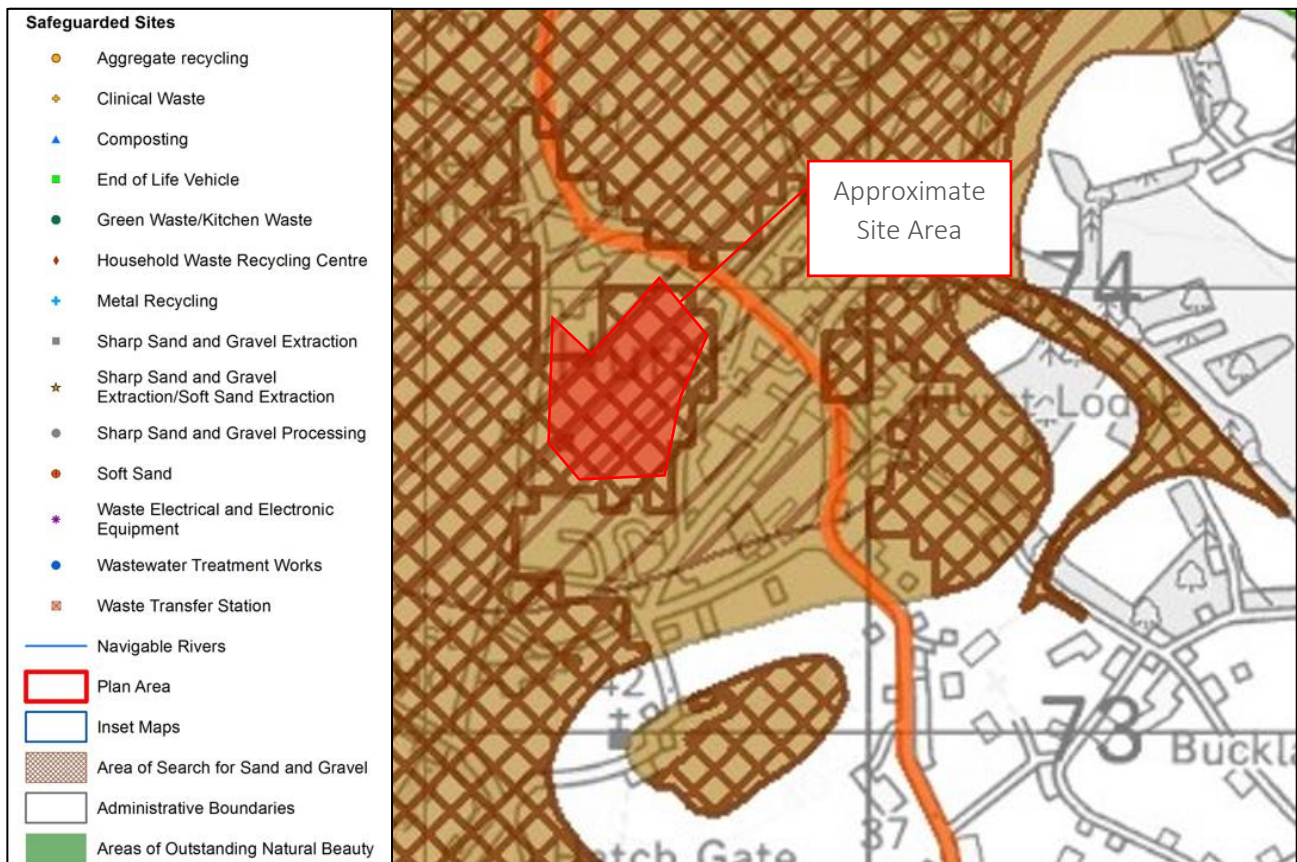


Figure 1: Central & Eastern Berkshire – Joint Minerals & Waste Plan Draft Policies Map (June 2020) extract showing site lying within mineral safeguarding zone for Sand and Gravel deposits.

The approximate location of the site (outlined in red above), is in Hurst within an area designated as a Sand and Gravel Minerals Safeguarding Area. ‘Sharp Sand and Gravels’ is one of the key safeguarded mineral resources in Berkshire and the map in Figure 1 identifies that the site is within the Mineral Safeguarding Area. Sharp sand and gravel is defined as “A coarse sand and gravel suitable for use in making concrete”, within the Central and Eastern Berkshire Joint Minerals & Waste Plan Proposed Submission Plan, August 2020.

As minerals can only be worked in-situ, assessment must be undertaken to determine the extent of minerals under the site and determine the potential long-term loss of mineral reserves by proposed development and associated infrastructure.

This report comprises a desk-based assessment of the available geological information based on existing ground investigation data, including an assessment of whether a mineral resource is likely to be present beneath the site.

Hydrock has previously prepared a Ground Investigation Report in January 2023 (reference 26519-HYD-XX-XX-RP-GE-1001). Data from the Ground Investigation report, including a desk study and an intrusive investigation for geotechnical and geo-environmental purposes, have been used in the preparation of the current assessment.

1.1 Site referencing

The site is referenced in Table 1.1 and the location is shown in Figure 2 and Figure 3.

Table 1.1: Site referencing information

Item	Brief Description
Site name	Land East of Lodge Road. Hurst
Site address	Land East of Lodge Road. Hurst, Reading. The nearest postcode is RG10 0DP.
Site location and grid reference	The site is located between Lodge Road and Tape Lane. It is situated approximately 7km east of Reading train station. The National Grid Reference of the approximate centre of the site is SU 79447 73679. The site is approximately 9.7 Ha in area and is irregular in shape measuring approximately 450m x 400m.
Site boundaries	The site is bordered by Lodge Road to the north west, open fields to the north and south west, residential housing to the south and Tape Lane to the east.



Figure 2: Site location



Figure 3: Extract from site location plan.

A site location plan (Hydrock Drawing 26519-HYD-XX-ZZ-DR-GE-1000) is presented in Appendix A.

2.0 Geology

The general geology of the site area is shown on the 1:10,000 British Geological Survey (BGS) map extract reproduced as part of the Groundsure Enviro+Geo Insight report and is summarised in Table 2.1. Extracts from the BGS maps are shown in Figure 4 and Figure 5.

Table 2.1: BGS Recorded Geology

	Location relative to site boundary	Stratigraphic Name	Description
Superficial Deposits (Figure 4)			
1	On site	Kempton Park Gravel Member	Sand and gravel, locally with lenses of silt, clay or peat.
Solid Geology (Figure 5)			
1	On site	Lambeth Group	Clay, Silt And Sand
2	156m SE	London Clay Formation	Clay, Silt And Sand

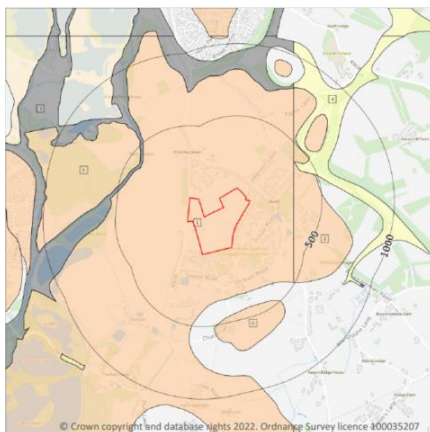


Figure 4: Superficial deposits.
(Reproduced with permission from Groundsure.)

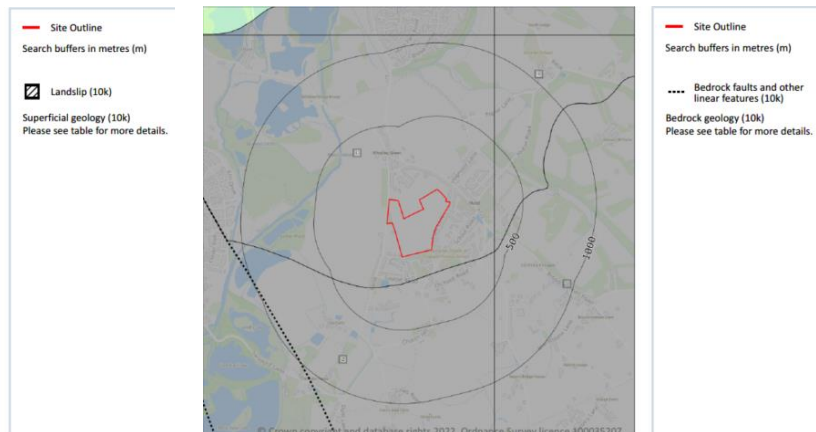


Figure 5: Solid geology.
(Reproduced with permission from Groundsure.)

Hydrock has undertaken ground investigation across the site. The ground conditions encountered are summarised in Table 2.2. Exploratory hole locations are shown in drawing 26519-HYD-XX-XX-DR-GE-1001.

Table 2.2: Geology based upon ground investigation works to date

Stratum	Depth to Top (m bgl*)	Depth to Base (m bgl)	Maximum Thickness (m)	Average Thickness (m)
Kempton Park Gravel Member	0.3	3.5	3.2	2.47
Lambeth Group	2.3	> 8.5 (unproven)	> 5.85 (unproven)	> 2.89 (unproven)
*metres below ground level				

2.1 Topsoil

Topsoil deposits on site varied from 0.3 to 0.5m in depth across the site, with an average thickness of 0.4m.

2.2 Kempton Park Gravel Member

Kempton Park Gravel Member deposits were encountered underlying the topsoil in all exploratory hole locations. The thickness of the deposit is largest at the centre of the site, thinning outwards towards the site boundaries.

In general, the deposits consisted of loose, brown, slightly clayey, fine to coarse, angular to sub-angular gravel of flint with a low cobble content. It is thought that the Kempton Park Gravel Member deposits are localised and associated with former river channels not recorded on the BGS geological mapping. The deposits encountered on site have been assigned a description of orange to brown sandy GRAVEL. Sand is medium to fine, subangular to subrounded. Gravel is coarse to fine flint and chalk, angular to subangular..

The base of the Kempton Park Gravel Member deposits was proven to a base of 4.5m (i.e. at a level of approximately -2.5m OD) below ground existing ground level in positions CP05 and CP06, located at the south eastern corner of the site.

2.3 Lambeth Group

The Lambeth Group deposits were encountered underlying the entire site and typically consisted of a firm, grey, slightly sandy CLAY.

Table 2.3: Summary of Particle Size Distribution Test Results of Kempton Park Gravel Member and Lambeth Group Deposits

Number of Tests	Unit Name	Total Mineral Potential (Sand + Gravel %)	Percentage of materials retained on sieves equivalent to			
			Silt & Clay %	Sand %	Gravel %	Cobble & boulder %
30	Kempton Park Gravel Member	89	11	42	47	0
10	Lambeth Group	87.8	99	6.8	5.3	0

3.0 Historical Minerals Extraction

The site is not within an area of recorded mining. However, the housing development immediately to the east has been built over a former gravel extraction pit, according to historical maps provided by Groundsure.

The Kempton Park Gravel Member regionally has been quarried for sands and gravels but there is no evidence on the historical plans of any extraction being undertaken within the site boundary.

The Groundsure report indicates that gravel quarrying has been undertaken in the wider area, although not within the site boundaries. A BritPit existed 93m east of site, listed as the Tape Lane gravel pit.

4.0 Mineral Potential

It is currently considered that, except for the Kempton Park Gravel Member, none of the other strata encountered during the ground investigation underlying the site have potential to be a mineral resource.

The Kempton Park Gravel Member deposits contain materials that have the potential to be classed in terms of the building trade as 'Sand and Gravel', as defined in the Central and Eastern Berkshire Joint Minerals & Waste Plan Proposed Submission Plan, August 2020. However extracted material will likely require processing to remove fines and/or crushing to reach required sizes for use in concrete, outlined in BS882:1992 Specification for aggregates from natural sources for concrete.

As noted above, the materials identified as Kempton Park Gravel Member were noted to vary in thickness across the site from 2.4m to 3.5m.

In the majority of the exploratory hole logs the Kempton Park Gravel Member is identified as being composed of a significant proportion of sand and gravel, with an average of 91%, based on the Particle Size Distribution (PSD) test results. PSD testing was undertaken on 15 samples of the Kempton Park Gravel Member deposits, as summarised in Table 2.3 above. The PSD testing undertaken on the materials identified a 95% gravel component at the top of strata (approximately 3.5m bgl) and increasing fines percentage, 56-51%, towards the base of strata. It is assumed that the stratum is a coarsening upwards sequence and therefore the top of the sequence is preferential for mineral extraction. The results are highlighted in Table 2.3.

5.0 Mineral Planning

The site lies partially within the boundary identified as a Minerals Safeguarding Area as shown on the Joint Minerals & Waste Plan Draft Policies Map (June 2020) and is therefore subject to the approach outlined in the existing Replacement Minerals Local Plan, 2001. The site area in the mineral safeguarding zone is shown in Figure 6 and is approximately 12,689 m² in size.



Figure 6: Approximate site area within the mineral safeguarding zone (yellow area).

Preliminary guidance on the safeguarding of minerals is given in the BGS publication 'Guide to Mineral Safeguarding', which has been referred to in the first instance to assist with determining whether any of the inferred Mineral Resources (Kempton Park Gravel Member) have the potential to be developed in the future into either Mineral Resource or as a Mineral Reserve, as defined as follows:

A mineral resource is a concentration or occurrence of material of intrinsic economic interest in, or on, the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction.

A mineral reserve is that part of a mineral resource which can be economically extracted. Appropriate assessments demonstrate that the quality and quantity of the mineral can be estimated to a level of confidence which could reasonably justify planning permission being granted. (BGS)

When a Mineral Safeguarding Area is put into place it is typical for a stand-off zone, or buffer limit, to be imposed around the perimeter of the mineral resource to restrict development in close proximity, while also protecting the amenity of existing development that could be affected by future mineral extraction activities. This buffer limit varies depending upon the mineral, but for sand and gravel extraction would typically vary between 25m and 250m from the edge of the mineral and any existing development. Given the proximity of existing industrial development to the subject site, the buffer limit could not be imposed outside the site boundary so would most likely be imposed inside the site boundary, which would sterilise most, if not all, of the mineral deposit. However, a conservative buffer zone of 50m from site boundaries and 100m from nearby homes and structures has been used to estimate the total maximum exploitable area beneath the site.

6.0 Mineral Resources – Preliminary Appraisal

A review of the ground conditions encountered at the site in the recent ground investigation has identified materials which may represent a potential mineral resource within the confines of the site boundaries, as discussed further below.

6.1 Kempton Park Gravel Member

The Hydrock ground investigation has confirmed the presence of Kempton Park Gravel Member across all of the site. The average thickness of Kempton Park Gravel Member, where encountered in the mineral safeguarding zone on site, was on average 2.53m and ranged from 1.9m to 3.2m in thickness. However, the deposits are located at depths of approximately 3.5 m bgl and would require significant excavations and earthworks, which will likely incur higher costs in potential future quarrying to remove overburden. The estimated volume of extractable material was derived from the average thickness of the Kempton Park Gravel Member, the proposed sand and gravel extraction zone and the average PSD percentage of sand and gravel from geotechnical testing. The results are displayed in Table 6.1 below.

Groundwater levels, encountered during the ground investigation, on site vary from 3.8 m bgl to 5.6 m bgl, with perched water resulting in seepage from the Kempton Park Gravel Member (0.7 – 1.9 m bgl) beneath the site. Groundwater levels encountered during monitoring ranged from 0.1m and 1.33m bgl. As such dewatering involving pumping and shoring of excavations is anticipated to achieve the required excavation depth for mineral extraction.

Moreover, a buffer zone varying between 25m to 250m, as typically required for sand and gravel extraction in the proximity of residential development could sterilise all of the inferred mineral resource if a buffer of 150m or more was required. On this basis, for the site to be feasible for the extraction of sand and gravel it would be necessary to reduce the buffer zone to 100m or less. The presence of the surrounding residential development immediately south and east of the site would have sight lines across the entirety of any future mineral extraction. Furthermore, slope stabilisation works would be required for any extraction being carried out adjacent to existing structures. On this basis, extraction of the deposit is considered to be unfeasible.

With regard to the viability of reusing mineral recovered as part of the construction phase of the proposed development, these are likely to comprise one, or any, of the following:

- A. recovery of mineral during utility / service corridor excavation and potential reuse during backfilling operations;
- B. recovery of mineral during excavation and potential reuse within building products e.g. concrete or as a sub-base to roads and pavements;
- C. recovery of mineral as part of foundation and drainage excavations with subsequent reuse on the site.

Before site-won soils could be used as a construction aggregate the Kempton Park Gravel Member derived materials may require post extraction processing to remove the waste fine materials (clay, silt and sand sized particles) and separate out any over-size gravel or cobble sized materials to make it usable for construction purposes such as a sub-base for roads and highways.

Any reuse of site-won soils would be subject to appropriate earthworks testing and geotechnical specification, combined with a Materials Management Plan in accordance with CL:AIRE: Definition of Waste: Development Industry Code of Practice, 2011 (DoWCoP).

Incidental recovery undertaken as part of the construction phase of the development would not need to be subject to the same buffer zones as a formal extraction operation.

An estimate of total extractable sharp sands and gravels is outline below in Table 6.1:

Table 6.1: Estimation of extractable sands and gravels.

	Site with 100m Standoff from nearby buildings and 50m from site boundary.
Extractable Area (m2)	12,689
Exploitable Average Thickness (m)	2.53
PSD Factor	0.89
Total Exploitable Sands and Gravels (m3)	28,572

It should be noted that the above calculation does not factor in potential slope gradients associated with the borders of the potential quarry excavation, which will reduce further the available volume of minerals. A slope characterisation would be required to determine further potential loss of mineral reserves.

It is likely that granular deposits excavated as part of foundation and drainage works could be utilised as bulk or structural fill across the site. However, this is subject to a more detailed earthworks assessment.

It is anticipated that the site preparatory works across the remainder of the site will involve the topsoil being stripped from much of the site and stockpiled for future use in garden areas and public open space. A Materials Management Plan will be required to suitably address the movement and reuse of site won soils, in accordance with DoWCoP.

It is therefore Hydrock's opinion that the Kempton Park Gravel Member cannot be considered an aggregate mineral resource in the context of the existing mineral reserve, based on the reasons outlined above including anticipated objections from nearby residents and their proximity to potential quarrying activities. However, it is reasonable to conclude that the excavated arisings from the project could likely be reused as general or engineered bulk / structural fill needed to allow development as part of a programme of incidental recovery.

7.0 Conclusions

A preliminary review of the geology of the site has identified that a defined Mineral Reserve (Sand and Gravel) extends to within the boundaries of the site (Kempton Park Gravel Member).

A desk-based assessment of the available geological information, including that provided by a recent ground investigation by Hydrock, has been undertaken to assess whether the materials present constitute a mineral resource, which may need to be safeguarded from future development, or indeed need to be extracted as a mineral resource in advance of future development.

This assessment has identified that a limited thicknesses of sand and gravel deposits are present across the site. The available geological information indicates that the Kempton Park Gravel Member deposits reach a maximum thickness of 3.2m and an average of 2.53m across the site, with an average yield of 91% sand and gravel.

In the opinion of Hydrock, the Kempton Park Gravel deposits cannot be considered a fully economically exploitable mineral resource based on the following:

- Surrounding land use include residences and roads that significantly reduce the exploitable volume of material and present significant challenges to allow local authority approval of mineral extraction.
- The materials would require post extraction processing to remove the fine materials (clay, silt and sand sized particles) and separate any over-size gravel or cobble sized materials to make it usable for construction purposes.
- Dewatering of excavations is anticipated due to perched groundwater within the Kempton Park Gravel Member.
- Site entrances situated on Lodge Road and Tape Lane are insufficient to handled quarrying traffic and therefore upgrading of junctions is possibly required.

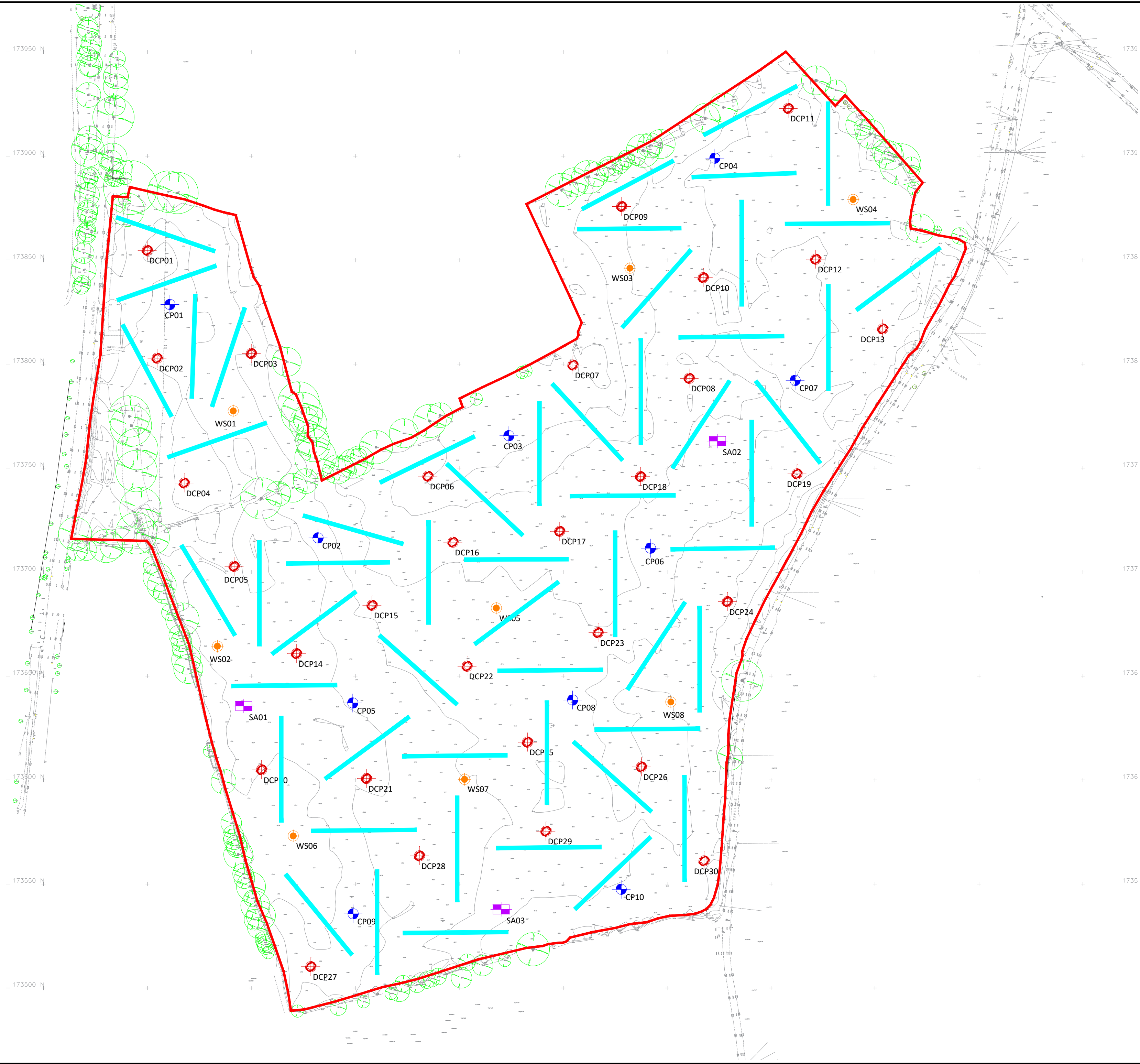
On this basis, recovery prior to development is not considered to be economic nor sustainable given the relatively small quantities of the deposit and the implied costs required for mineral extraction, material processing, long term dewatering and potential slope stabilisation.

The site is also located centrally within Hurst and adjacent to a public greenhouse space. As such significant dust management and noise pollution plans would need to be in place for site quarrying operations to commence.

In summary, while minerals do exist beneath the site in the form of Sand and Gravel, it is considered, for the reasons outlined in the report, they are not of strategic importance or demonstratable economic value as a viable mineral resource and therefore the need for them to be safeguarded or worked in advance of the proposed site development is not warranted.

A programme of incidental recovery as part of the construction phase is recommended.

Appendix A – Drawings



KEY

Hydrock (proposed Site Investigation)

CP##

Cable Percussion Borehole

DCP##

DCP Test Location

SA##

Soakaway Test Location

WS##

Dynamic Sampler Borehole

Cotswold Archaeology (proposed Trenches)

Evaluation Trench

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

3. This drawing has been based on the following drawings and information: Unreferenced drawing supplied by the Client.

PO1

FIRST ISSUE

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18/10/22

KG

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REV.

REVISION NOTES/COMMENTS

DRAWN BY

DATE

CHECKED BY

DATE

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CLIENT

Mactaggart & Mickel Homes England Ltd

PROJECT

Lodge Road, Hurst

TITLE

Exploratory Hole Location Sketch Plan

HYDROCK PROJECT NO.

26519 GELO

SCALE @ A2

1:1250

PURPOSE OF ISSUE

SUITABLE FOR INFORMATION

STATUS

S2

DRAWING NO. - (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)

26519-HYD-XX-ZZ-SK-GE-1001

REVISION

P01

Appendix B – Exploratory Hole Logs

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 8.5m, GL to 1m bgl plain pipe. 1 to 8.5m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 5.6m and rose to 3.8m after 20 minutes. Response zone within Kempton Park Gravel Member and Lambeth Group stratum.

Logged in general accordance with BS5930:2019

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 2.4m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 0.9m. Response zone within Kempton Park Gravel Member stratum.

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks: 1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 1m. Response zone within Kempton Park Gravel Member stratum.
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 8.5m, GL to 1m bgl plain pipe. 0.5 to 8.5m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 6m and rose to 5.6m after 20 minutes . Response zone within Kempton Park Gravel Member and Lambeth Group stratum.

Logged in general accordance with BS5930:2015



Method: Cable Percussion	Date(s): 05/12/2022 - 07/12/2022	Logged By: JF	Drilled By: Wheeler SI
Client: Mactaggart & Mickel	Co-ords: 479572.96, 173899.02	Checked By: KG	Flush:
Hydrock Project No: 26519-GELO			Scale: 1:50

Samples / Tests			Water-Strikes	Stratum Description	Depth m bgl	Thickness (m)	Level m OD	Legend	Instrumentation / Backfill
Depth (m)	Type	Results							
14.00	B				11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

Progress and Observations									Chiselling			General Remarks: 1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 8.5m, GL to 1m bgl plain pipe. 0.5 to 8.5m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 6m and rose to 5.6m after 20 minutes . Response zone within Kempton Park Gravel Member and Lambeth Group stratum.
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks: 1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 1 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 1m. Response zone within Kempton Park Gravel Member stratum.
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	

Logged in general accordance with BS5930:2015



Project: Lodge Road, Hurst

Borehole No
CP06

Page No. 1 of 1

Method: Cable Percussion	Date(s): 14/12/2022	Logged By: JF	Drilled By: Wheeler SI
Client: Mactaggart & Mickel	Co-ords: 479541.98, 173711.51	Checked By: KG	Flush:
Hydrock Project No: 26519-GELO			Scale: 1:50

Samples / Tests			Water- Stikes	Stratum Description	Depth m bgl	Thickness (m)	Level m OD	Legend	Instrum- entation / Backfill
Depth (m)	Type	Results							
0.00	B			Topsoil over dark brown silty slightly gravelly SAND. Gravel is fine subrounded flint. (TOPSOIL)	0.30	(0.30)			
0.30	B			Orange to brown clayey SAND. Sand is medium to fine and rounded to subrounded. (KEMPTON PARK GRAVEL MEMBER)					
1.20	SPT	N=4 (1,0,2,1,0,1)			1	(1.40)			
1.20	D								
1.70	B				1.70				
2.00	SPT	N=11 (3,2,3,2,3,3)		Grey to brown clayey SAND. Sand is medium to fine and rounded to subrounded. (KEMPTON PARK GRAVEL MEMBER)	2				
2.00	D					(1.30)			
3.00	SPT	N=16 (5,2,3,4,4,5)			3				
3.00	B			Grey to brown clayey, slightly gravelly SAND. Sand is medium to fine and rounded to subrounded. Gravel is fine subrounded flint. (KEMPTON PARK GRAVEL MEMBER)	3.00	(0.50)			
3.00	D								
3.50	B			Brown to grey firm CLAY. (LAMBETH GROUP)	3.50				
4.00	SPT	N=25 (2,3,4,4,7,10)			4	(1.50)			
4.00	D								
4.70	B								
				End of Borehole at 5.00m	5				
					6				
					7				
					8				
					9				
					10				

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 0.9m. Response zone within Kempton Park Gravel Member stratum.

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 1 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 0.9m. Response zone within Kempton Park Gravel Member stratum.

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:	
--------	--

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 3.6m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 1m. Response zone within Kempton Park Gravel Member stratum.

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 6.3m, GL to 1m bgl plain pipe. 1 to 6.3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 5.8m and rose to 4.7m after 20 minutes . Response zone within Kempton Park Gravel Member and Lambeth Group stratum.

Logged in general accordance with BS5930:2015

Appendix C – Geotechnical Laboratory Testing

4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

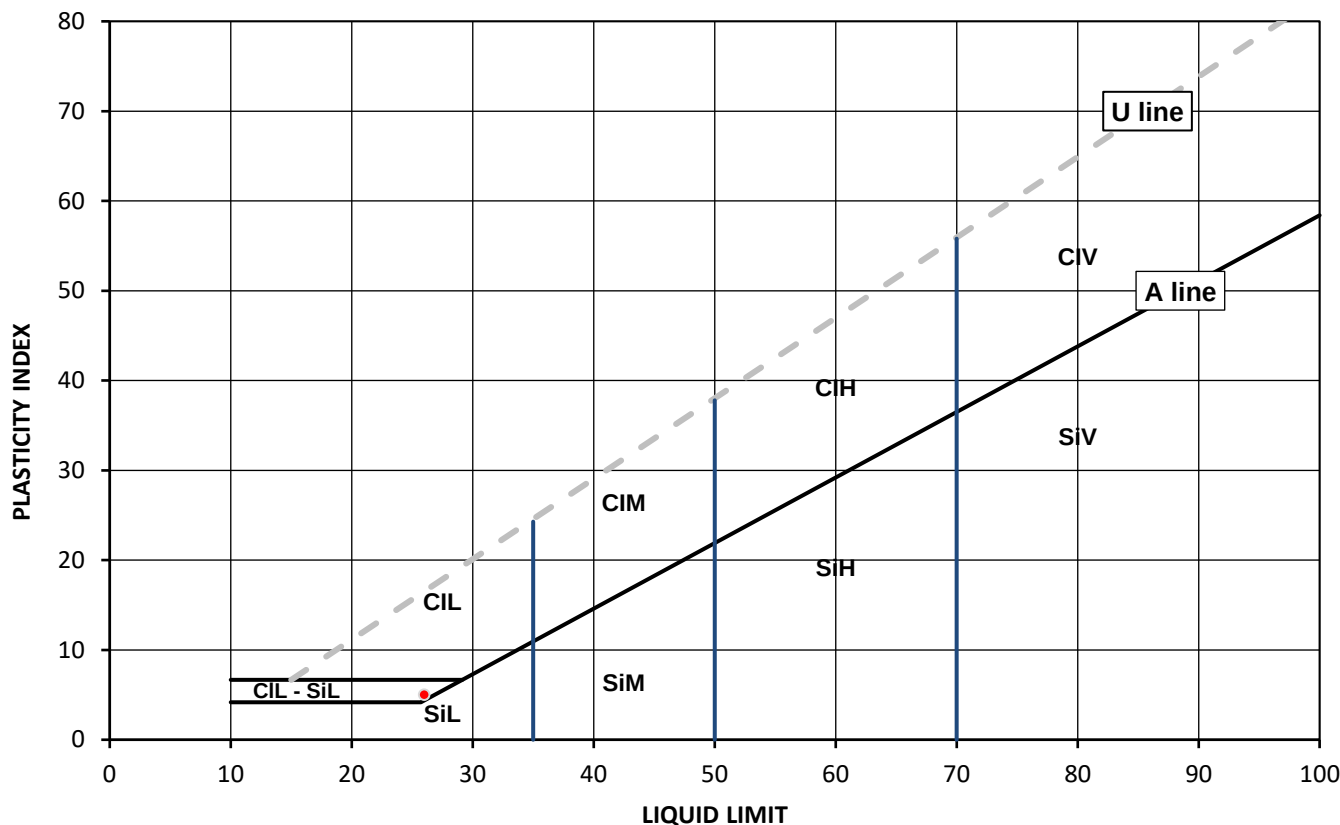
Test Results:

Laboratory Reference: 2527369
Hole No.: TT2 (21)
Sample Reference: Not Given
Sample Description: Yellowish brown clayey very gravelly SAND

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

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
13	26	21	5	49



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:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

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

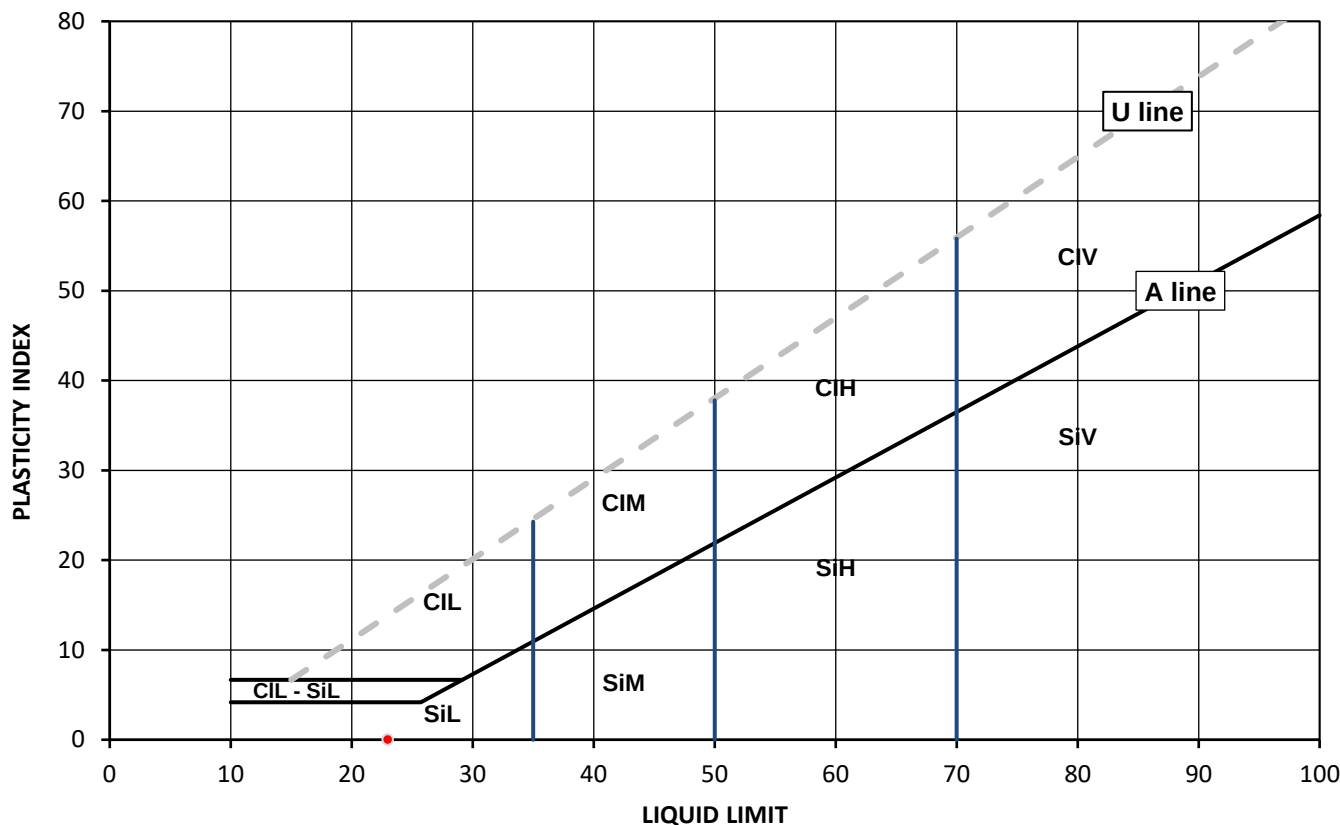
Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND

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

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
16	23	NP	NP	93



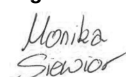
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	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: NP - non plastic

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

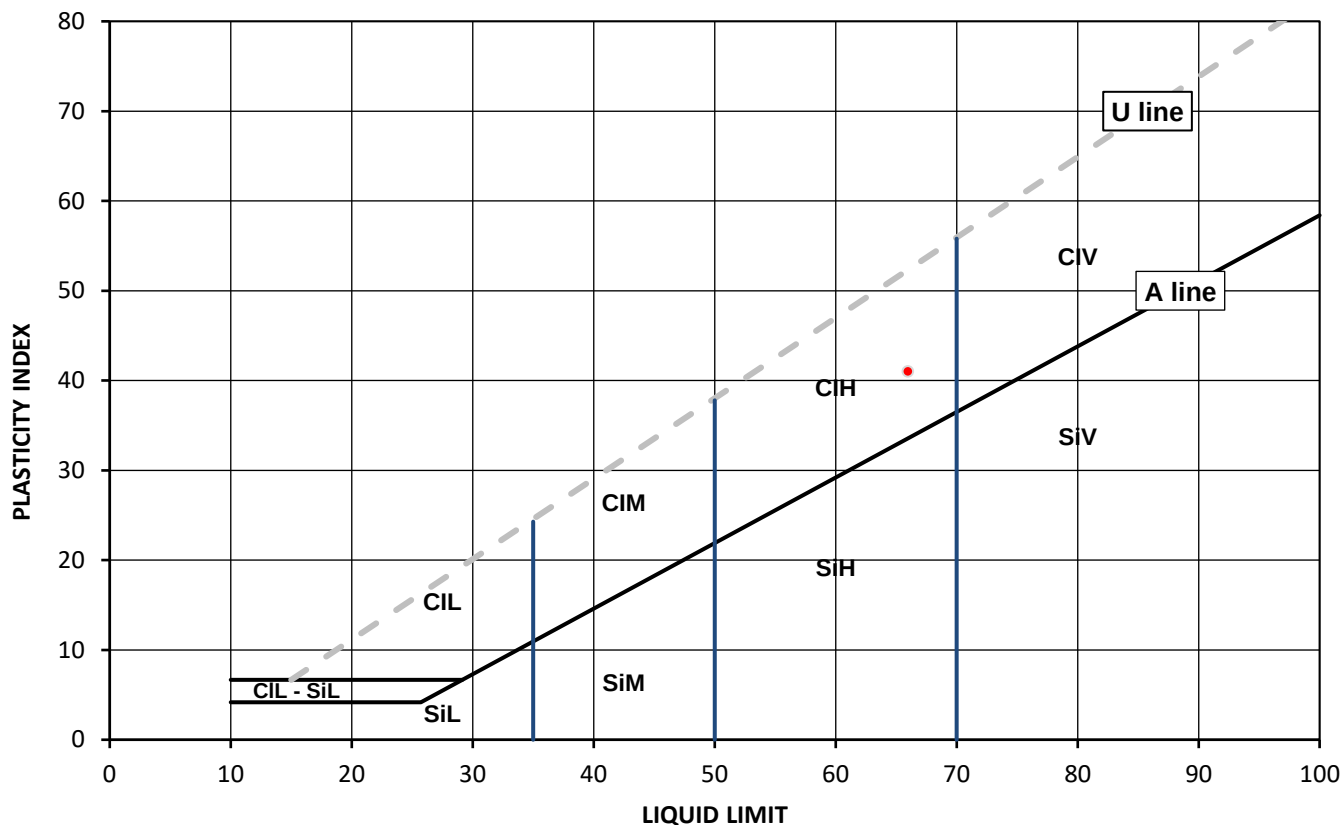
Test Results:

Laboratory Reference: 2527373
Hole No.: TT30B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

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

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
28	66	25	41	100



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

CI	Clay	Plasticity	L	Low	Liquid Limit	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:

Monika Siewior

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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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

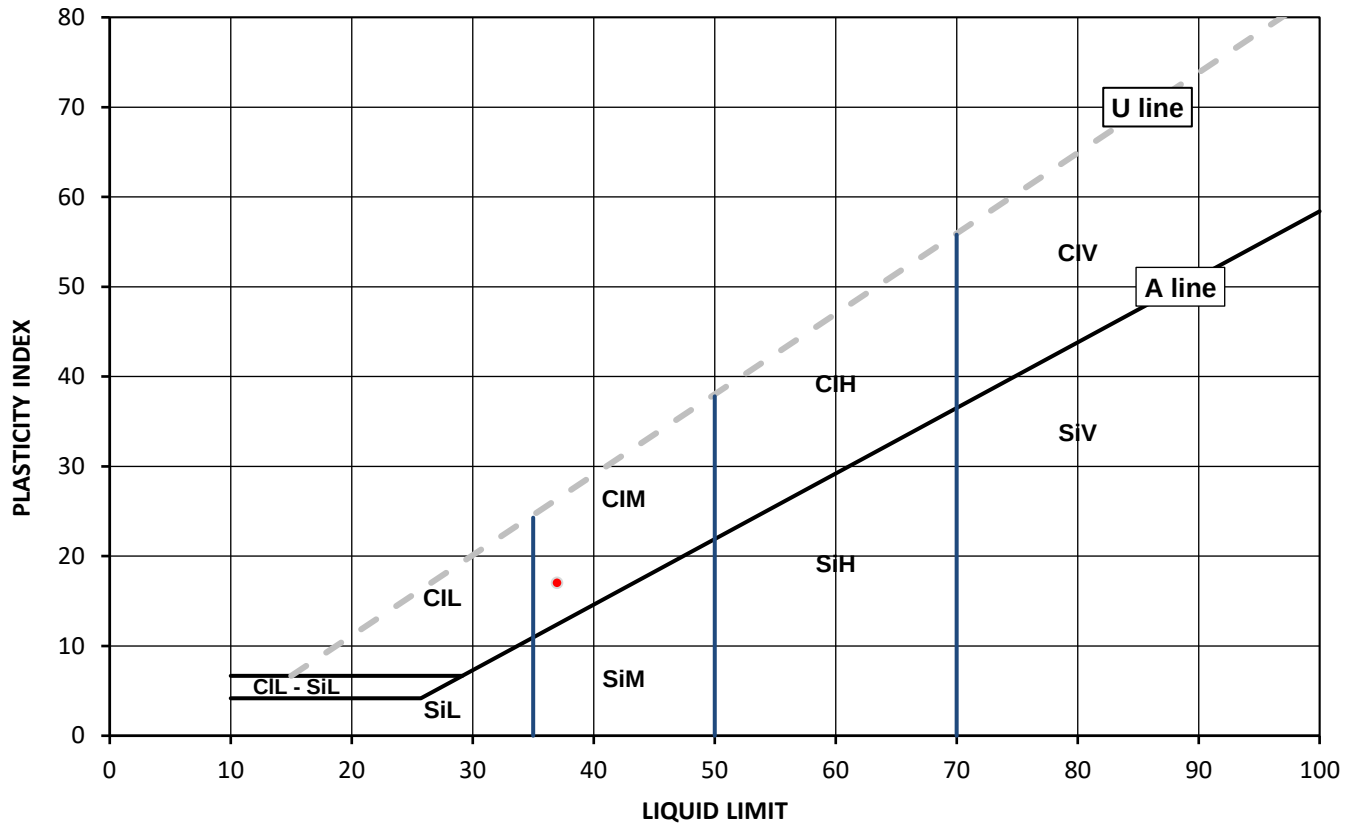
Test Results:

Laboratory Reference: 2527378
Hole No.: TT47B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

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

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
21	37	20	17	100



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

Cl	Clay	Plasticity	Liquid Limit
Si	Silt	L Low	below 35
		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:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

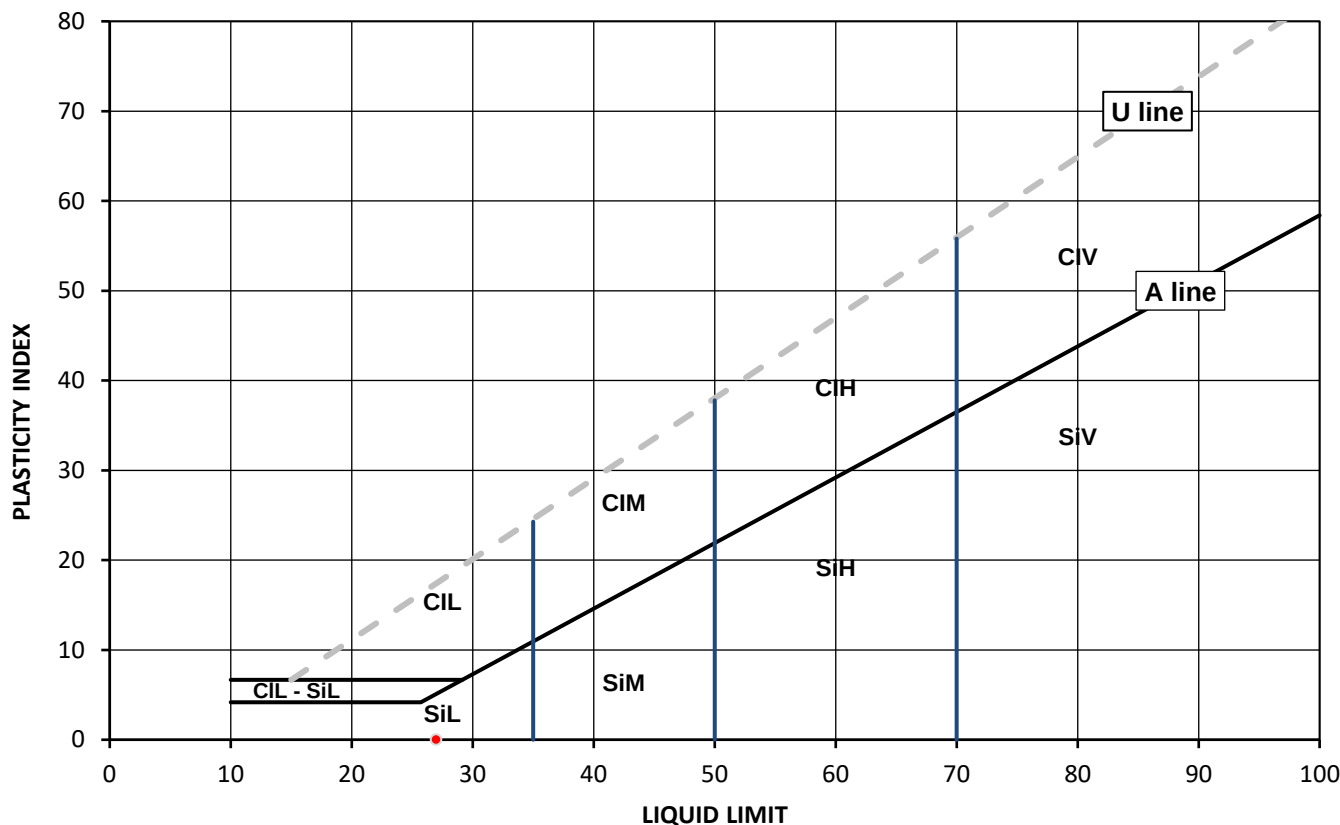
Test Results:

Laboratory Reference: 2534137
Hole No.: WS07
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey very gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: 1.50
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
13	27	NP	NP	53



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
		50 to 70
		exceeding 70
		append to classification for organic material (eg CIHO)

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

Remarks: NP - non plastic

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road Hurst

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

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

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

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



Environmental Science

Client Reference: 26519
 Job Number: 22-12311
 Date Sampled: 24/11 - 01/12/2022
 Date Received: 29/11/2022
 Date Tested: 16/12 - 21/12/2022
 Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um %	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2527368	TT1 (26)	Not Given	1.00	Not Given	B	Greyish brown slightly gravelly clayey SAND										2.68			
2527369	TT2 (21)	Not Given	2.00	Not Given	B	Yellowish brown clayey very gravelly SAND	Atterberg 4 Point	13		49	26	21	5						
2527370	TT3 (20)	Not Given	1.00	Not Given	B	Yellowish brown slightly clayey gravelly SAND	Atterberg 4 Point	16		93	23	NP	NP			2.67			
2527373	TT30B	Not Given	2.00	Not Given	B	Brownish grey CLAY	Atterberg 4 Point	28		100	66	25	41			2.35			
2527371	TT4 (22)	Not Given	3.00	Not Given	B	Yellowish brown slightly clayey GRAVEL and SAND										2.63			
2527376	TT45B	Not Given	2.00	Not Given	B	Greyish brown slightly clayey gravelly SAND										2.65			
2527378	TT47B	Not Given	3.00	Not Given	B	Brownish grey CLAY	Atterberg 4 Point	21		100	37	20	17			2.79			
2534137	WS07	Not Given	1.00	1.50	B	Yellowish brown slightly clayey very gravelly SAND	Atterberg 4 Point	13		53	27	NP	NP						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Siewior

Monika Siewior
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road Hurst

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

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

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

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



Environmental Science

Client Reference: 26519
 Job Number: 22-12311
 Date Sampled: 24/11 - 01/12/2022
 Date Received: 29/11/2022
 Date Tested: 16/12 - 21/12/2022
 Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2527369	TT2 (21)	Not Given	2.00	Not Given	B	Yellowish brown clayey very gravelly SAND		13	Sample was quartered, oven dried at 106 °C			
2527370	TT3 (20)	Not Given	1.00	Not Given	B	Yellowish brown slightly clayey gravelly SAND		16	Sample was quartered, oven dried at 106 °C			
2527373	TT30B	Not Given	2.00	Not Given	B	Brownish grey CLAY		28	Sample was quartered, oven dried at 106 °C			
2527378	TT47B	Not Given	3.00	Not Given	B	Brownish grey CLAY		21	Sample was quartered, oven dried at 106 °C			
2534137	WS07	Not Given	1.00	1.50	B	Yellowish brown slightly clayey very gravelly SAND		13	Sample was quartered, oven dried at 109 °C			

Comments:

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Signed:

Monika Siewior

Monika Siewior
 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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

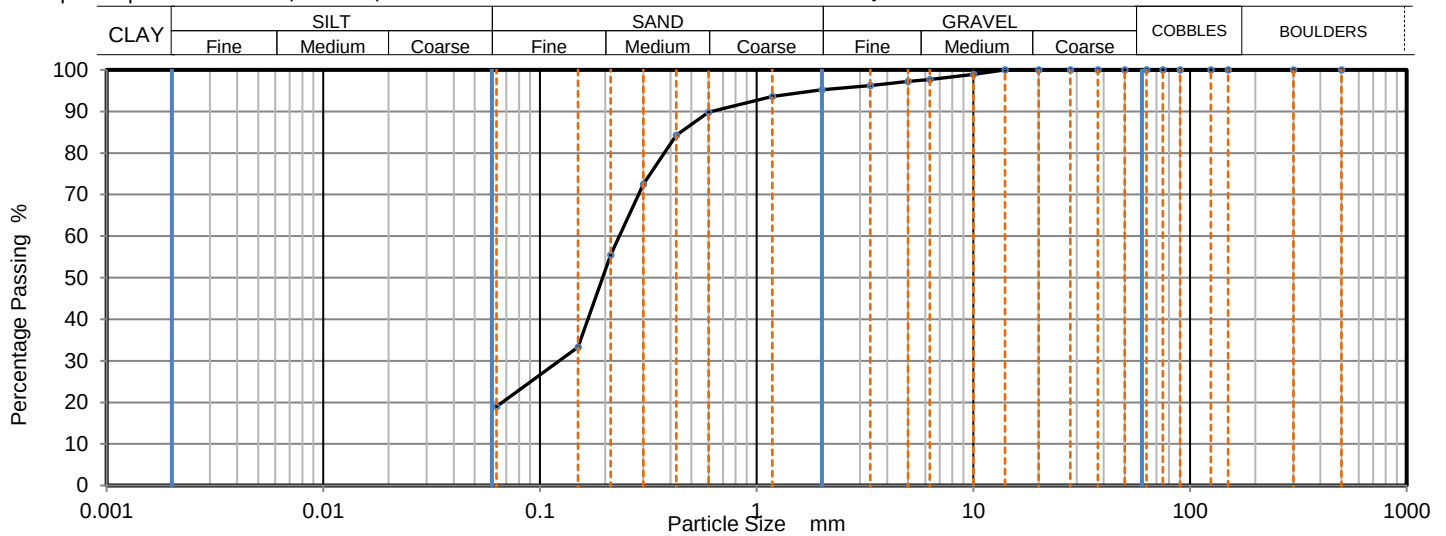
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527368
Hole No.: TT1 (26)
Sample Reference: Not Given
Sample Description: Greyish brown slightly gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

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



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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

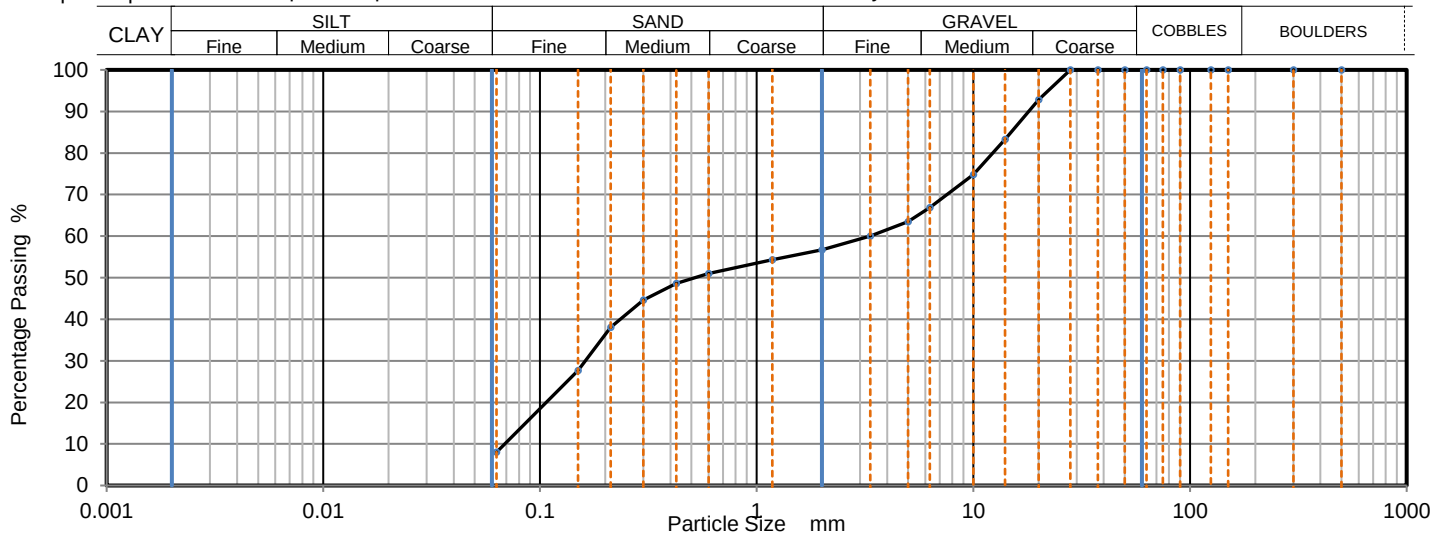
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527369
Hole No.: TT2 (21)
Sample Reference: Not Given
Sample Description: Yellowish brown clayey very gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 2.00
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	93		
14	83		
10	75		
6.3	67		
5	64		
3.35	60		
2	57		
1.18	54		
0.6	51		
0.425	49		
0.3	45		
0.212	38		
0.15	28		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	48
Fines <0.063mm	9

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	51
Curvature Coefficient	0.12

Uniformity 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:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

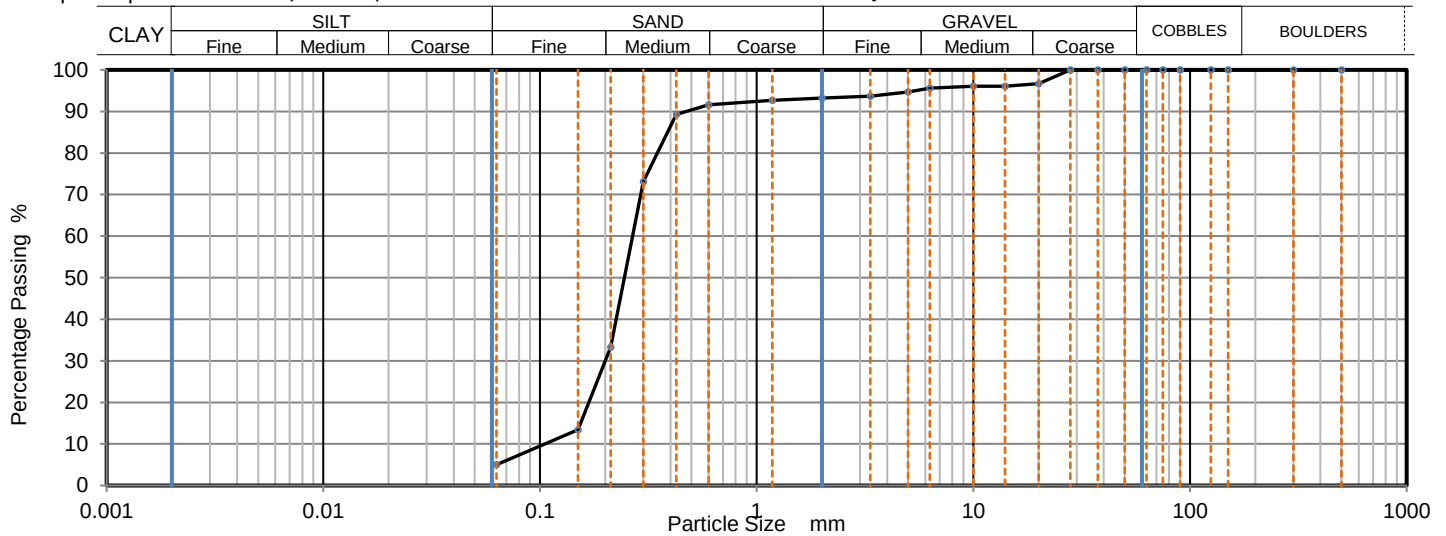
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 1.00
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	97		
14	96		
10	96		
6.3	96		
5	95		
3.35	94		
2	93		
1.18	93		
0.6	92		
0.425	89		
0.3	73		
0.212	33		
0.15	13		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	7
Sand	88
Fines <0.063mm	5

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	2.6
Curvature Coefficient	1.4

Uniformity 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:

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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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

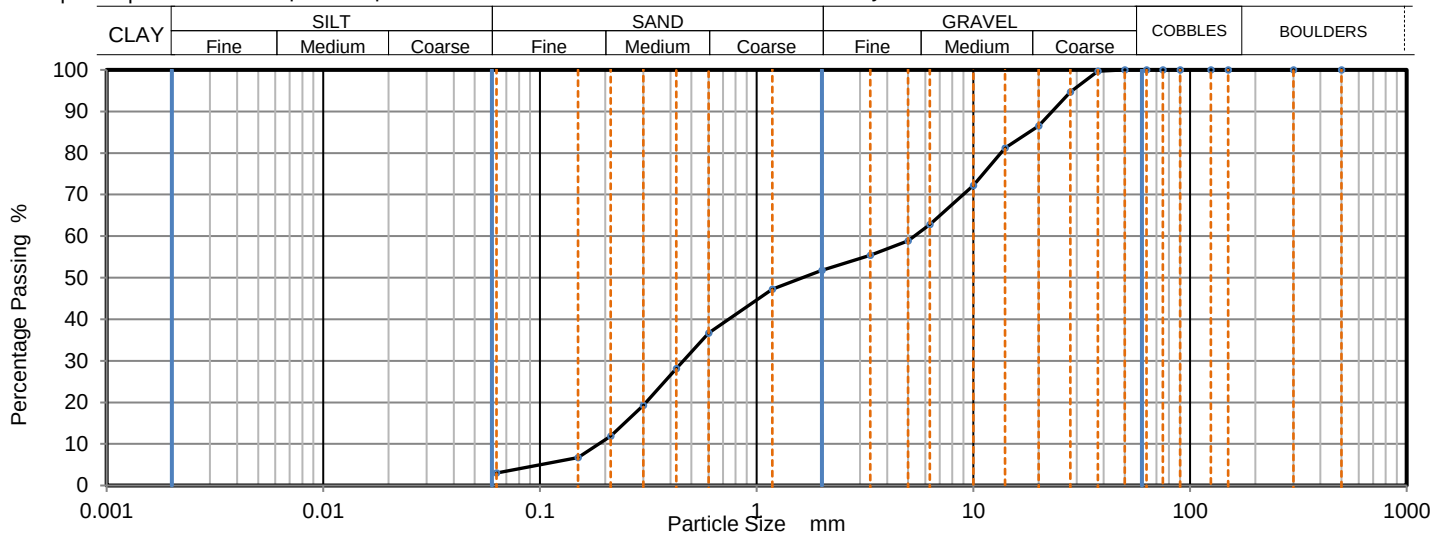
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527371
Hole No.: TT4 (22)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey GRAVEL and SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
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	95		
20	87		
14	81		
10	72		
6.3	63		
5	59		
3.35	55		
2	52		
1.18	47		
0.6	37		
0.425	28		
0.3	19		
0.212	12		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	48
Fines <0.063mm	4

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity 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:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

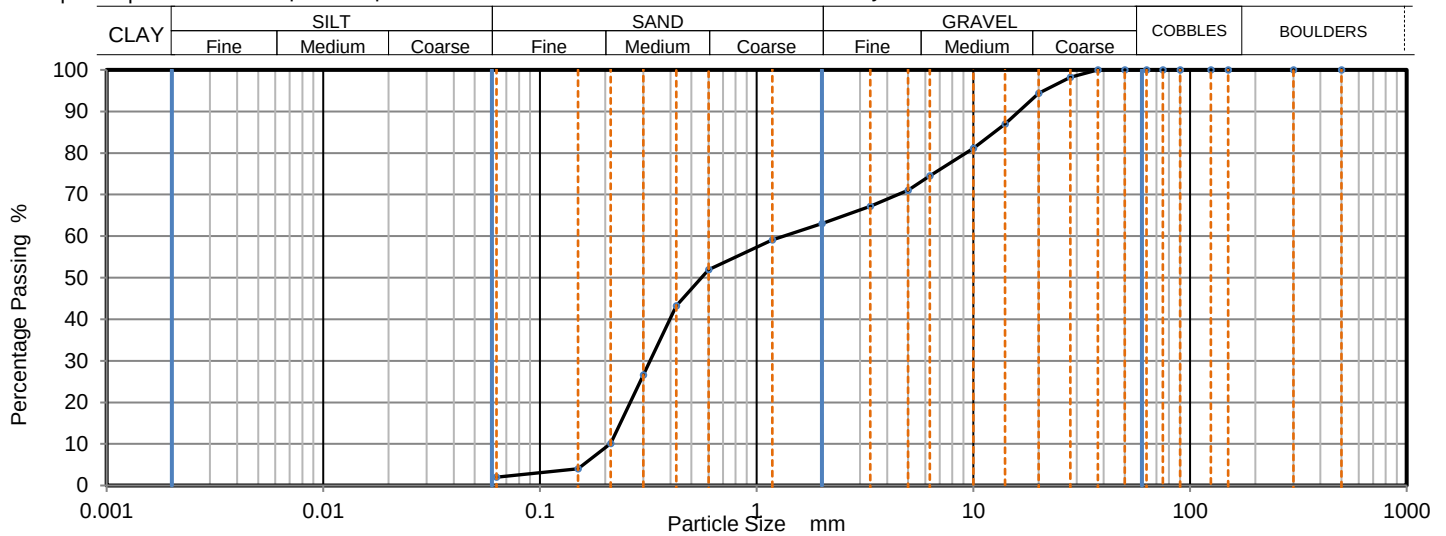
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527372
Hole No.: TT29A
Sample Reference: Not Given
Sample Description: Light brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
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	98		
20	94		
14	87		
10	81		
6.3	75		
5	71		
3.35	67		
2	63		
1.18	59		
0.6	52		
0.425	43		
0.3	27		
0.212	10		
0.15	4		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	61
Fines <0.063mm	2

Grading Analysis	
D100	mm 37.5
D60	mm 1.34
D30	mm 0.322
D10	mm 0.21
Uniformity Coefficient	6.4
Curvature Coefficient	0.37

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

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

Remarks:

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Client Address: 5-7 Tanner Street, London,
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Contact: Julian Fowler
Site Address: Lodge Road Hurst

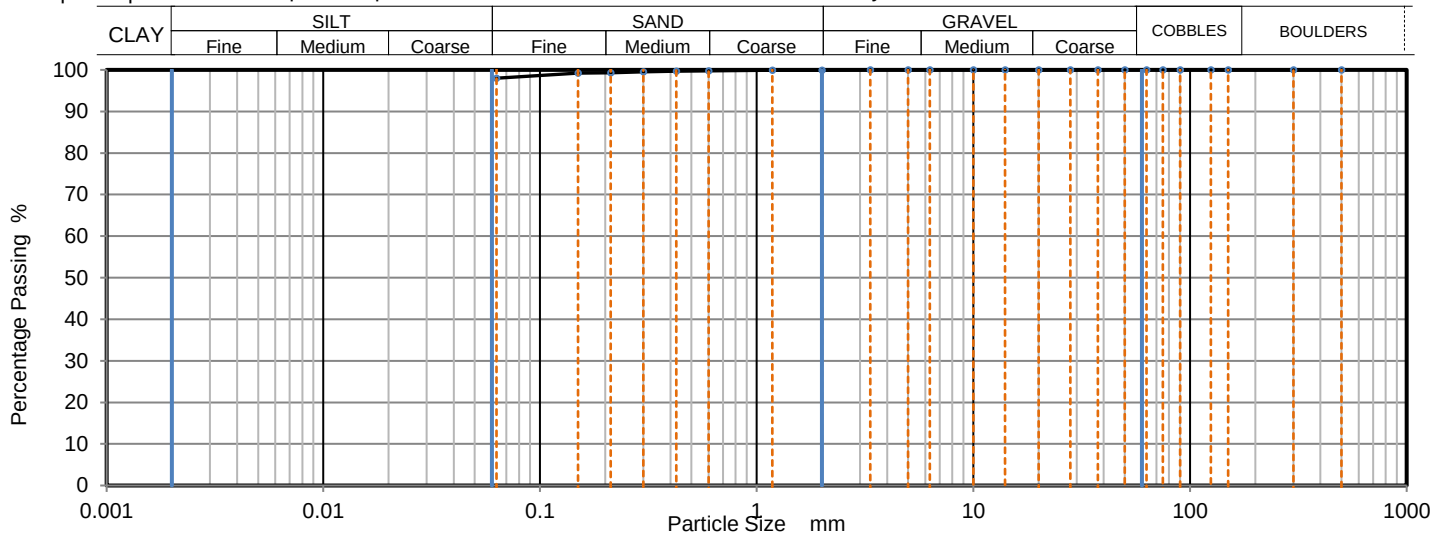
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527373
Hole No.: TT30B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 2.00
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	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	1
Fines <0.063mm	99

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

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

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

Remarks:

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Contact: Julian Fowler
Site Address: Lodge Road Hurst

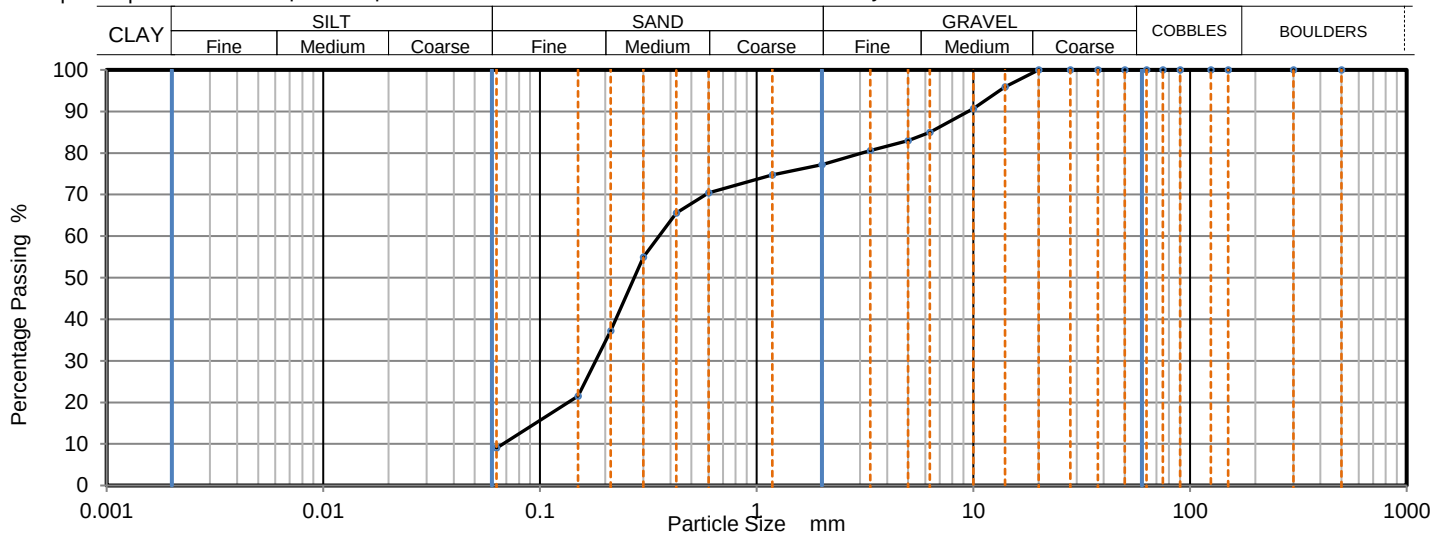
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 1.00
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	100		
14	96		
10	91		
6.3	85		
5	83		
3.35	81		
2	77		
1.18	75		
0.6	70		
0.425	66		
0.3	55		
0.212	37		
0.15	22		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	67
Fines <0.063mm	10

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	5.6
Curvature Coefficient	1.4

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

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

Remarks:

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

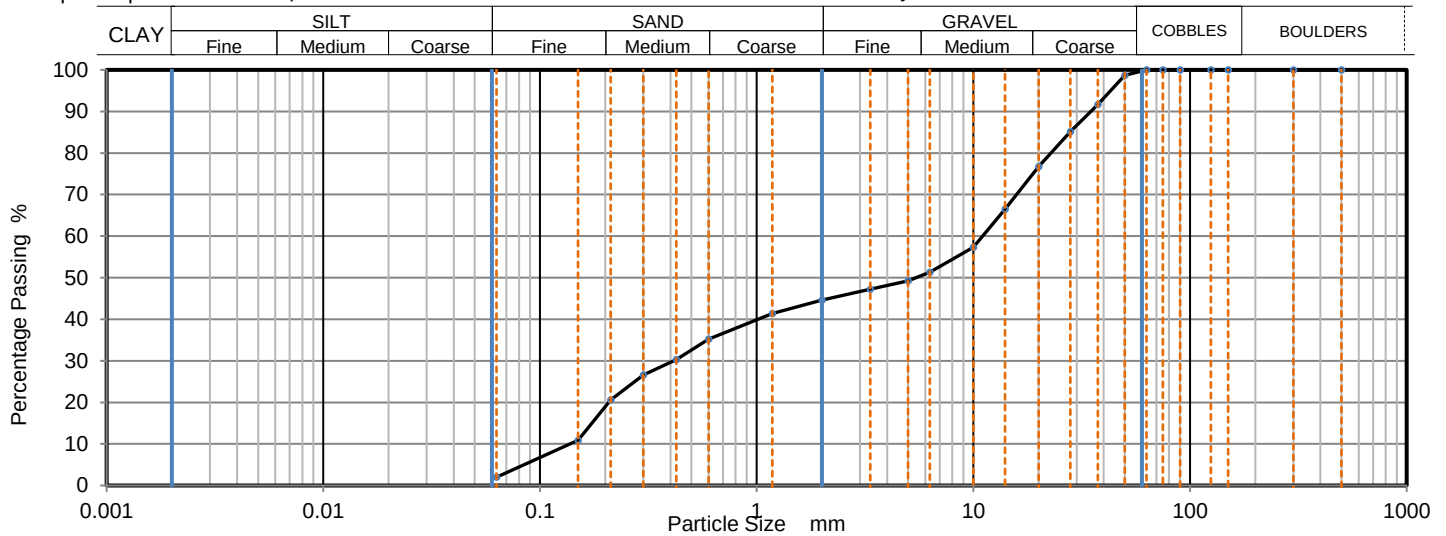
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527375
Hole No.: TT32A
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey very sandy GRAVEL
Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 3.00
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	99		
37.5	92		
28	85		
20	77		
14	67		
10	57		
6.3	51		
5	49		
3.35	47		
2	45		
1.18	41		
0.6	35		
0.425	30		
0.3	27		
0.212	21		
0.15	11		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	42
Fines <0.063mm	3

Grading Analysis	
D100	mm 63
D60	mm 11
D30	mm 0.415
D10	mm 0.136
Uniformity Coefficient	81
Curvature Coefficient	0.11

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

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

Remarks:

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

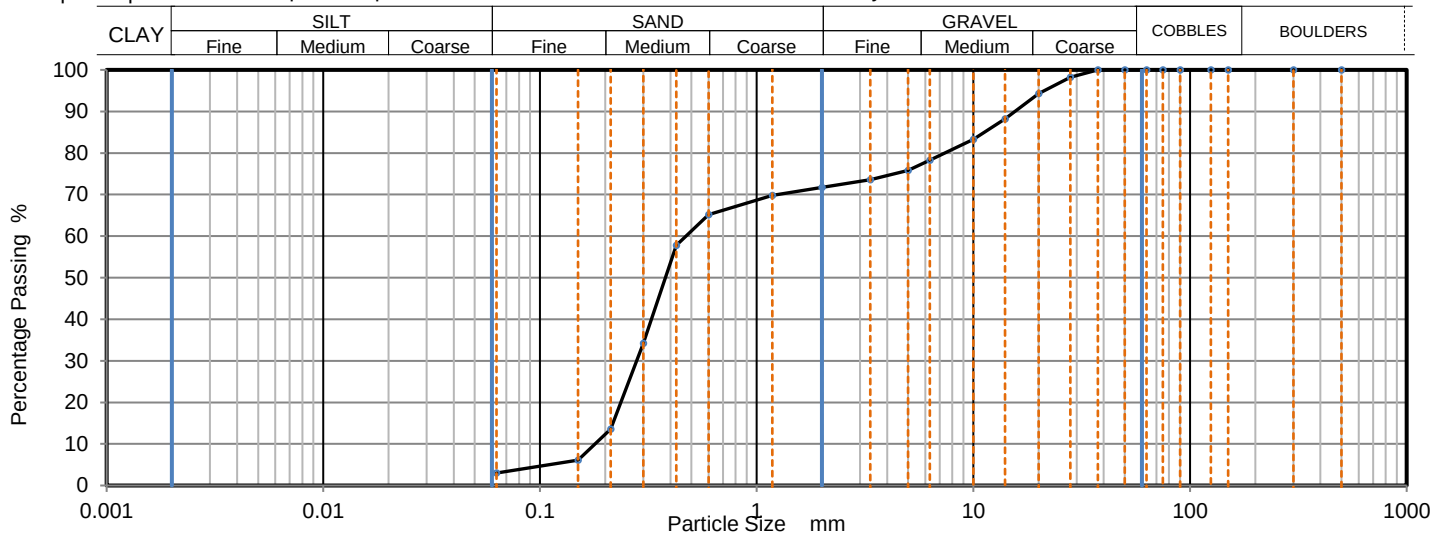
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527376
Hole No.: TT45B
Sample Reference: Not Given
Sample Description: Greyish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.00
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	98		
20	94		
14	88		
10	83		
6.3	78		
5	76		
3.35	74		
2	72		
1.18	70		
0.6	65		
0.425	58		
0.3	34		
0.212	14		
0.15	6		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	68
Fines <0.063mm	3

Grading Analysis	
D100	mm 37.5
D60	mm 0.471
D30	mm 0.279
D10	mm 0.18
Uniformity Coefficient	2.6
Curvature Coefficient	0.92

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

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

Remarks:

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

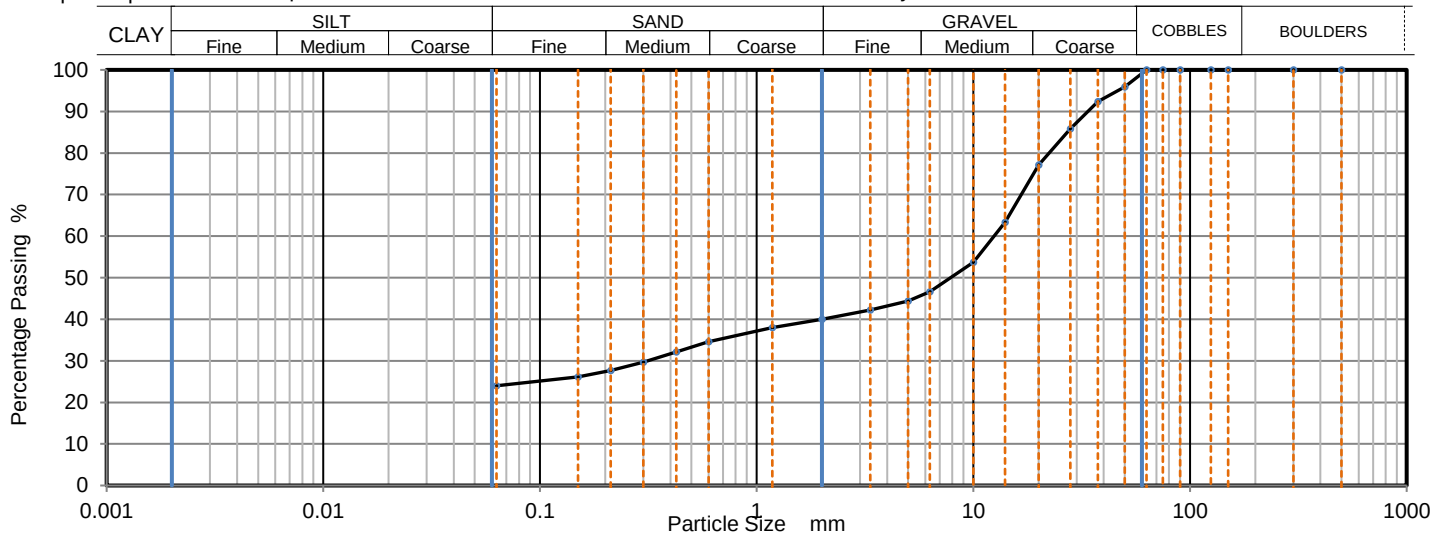
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527377
Hole No.: TT46B
Sample Reference: Not Given
Sample Description: Yellowish brown sandy clayey GRAVEL
Sample Preparation: Sample was whole tested, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
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	96		
37.5	92		
28	86		
20	77		
14	63		
10	54		
6.3	47		
5	44		
3.35	42		
2	40		
1.18	38		
0.6	35		
0.425	32		
0.3	30		
0.212	28		
0.15	26		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0
Gravel	60
Sand	15
Fines <0.063mm	25

Grading Analysis	
D100	mm 63
D60	mm 12.5
D30	mm 0.314
D10	mm
Uniformity Coefficient	> 200
Curvature Coefficient	

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

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

Remarks:

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Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

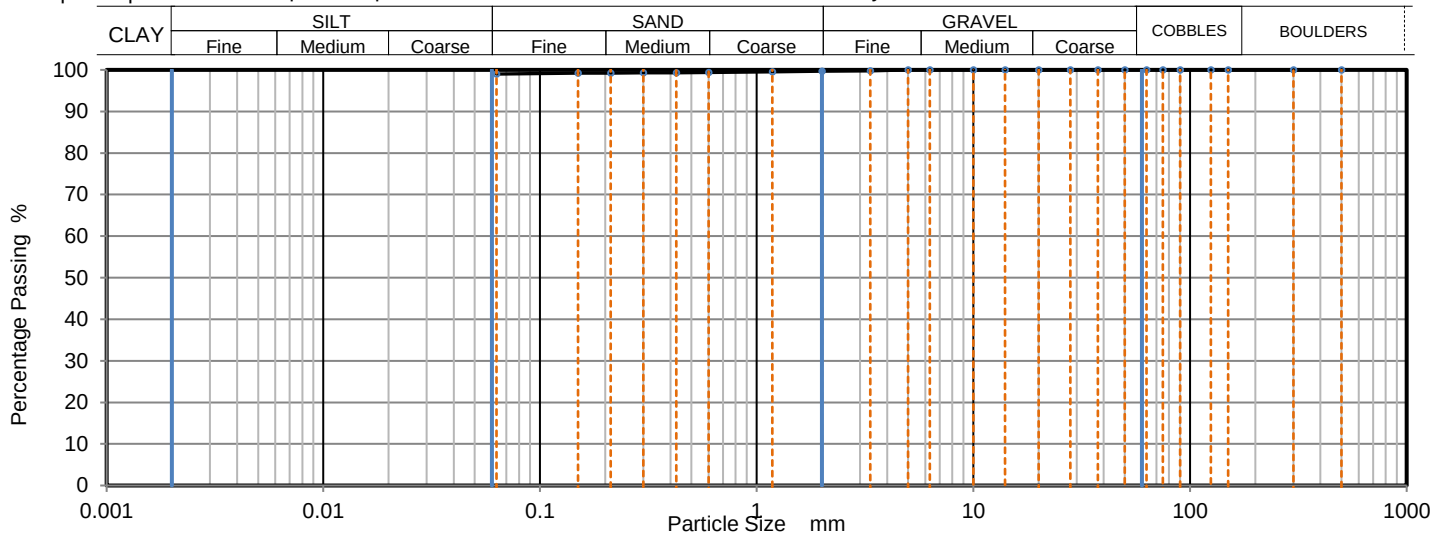
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527378
Hole No.: TT47B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 3.00
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	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	1
Fines <0.063mm	99

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

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

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

Remarks:

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Contact: Julian Fowler
Site Address: Lodge Road Hurst

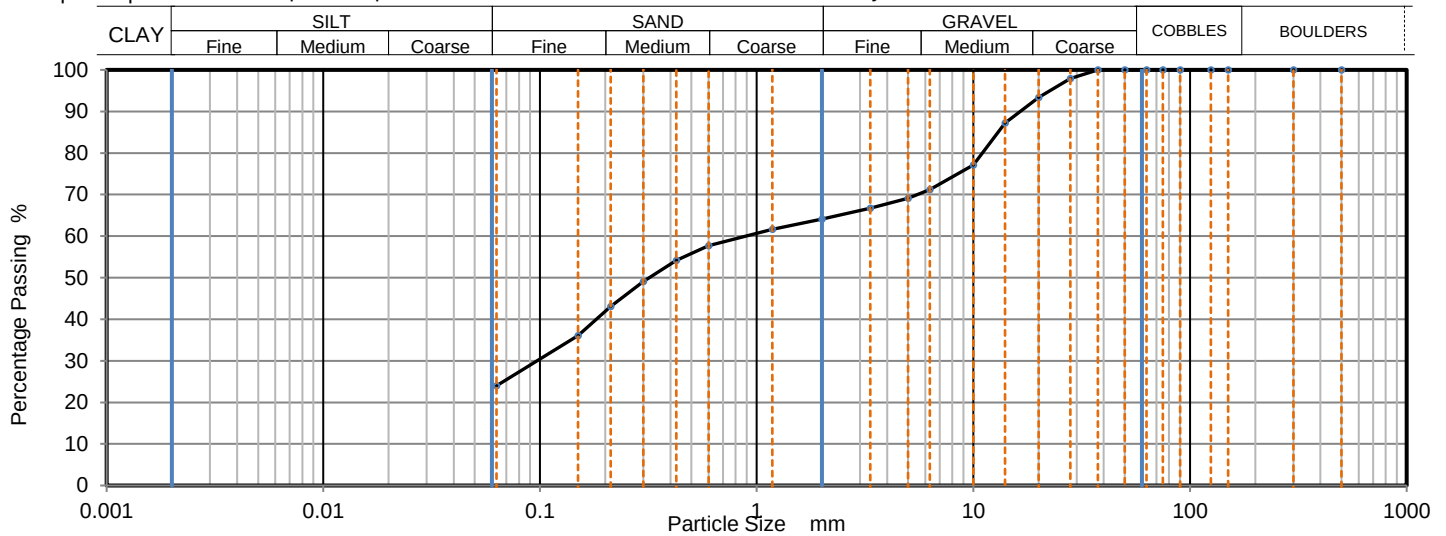
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527379
Hole No.: TT40B
Sample Reference: Not Given
Sample Description: Brownish grey clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
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	98		
20	93		
14	87		
10	77		
6.3	71		
5	69		
3.35	67		
2	64		
1.18	62		
0.6	58		
0.425	54		
0.3	49		
0.212	43		
0.15	36		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	40
Fines <0.063mm	24

Grading Analysis	
D100	mm 37.5
D60	mm 0.896
D30	mm 0.0969
D10	mm
Uniformity Coefficient	> 14
Curvature Coefficient	

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

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

Remarks:

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Contact: Julian Fowler
Site Address: Lodge Road Hurst

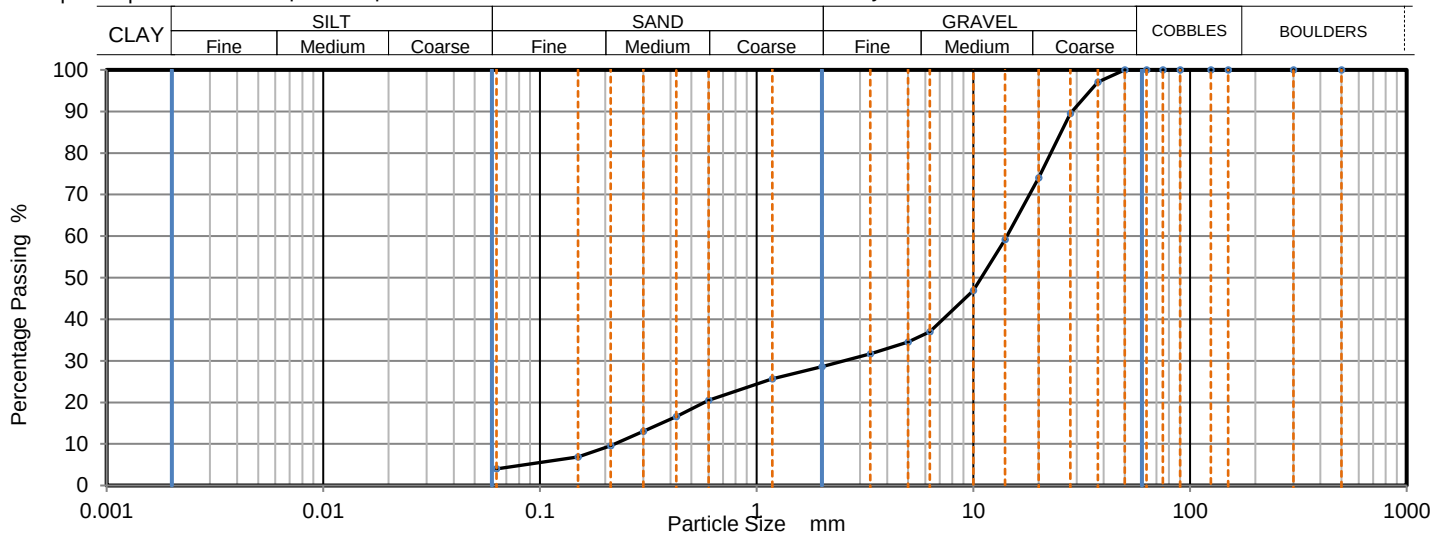
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527380
Hole No.: TT38A
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.00
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	97		
28	90		
20	74		
14	59		
10	47		
6.3	37		
5	35		
3.35	32		
2	29		
1.18	26		
0.6	21		
0.425	17		
0.3	13		
0.212	10		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	71
Sand	24
Fines <0.063mm	5

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

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

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

Remarks:

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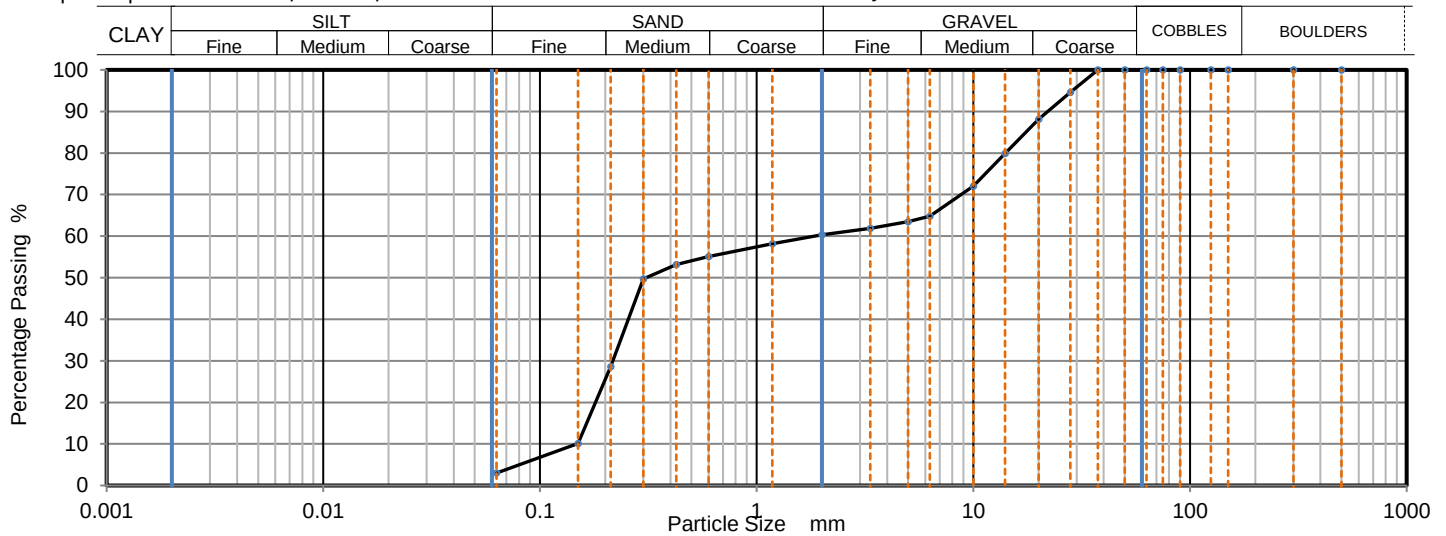
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2534137
Hole No.: WS07
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey very gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.00
Depth Base [m]: 1.50
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	95		
20	88		
14	80		
10	72		
6.3	65		
5	64		
3.35	62		
2	60		
1.18	58		
0.6	55		
0.425	53		
0.3	50		
0.212	29		
0.15	10		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	57
Fines <0.063mm	4

Grading Analysis	
D100	mm 37.5
D60	mm 1.85
D30	mm 0.217
D10	mm 0.149
Uniformity Coefficient	12
Curvature Coefficient	0.17

Uniformity 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:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

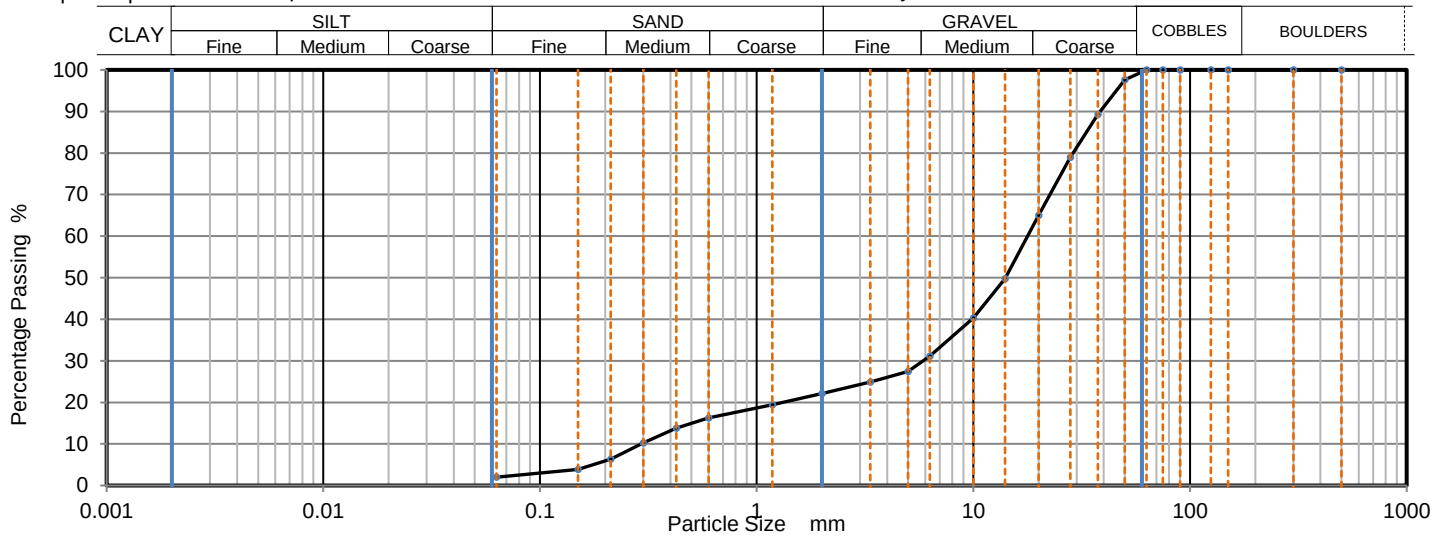
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2534138
Hole No.: WS05
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL
Sample Preparation: Sample was whole tested, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 1.00
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	98		
37.5	89		
28	79		
20	65		
14	50		
10	40		
6.3	31		
5	27		
3.35	25		
2	22		
1.18	19		
0.6	16		
0.425	14		
0.3	10		
0.212	6		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	78
Sand	19
Fines <0.063mm	3

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity 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:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

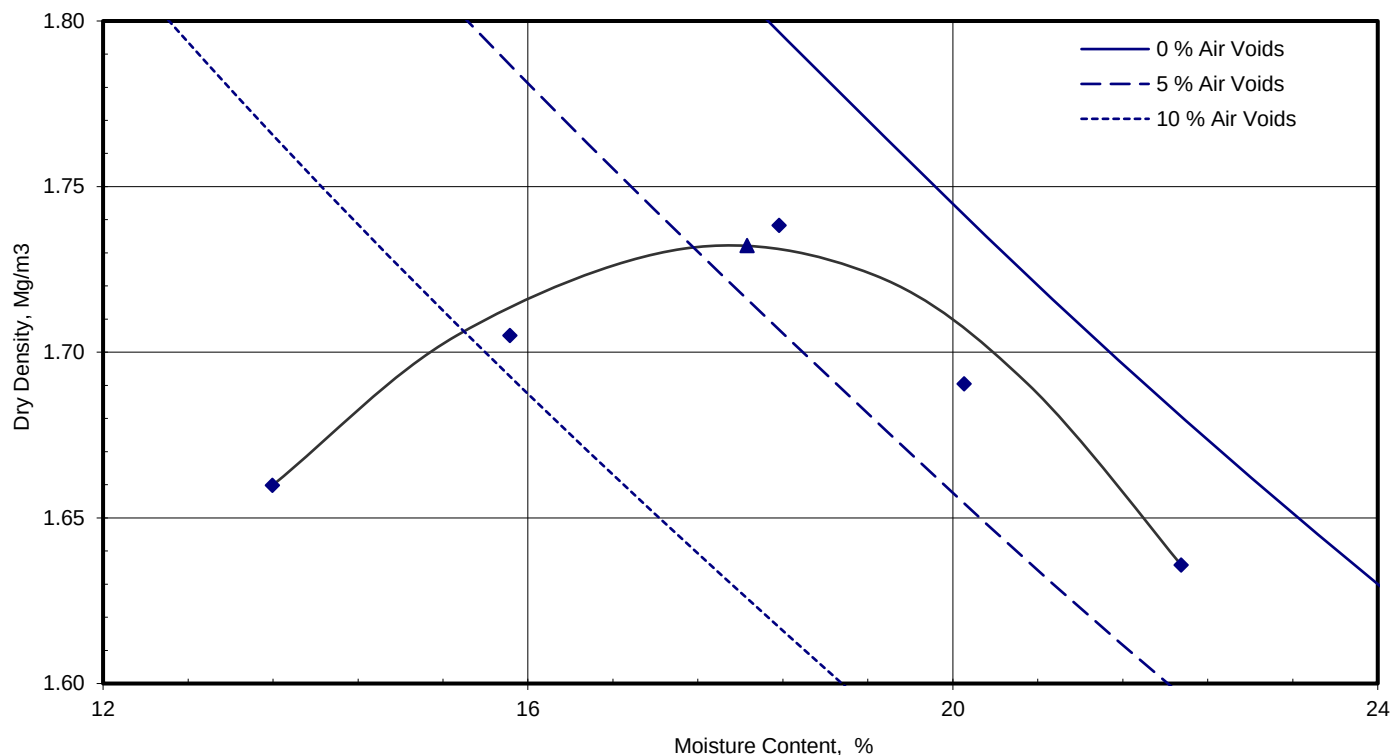
Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527368
Hole No.: TT1 (26)
Sample Reference: Not Given
Sample Description: Greyish brown slightly gravelly clayey SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

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


Compaction Point No.	1	2	3	4	5
Moisture Content	14	16	18	20	22
Dry Density	1.66	1.71	1.74	1.69	1.64

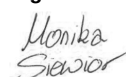
Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve	0
Material Retained on 20.0 mm Sieve	0
Particle Density - Measured using gas jar	2.68
As received Moisture Content	17
Maximum Dry Density	1.73

Optimum Moisture Content	18
--------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

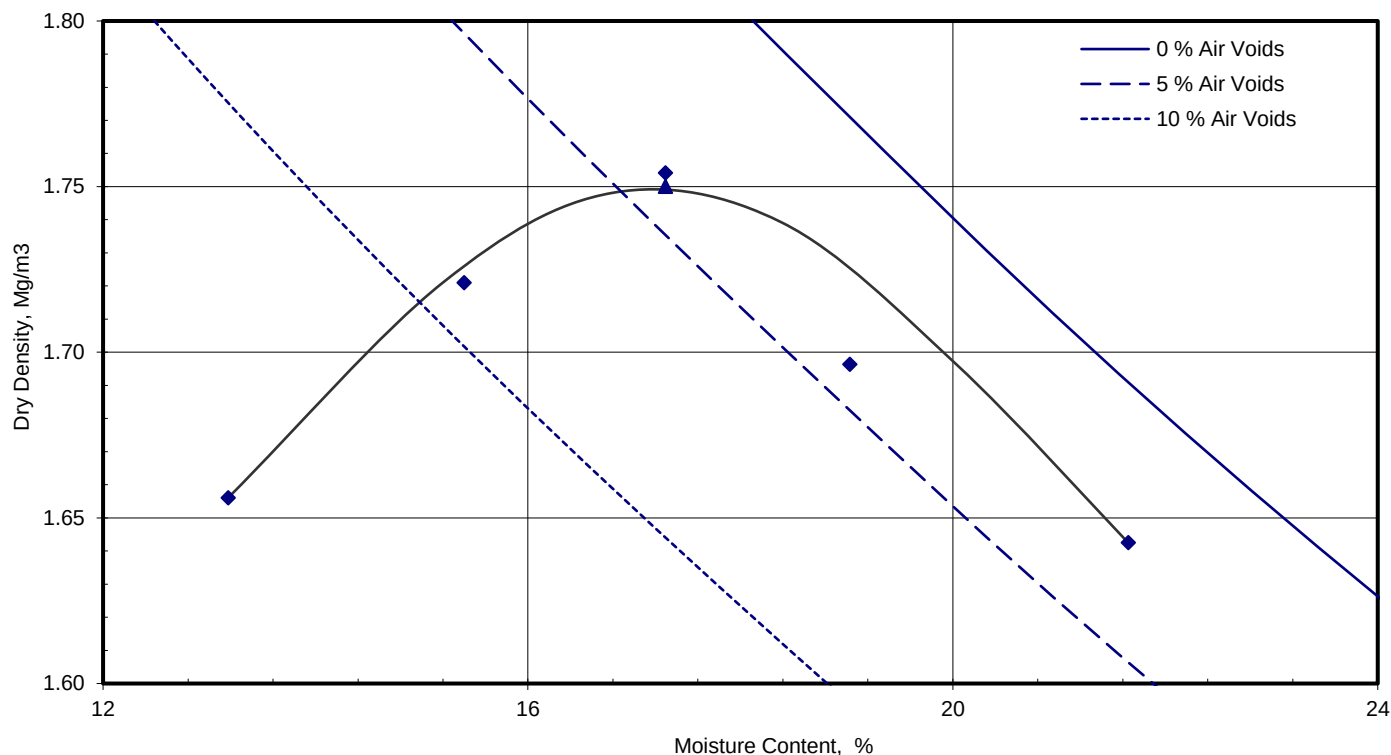
Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

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


Compaction Point No.	1	2	3	4	5	
Moisture Content	%	13	15	17	19	22
Dry Density	Mg/m³	1.66	1.72	1.75	1.70	1.64

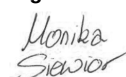
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	4
Particle Density - Measured using gas jar	Mg/m³	2.67
As received Moisture Content	%	16
Maximum Dry Density	Mg/m³	1.75

Optimum Moisture Content	%	17
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

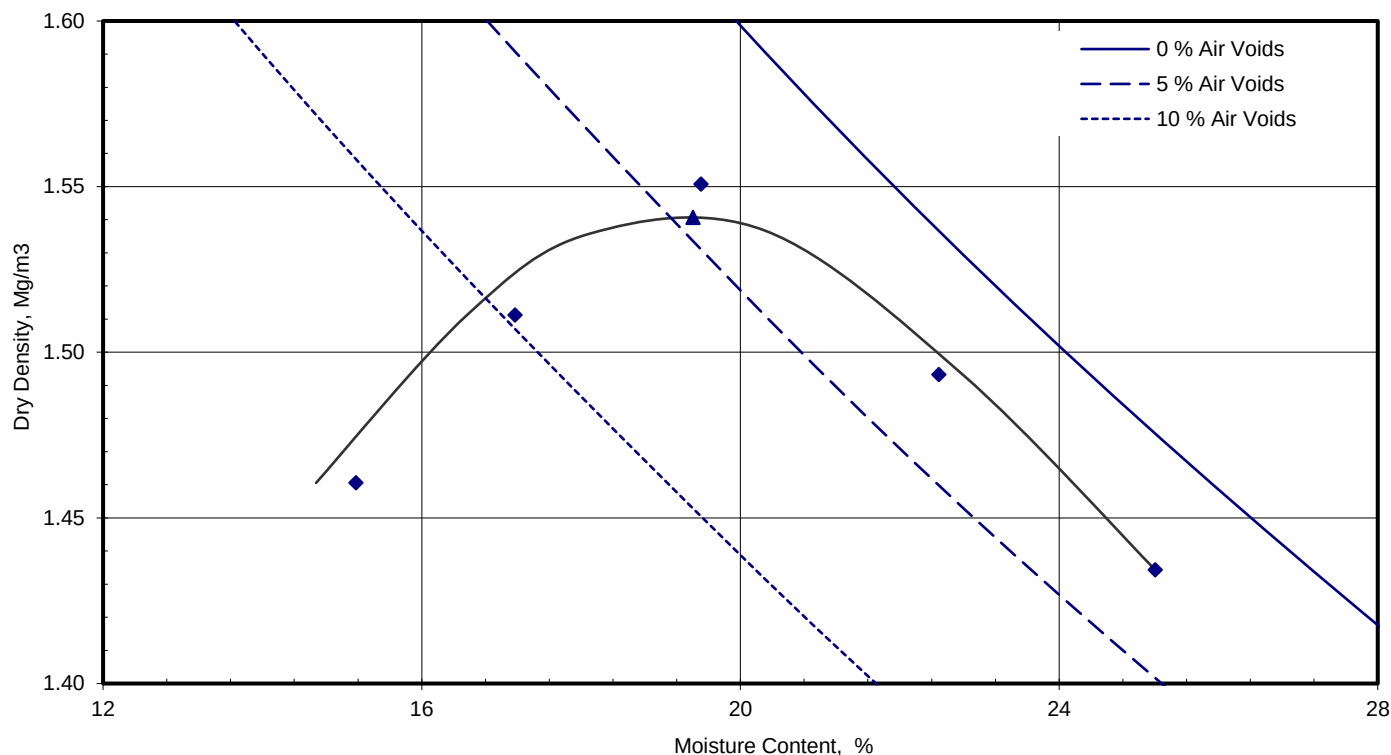
Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527373
Hole No.: TT30B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

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


Compaction Point No.	1	2	3	4	5	
Moisture Content	%	15	17	20	22	25
Dry Density	Mg/m³	1.46	1.51	1.55	1.49	1.43

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.35
As received Moisture Content	%	28
Maximum Dry Density	Mg/m³	1.54

Optimum Moisture Content	%	19
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

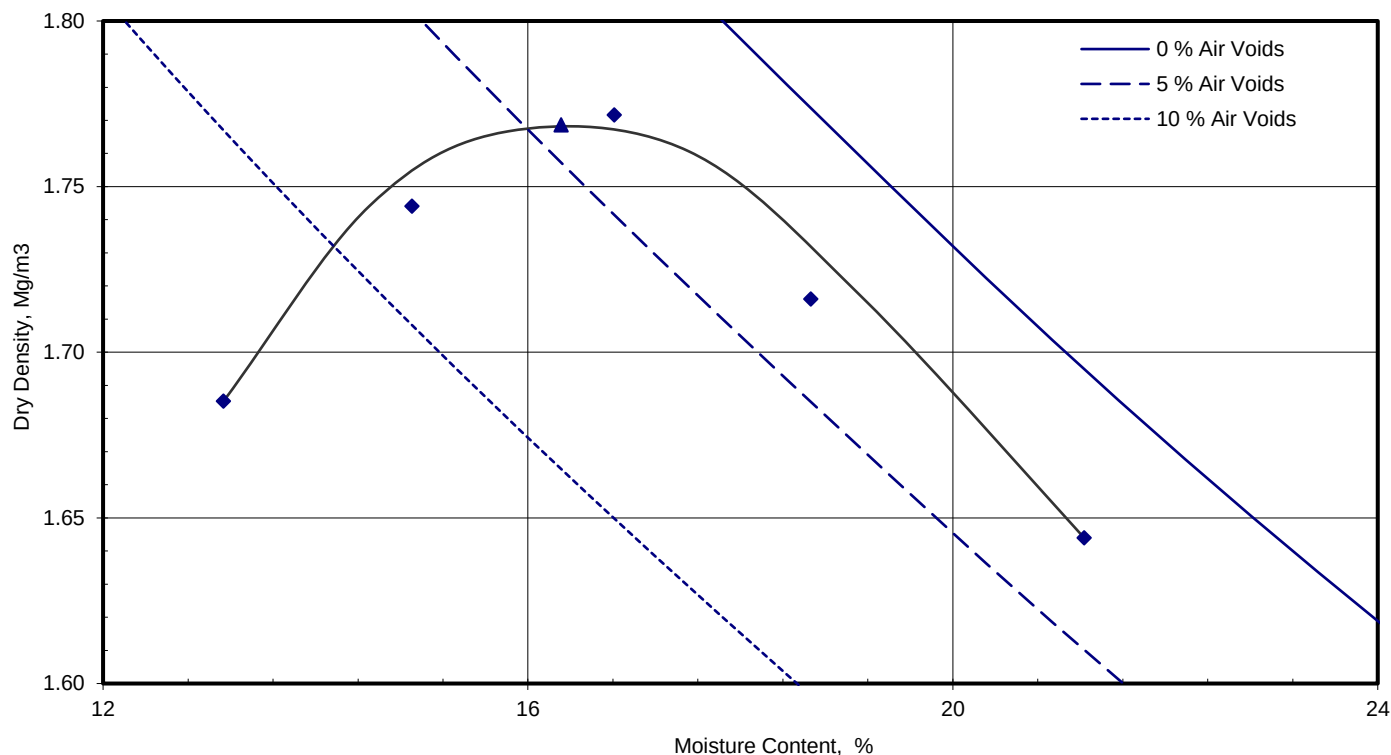
Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527376
Hole No.: TT45B
Sample Reference: Not Given
Sample Description: Greyish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

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


Compaction Point No.	1	2	3	4	5	
Moisture Content	%	13	15	17	19	21
Dry Density	Mg/m³	1.69	1.74	1.77	1.72	1.64

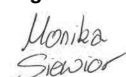
Mould Type	CBR
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve	0
Material Retained on 20.0 mm Sieve	7
Particle Density - Measured using gas jar	2.65
As received Moisture Content	14
Maximum Dry Density	1.77

Optimum Moisture Content	%	16
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**DETERMINATION OF DRY DENSITY/MOISTURE
CONTENT RELATIONSHIP METHOD USING
4.5 KG RAMMER**

Tested in Accordance with: BS 1377-4: 1990

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



Environmental Science

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

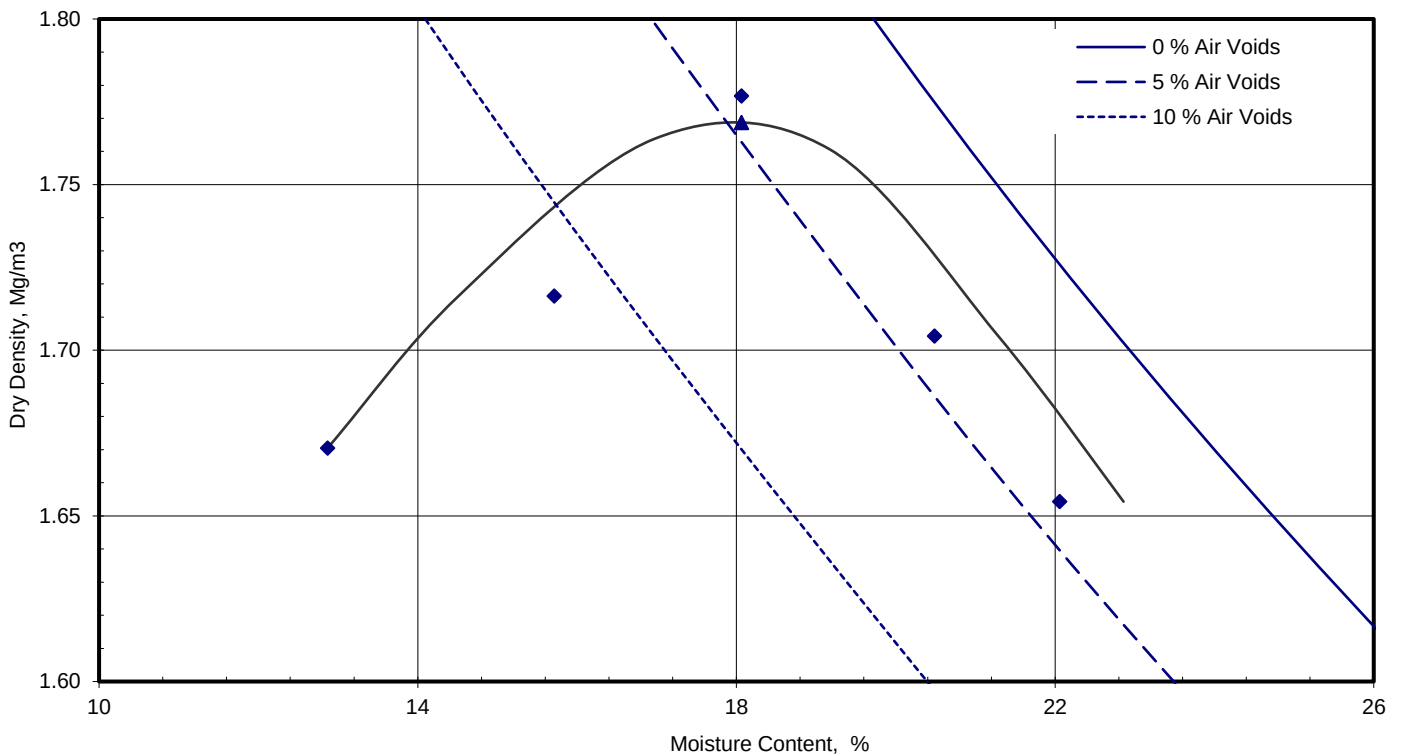
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527378
Hole No.: TT47B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

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



Compaction Point No.	1	2	3	4	5	
Moisture Content	%	13	16	18	20	22
Dry Density	Mg/m³	1.67	1.72	1.78	1.70	1.65

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.79
As received Moisture Content	%	21
Maximum Dry Density	Mg/m³	1.77

Optimum Moisture Content	%	18
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

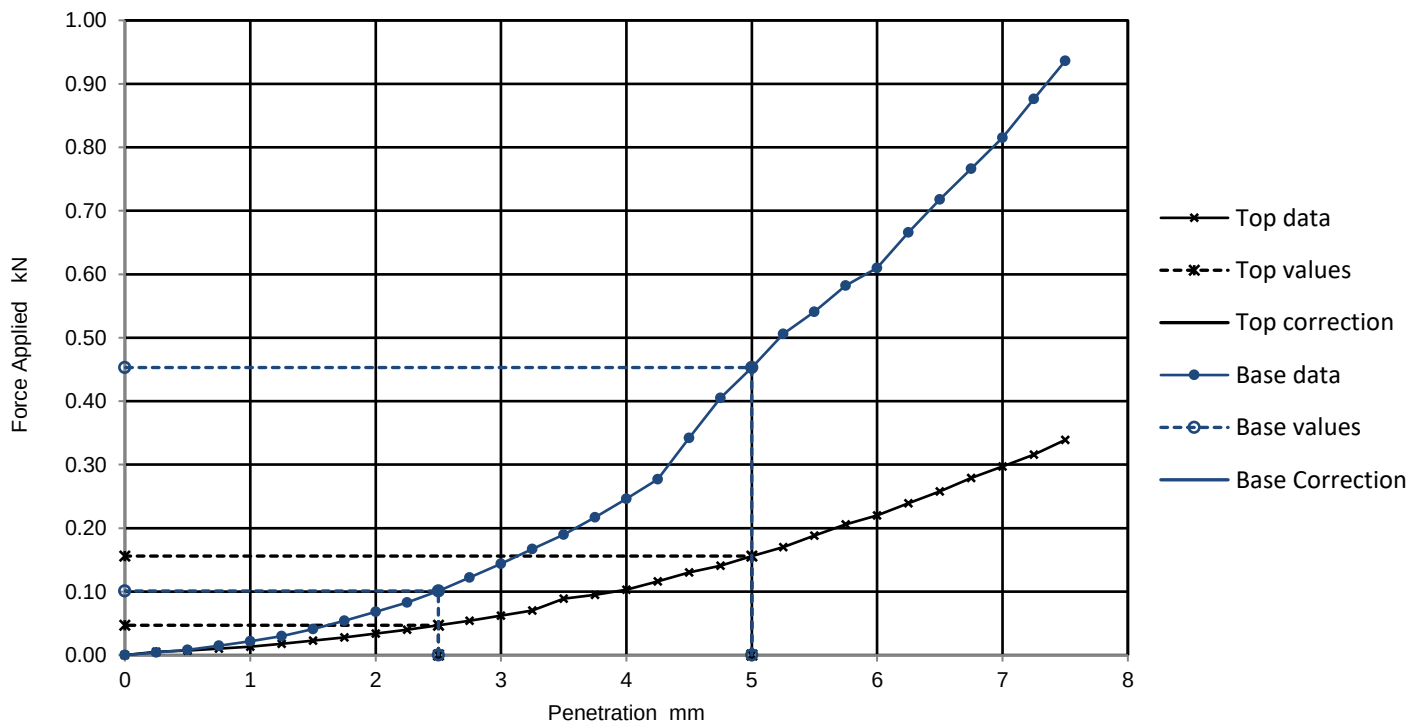
Laboratory Reference: 2527369
Hole No.: TT2 (21)
Sample Reference: Not Given
Sample Description: Yellowish brown clayey very gravelly SAND

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

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	8	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.13	Mg/m3	Surcharge applied		8	kg
	Dry density	1.87	Mg/m3			4.9	kPa
	Moisture content	14	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	0.4	0.8	0.8	
No	0.8	2.3	2.3	

Moisture Content %
14
13

Remarks:

Test/ Specimen specific remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

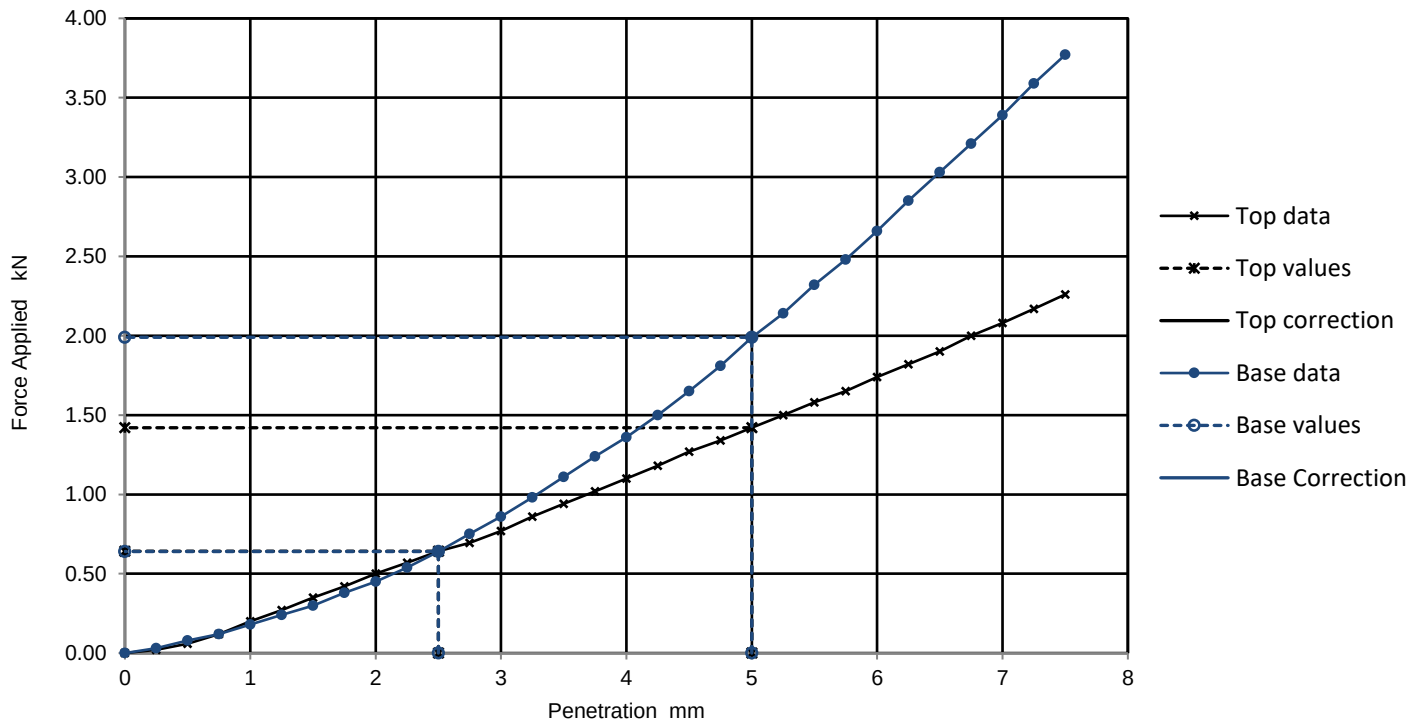
Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND

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

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
		Dry density after soaking	Mg/m3
Material retained on 20mm sieve removed	0 %		
Initial Specimen details	Bulk density	2.15	Mg/m3
	Dry density	1.88	Mg/m3
	Moisture content	14	%
	Surcharge applied	8	kg
		4.8	kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	4.9	7.1	7.1	
No	4.8	10.0	10.0	

Moisture Content %
14
12

Remarks:

Test/ Specimen specific remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527380
Hole No.: TT38A
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL

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

Specimen Preparation:

Condition Remoulded
Details Recompacted with specified standard effort using 2.5kg rammer

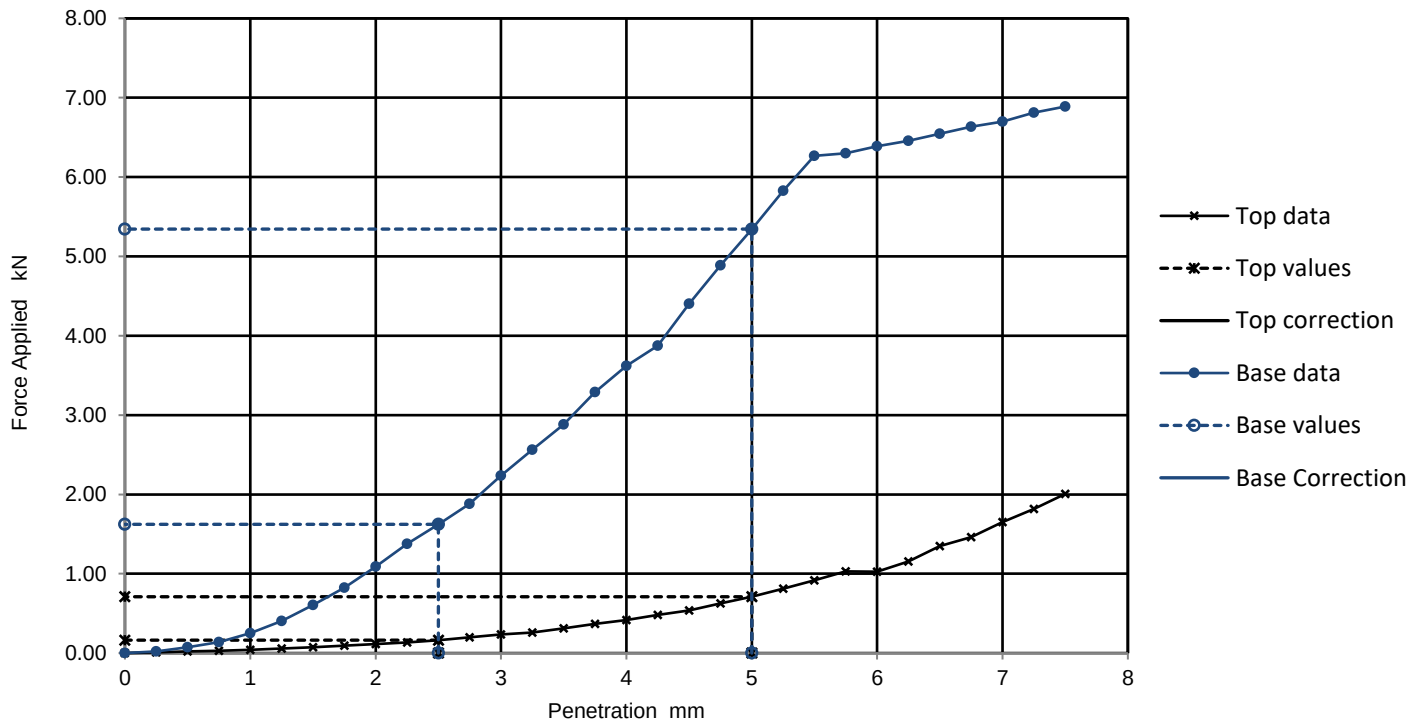
Soaking details Not soaked
Period of soaking days
Time to surface days
Amount of swell recorded mm
Dry density after soaking Mg/m3

Material retained on 20mm sieve removed 28 %

Initial Specimen details Bulk density 2.28 Mg/m3
Dry density 2.10 Mg/m3
Moisture content 8.4 %

Surcharge applied 8 kg
4.8 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	1.2	3.6	3.6	
No	12.0	27.0	27.0	

Moisture Content %
9.4
8.9

Remarks: Test carried out with > 25 % retained on 20mm as per clause 7.2.1.2

Test/ Specimen specific remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND

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

Preparation Details Sample prepared from loose material

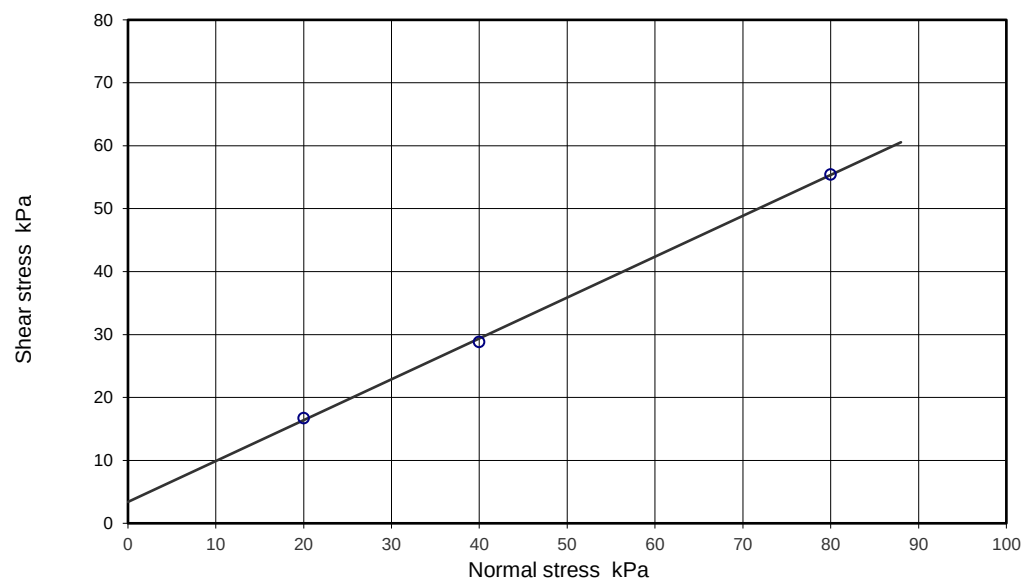
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.77	1.77	1.77			Mg/m ³
	Moisture Content	16.3	16.3	16.3			%
	Dry density	1.52	1.52	1.52			Mg/m ³
	Voids ratio	0.743	0.743	0.743			
Consolidation	Degree of Saturation	58	58	58			%
	Consolidation / Normal Stress applied	20	40	80			kPa
	Change in height during consolidation	0.690	1.082	1.140			mm
After test	Voids ratio after consolidation	0.683	0.649	0.644			
	Final Moisture content	21.4	21.2	21.0			%

Shearing stage(s)

Rate of displacement	Peak	0.06562	0.06562	0.06562			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.01	6.13	2.95			mm
	Shear stress	16.7	28.8	55.4			kPa
	Vertical Movement at peak shear stress	0.04	0.22	0.19			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	3.4
Ø'	degrees	33.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

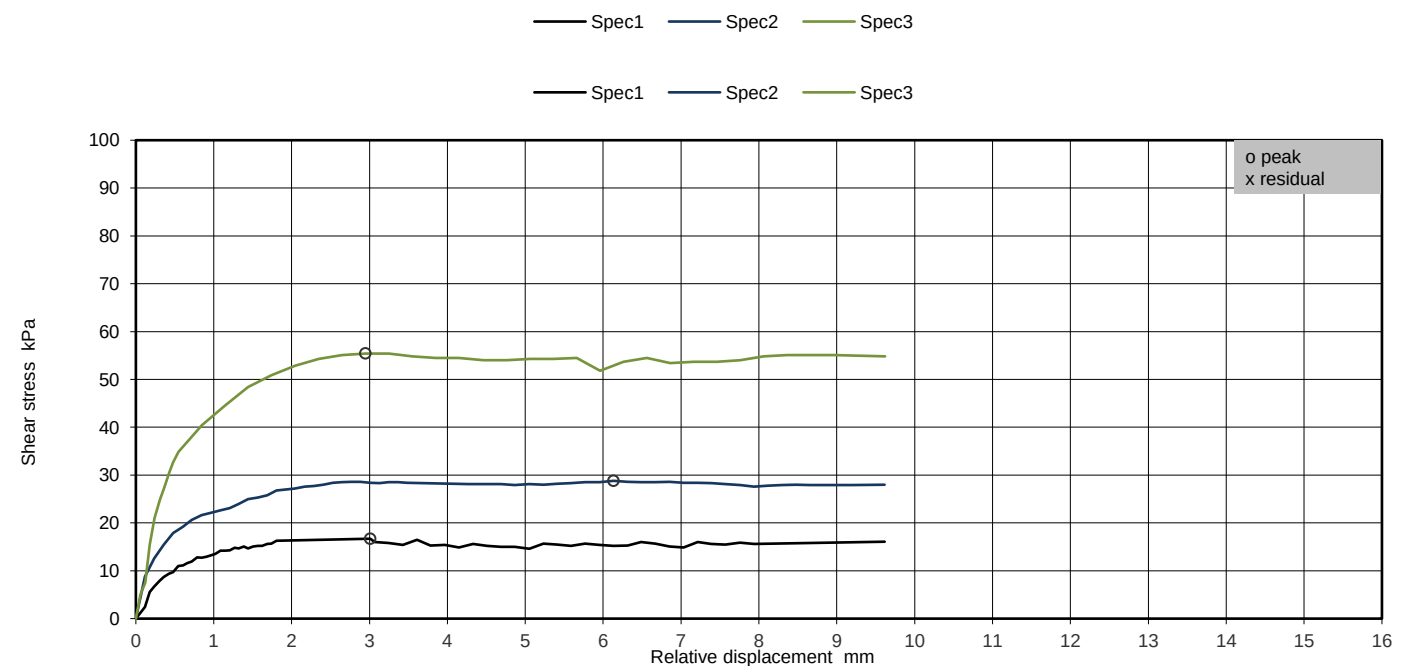
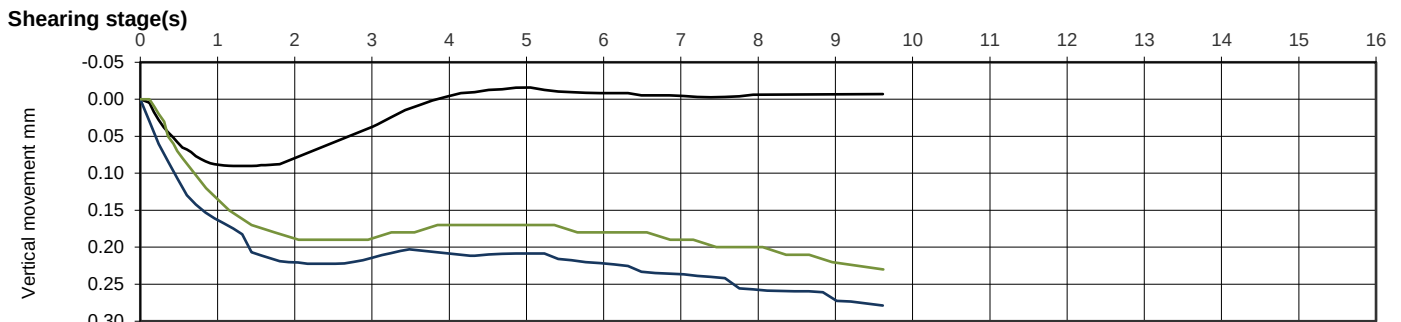
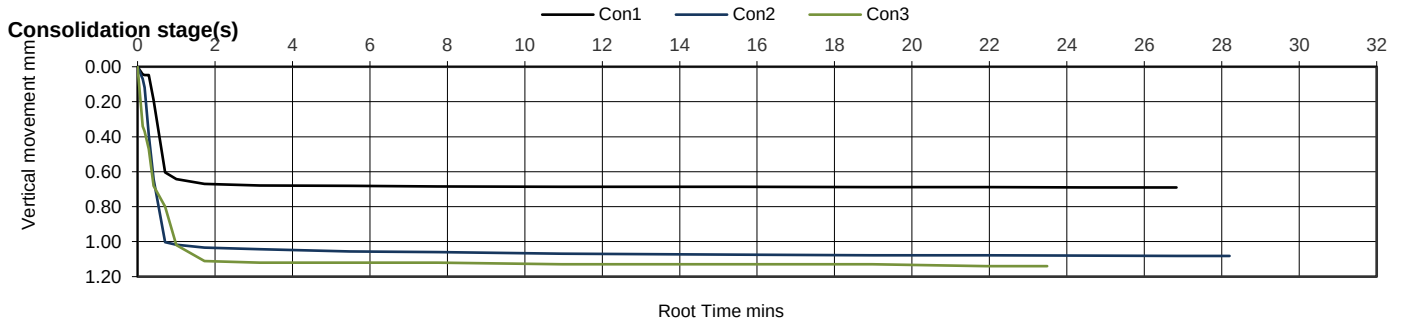
Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

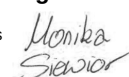
Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND

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


Remarks:

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Signed:



Page 2 of 2

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 23/12/2022

GF 174.11

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

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

Test Results:

Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND

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

Preparation Details Sample prepared from loose material

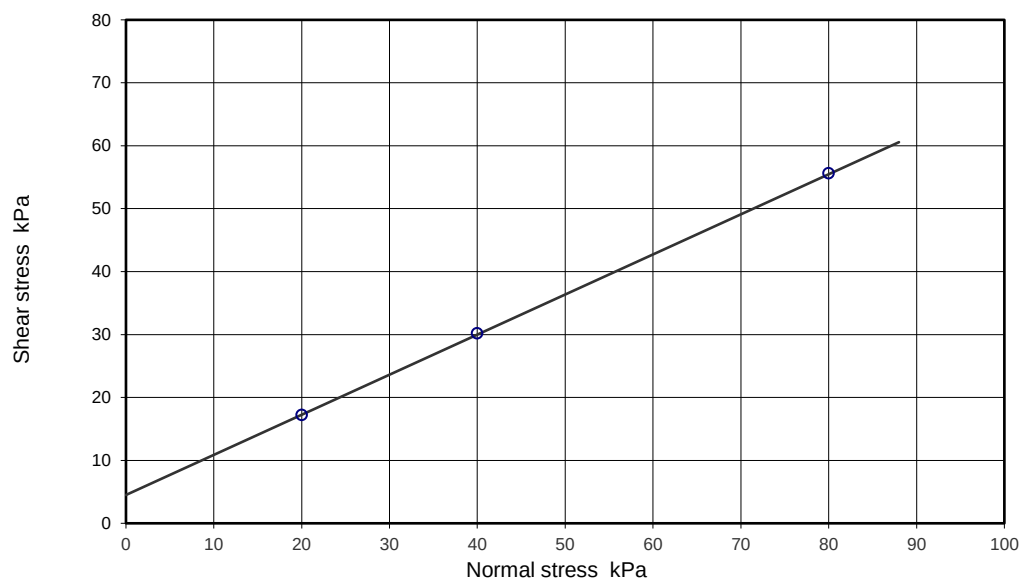
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.93	1.93	1.93			Mg/m ³
	Moisture Content	13.5	13.5	13.5			%
	Dry density	1.70	1.70	1.70			Mg/m ³
	Voids ratio	0.559	0.559	0.559			
	Degree of Saturation	64	64	64			%
Consolidation	Consolidation / Normal Stress applied	20	40	80			kPa
	Change in height during consolidation	0.130	0.371	0.833			mm
	Voids ratio after consolidation	0.549	0.530	0.494			
After test	Final Moisture content	19.1	18.8	18.1			%

Shearing stage(s)

Rate of displacement	Peak	0.06249	0.06249	0.06249			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.31	2.89	9.61			mm
	Shear stress	17.2	30.2	55.6			kPa
	Vertical Movement at peak shear stress	0.39	0.39	0.41			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	4.5
Ø'	degrees	32.5

Residual strength, (x)

c'R	kPa	not assessed
Ø'R	degrees	not assessed

Remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

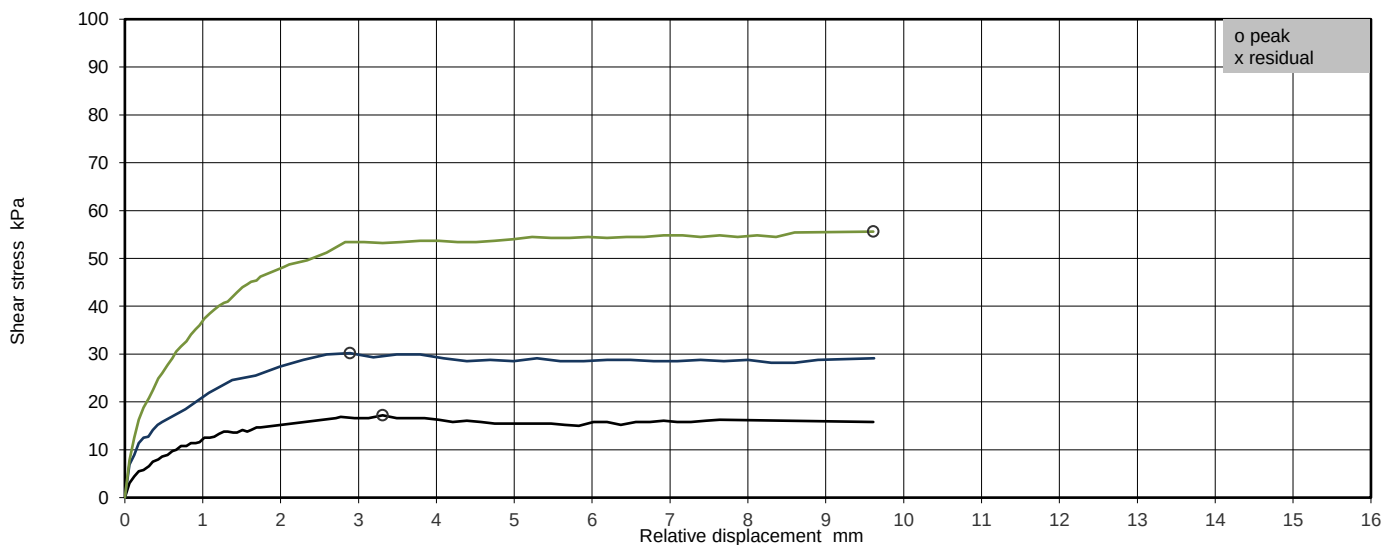
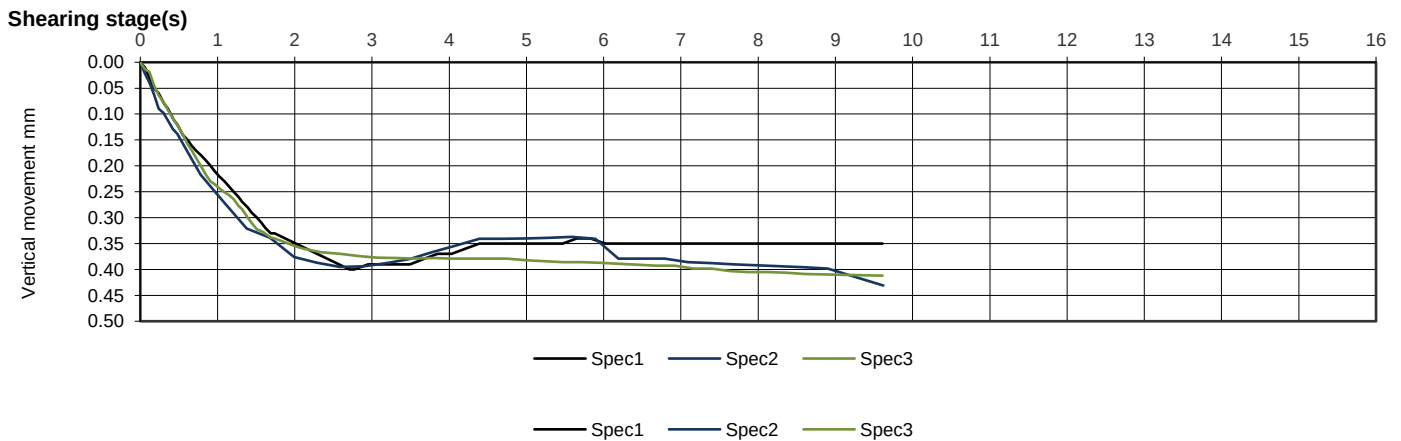
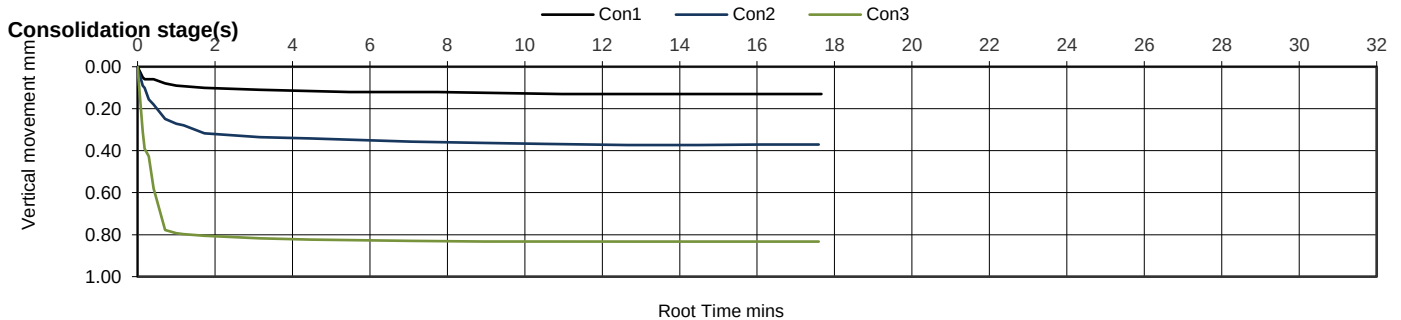
Contact: Julian Fowler
Site Address: Lodge Road Hurst

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

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND

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


Remarks:

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Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Not Given

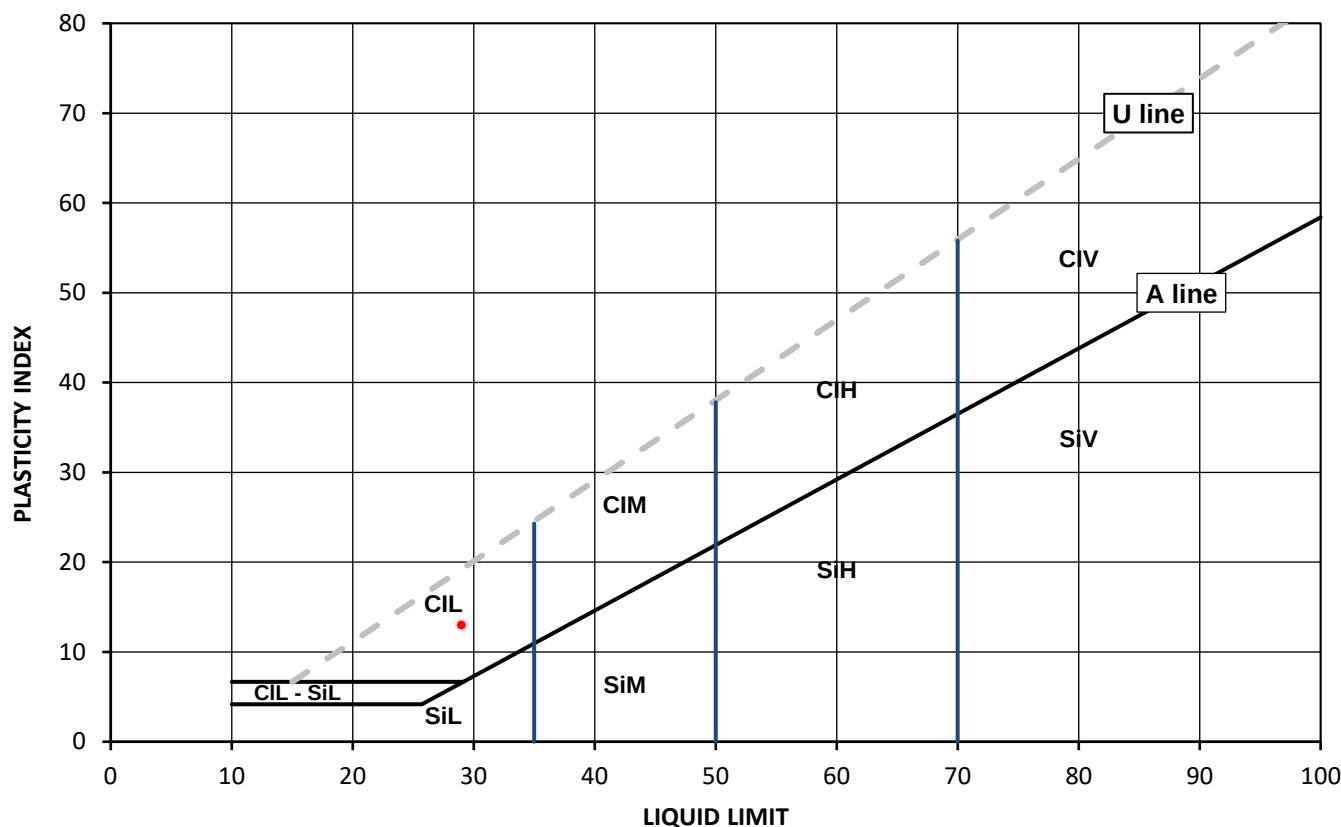
Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B

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
23	29	16	13	92



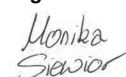
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	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: Preliminary report

Signed:



Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

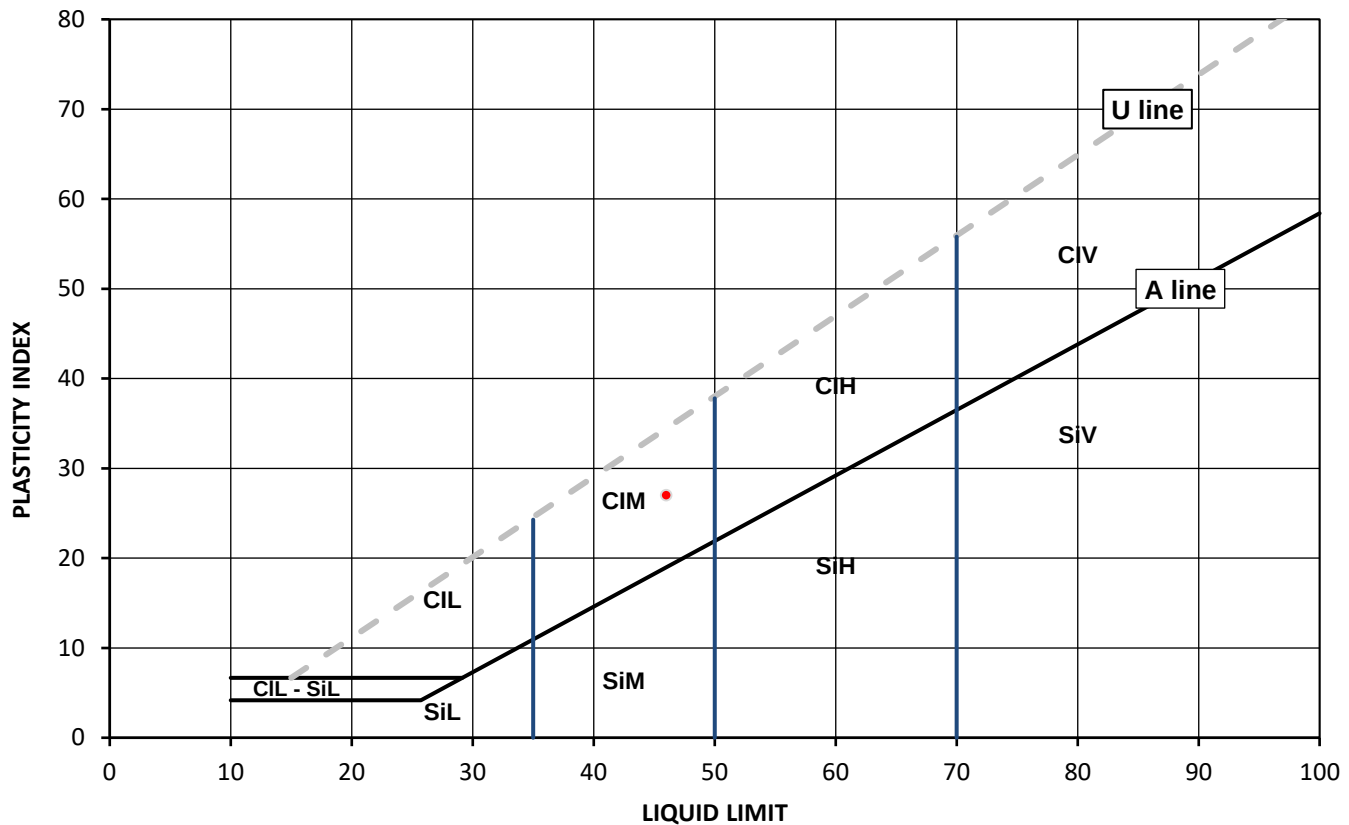
Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
27	46	19	27	89



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

Cl	Clay	Plasticity	L	Low	Liquid Limit	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: Preliminary report

Signed:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

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

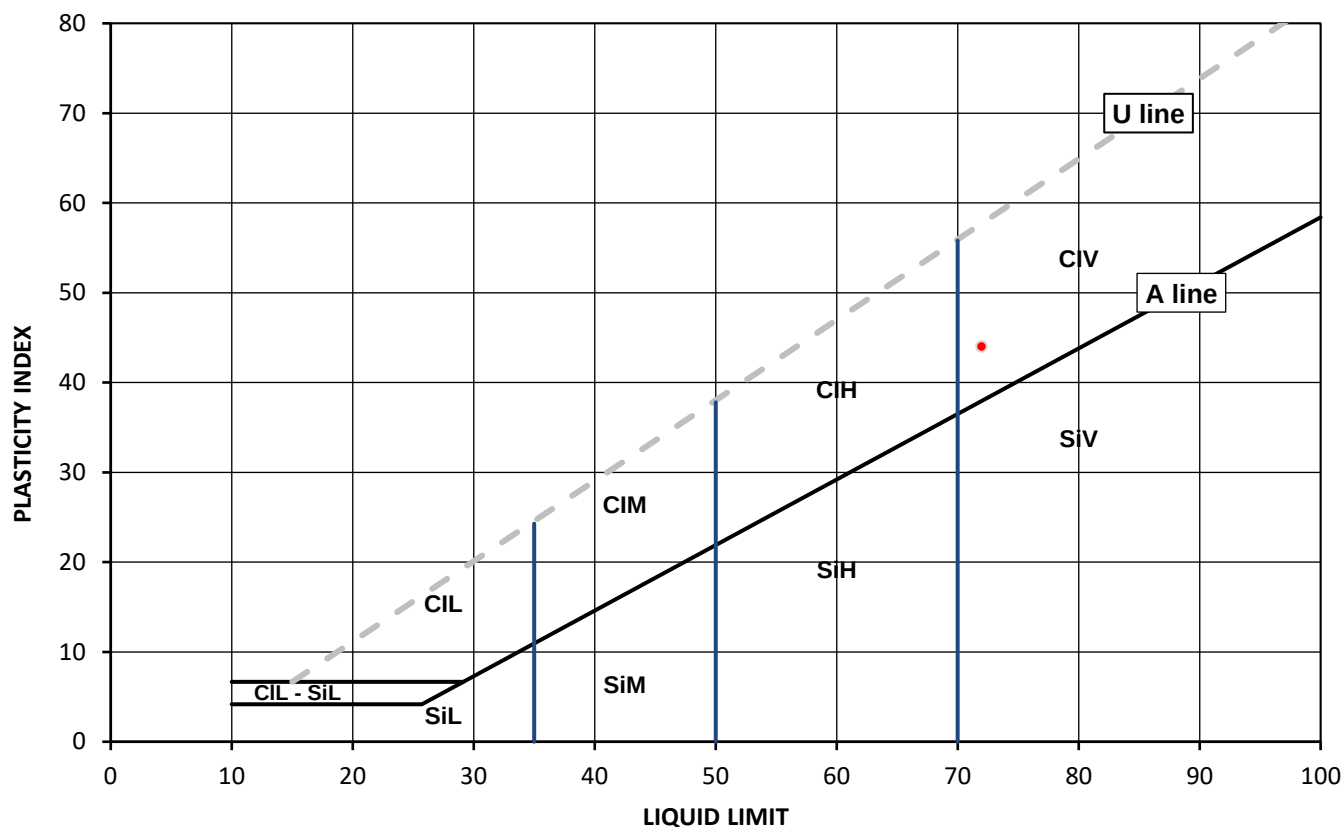
Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B

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
30	72	28	44	100



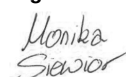
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

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

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

Remarks: Preliminary report

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

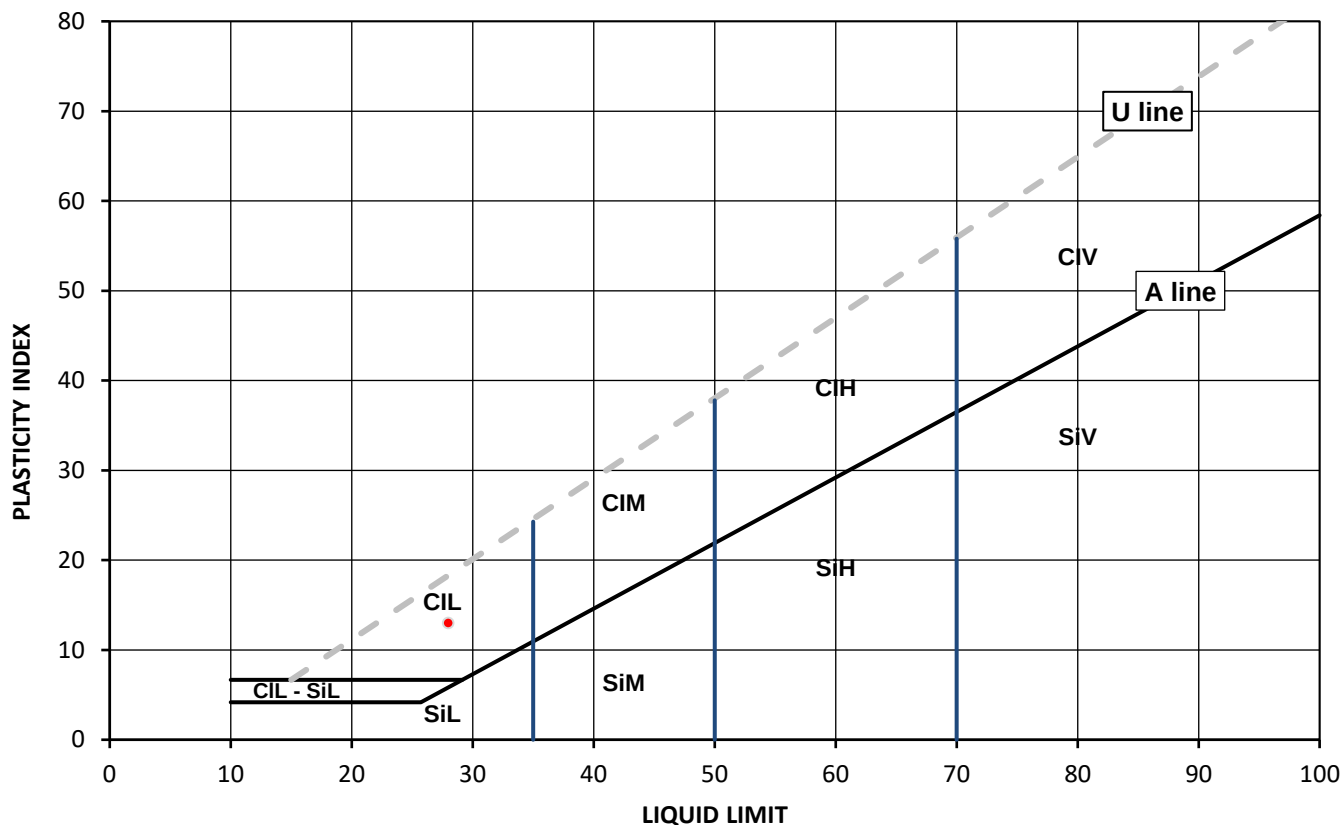
Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	28	15	13	83



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
Si	Silt	M Medium
	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: Preliminary report

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road, Hurst

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

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

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

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



Environmental Science

Client Reference: 26519
 Job Number: 22-14402
 Date Sampled: 07/12 - 12/12/2022
 Date Received: 13/12/2022
 Date Tested: 29/12 - 30/12/2022
 Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m						%	%	%	%	Mg/m3	Mg/m3	Mg/m3			
2540753	CP01	Not Given	0.50	0.80	B	Greyish brown CLAY										2.73			
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND	Atterberg 4 Point	23		92	29	16	13			2.64			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6											
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY	Atterberg 4 Point	27		89	46	19	27						
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY	Atterberg 4 Point	30		100	72	28	44						
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND	Atterberg 4 Point	17		83	28	15	13						

Note: # Non accredited; NP - Non plastic

Comments: Preliminary report

Signed:

Monika Siewior

Monika Siewior
 Reporting Specialist
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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

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

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



Environmental Science

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12 - 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12 - 30/12/2022
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND		23	Sample was quartered, oven dried at 107.5 °C			
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY		27	Sample was quartered, oven dried at 106.8 °C			
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY		30	Sample was quartered, oven dried at 108.8 °C			
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND		17	Sample was quartered, oven dried at 106.9 °C			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6	Sample was quartered, oven dried at 106.8 °C			

Comments: Preliminary report

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Signed:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

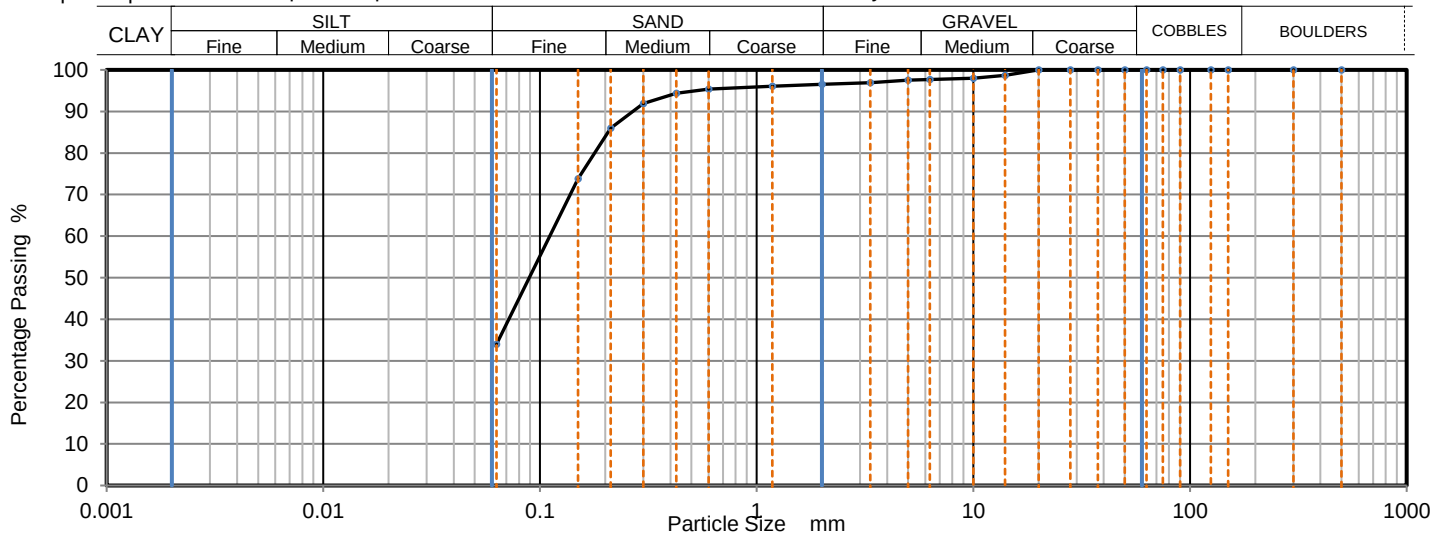
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 107.5 °C and broken down by hand.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
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	100		
14	99		
10	98		
6.3	98		
5	98		
3.35	97		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	92		
0.212	86		
0.15	74		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	62
Fines <0.063mm	34

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 1.8
Curvature Coefficient	

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

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

Remarks: Preliminary report

Signed:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

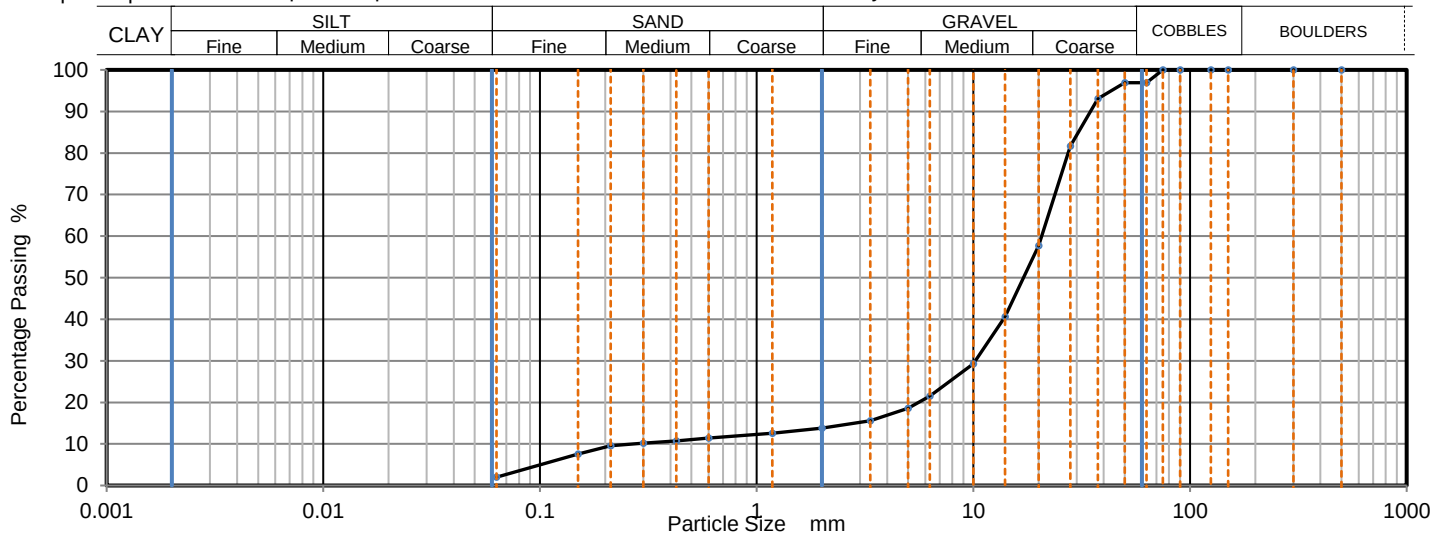
Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2540745
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.30
Depth Base [m]: 1.80
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	97		
50	97		
37.5	93		
28	82		
20	58		
14	41		
10	29		
6.3	22		
5	19		
3.35	16		
2	14		
1.18	13		
0.6	11		
0.425	11		
0.3	10		
0.212	10		
0.15	8		
0.063	3		

Sample Proportions	% dry mass
Very coarse	3
Gravel	83
Sand	11
Fines <0.063mm	3

Grading Analysis	
D100	mm 75
D60	mm 20.7
D30	mm 10.2
D10	mm 0.269
Uniformity Coefficient	77
Curvature Coefficient	19

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

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

Remarks: Preliminary report

Signed:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

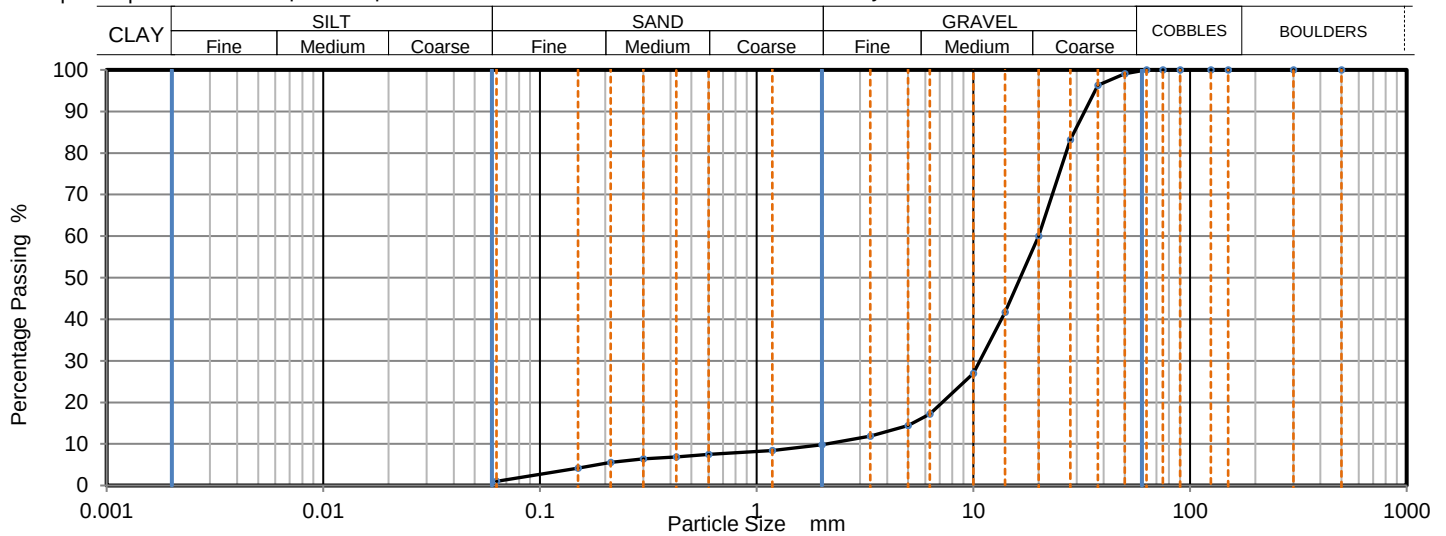
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540746
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
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	99		
37.5	96		
28	83		
20	60		
14	42		
10	27		
6.3	17		
5	14		
3.35	12		
2	10		
1.18	8		
0.6	8		
0.425	7		
0.3	6		
0.212	6		
0.15	4		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	90
Sand	8
Fines <0.063mm	1

Grading Analysis	
D100	63
D60	20
D30	10.7
D10	2.11
Uniformity Coefficient	9.5
Curvature Coefficient	2.7

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

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

Remarks: Preliminary report

Signed:

Monika Siewior

Monika Siewior
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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

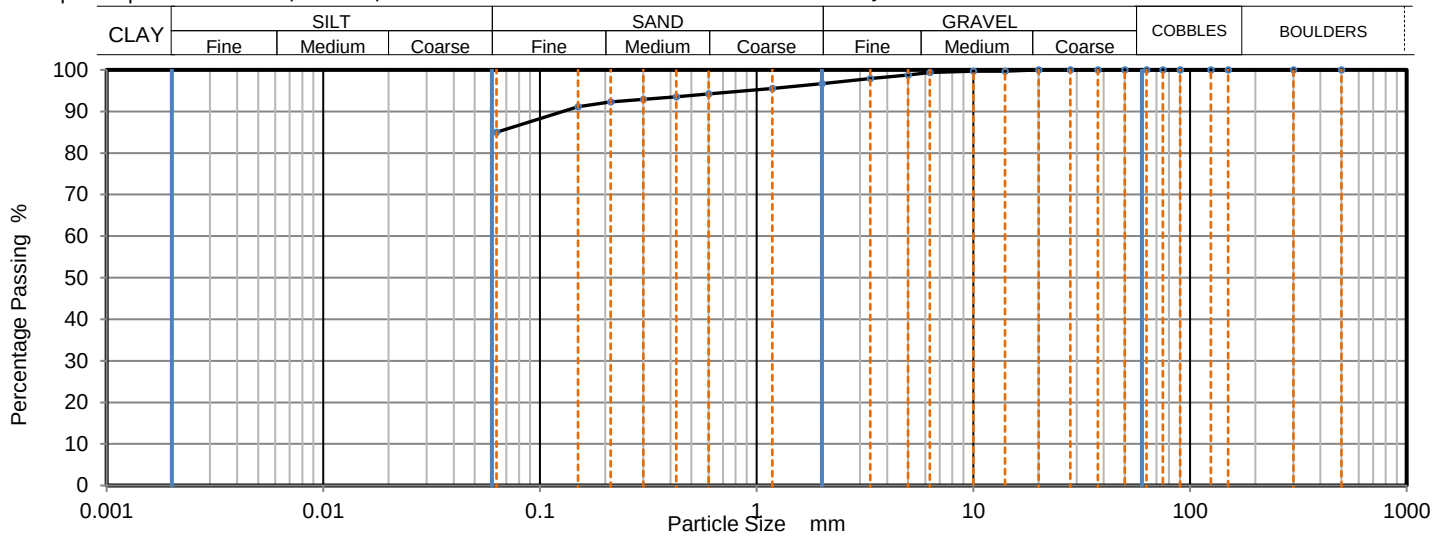
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 3.60
Depth Base [m]: 4.00
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	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	94		
0.425	94		
0.3	93		
0.212	92		
0.15	91		
0.063	86		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	11
Fines <0.063mm	86

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

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

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

Remarks: Preliminary report

Signed:

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Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

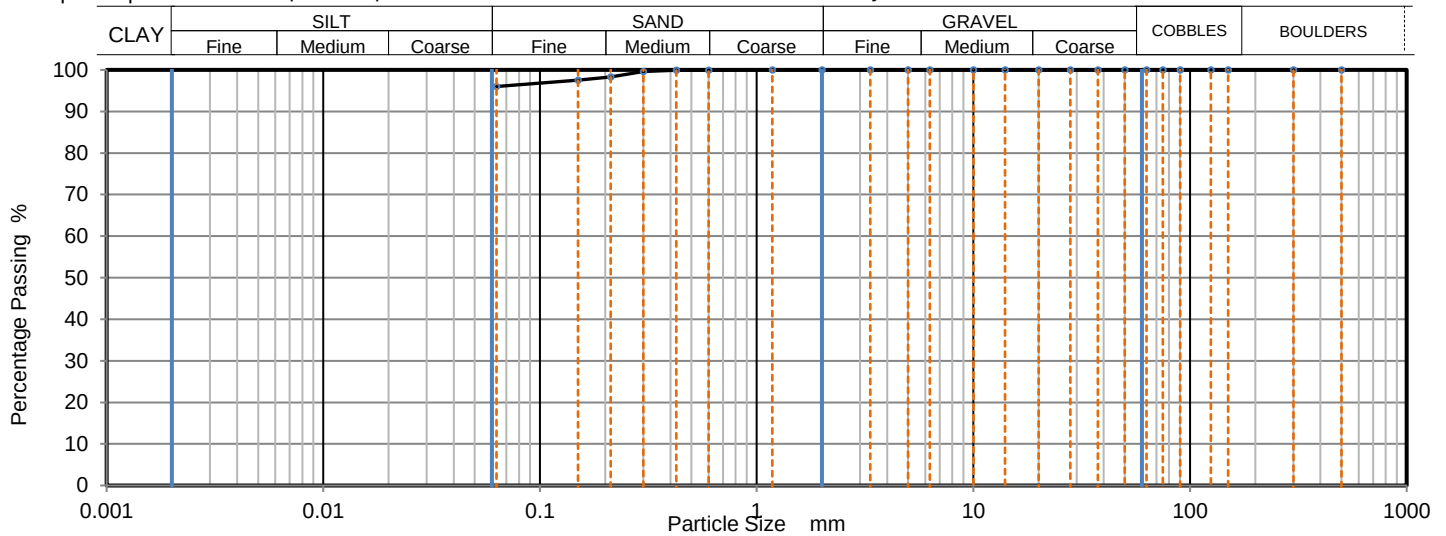
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 6.80
Depth Base [m]: 7.20
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	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	3
Fines <0.063mm	97

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

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

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

Remarks: Preliminary report

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Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

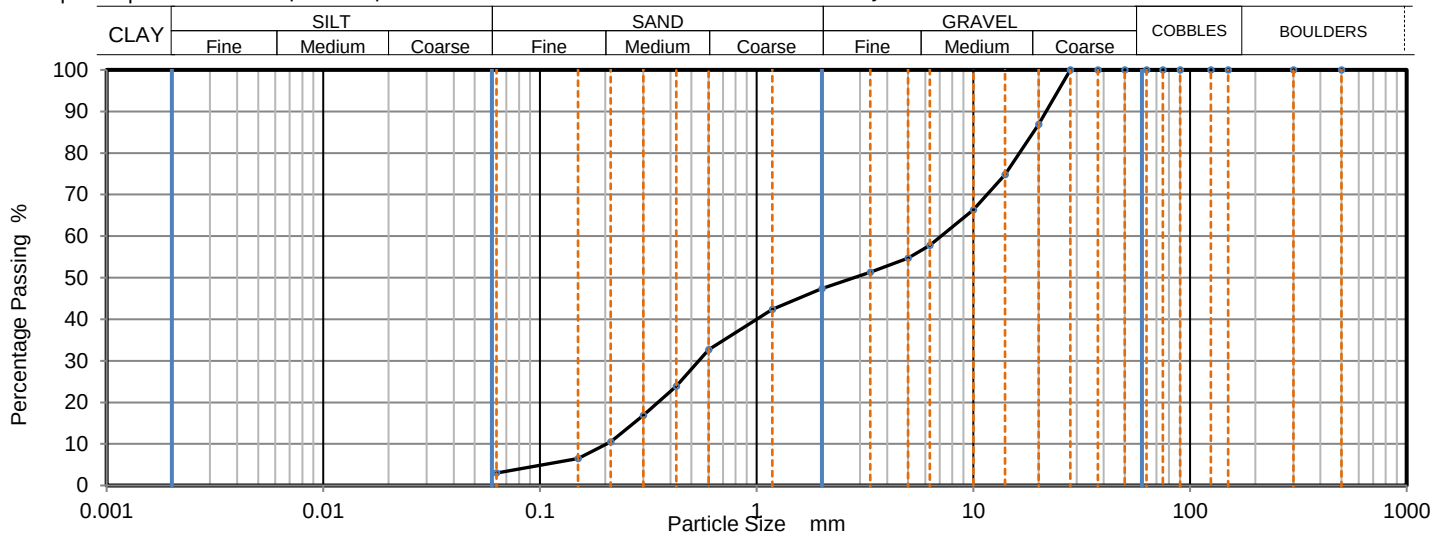
Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 1.00
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	87		
14	75		
10	66		
6.3	58		
5	55		
3.35	51		
2	47		
1.18	42		
0.6	33		
0.425	24		
0.3	17		
0.212	11		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	44
Fines <0.063mm	4

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	35
Curvature Coefficient	0.2

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

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

Remarks: Preliminary report

Signed:

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Tested in Accordance with: BS 1377-2: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

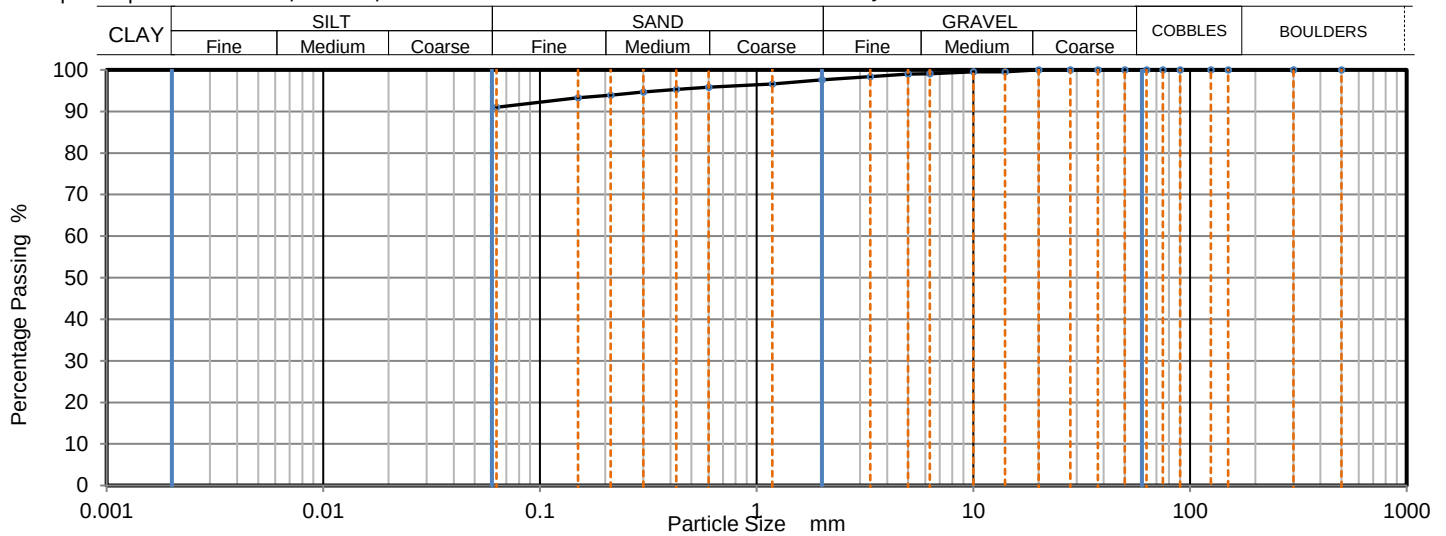
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540750
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
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	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	98		
1.18	97		
0.6	96		
0.425	95		
0.3	95		
0.212	94		
0.15	93		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	6
Fines <0.063mm	91

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

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

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

Remarks: Preliminary report

Signed:

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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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

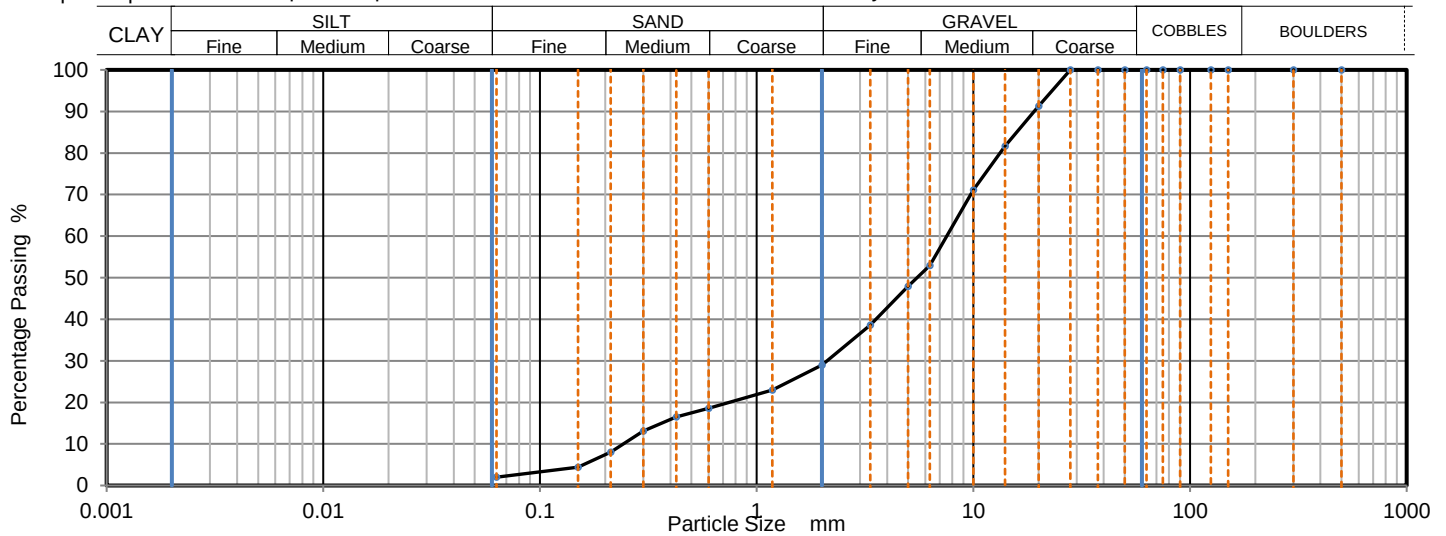
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540751
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 107.0 °C and broken down by hand.

Depth Top [m]: 2.60
Depth Base [m]: 3.00
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	91		
14	82		
10	71		
6.3	53		
5	48		
3.35	39		
2	29		
1.18	23		
0.6	19		
0.425	17		
0.3	13		
0.212	8		
0.15	4		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	71
Sand	27
Fines <0.063mm	2

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	31
Curvature Coefficient	2.4

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

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

Remarks: Preliminary report

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Tested in Accordance with: BS 1377-2: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

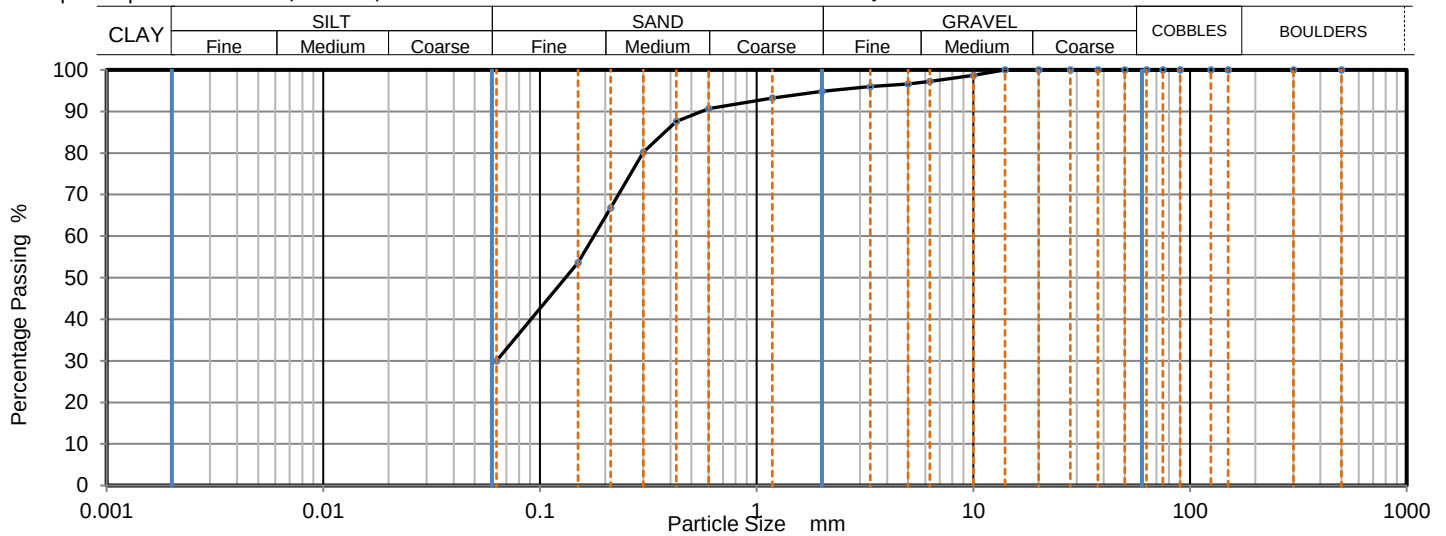
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 4.00
Depth Base [m]: 4.45
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	100		
14	100		
10	99		
6.3	97		
5	97		
3.35	96		
2	95		
1.18	93		
0.6	91		
0.425	88		
0.3	80		
0.212	67		
0.15	54		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	64
Fines <0.063mm	31

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.8
Curvature Coefficient	

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

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

Remarks: Preliminary report

Signed:

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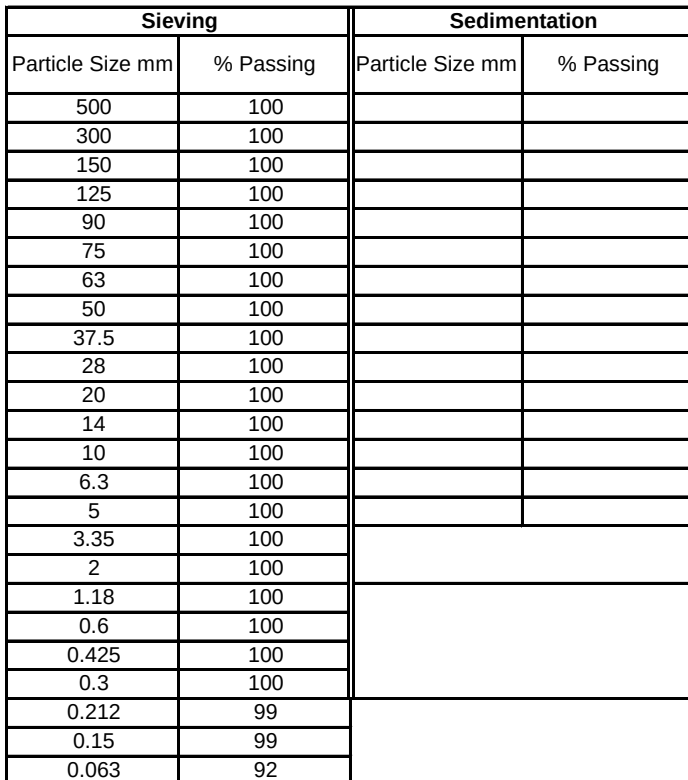
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

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



Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Depth Top [m]: 0.50
Depth Base [m]: 0.80
Sample Type: B



Grading Analysis		
D100	mm	3.35
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

GF 100.21

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

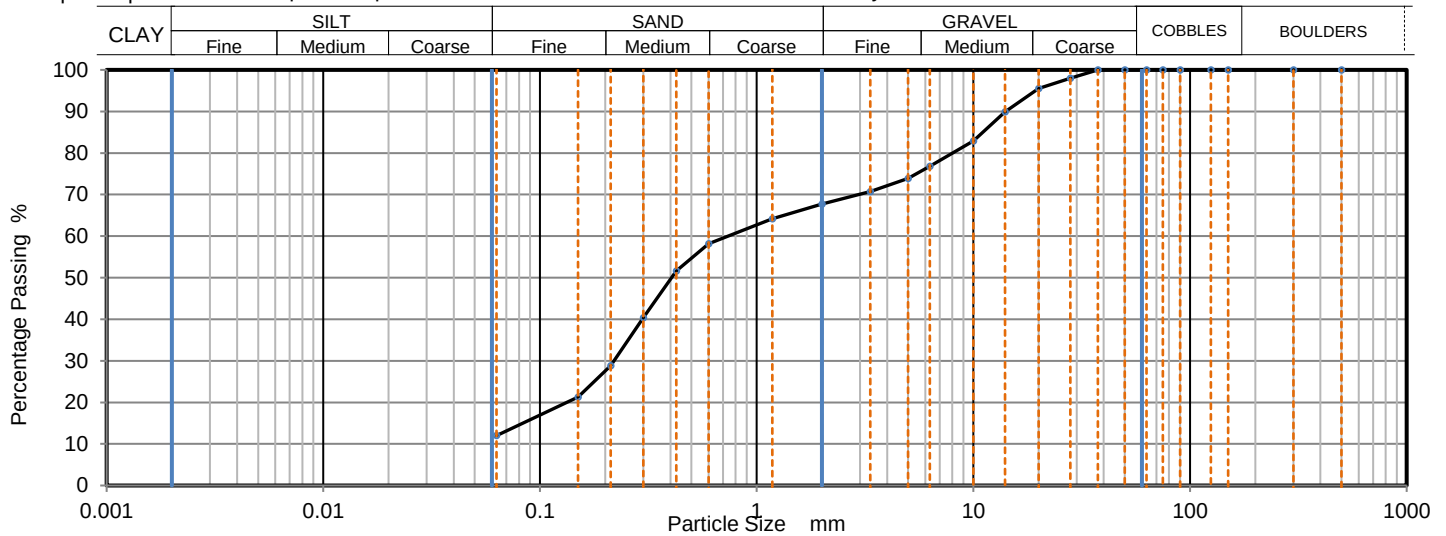
Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.70
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	98		
20	96		
14	90		
10	83		
6.3	77		
5	74		
3.35	71		
2	68		
1.18	64		
0.6	58		
0.425	52		
0.3	40		
0.212	29		
0.15	21		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	56
Fines <0.063mm	12

Grading Analysis	
D100	mm 37.5
D60	mm 0.737
D30	mm 0.219
D10	mm
Uniformity Coefficient	> 12
Curvature Coefficient	

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

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

Remarks: Preliminary report

Signed:

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

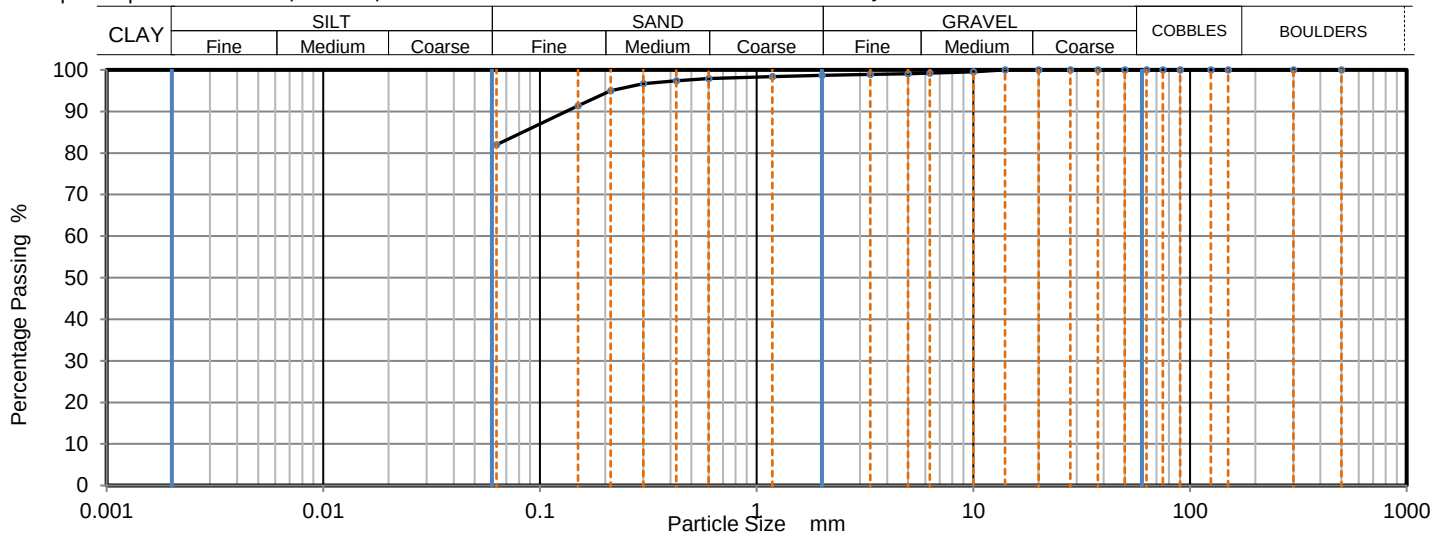
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540755
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Brownish grey silty CLAY
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.50
Depth Base [m]: 2.90
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	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	97		
0.3	97		
0.212	95		
0.15	91		
0.063	83		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	16
Fines <0.063mm	82

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

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

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

Remarks: Preliminary report

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TEST CERTIFICATE

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Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

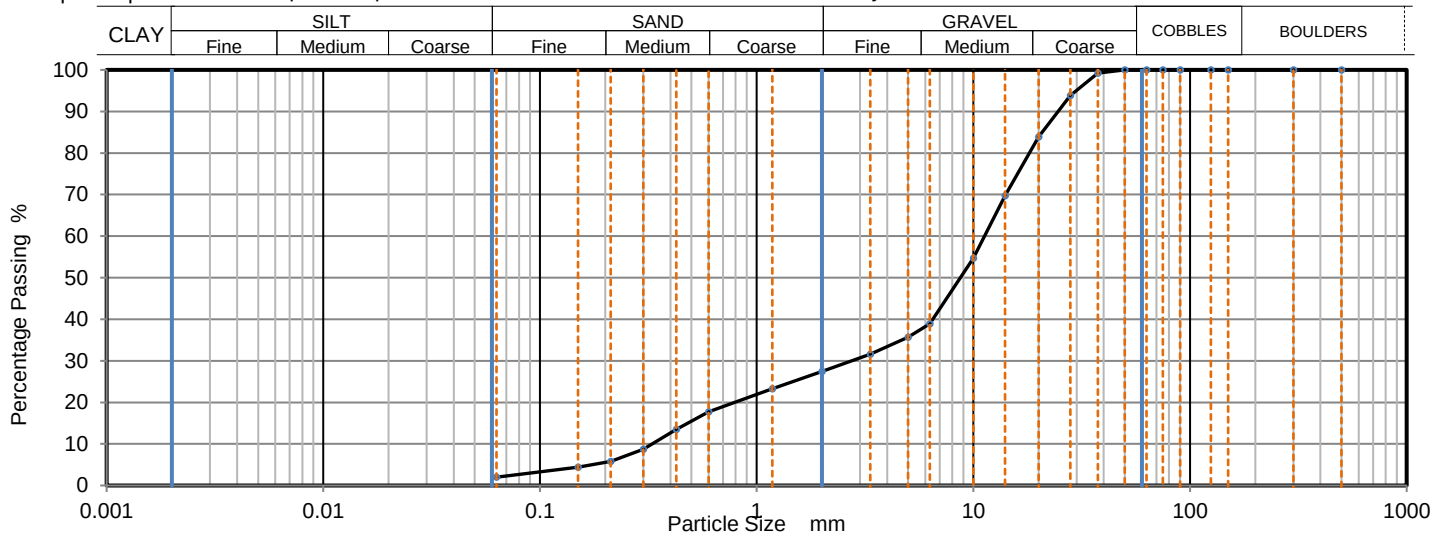
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540756
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 5.30
Depth Base [m]: 5.80
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	99		
28	94		
20	84		
14	70		
10	55		
6.3	39		
5	36		
3.35	32		
2	27		
1.18	23		
0.6	18		
0.425	14		
0.3	9		
0.212	6		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	25
Fines <0.063mm	3

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

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

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

Remarks: Preliminary report

Signed:

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

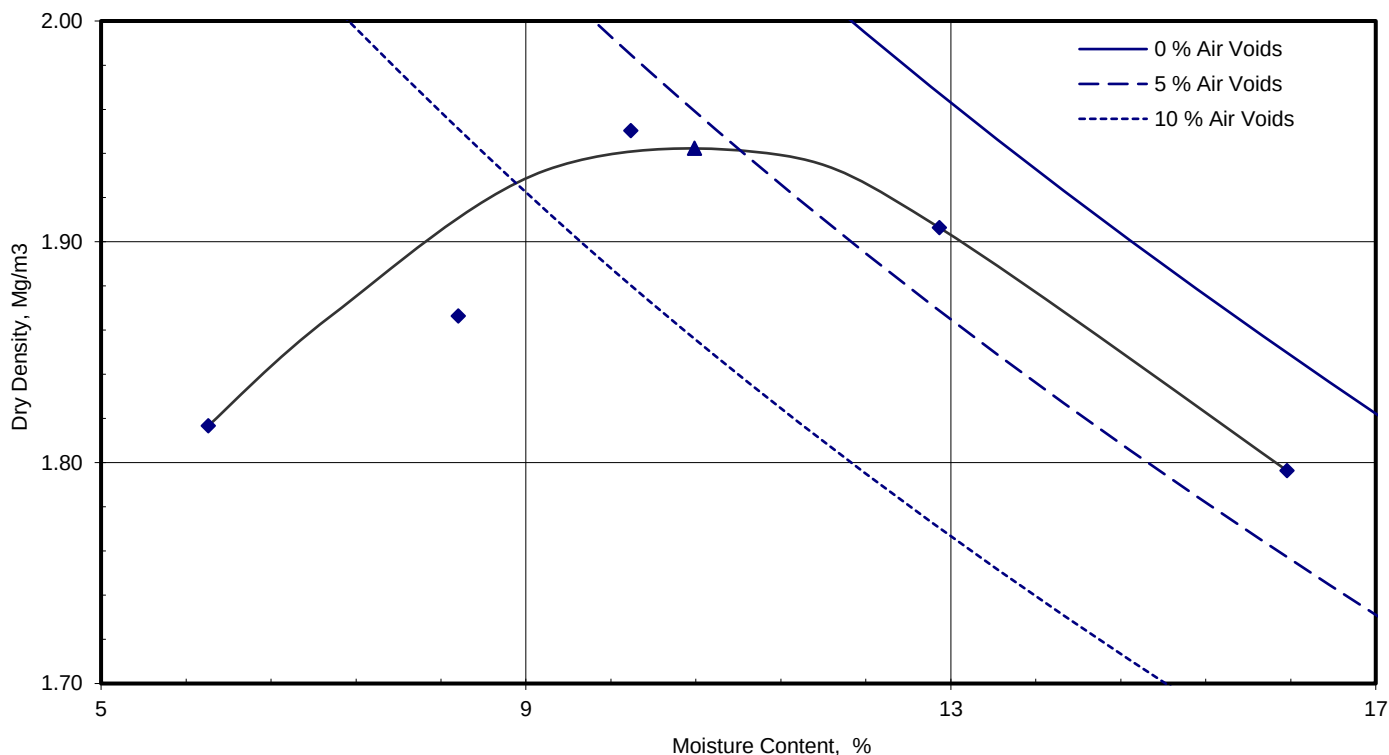
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B



Compaction Point No.		1	2	3	4	5
Moisture Content	%	6.0	8.4	10.0	13	16
Dry Density	Mg/m³	1.82	1.87	1.95	1.91	1.80

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.64
As received Moisture Content	%	23
Maximum Dry Density	Mg/m³	1.94

Optimum Moisture Content	%	11
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks: Preliminary report

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

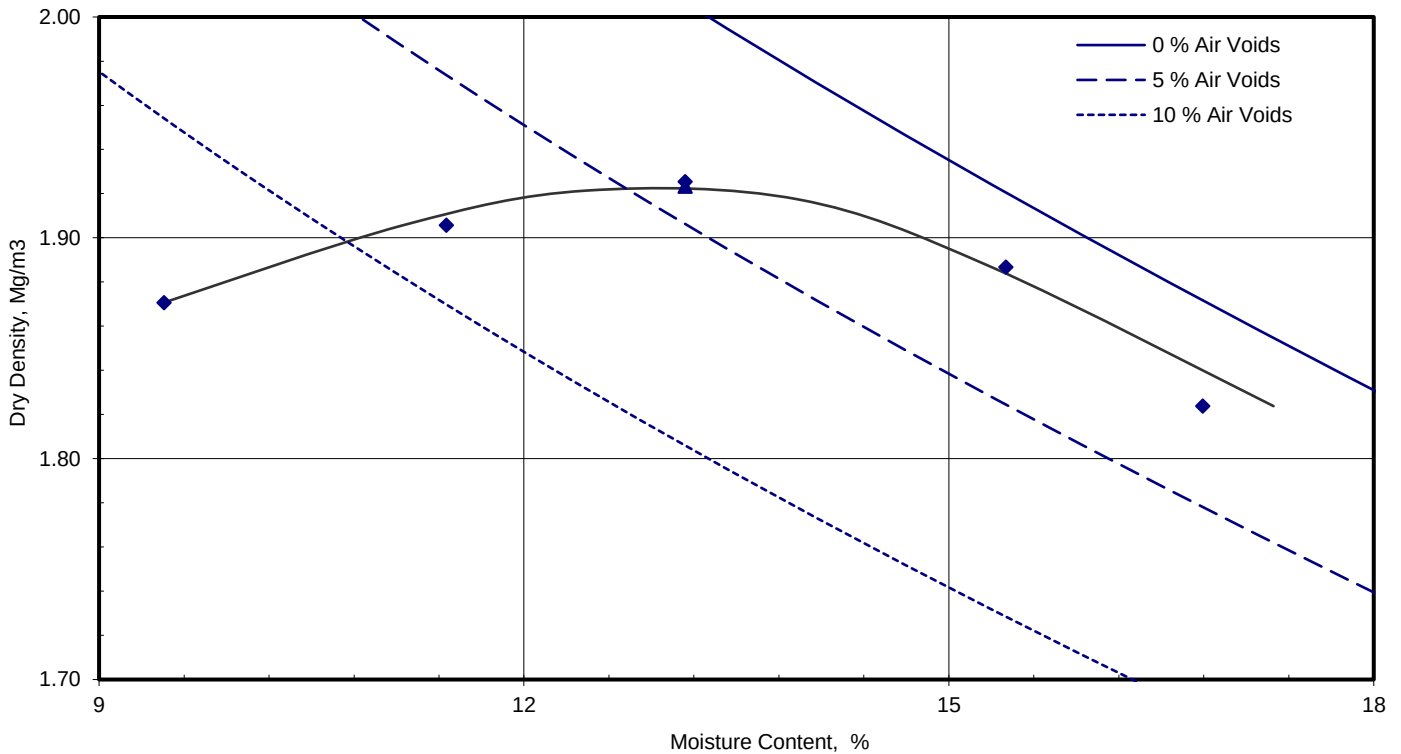
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540753
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.50
Depth Base [m]: 0.80
Sample Type: B


Compaction Point No.	1	2	3	4	5	
Moisture Content	%	9.5	11	13	15	17
Dry Density	Mg/m³	1.87	1.91	1.93	1.89	1.82

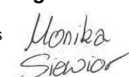
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.73
As received Moisture Content	%	19
Maximum Dry Density	Mg/m³	1.92

Optimum Moisture Content	%	13
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks: Preliminary report

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

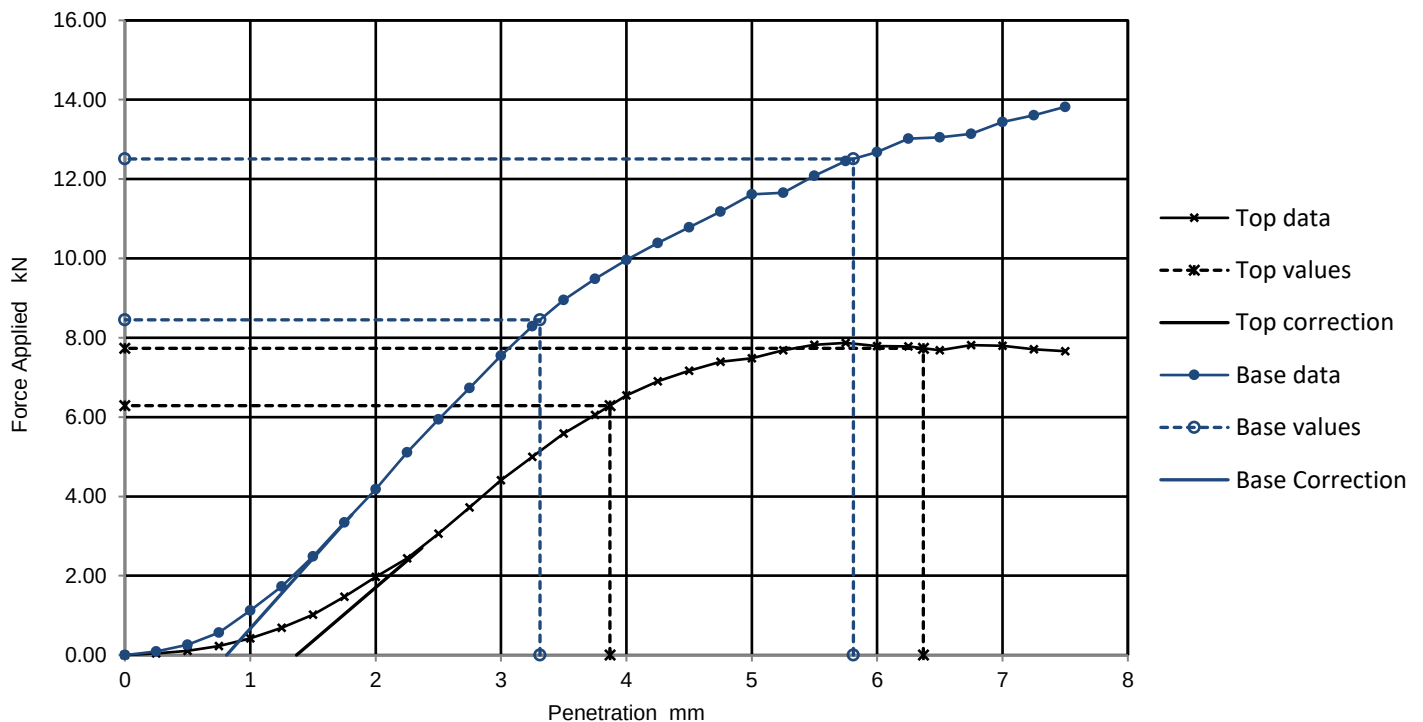
Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	14	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.23	Mg/m3	Surcharge applied		8	kg
	Dry density	2.03	Mg/m3			4.8	kPa
	Moisture content	9.8	%				

Force v Penetration Plots



Results

TOP
BASE

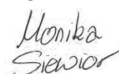
Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
Yes	48.0	39.0	48.0	
Yes	64.0	63.0	64.0	

Moisture Content %
8.9
8.0

Remarks: Preliminary report

Test/ Specimen specific remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

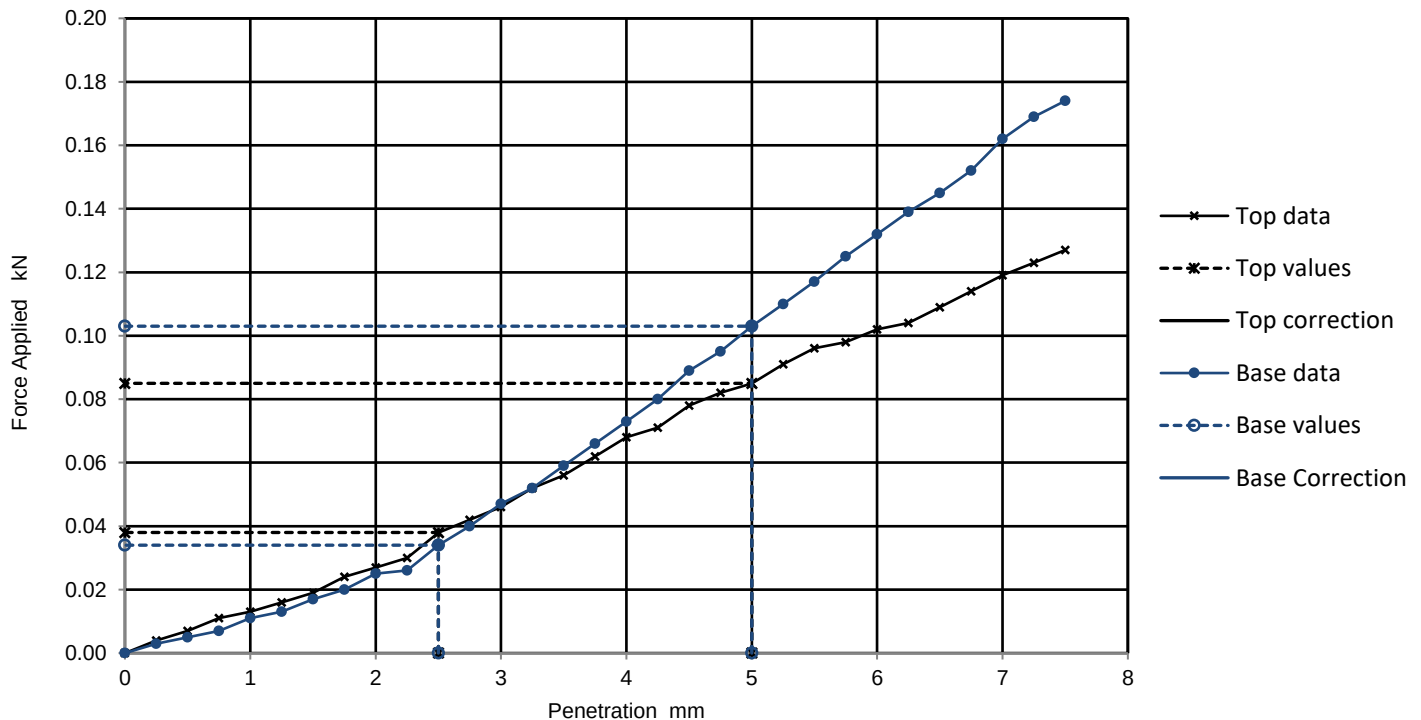
Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND

Depth Top [m]: 1.20
Depth Base [m]: 1.70
Sample Type: B

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
		Dry density after soaking	Mg/m3
Material retained on 20mm sieve removed	5 %		
Initial Specimen details	Bulk density	2.20	Mg/m3
	Dry density	1.95	Mg/m3
	Moisture content	13	%
	Surcharge applied	8	kg
		4.9	kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	0.3	0.4	0.4	0.5
No	0.3	0.5	0.5	

Moisture Content %
12
12

Remarks: Preliminary report

Test/ Specimen specific remarks:

Signed:

Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Client - J Fowler

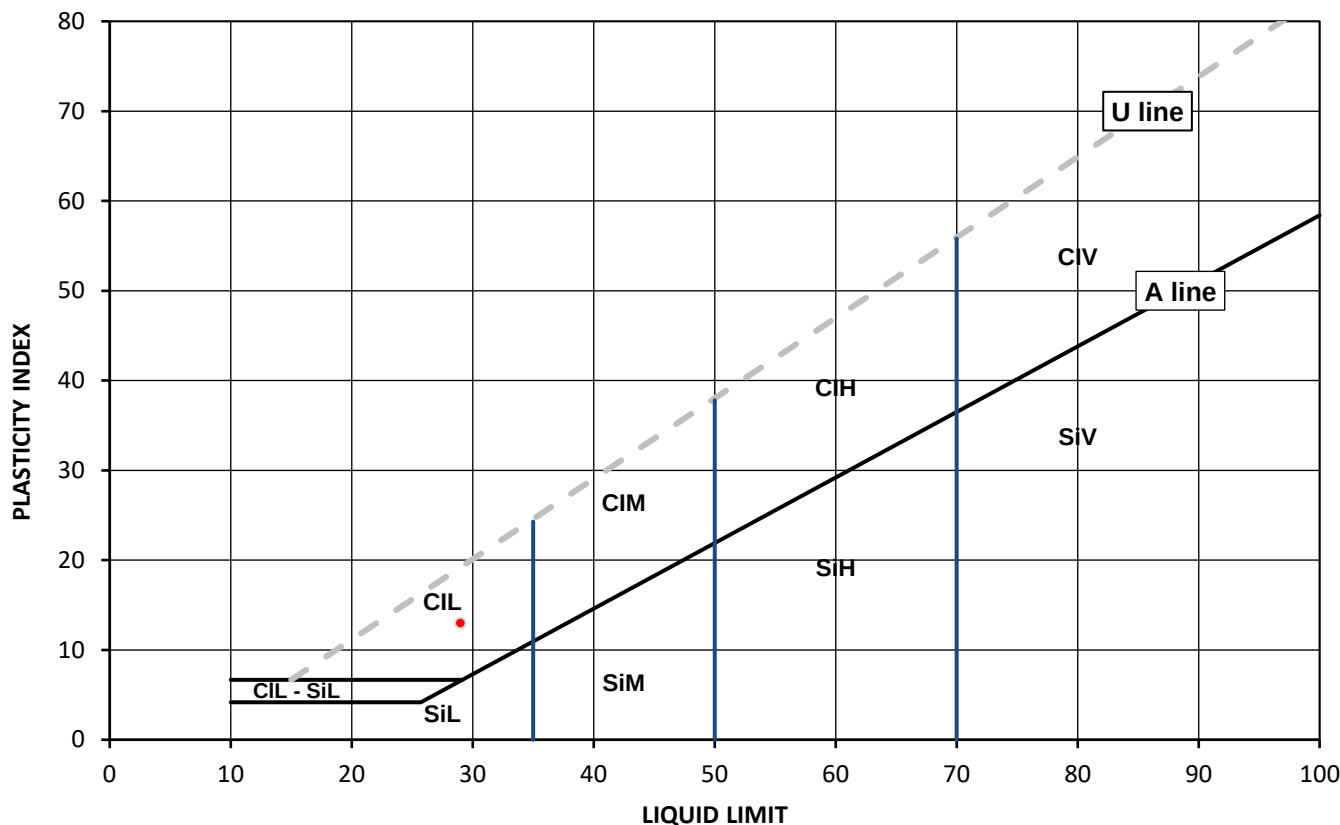
Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B

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
23	29	16	13	92



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:

Katarzyna Koziel

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

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

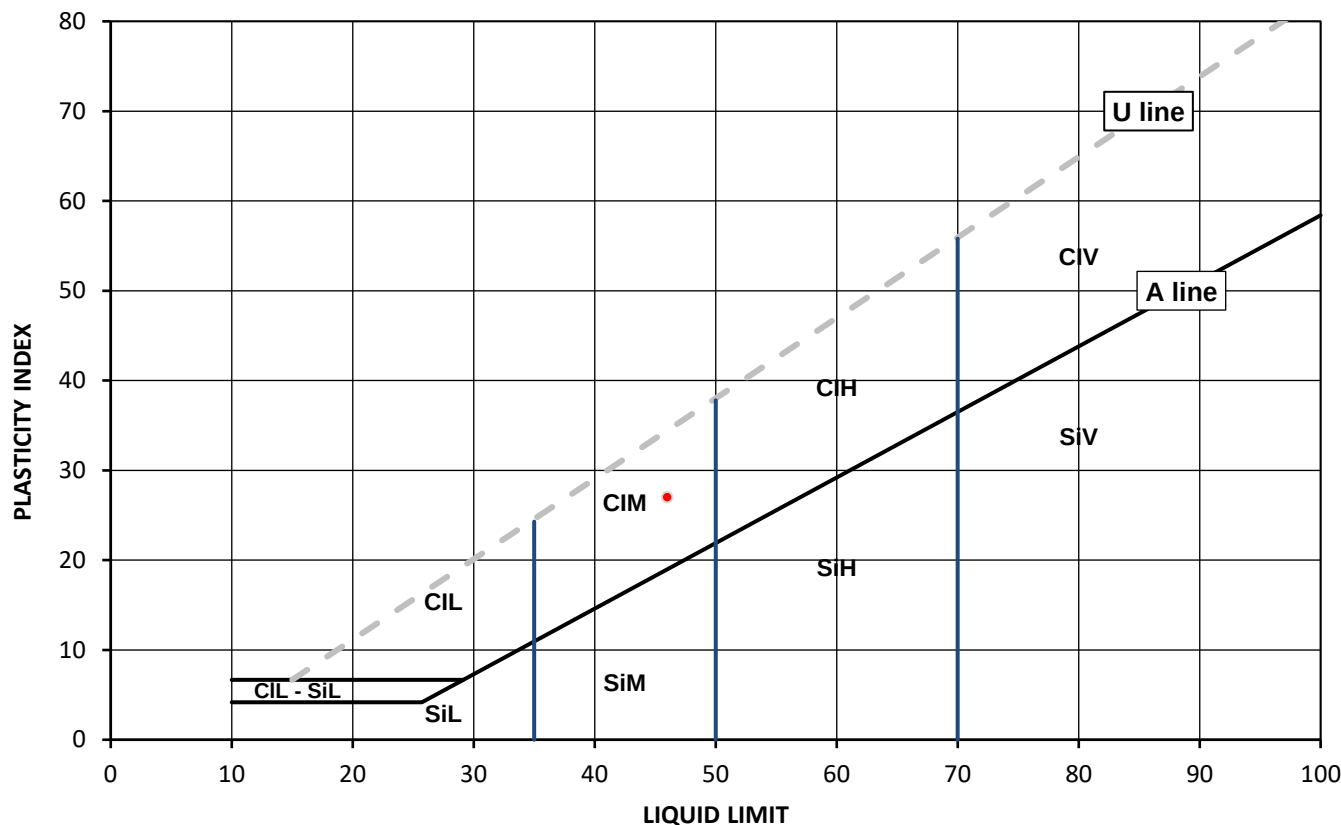
Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
27	46	19	27	89



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

Cl	Clay	Plasticity	Liquid Limit
Si	Silt	L	below 35
		M	35 to 50
		H	50 to 70
		V	exceeding 70
		O	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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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

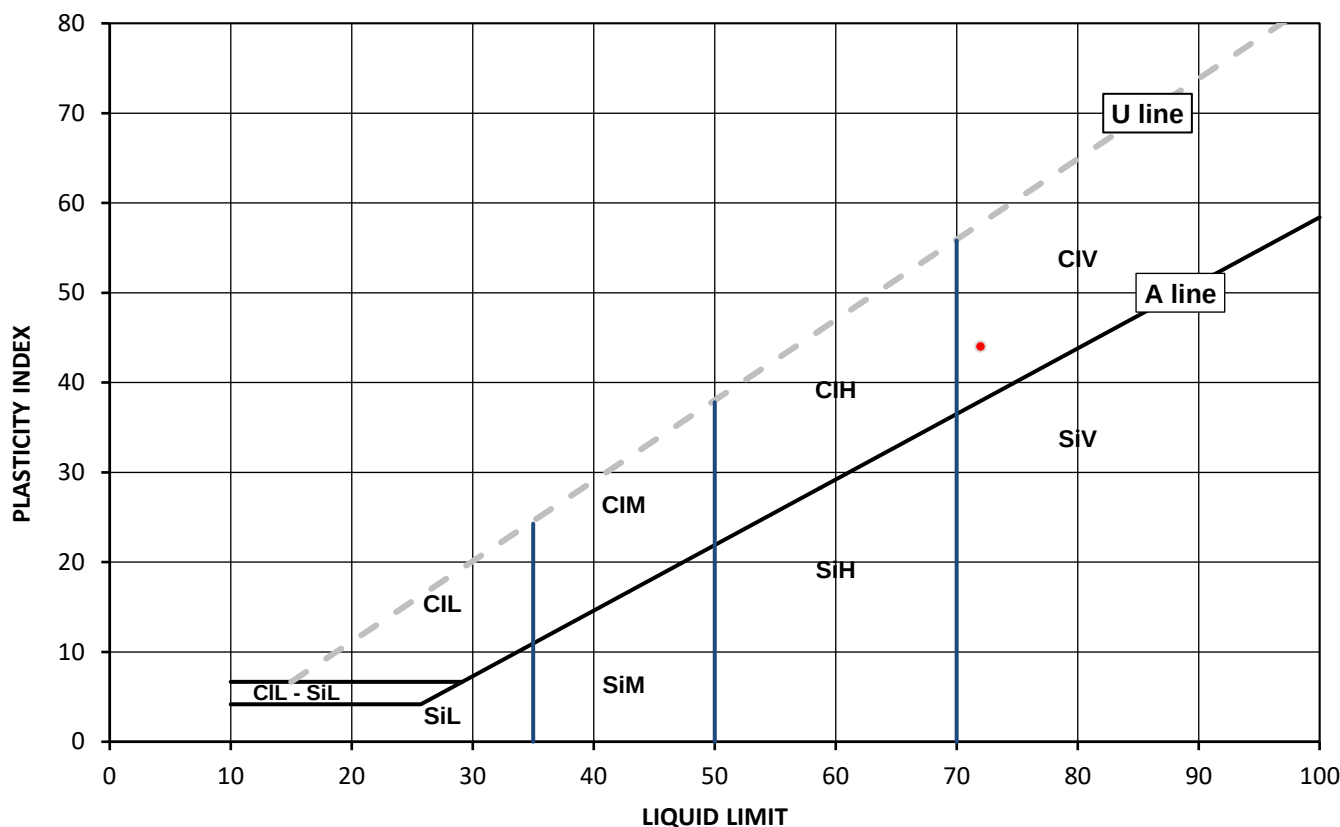
Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B

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
30	72	28	44	100



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

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

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

Remarks:

Signed:

Katarzyna Koziel

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Reporting Specialist
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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

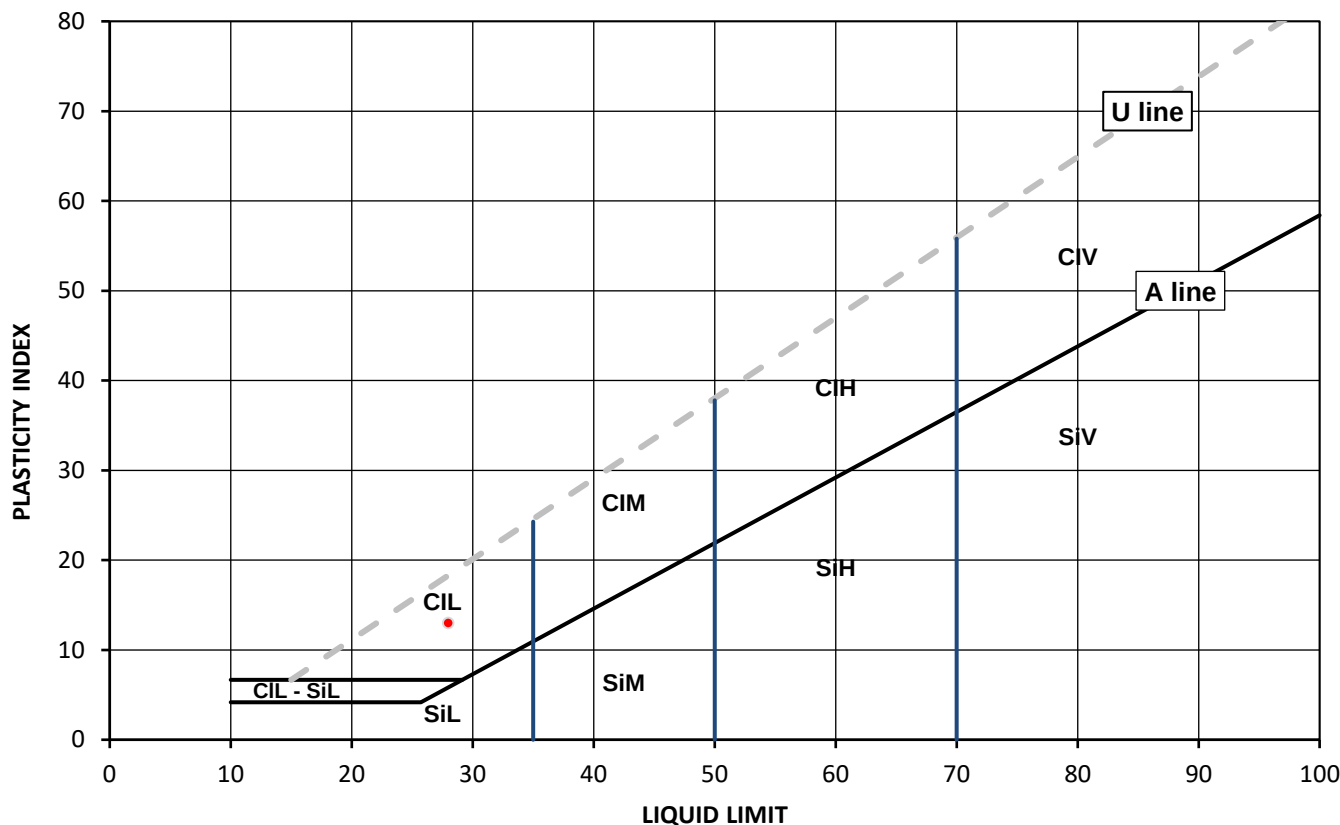
Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	28	15	13	83



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

Katarzyna Koziel
Reporting Specialist
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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road, Hurst

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

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

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

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



Environmental Science

Client Reference: 26519
 Job Number: 22-14402
 Date Sampled: 07/12 - 12/12/2022
 Date Received: 13/12/2022
 Date Tested: 29/12 - 30/12/2022
 Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um %	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2540753	CP01	Not Given	0.50	0.80	B	Greyish brown CLAY										2.73			
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND	Atterberg 4 Point	23		92	29	16	13			2.64			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6											
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY	Atterberg 4 Point	27		89	46	19	27						
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY	Atterberg 4 Point	30		100	72	28	44						
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND	Atterberg 4 Point	17		83	28	15	13						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Katarzyna Koziel

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

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

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

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



Environmental Science

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12 - 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12 - 30/12/2022
Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND		23	Sample was quartered, oven dried at 107.5 °C			
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY		27	Sample was quartered, oven dried at 106.8 °C			
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY		30	Sample was quartered, oven dried at 108.8 °C			
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND		17	Sample was quartered, oven dried at 106.9 °C			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6	Sample was quartered, oven dried at 106.8 °C			

Comments:

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Signed:

Katarzyna Koziel

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

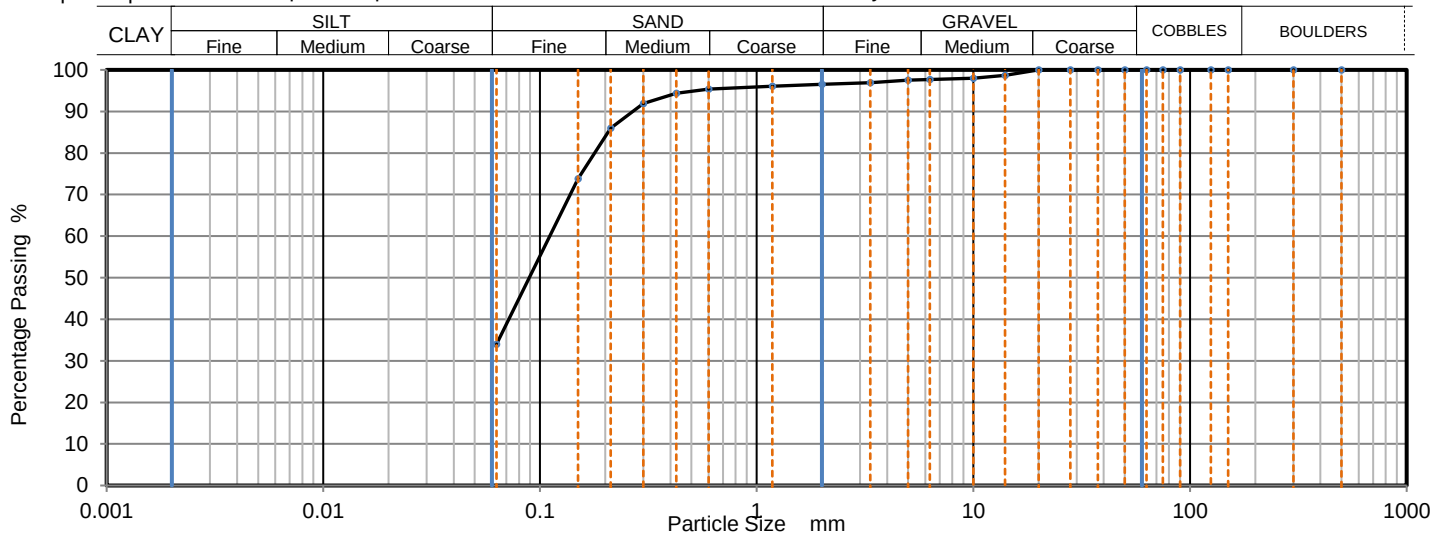
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 107.5 °C and broken down by hand.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
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	100		
14	99		
10	98		
6.3	98		
5	98		
3.35	97		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	92		
0.212	86		
0.15	74		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	62
Fines <0.063mm	34

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 1.8
Curvature Coefficient	

Uniformity 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

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

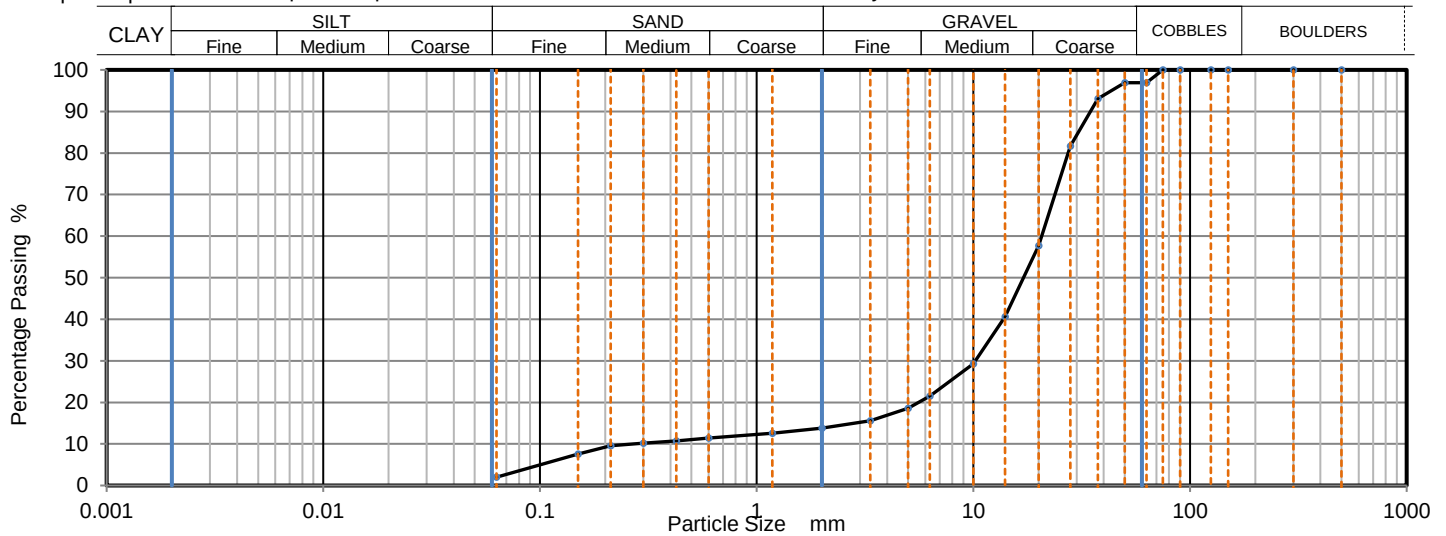
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540745
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.30
Depth Base [m]: 1.80
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	97		
50	97		
37.5	93		
28	82		
20	58		
14	41		
10	29		
6.3	22		
5	19		
3.35	16		
2	14		
1.18	13		
0.6	11		
0.425	11		
0.3	10		
0.212	10		
0.15	8		
0.063	3		

Sample Proportions	% dry mass
Very coarse	3
Gravel	83
Sand	11
Fines <0.063mm	3

Grading Analysis	
D100	mm 75
D60	mm 20.7
D30	mm 10.2
D10	mm 0.269
Uniformity Coefficient	77
Curvature Coefficient	19

Uniformity 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

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

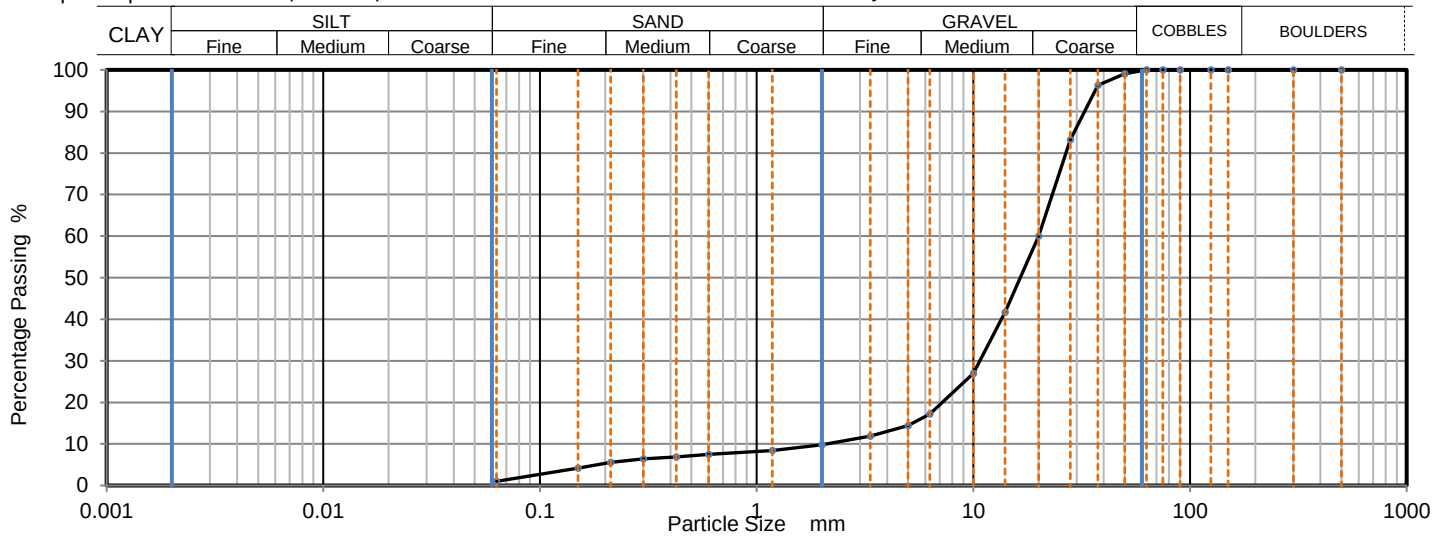
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540746
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
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	99		
37.5	96		
28	83		
20	60		
14	42		
10	27		
6.3	17		
5	14		
3.35	12		
2	10		
1.18	8		
0.6	8		
0.425	7		
0.3	6		
0.212	6		
0.15	4		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	90
Sand	8
Fines <0.063mm	1

Grading Analysis	
D100	63
D60	20
D30	10.7
D10	2.11
Uniformity Coefficient	9.5
Curvature Coefficient	2.7

Uniformity 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:

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Contact: Julian Fowler
Site Address: Lodge Road, Hurst

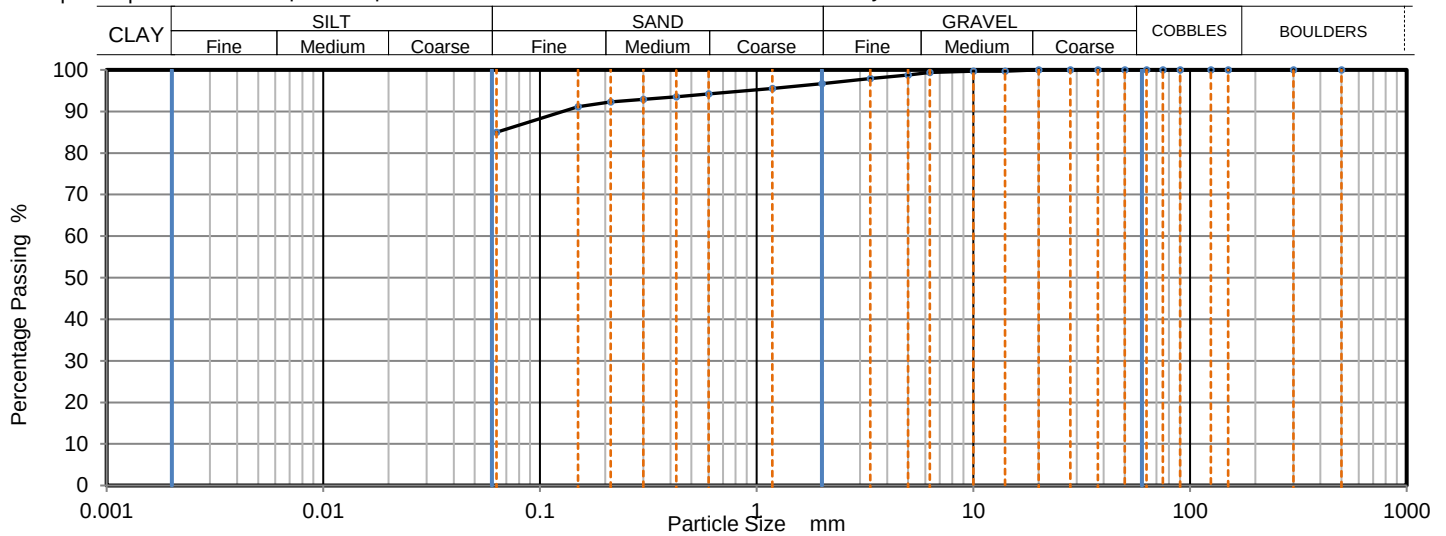
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 3.60
Depth Base [m]: 4.00
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	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	94		
0.425	94		
0.3	93		
0.212	92		
0.15	91		
0.063	86		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	11
Fines <0.063mm	86

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

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

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

Remarks:

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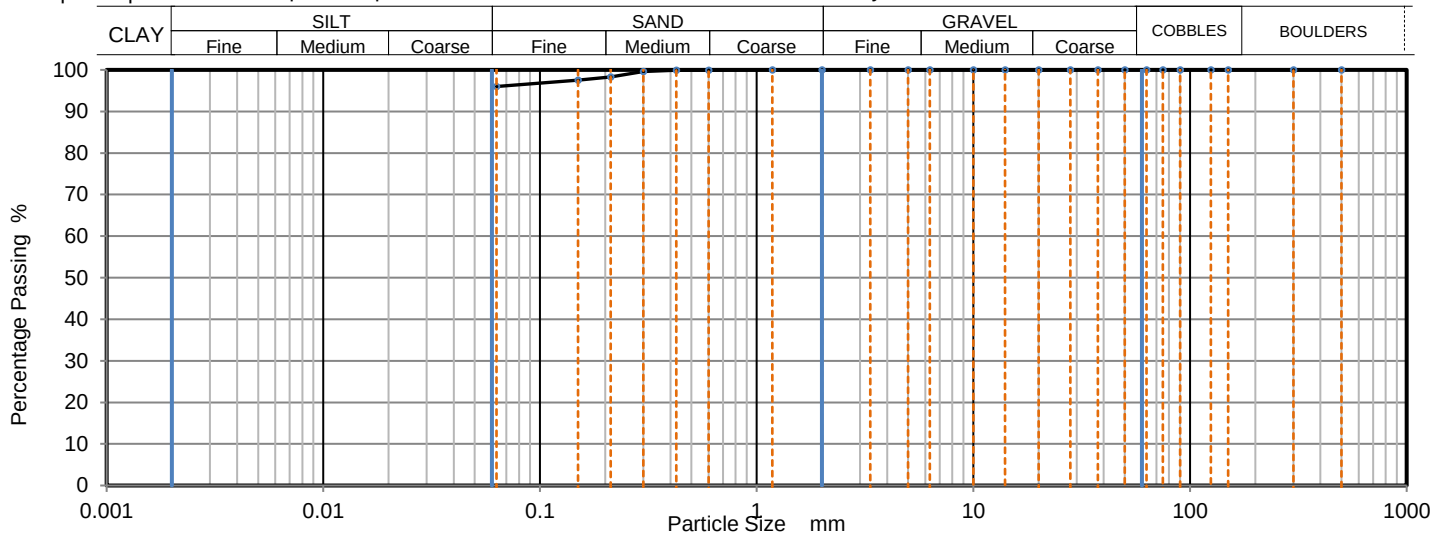
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 6.80
Depth Base [m]: 7.20
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	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	3
Fines <0.063mm	97

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

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

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

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Site Address: Lodge Road, Hurst

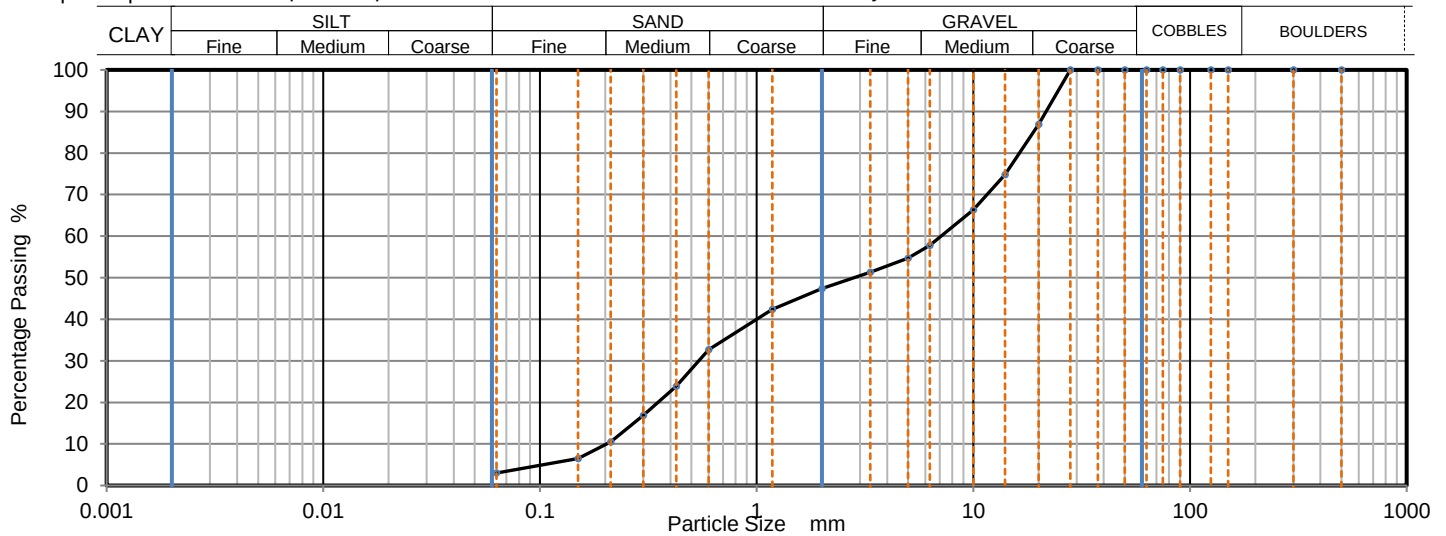
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 1.00
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	87		
14	75		
10	66		
6.3	58		
5	55		
3.35	51		
2	47		
1.18	42		
0.6	33		
0.425	24		
0.3	17		
0.212	11		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	44
Fines <0.063mm	4

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	35
Curvature Coefficient	0.2

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

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

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SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

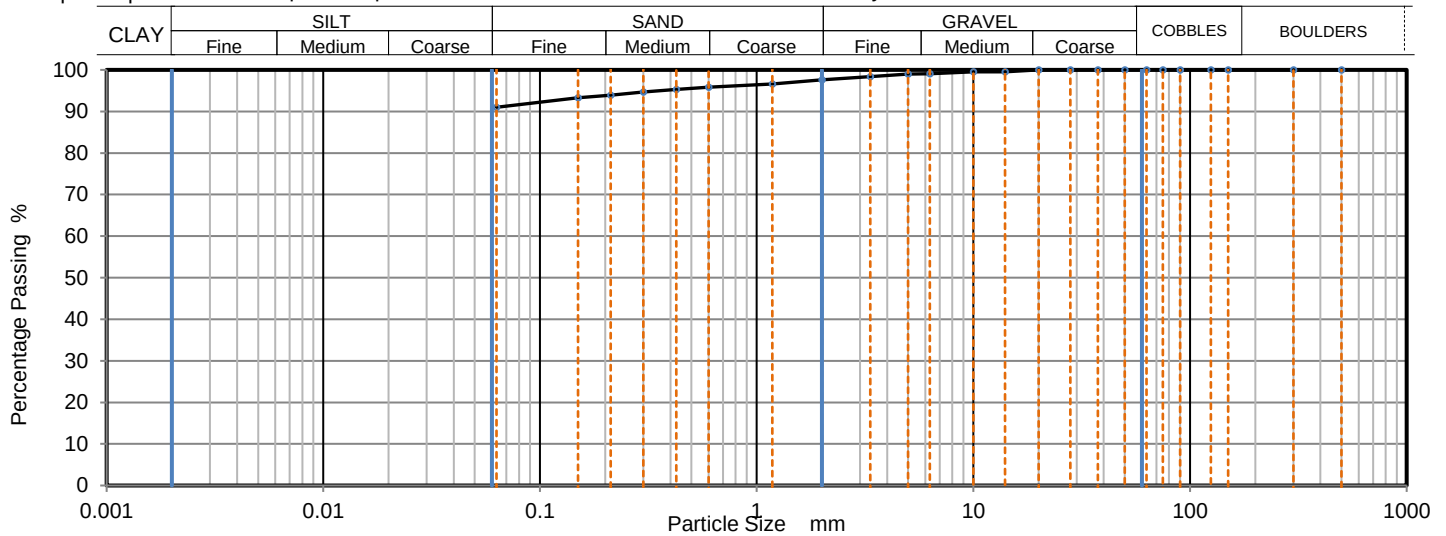
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540750
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
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	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	98		
1.18	97		
0.6	96		
0.425	95		
0.3	95		
0.212	94		
0.15	93		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	6
Fines <0.063mm	91

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

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

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

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SE1 3LE

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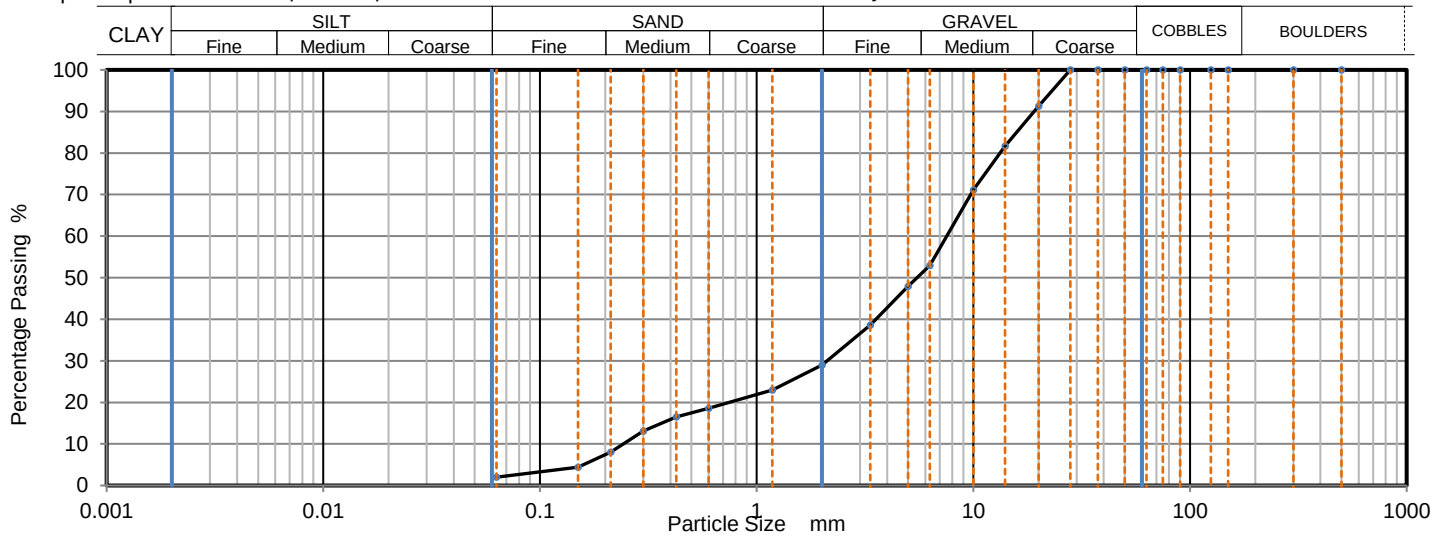
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540751
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 107.0 °C and broken down by hand.

Depth Top [m]: 2.60
Depth Base [m]: 3.00
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	91		
14	82		
10	71		
6.3	53		
5	48		
3.35	39		
2	29		
1.18	23		
0.6	19		
0.425	17		
0.3	13		
0.212	8		
0.15	4		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	71
Sand	27
Fines <0.063mm	2

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

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

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

Remarks:

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Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

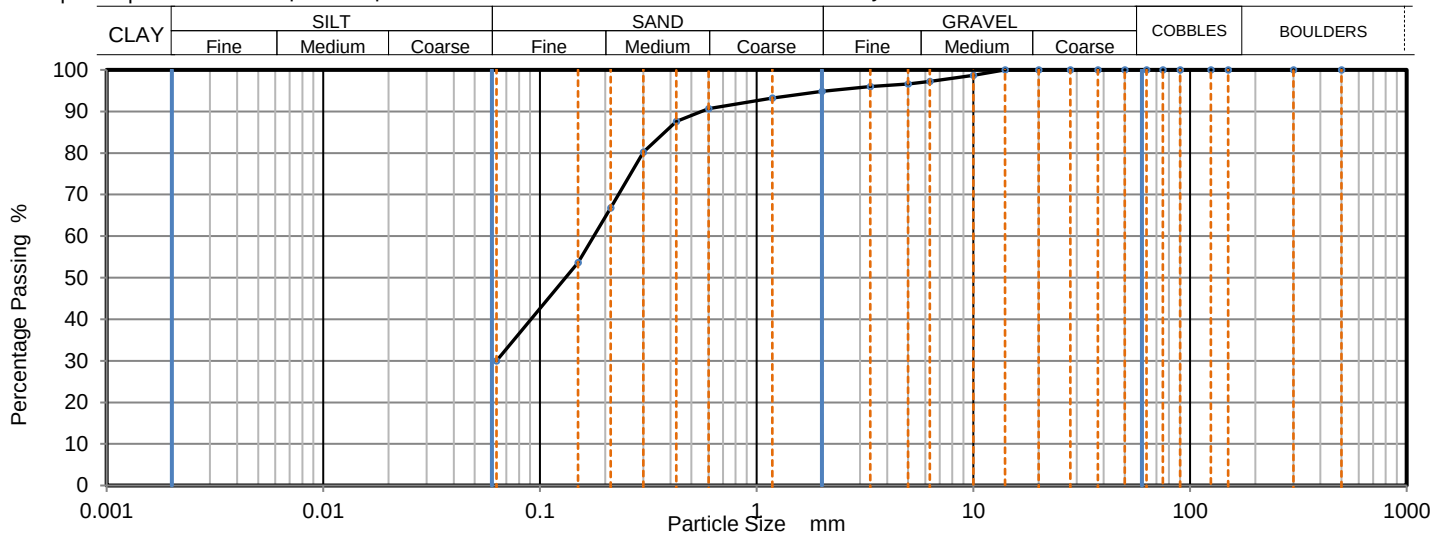
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 4.00
Depth Base [m]: 4.45
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	100		
14	100		
10	99		
6.3	97		
5	97		
3.35	96		
2	95		
1.18	93		
0.6	91		
0.425	88		
0.3	80		
0.212	67		
0.15	54		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	64
Fines <0.063mm	31

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.8
Curvature Coefficient	

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

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

Remarks:

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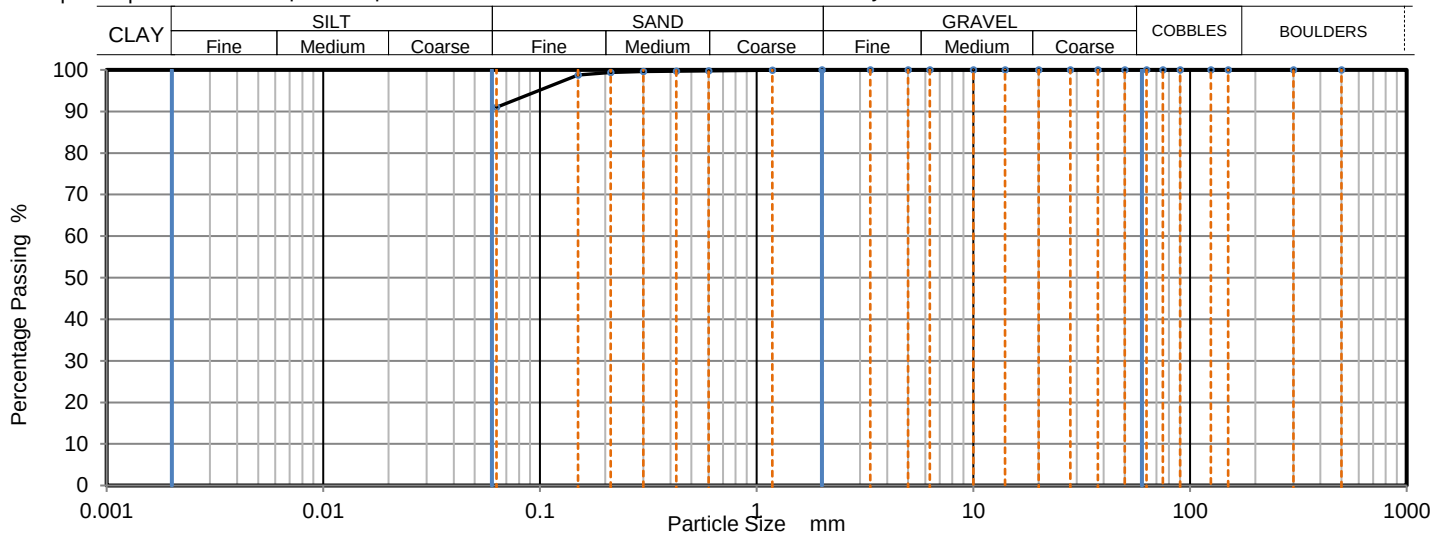
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540753
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 0.80
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	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	92		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	8
Fines <0.063mm	92

Grading Analysis		
D100	mm	3.35
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

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

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

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Client Address: 5-7 Tanner Street, London,
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Contact: Julian Fowler
Site Address: Lodge Road, Hurst

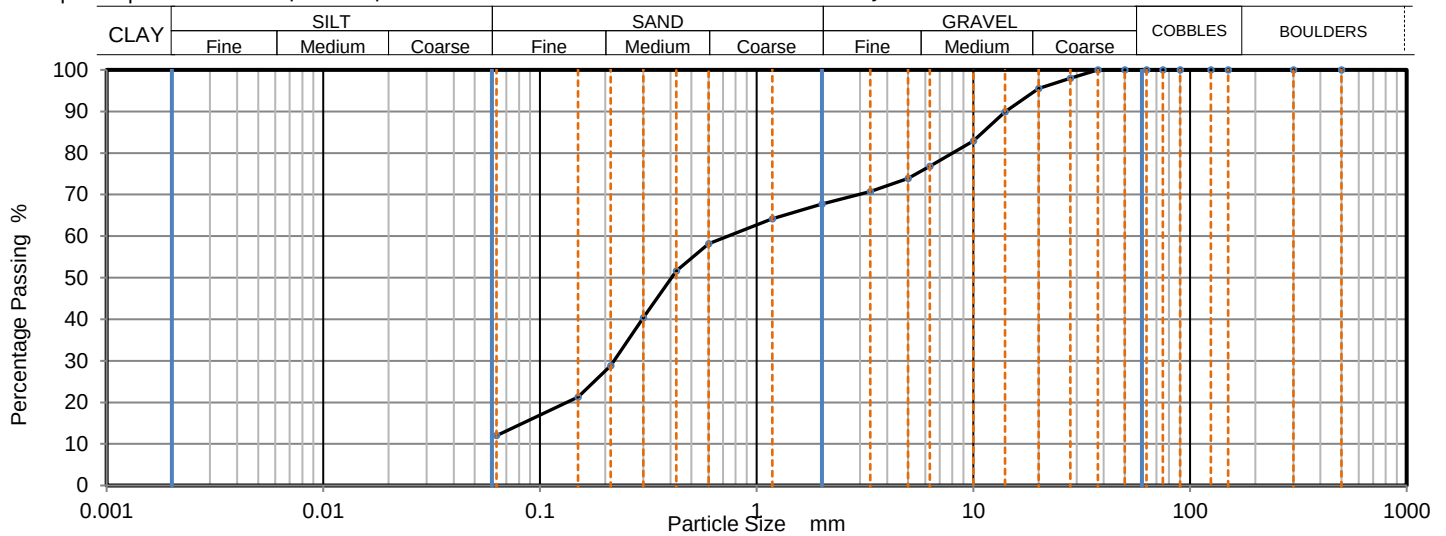
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.70
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	98		
20	96		
14	90		
10	83		
6.3	77		
5	74		
3.35	71		
2	68		
1.18	64		
0.6	58		
0.425	52		
0.3	40		
0.212	29		
0.15	21		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	56
Fines <0.063mm	12

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 12
Curvature Coefficient	

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

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

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Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

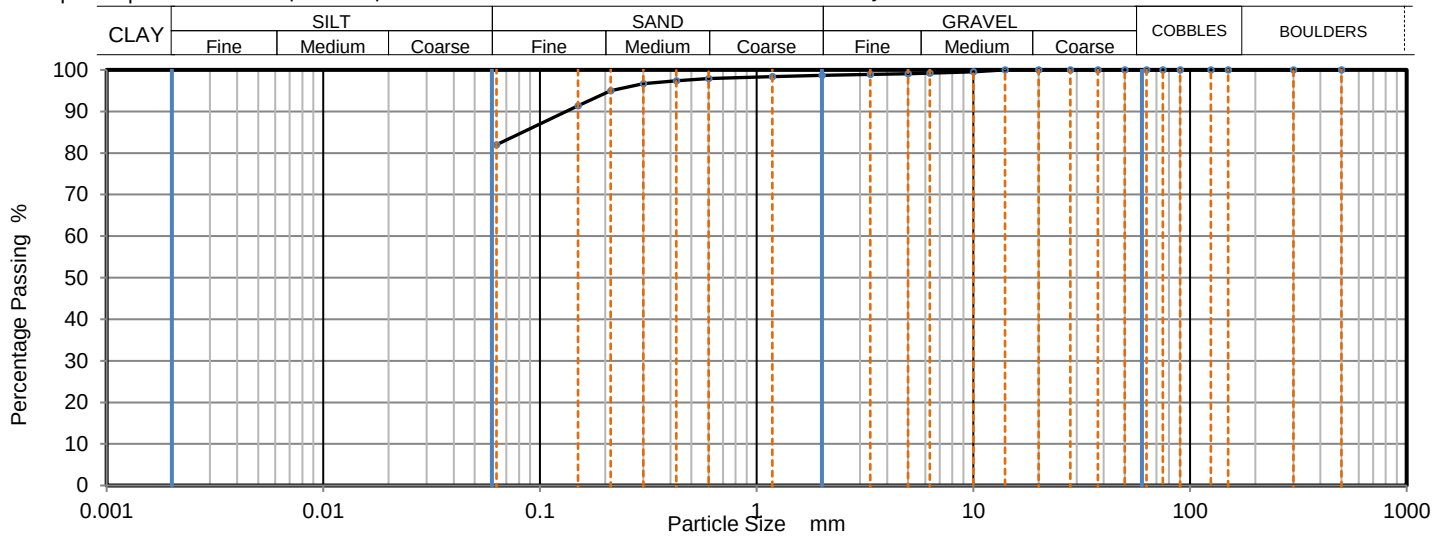
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540755
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Brownish grey silty CLAY
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.50
Depth Base [m]: 2.90
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	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	97		
0.3	97		
0.212	95		
0.15	91		
0.063	83		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	16
Fines <0.063mm	82

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

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

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

Remarks:

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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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

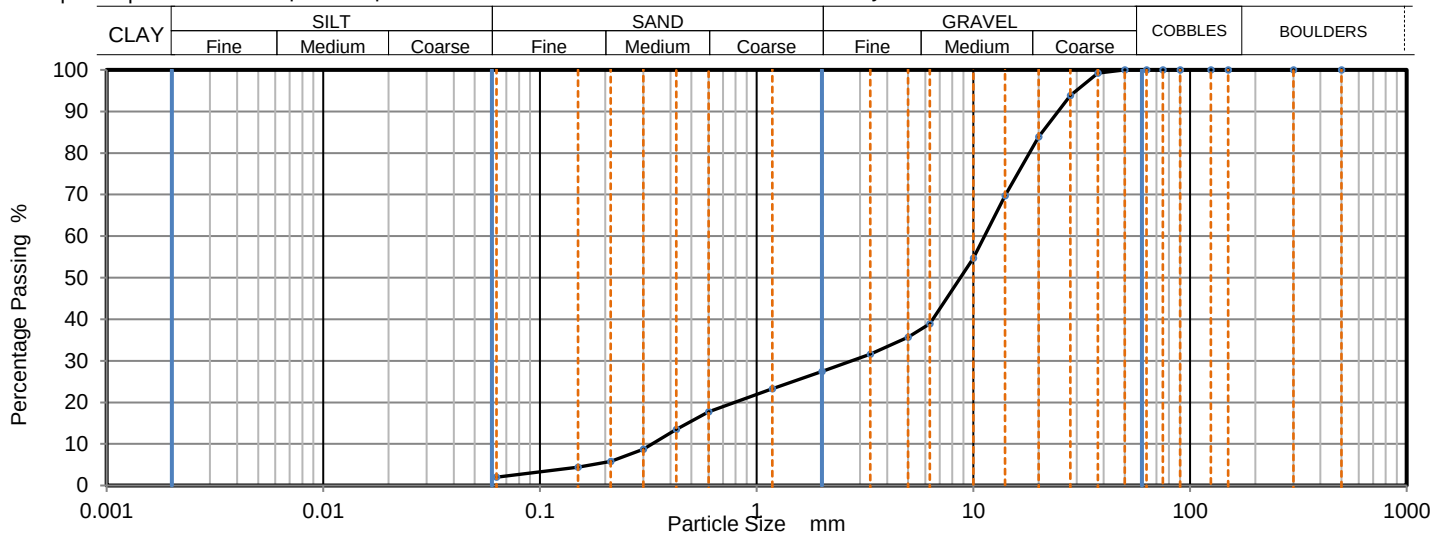
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540756
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 5.30
Depth Base [m]: 5.80
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	99		
28	94		
20	84		
14	70		
10	55		
6.3	39		
5	36		
3.35	32		
2	27		
1.18	23		
0.6	18		
0.425	14		
0.3	9		
0.212	6		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	25
Fines <0.063mm	3

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity 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

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

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

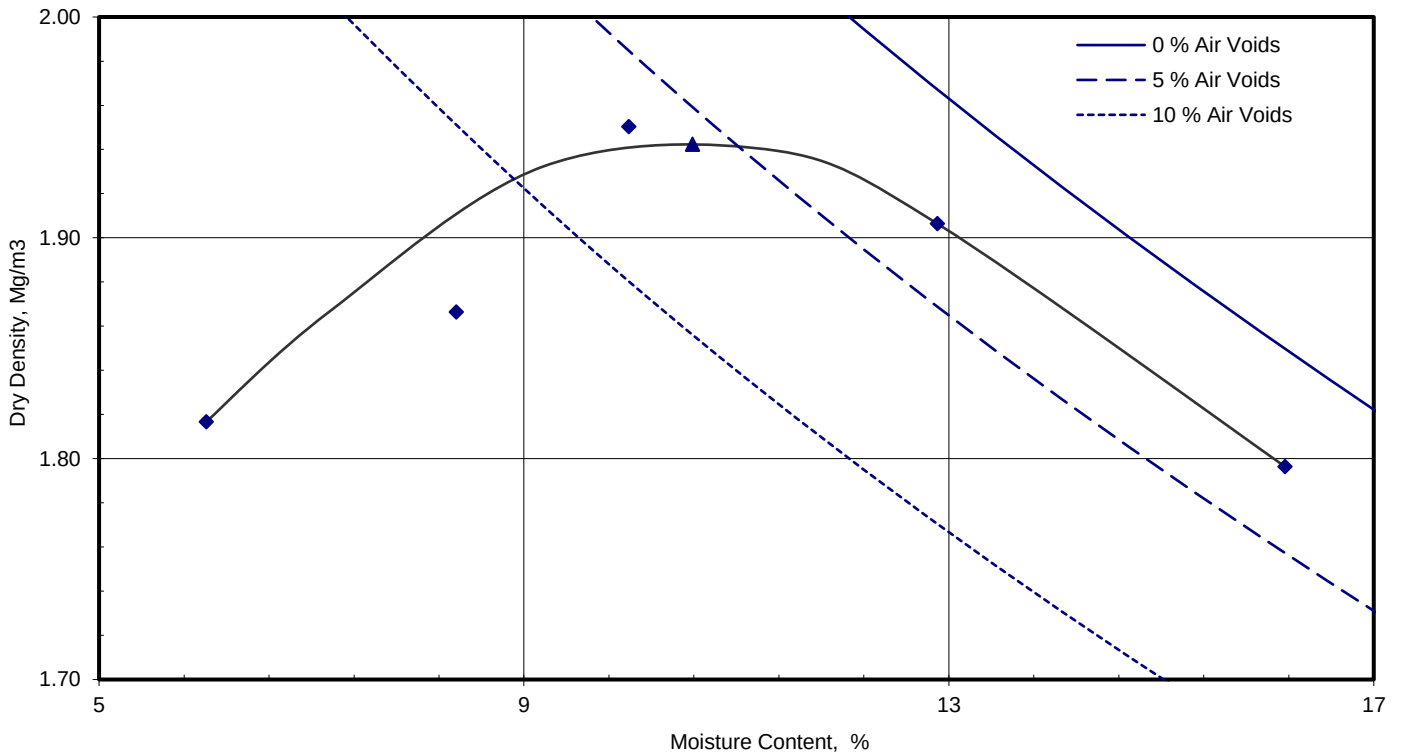
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B


Compaction Point No.	1	2	3	4	5
Moisture Content %	6.0	8.4	10.0	13	16
Dry Density Mg/m³	1.82	1.87	1.95	1.91	1.80

Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve %	0
Material Retained on 20.0 mm Sieve %	0
Particle Density - Measured using gas jar Mg/m³	2.64
As received Moisture Content %	23
Maximum Dry Density Mg/m³	1.94

Optimum Moisture Content %	11
----------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Katarzyna Koziel

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

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

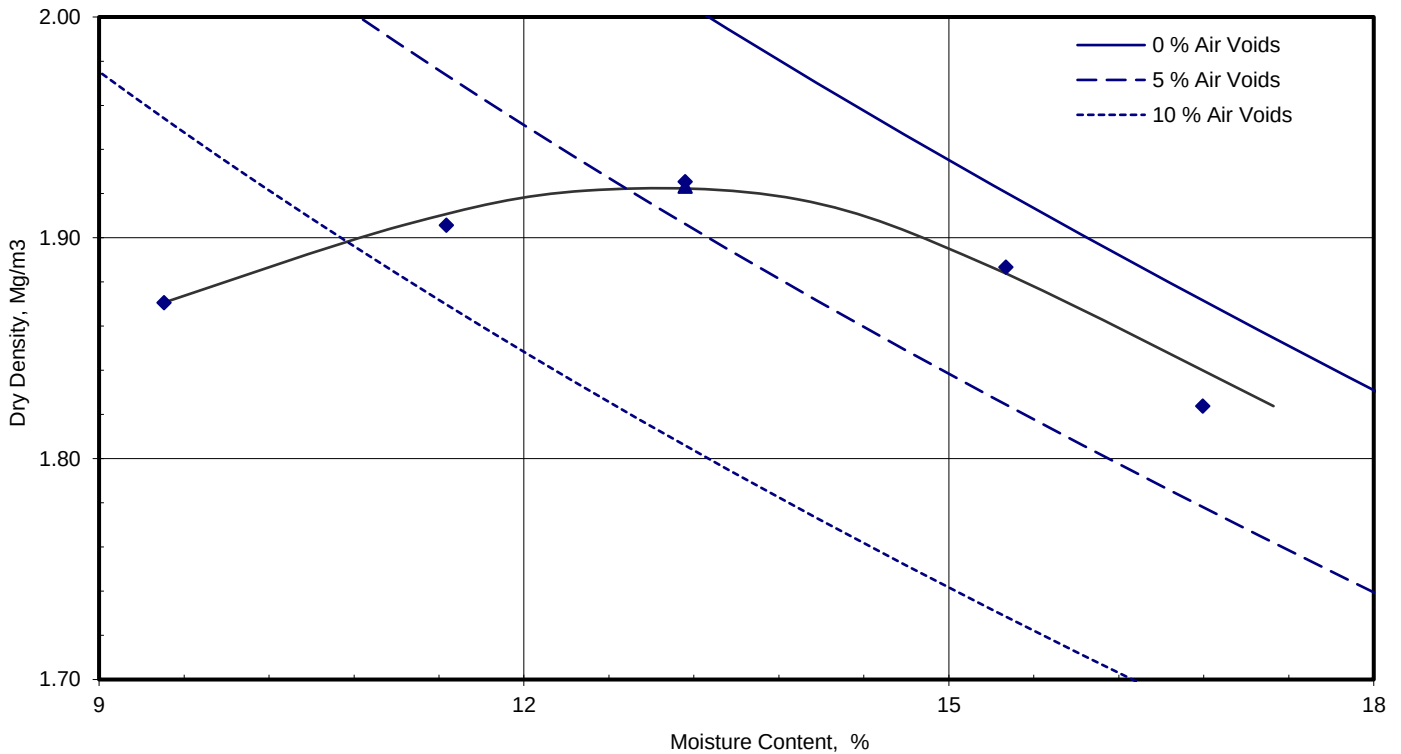
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540753
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.50
Depth Base [m]: 0.80
Sample Type: B


Compaction Point No.	1	2	3	4	5
Moisture Content %	9.5	11	13	15	17
Dry Density Mg/m³	1.87	1.91	1.93	1.89	1.82

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.73
As received Moisture Content	%	19
Maximum Dry Density	Mg/m³	1.92

Optimum Moisture Content	%	13
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Katarzyna Koziel

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

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

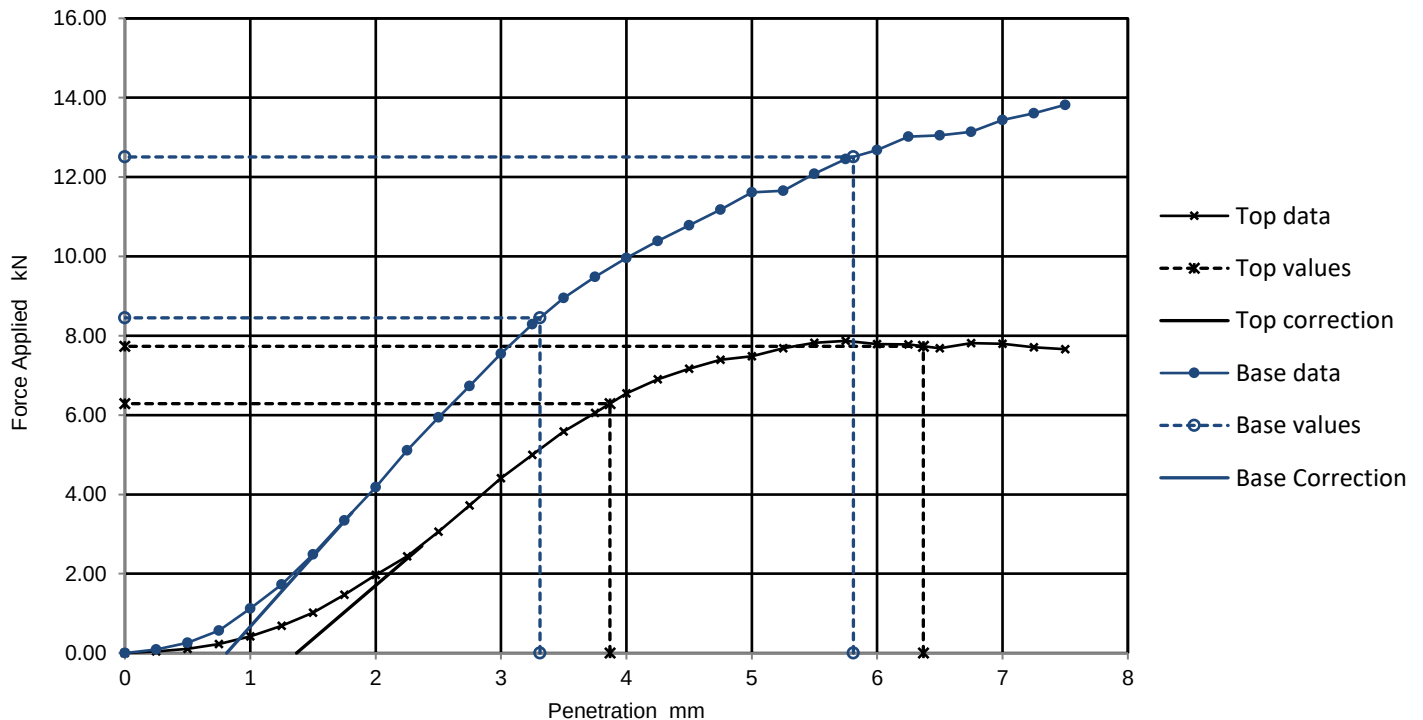
Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	14	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.23	Mg/m3	Surcharge applied		8	kg
	Dry density	2.03	Mg/m3			4.8	kPa
	Moisture content	9.8	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
Yes	48.0	39.0	48.0	
Yes	64.0	63.0	64.0	

Moisture Content %
8.9
8.0

Remarks:

Test/ Specimen specific remarks:

Signed:

Katarzyna Koziel

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

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

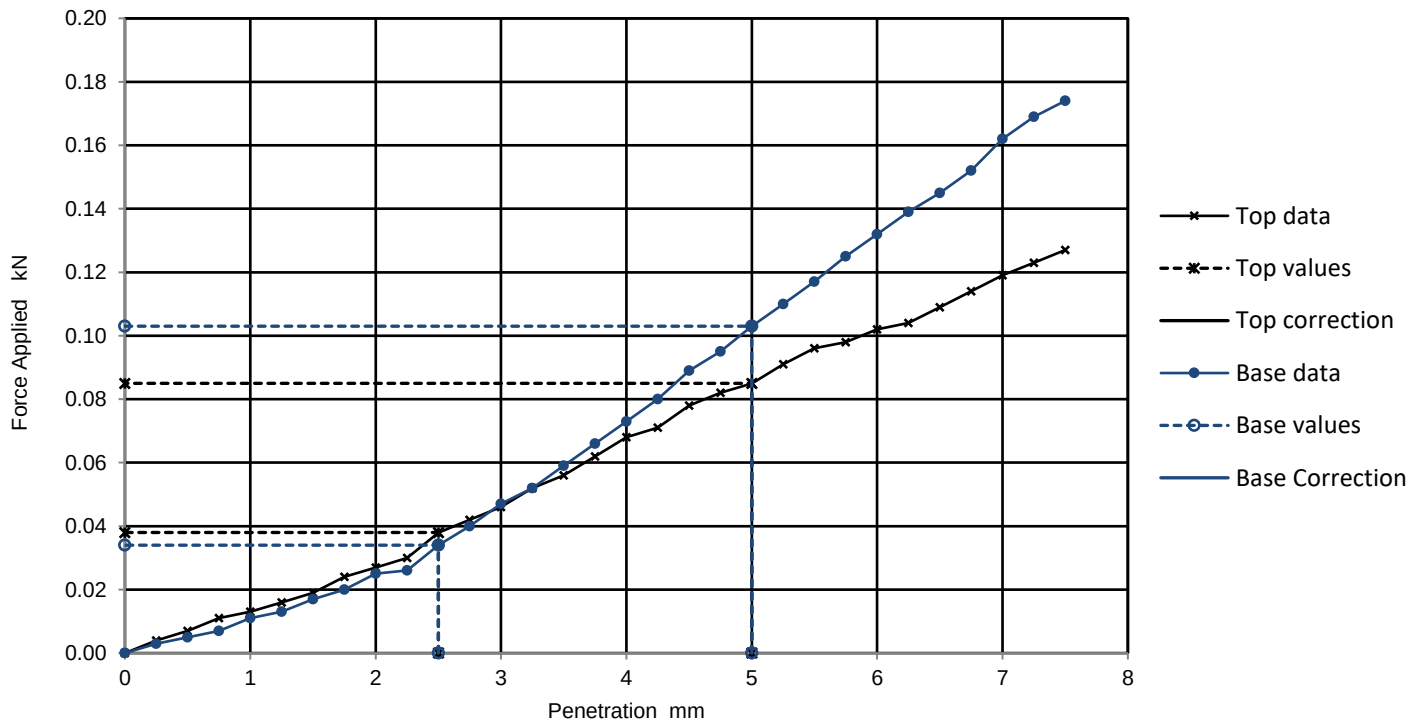
Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND

Depth Top [m]: 1.20
Depth Base [m]: 1.70
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	5	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.20	Mg/m3	Surcharge applied		8	kg
	Dry density	1.95	Mg/m3			4.9	kPa
	Moisture content	13	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	0.3	0.4	0.4	0.5
No	0.3	0.5	0.5	

Moisture Content %
12
12

Remarks:

Test/ Specimen specific remarks:

Signed:

Katarzyna Koziel

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

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DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

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



Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

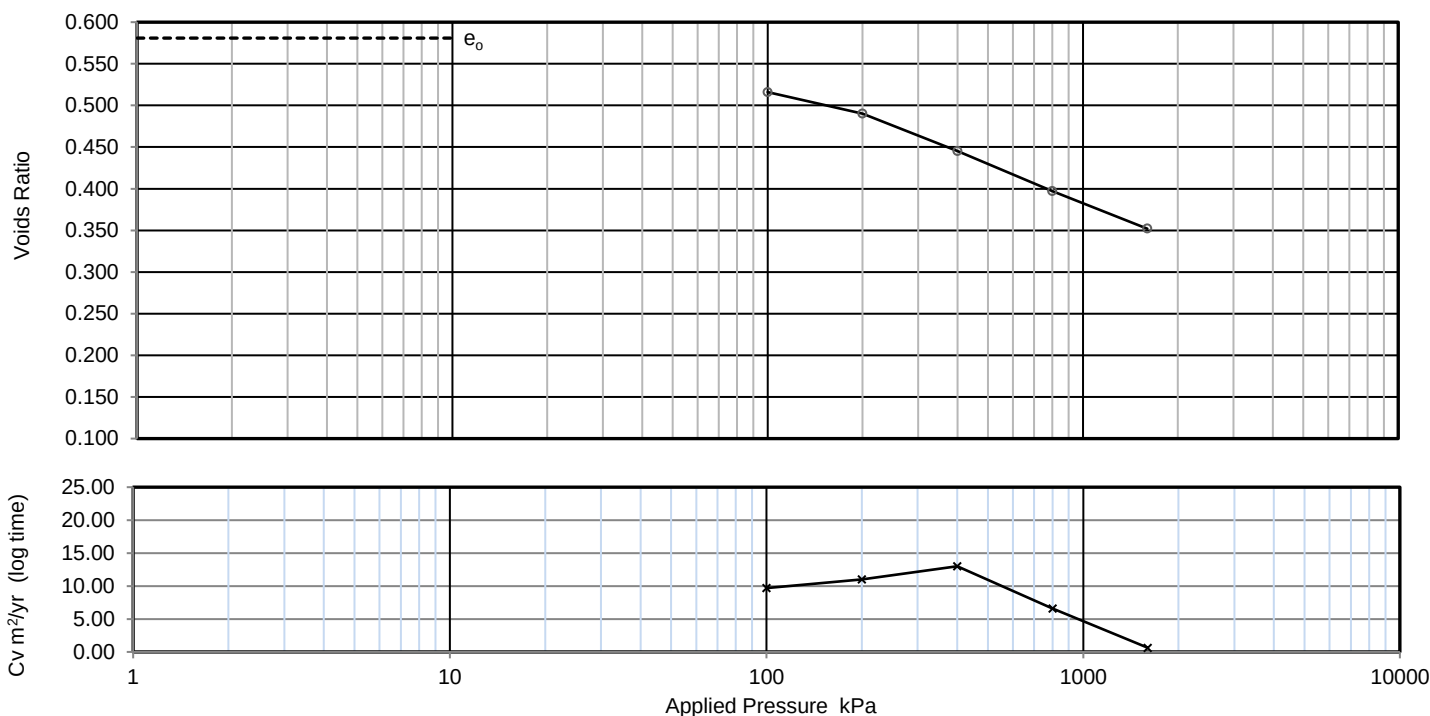
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 06/01/2023
Sampled By: Client - J Fowler

Laboratory Reference: 2540757
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Mottled brown CLAY

Depth Top [m]: 8.00
Depth Base [m]: 8.45
Sample Type: U

[illegible]

Preparation

Carried out on top of U100

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Vertical		
assumed	2.65	Mg/m3
N/A		%
N/A		%

Specimen details

Diameter

Height

Moistur

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

Total test time

Initial	Final	
50.00	-	mm
20.18	17.26	mm
21	19	%
2.03	2.33	Mg/m ³
1.68	1.96	Mg/m ³
0.581	0.352	
95	140	%
22.0		°C
Not measured		kPa
		%
5		days

Note: C_v corrected to 20°C

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist

for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 12/01/2023

GF 172.16



4041

TEST CERTIFICATE**DETERMINATION OF SHEAR STRENGTH
BY DIRECT SHEAR
(SMALL SHEARBOX APPARATUS)**

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EBClient: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LEContact: Julian Fowler
Site Address: Lodge Road, HurstClient Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

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

Test Results:Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAYDepth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B

Preparation Details Sample carried out on lump

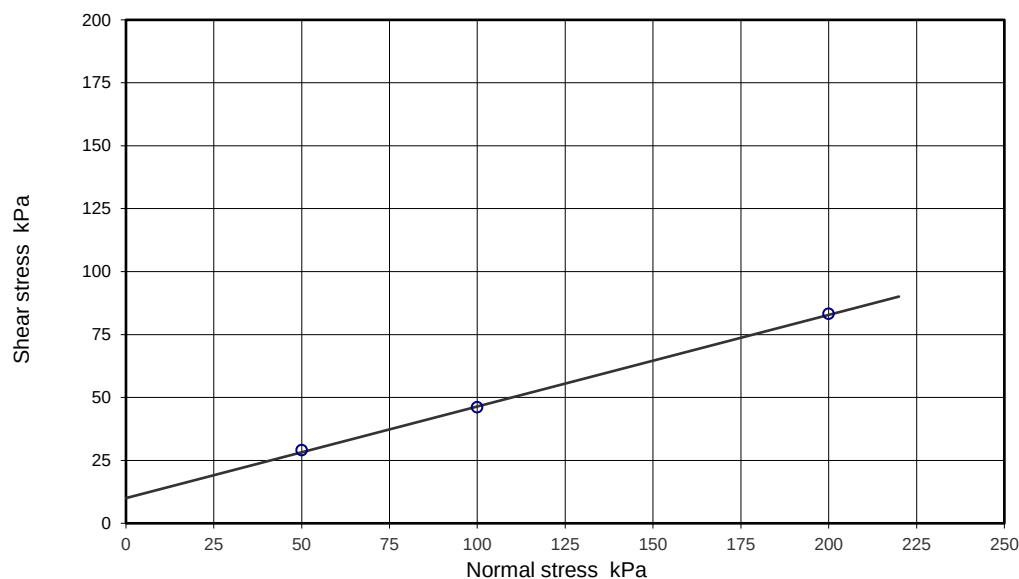
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.93	1.93	1.93			Mg/m ³
	Moisture Content	26.8	26.8	26.8			%
	Dry density	1.52	1.52	1.52			Mg/m ³
	Voids ratio	0.743	0.743	0.743			
Consolidation	Degree of Saturation	96	96	96			%
	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	1.624	2.216	2.738			mm
After test	Voids ratio after consolidation	0.602	0.550	0.504			
	Final Moisture content	27.3	25.2	23.3			%

Shearing stage(s)

Rate of displacement	Peak	0.00670	0.00670	0.00670			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	4.03	2.53	2.94			mm
	Shear stress	29.0	46.1	83.2			kPa
	Vertical Movement at peak shear stress	0.38	0.20	0.23			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 2 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	10
Ø'	degrees	20.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

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Katarzyna Koziel

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

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

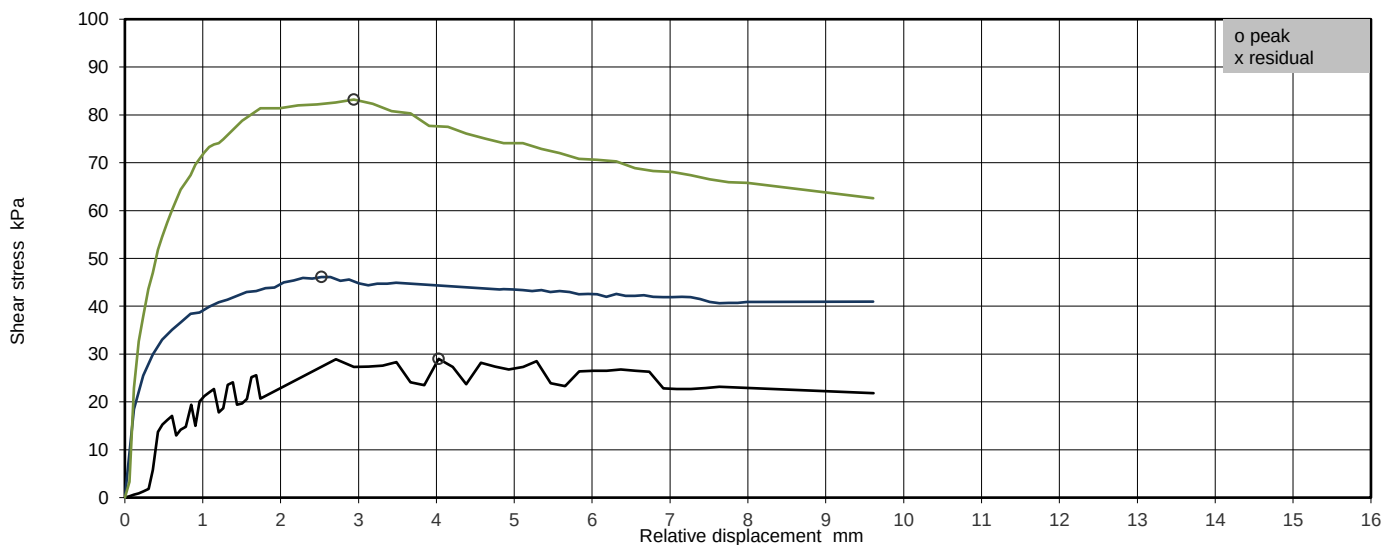
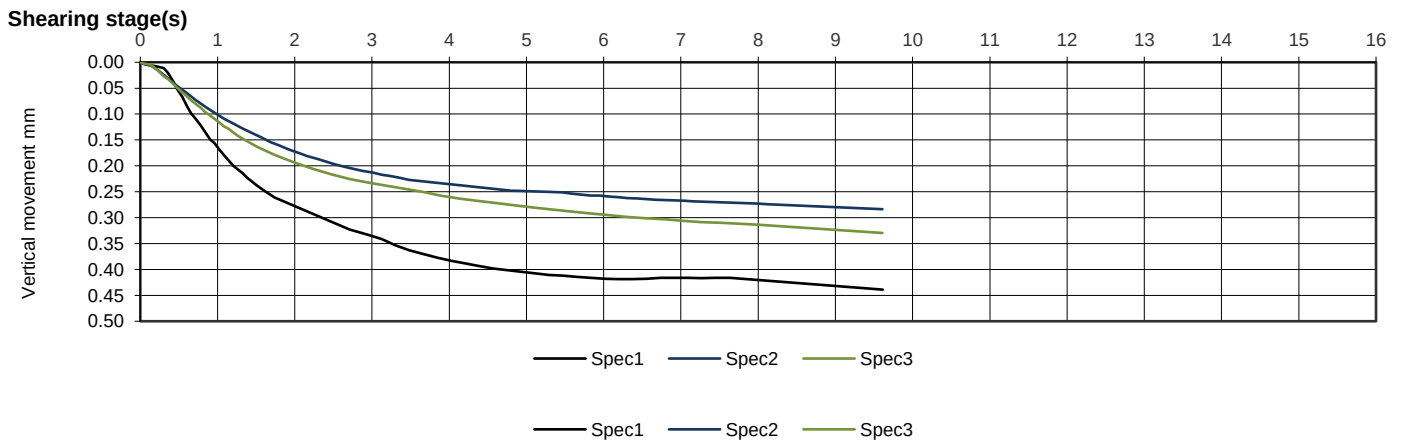
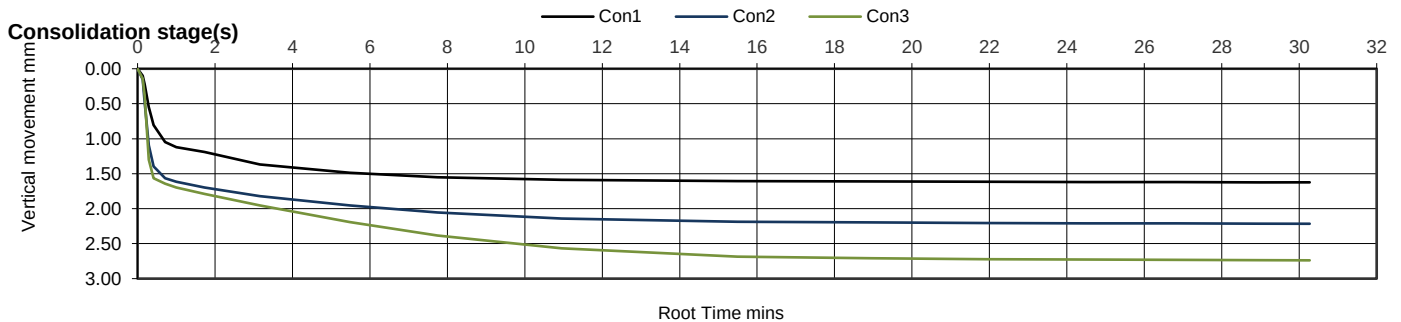
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B


Remarks:

Signed:

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Katarzyna Koziel

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



4041

TEST CERTIFICATE**DETERMINATION OF SHEAR STRENGTH
BY DIRECT SHEAR
(SMALL SHEARBOX APPARATUS)**

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EBClient: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LEContact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 09/01/2023
Sampled By: Client - J Fowler**Test Results:**Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAYDepth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B

Preparation Details Sample carried out on lump

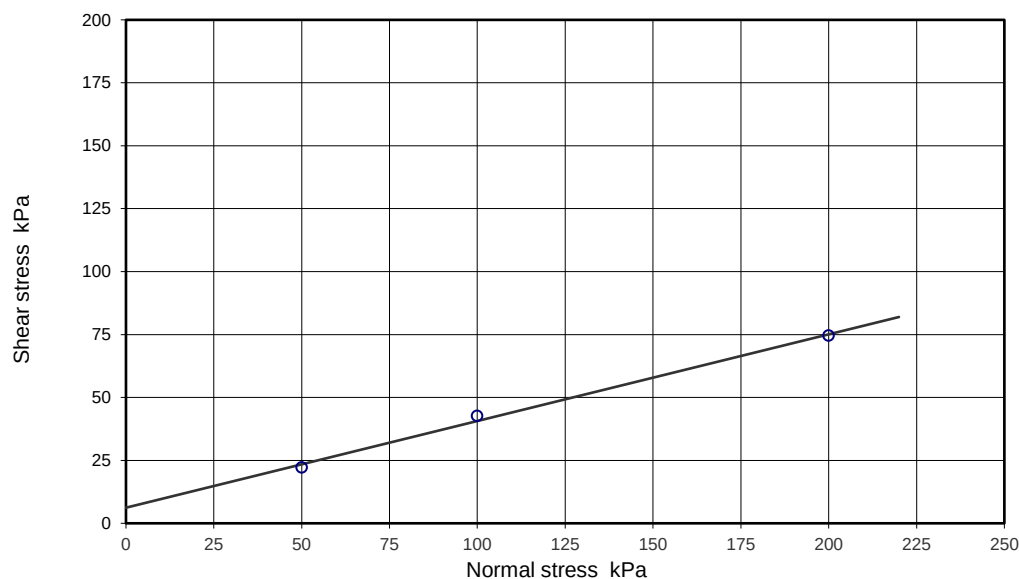
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.1	20.1	20.1			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.78	1.78	1.78			Mg/m ³
	Moisture Content	27.1	27.1	27.1			%
	Dry density	1.40	1.40	1.40			Mg/m ³
	Voids ratio	0.893	0.893	0.893			
Consolidation	Degree of Saturation	80	80	80			%
	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.785	1.930	2.190			mm
After test	Voids ratio after consolidation	0.819	0.711	0.687			
	Final Moisture content	34.3	33.7	31.3			%

Shearing stage(s)

Rate of displacement	Peak	0.00670	0.00670	0.00670			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.07	3.55	2.65			mm
	Shear stress	22.1	42.6	74.5			kPa
	Vertical Movement at peak shear stress	0.36	0.37	0.27			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 2 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	6.2
Ø'	degrees	19.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

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Katarzyna Koziel

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

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

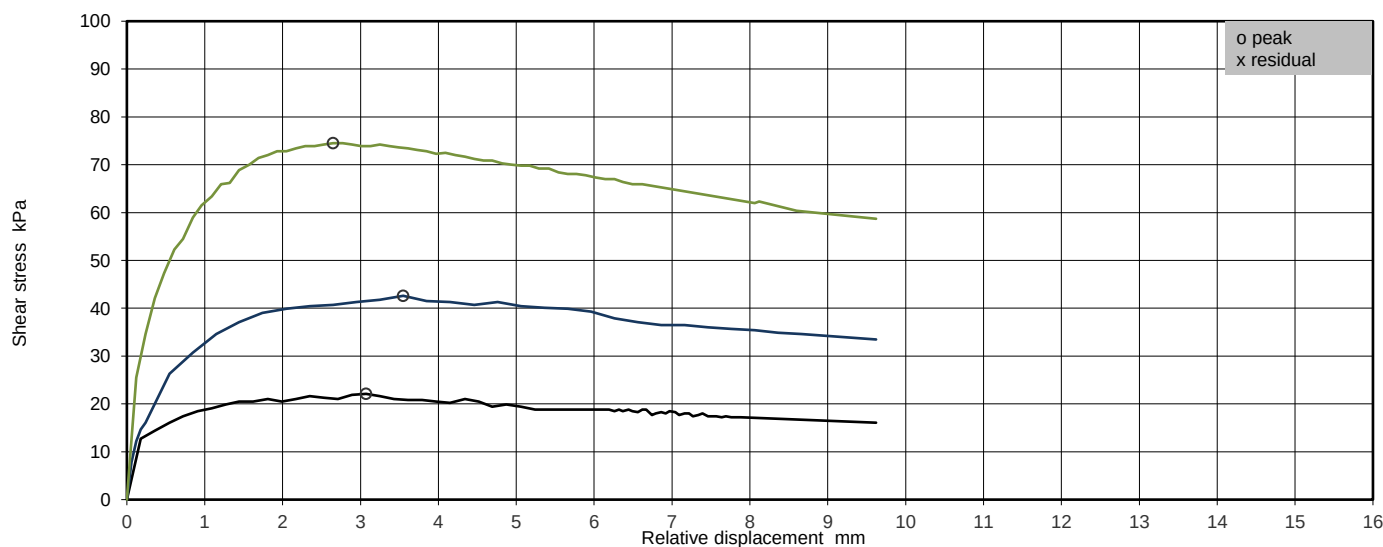
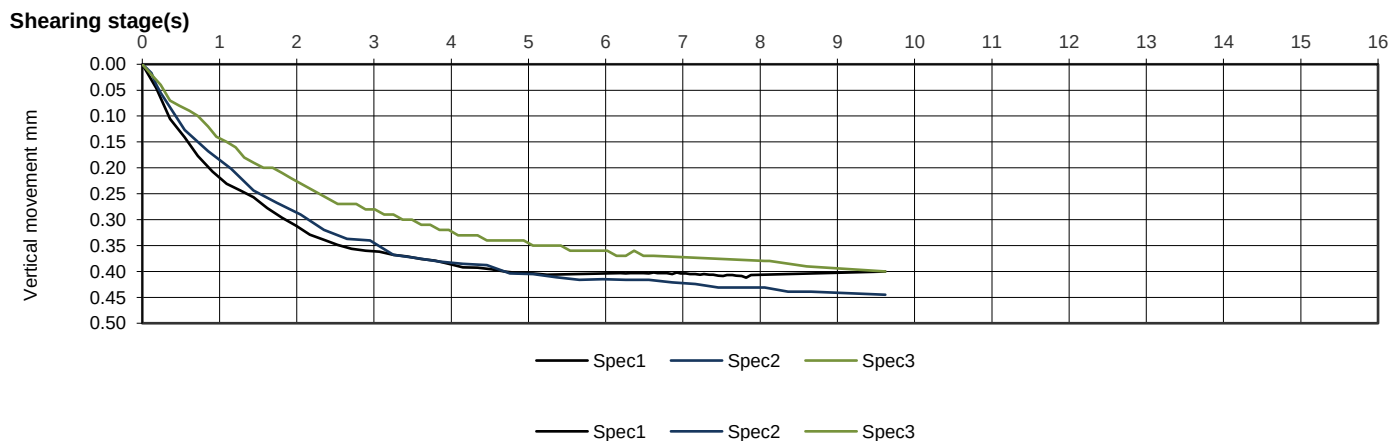
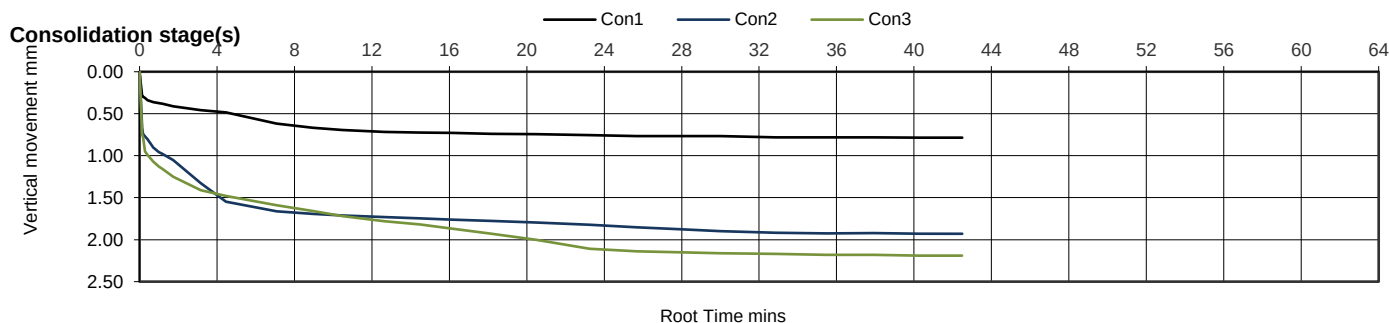
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 09/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B


Remarks:

Signed:

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Katarzyna Koziel

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

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

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

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B

Preparation Details Sample prepared from loose material

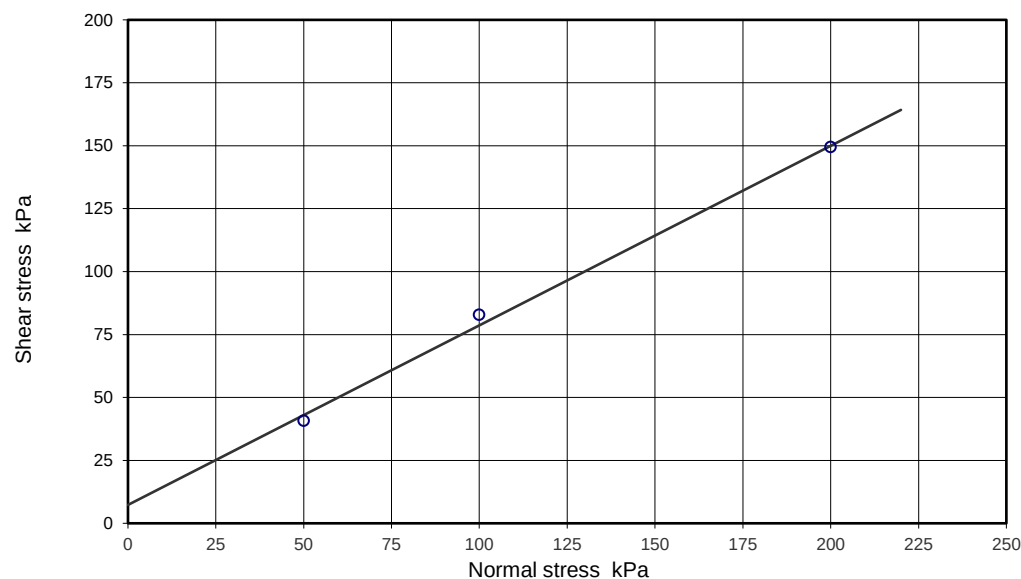
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	2.07	2.07	2.07			Mg/m ³
	Moisture Content	18.8	18.8	18.8			%
	Dry density	1.74	1.74	1.74			Mg/m ³
	Voids ratio	0.523	0.523	0.523			
	Degree of Saturation	95	95	95			%
Consolidation	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.926	1.382	1.810			mm
	Voids ratio after consolidation	0.452	0.418	0.385			
After test	Final Moisture content	16.3	15.5	15.3			%

Shearing stage(s)

Rate of displacement	Peak	0.01857	0.01857	0.01857			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.07	4.52	5.05			mm
	Shear stress	40.7	82.8	149.5			kPa
	Vertical Movement at peak shear stress	0.24	0.27	0.31			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	7.3
Ø'	degrees	35.5

Residual strength, (x)

c'R	kPa	not assessed
Ø'R	degrees	not assessed

Remarks:

Signed:

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Katarzyna Koziel

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

4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

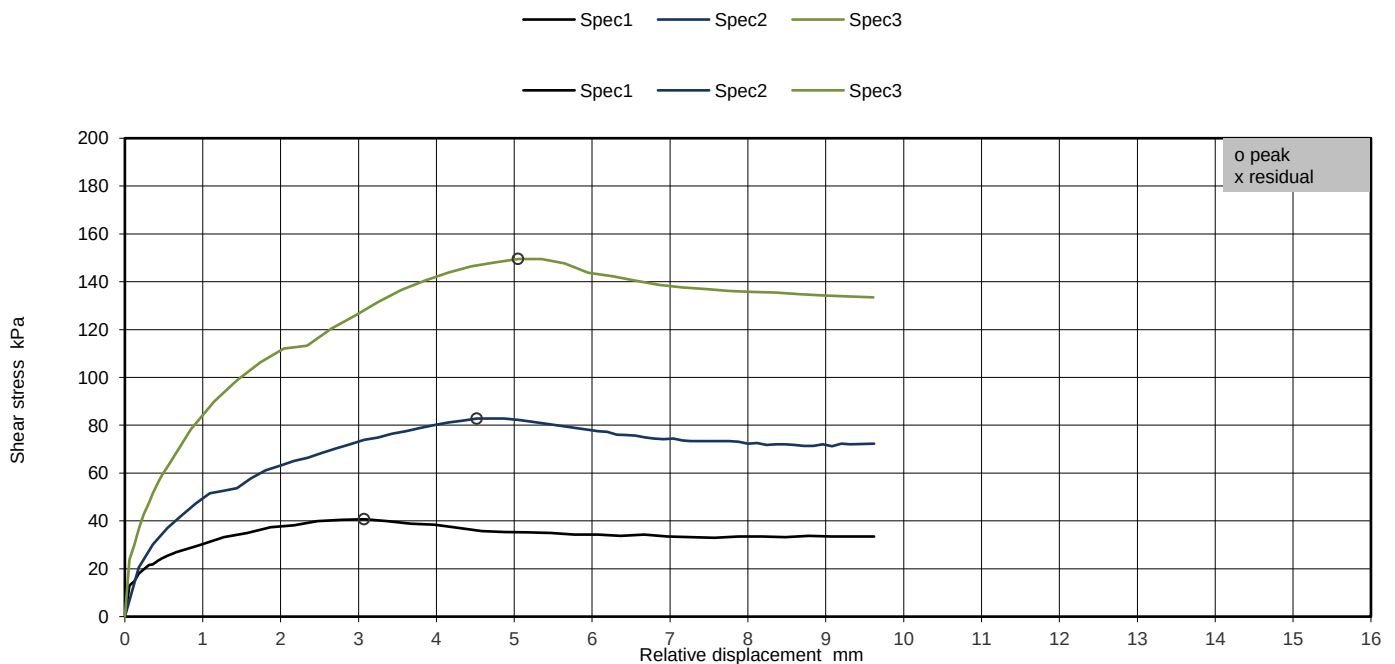
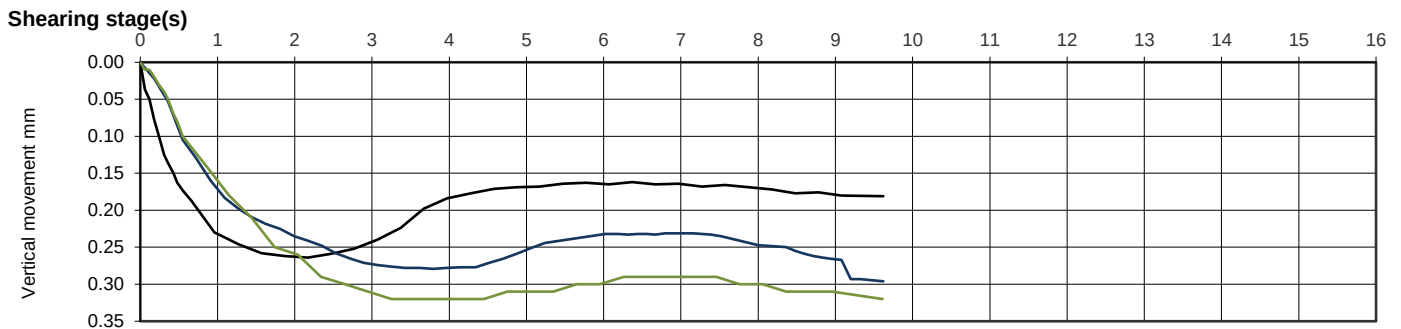
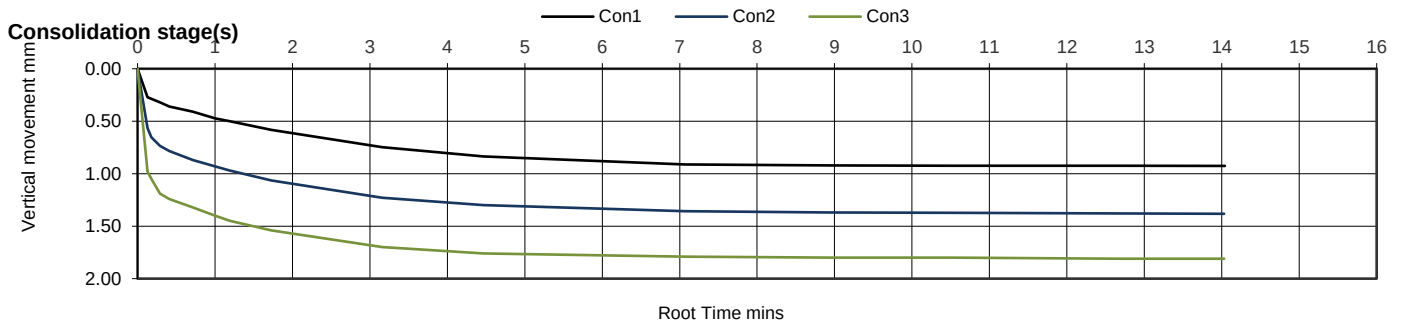
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B



Remarks:

Signed:

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Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

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

Test Results:

Laboratory Reference: 2540757
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Mottled brown CLAY

Depth Top [m]: 8.00
Depth Base [m]: 8.45
Sample Type: U

Preparation Details Sample carried out on lump

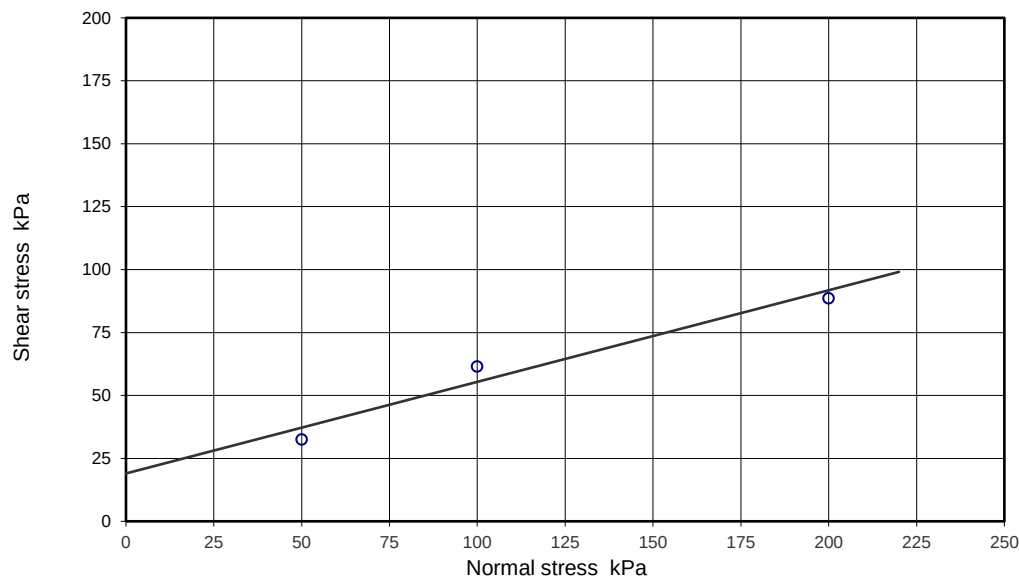
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.90	1.90	1.90			Mg/m ³
	Moisture Content	21.6	21.6	21.6			%
	Dry density	1.56	1.56	1.56			Mg/m ³
	Voids ratio	0.699	0.699	0.699			
	Degree of Saturation	82	82	82			%
Consolidation	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.528	1.417	2.319			mm
	Voids ratio after consolidation	0.654	0.579	0.502			
After test	Final Moisture content	25.9	24.1	24.0			%

Shearing stage(s)

Rate of displacement	Peak	0.01486	0.01486	0.01486			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	2.29	3.07	2.77			mm
	Shear stress	32.5	61.5	88.6			kPa
	Vertical Movement at peak shear stress	0.25	0.35	0.16			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 4 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	19
Ø'	degrees	20.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

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for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

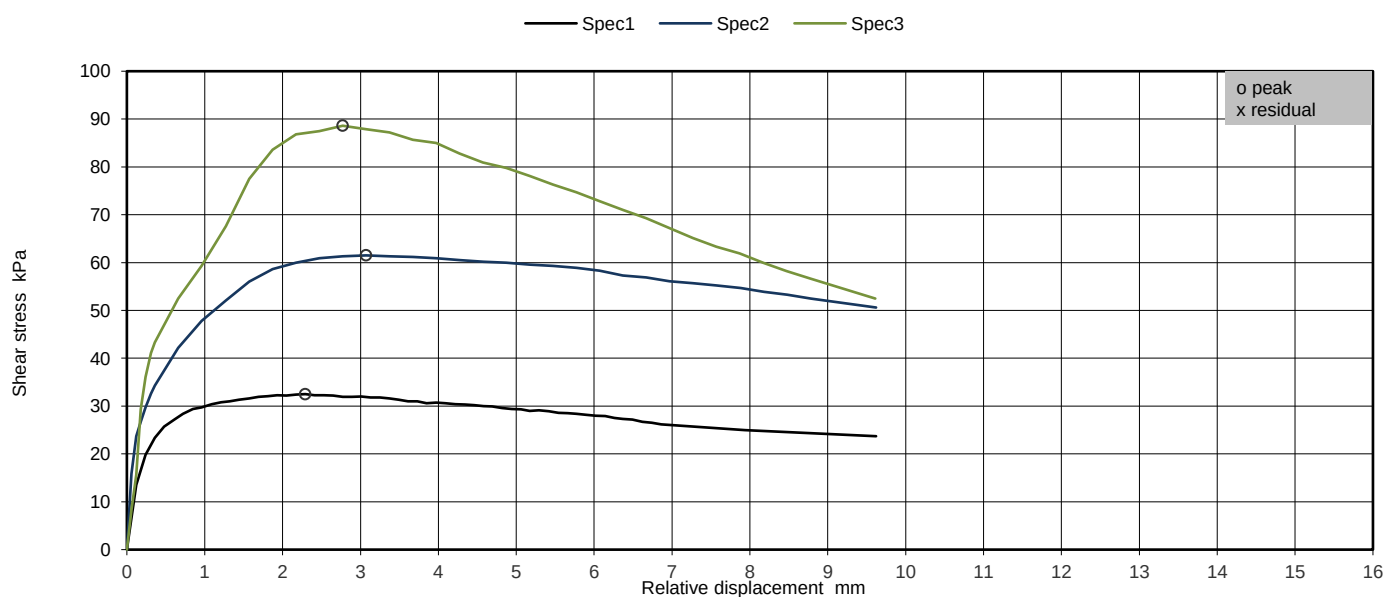
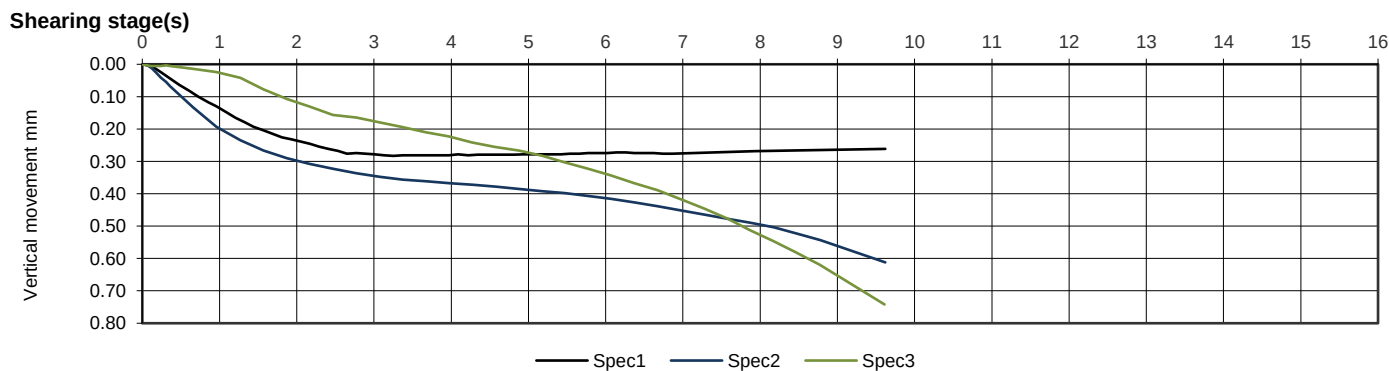
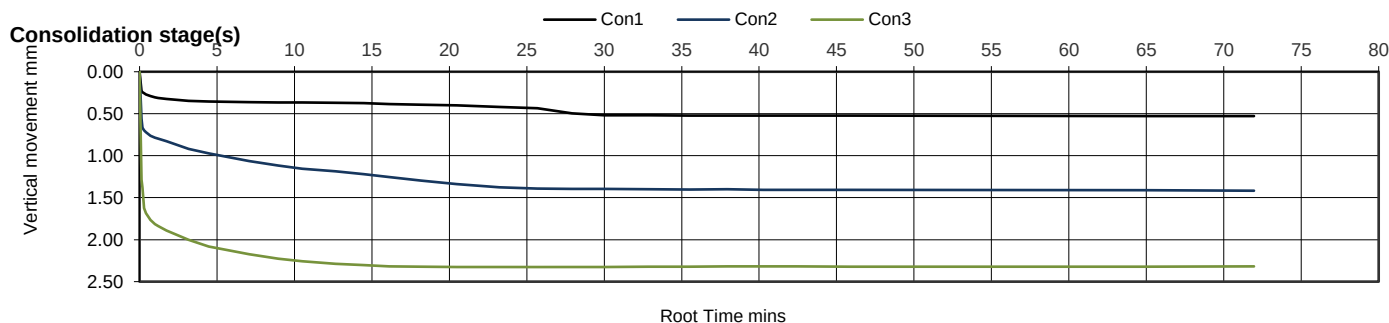
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540757
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Mottled brown CLAY

Depth Top [m]: 8.00
Depth Base [m]: 8.45
Sample Type: U


Remarks:

Signed:

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

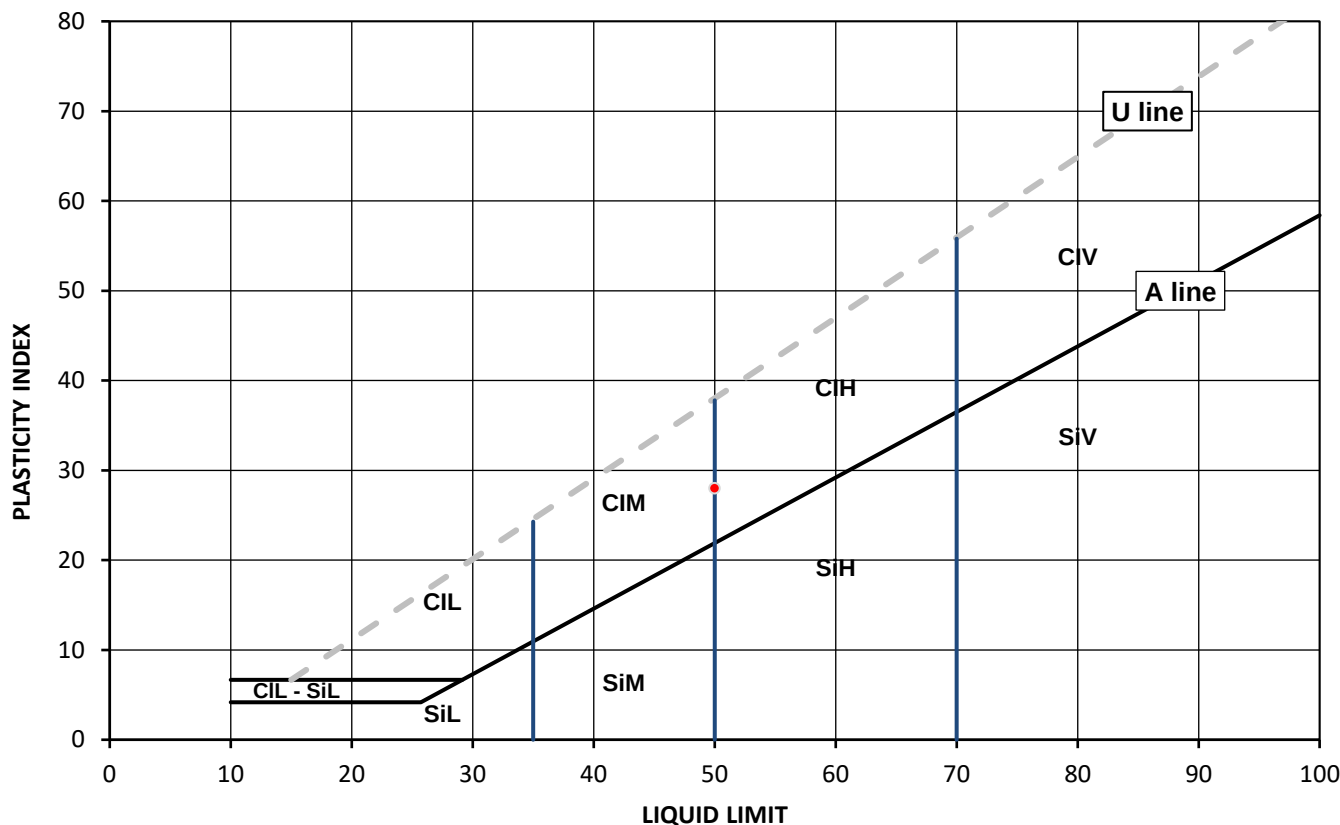
Test Results:

Laboratory Reference: 2543268
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 2.70
Depth Base [m]: 3.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	50	22	28	82



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:

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SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

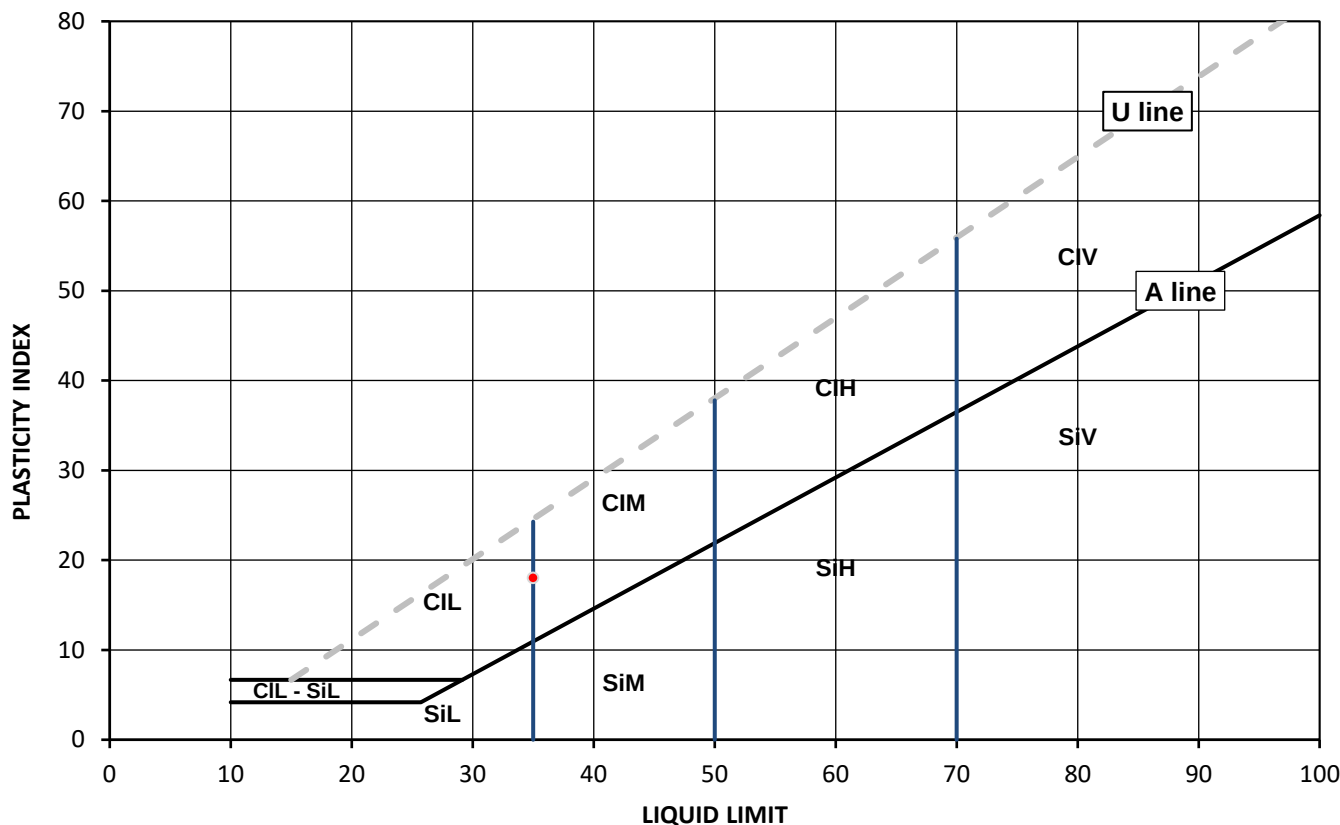
Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.60
Depth Base [m]: 1.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
21	35	17	18	83



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:

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Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

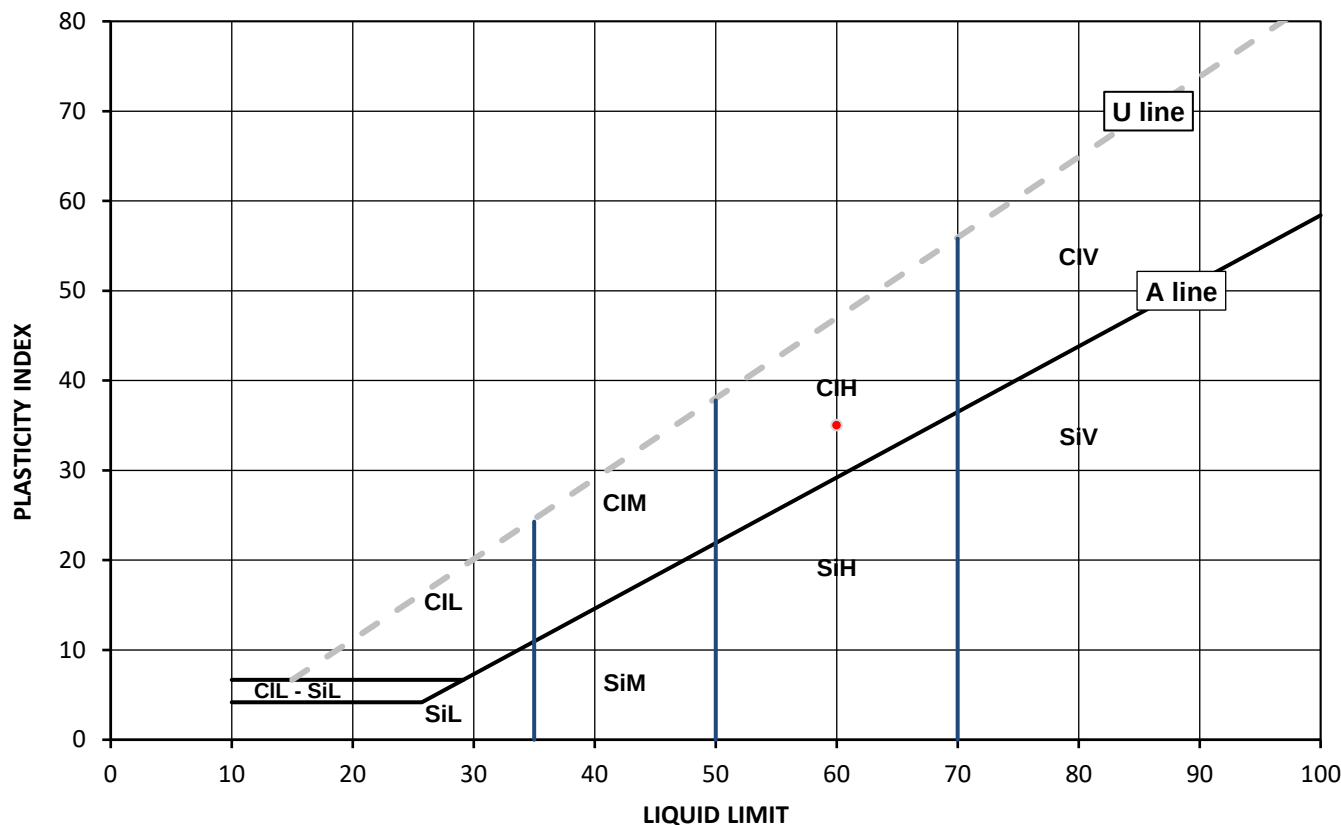
Test Results:

Laboratory Reference: 2543277
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brown to grey CLAY

Depth Top [m]: 3.50
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
24	60	25	35	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
		50 to 70
		exceeding 70
		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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SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

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

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



Environmental Science

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m						%	%	%	%	Mg/m3	Mg/m3	Mg/m3			
2543266	CP02	Not Given	1.60	2.00	B	Yellowish brown GRAVEL										2.62			
2543267	CP02	Not Given	2.40	2.70	B	Yellowish brown gravelly CLAY										2.71			
2543268	CP02	Not Given	2.70	3.00	B	Brownish grey CLAY	Atterberg 4 Point	26		82	50	22	28						
2543271	CP03	Not Given	3.45	Not Given	B	Brown sandy GRAVEL		3.9											
2543274	CP05	Not Given	0.60	1.00	B	Yellowish brown clayey SAND	Atterberg 4 Point	21		83	35	17	18			2.66			
2543277	CP05	Not Given	3.50	4.00	B	Brown to grey CLAY	Atterberg 4 Point	24		95	60	25	35						
2543272	CP06	Not Given	1.70	2.00	B	Yellowish brown clayey SAND										2.66			

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Katarzyna
Koziel

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SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

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

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



Environmental Science

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2543268	CP02	Not Given	2.70	3.00	B	Brownish grey CLAY		26	Sample was quartered, oven dried at 108.8 °C			
2543271	CP03	Not Given	3.45	Not Given	B	Brown sandy GRAVEL		3.9	Sample was quartered, oven dried at 108.8 °C			
2543274	CP05	Not Given	0.60	1.00	B	Yellowish brown clayey SAND		21	Sample was quartered, oven dried at 109 °C			
2543277	CP05	Not Given	3.50	4.00	B	Brown to grey CLAY		24	Sample was quartered, oven dried at 108.8 °C			

Comments:

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Signed:

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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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

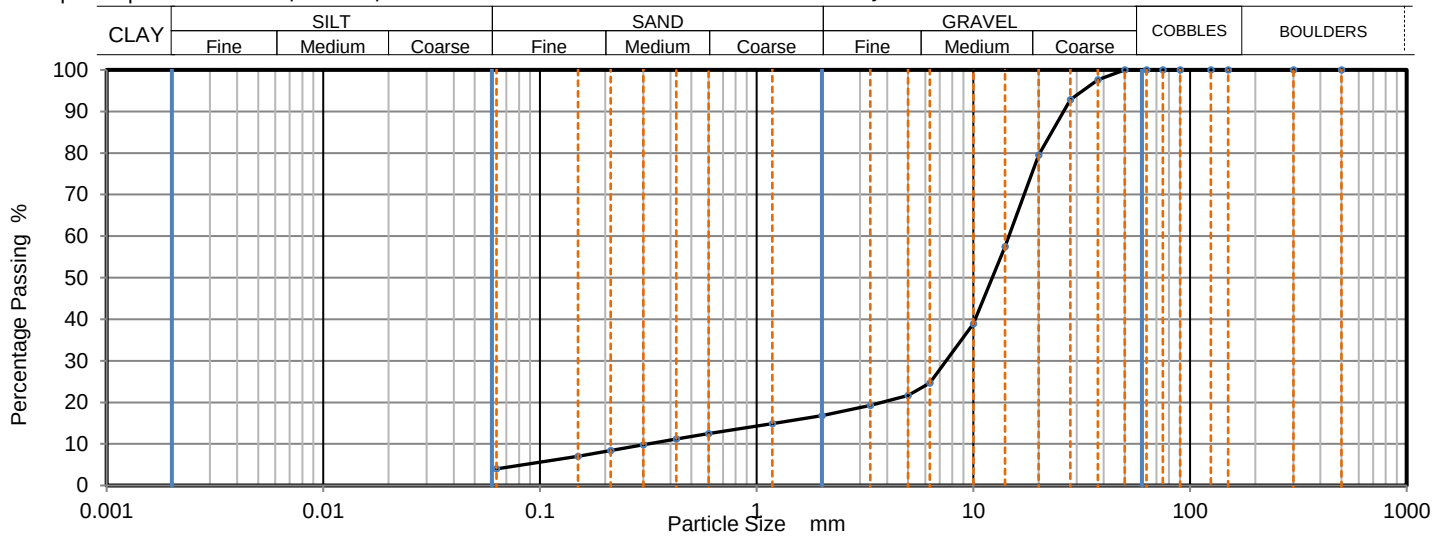
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543266
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.60
Depth Base [m]: 2.00
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	98		
28	93		
20	80		
14	58		
10	39		
6.3	25		
5	22		
3.35	19		
2	17		
1.18	15		
0.6	13		
0.425	11		
0.3	10		
0.212	8		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	83
Sand	12
Fines <0.063mm	5

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity 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:

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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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

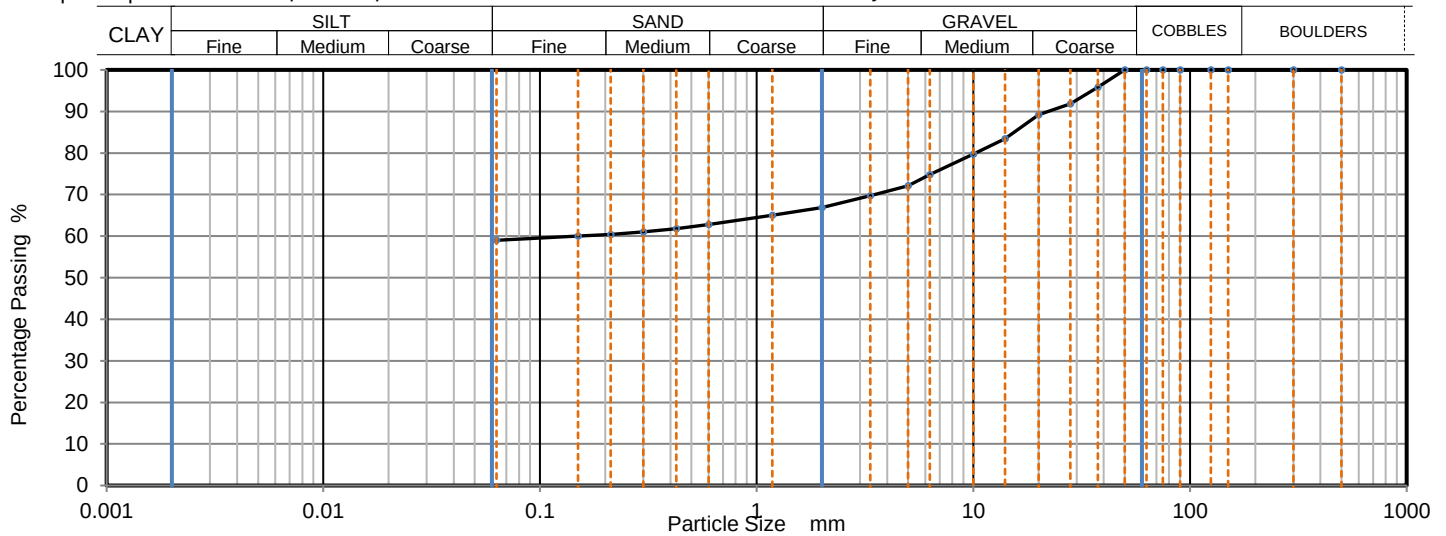
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543267
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly CLAY
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.40
Depth Base [m]: 2.70
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	96		
28	92		
20	89		
14	83		
10	80		
6.3	75		
5	72		
3.35	70		
2	67		
1.18	65		
0.6	63		
0.425	62		
0.3	61		
0.212	60		
0.15	60		
0.063	59		

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	8
Fines <0.063mm	59

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.5
Curvature Coefficient	

Uniformity 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:

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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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

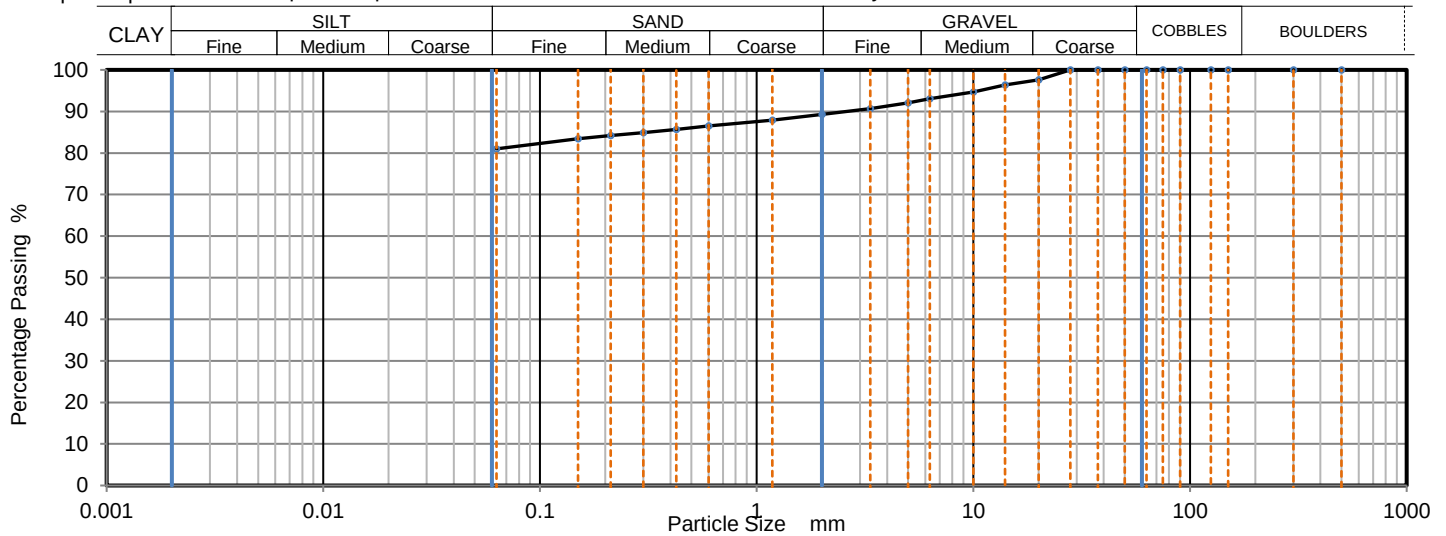
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543268
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 2.70
Depth Base [m]: 3.00
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	98		
14	96		
10	95		
6.3	93		
5	92		
3.35	91		
2	89		
1.18	88		
0.6	87		
0.425	86		
0.3	85		
0.212	84		
0.15	83		
0.063	82		

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	8
Fines <0.063mm	82

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

Uniformity 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

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

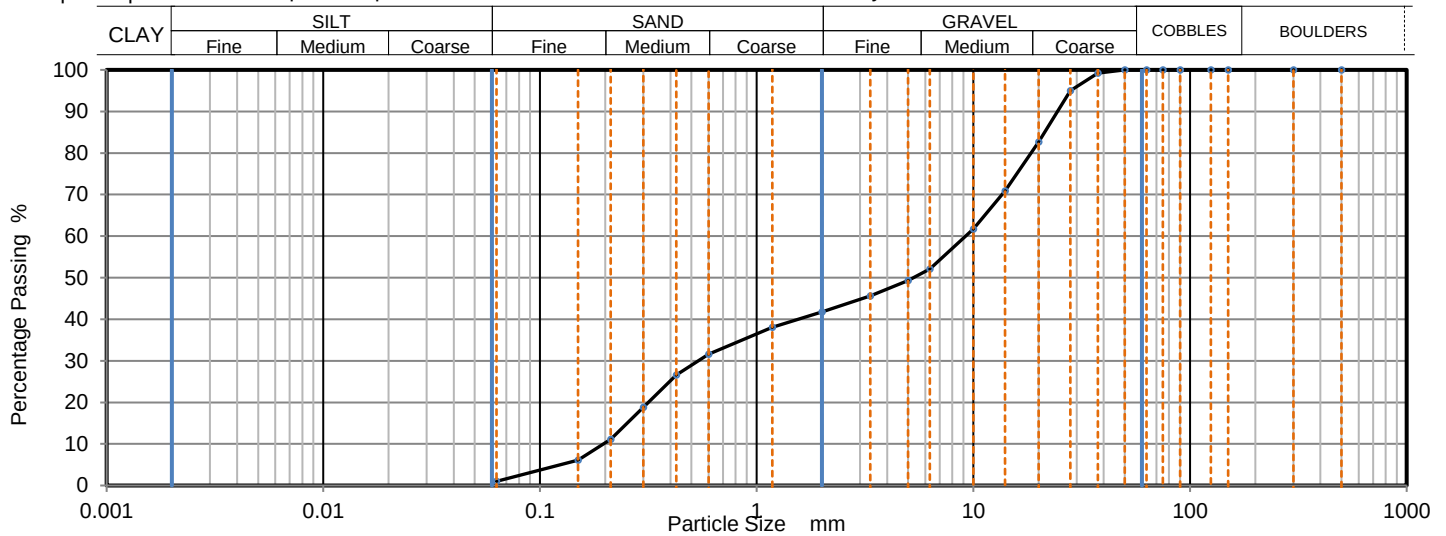
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543269
Hole No.: CP03
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.80
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	99		
28	95		
20	83		
14	71		
10	62		
6.3	52		
5	49		
3.35	46		
2	42		
1.18	38		
0.6	32		
0.425	27		
0.3	19		
0.212	11		
0.15	6		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	40
Fines <0.063mm	2

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity 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:

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Katarzyna Koziel
Reporting Specialist
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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

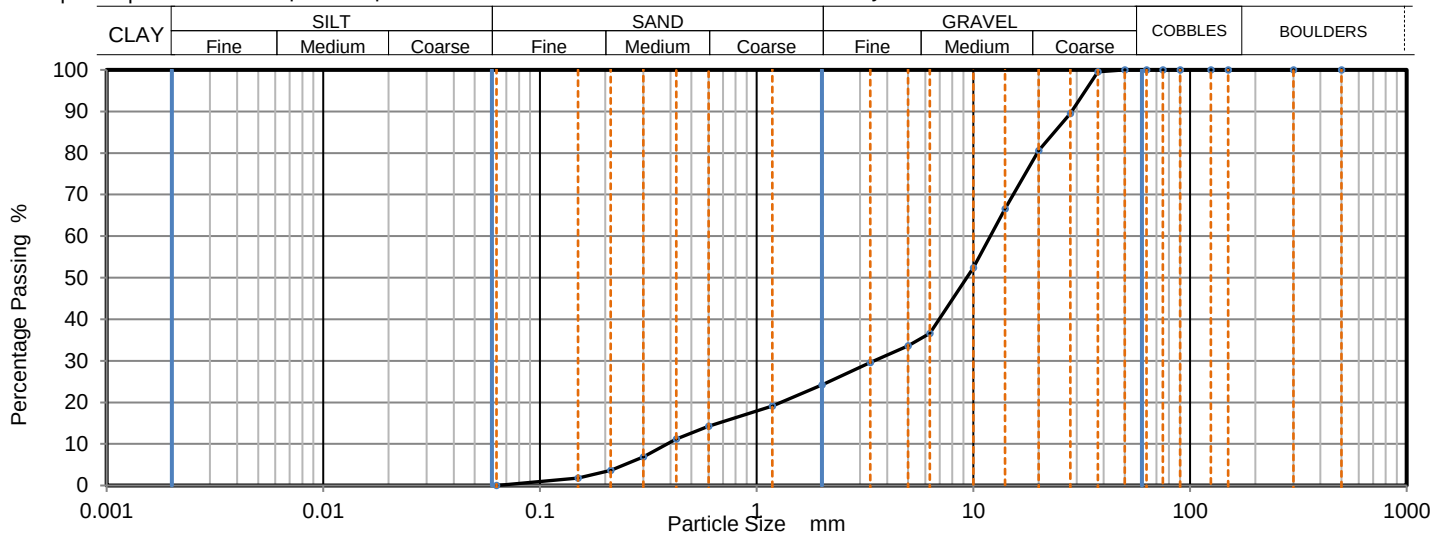
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543270
Hole No.: CP03
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.30
Depth Base [m]: 2.80
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	90		
20	81		
14	67		
10	52		
6.3	37		
5	34		
3.35	30		
2	24		
1.18	19		
0.6	14		
0.425	11		
0.3	7		
0.212	4		
0.15	2		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	76
Sand	24
Fines <0.063mm	1

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	31
Curvature Coefficient	2.6

Uniformity 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

Katarzyna Koziel
Reporting Specialist
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TEST CERTIFICATE

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Tested in Accordance with: BS 1377-2: 1990

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

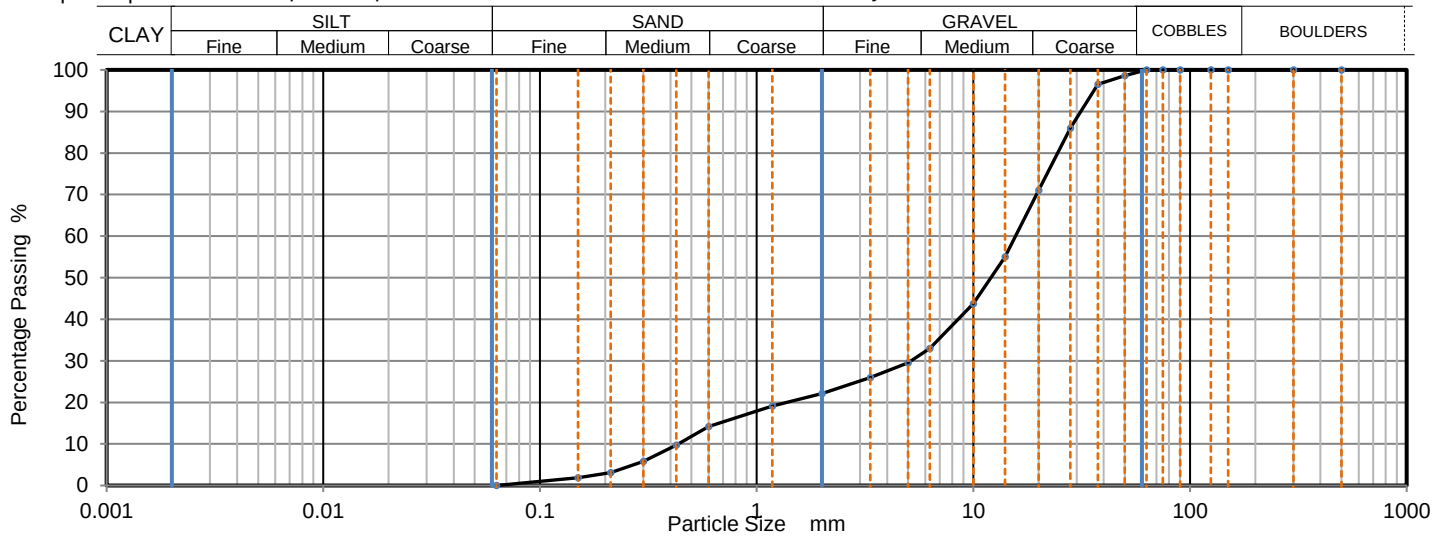
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543271
Hole No.: CP03
Sample Reference: Not Given
Sample Description: Brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 3.45
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	99		
37.5	97		
28	86		
20	71		
14	55		
10	44		
6.3	33		
5	30		
3.35	26		
2	22		
1.18	19		
0.6	14		
0.425	10		
0.3	6		
0.212	3		
0.15	2		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	78
Sand	21
Fines <0.063mm	1

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity 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

Katarzyna Koziel
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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

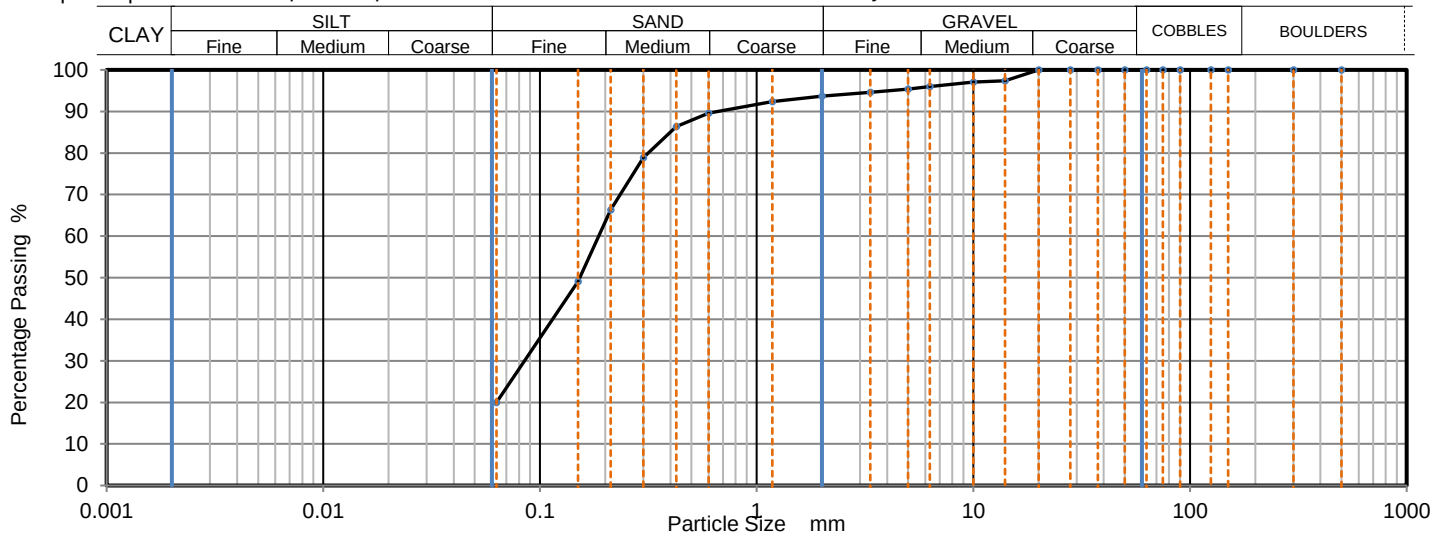
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543272
Hole No.: CP06
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.70
Depth Base [m]: 2.00
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	100		
14	97		
10	97		
6.3	96		
5	95		
3.35	95		
2	94		
1.18	92		
0.6	90		
0.425	86		
0.3	79		
0.212	66		
0.15	49		
0.063	20		

Sample Proportions	% dry mass
Very coarse	0
Gravel	6
Sand	73
Fines <0.063mm	20

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 3
Curvature Coefficient	

Uniformity 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

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

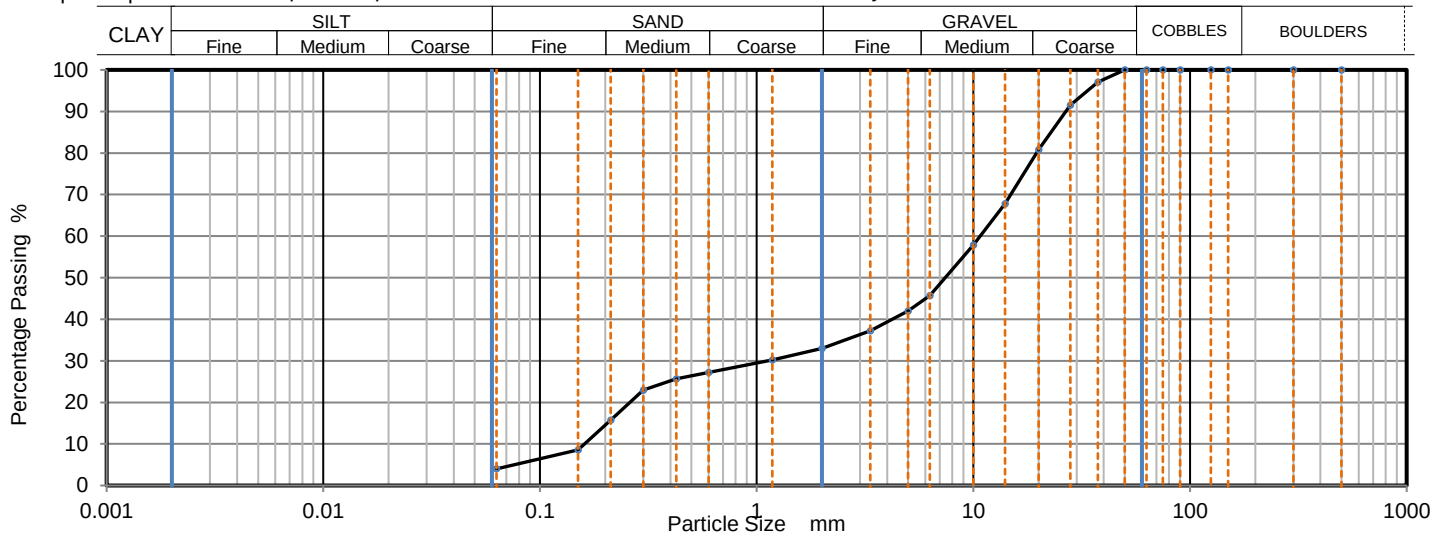
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543273
Hole No.: CP06
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: 3.30
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	97		
28	92		
20	81		
14	68		
10	58		
6.3	46		
5	42		
3.35	37		
2	33		
1.18	30		
0.6	27		
0.425	26		
0.3	23		
0.212	16		
0.15	9		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	67
Sand	28
Fines <0.063mm	5

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	67
Curvature Coefficient	0.75

Uniformity 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:

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

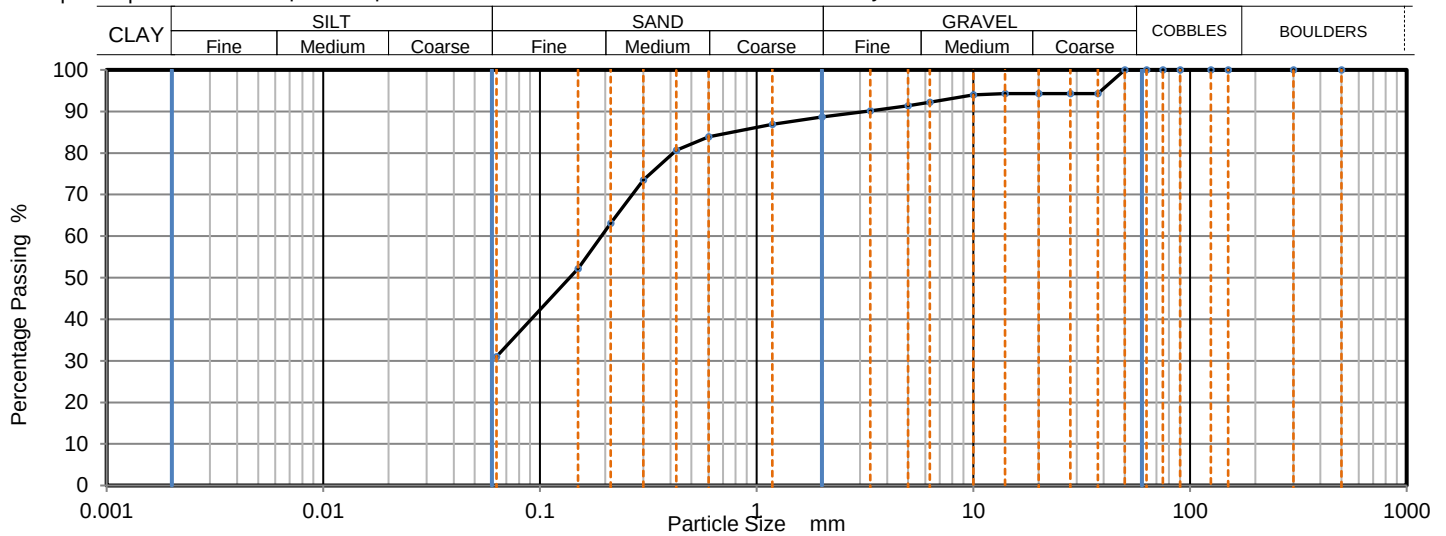
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 0.60
Depth Base [m]: 1.00
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	94		
28	94		
20	94		
14	94		
10	94		
6.3	92		
5	91		
3.35	90		
2	89		
1.18	87		
0.6	84		
0.425	81		
0.3	74		
0.212	63		
0.15	52		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	57
Fines <0.063mm	32

Grading Analysis	
D100	mm 50
D60	mm 0.192
D30	mm
D10	mm
Uniformity Coefficient	> 3
Curvature Coefficient	

Uniformity 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:

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TEST CERTIFICATE

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

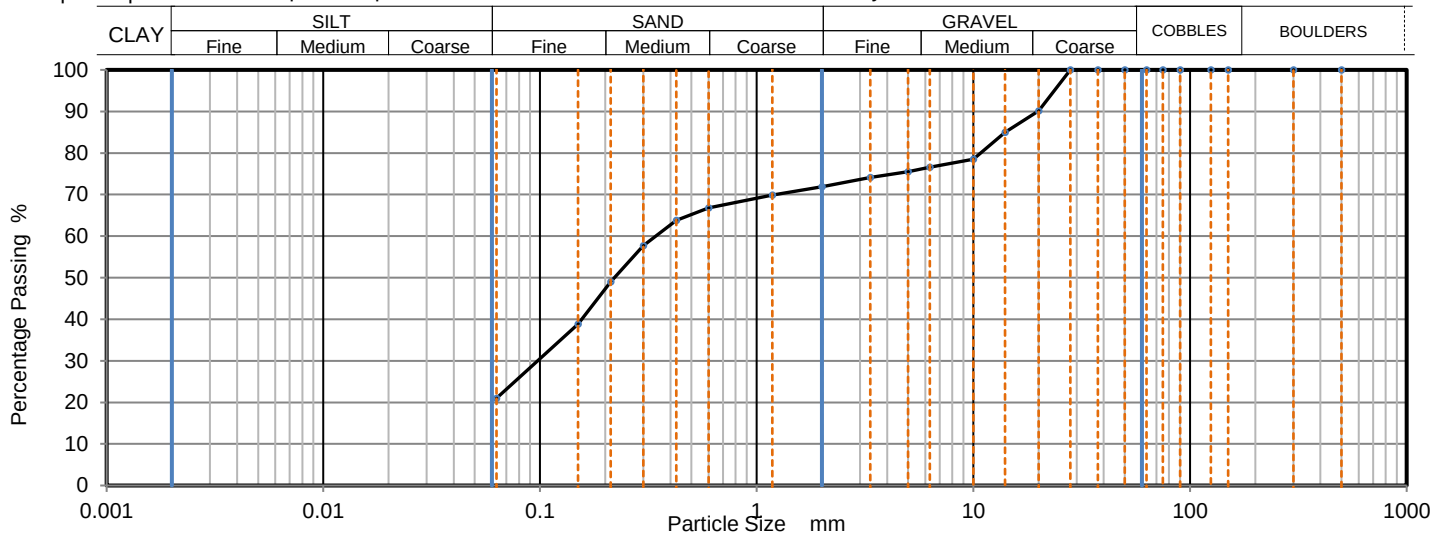
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 06/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543275
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brown gravelly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: D



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	90		
14	85		
10	79		
6.3	77		
5	76		
3.35	74		
2	72		
1.18	70		
0.6	67		
0.425	64		
0.3	58		
0.212	49		
0.15	39		
0.063	22		

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	50
Fines <0.063mm	22

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 5.4
Curvature Coefficient	

Uniformity 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:

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TEST CERTIFICATE

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

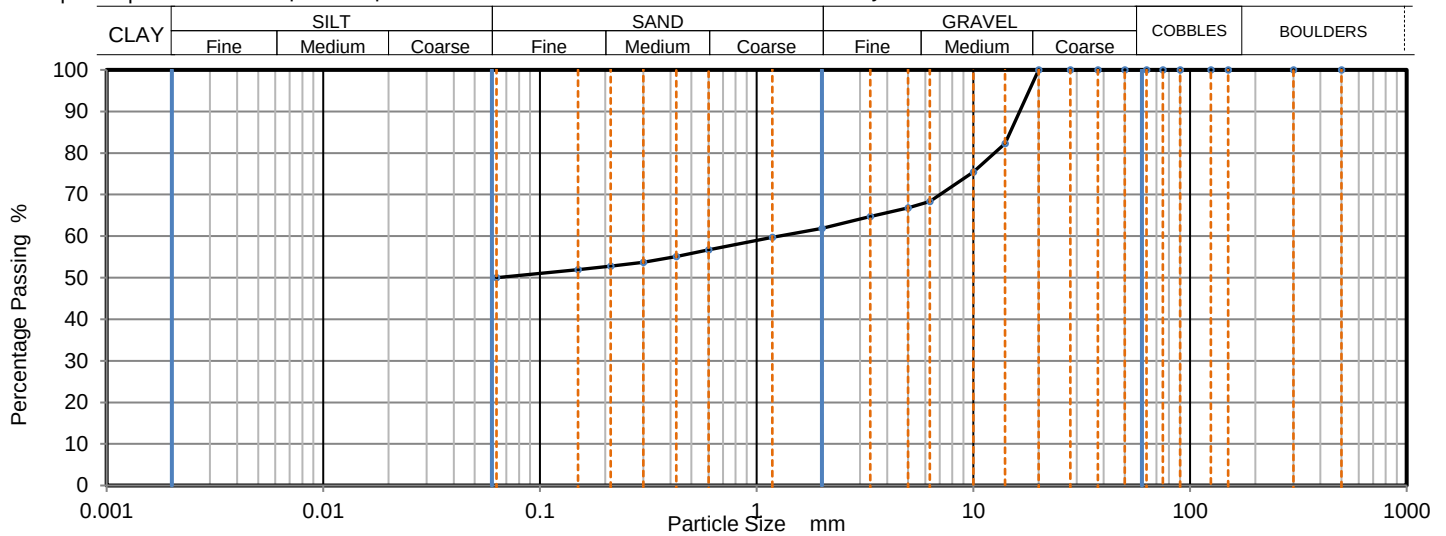
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 06/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543276
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brownish grey gravelly CLAY
Sample Preparation: Sample was quartered, oven dried at 108.9 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: D


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	100		
14	82		
10	75		
6.3	68		
5	67		
3.35	65		
2	62		
1.18	60		
0.6	57		
0.425	55		
0.3	54		
0.212	53		
0.15	52		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	11
Fines <0.063mm	51

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 20
Curvature Coefficient	

Uniformity 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

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

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4041

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



Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

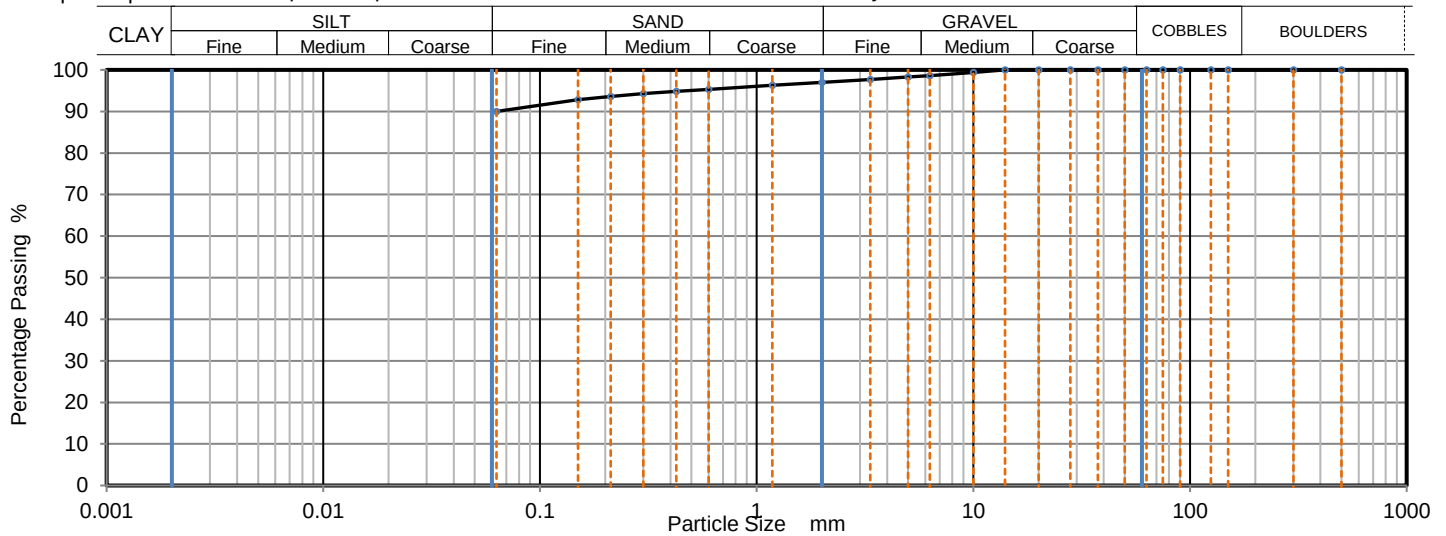
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543277
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brown to grey CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 3.50
Depth Base [m]: 4.00
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	100		
14	100		
10	99		
6.3	99		
5	98		
3.35	98		
2	97		
1.18	96		
0.6	95		
0.425	95		
0.3	94		
0.212	94		
0.15	93		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	6
Fines <0.063mm	91

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

Uniformity 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

Katarzyna Koziel
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for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**DETERMINATION OF DRY DENSITY/MOISTURE
CONTENT RELATIONSHIP METHOD USING
4.5 KG RAMMER**

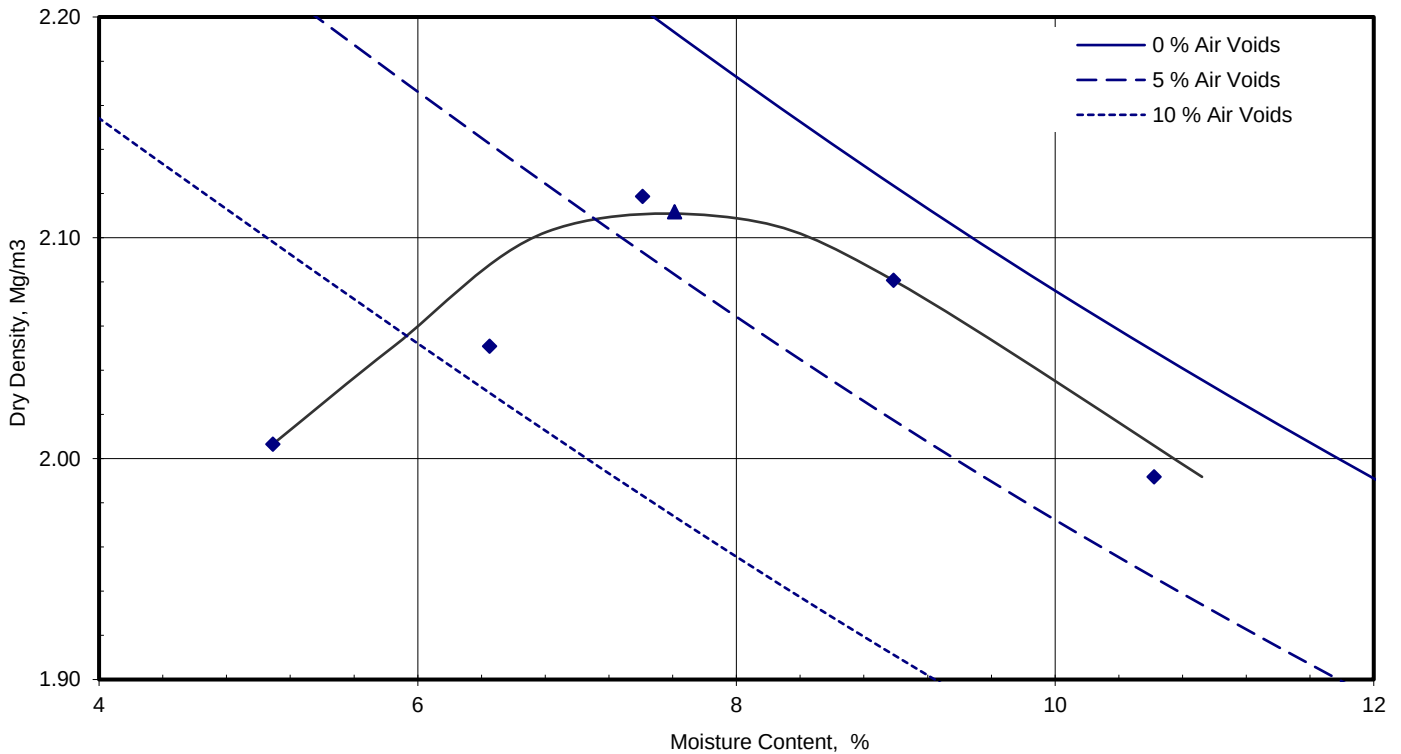
Tested in Accordance with: BS 1377-4: 1990

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

Environmental Science

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LEContact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 09/01/2023
Sampled By: Client - J Fowler**Test Results:**Laboratory Reference: 2543266
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.Depth Top [m]: 1.60
Depth Base [m]: 2.00
Sample Type: B

Compaction Point No.	1	2	3	4	5	
Moisture Content	%	5.1	6.5	7.4	9.0	11
Dry Density	Mg/m³	2.01	2.05	2.12	2.08	1.99

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	3
Material Retained on 20.0 mm Sieve	%	22
Particle Density - Measured using gas jar	Mg/m³	2.62
As received Moisture Content	%	6.2
Maximum Dry Density	Mg/m³	2.11

Optimum Moisture Content	%	7.6
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Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks: Insufficient amount of material - compacted in 1 litre mould

Signed:

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

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 10/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543268
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 2.70
Depth Base [m]: 3.00
Sample Type: B

Preparation Details Sample carried out on lump

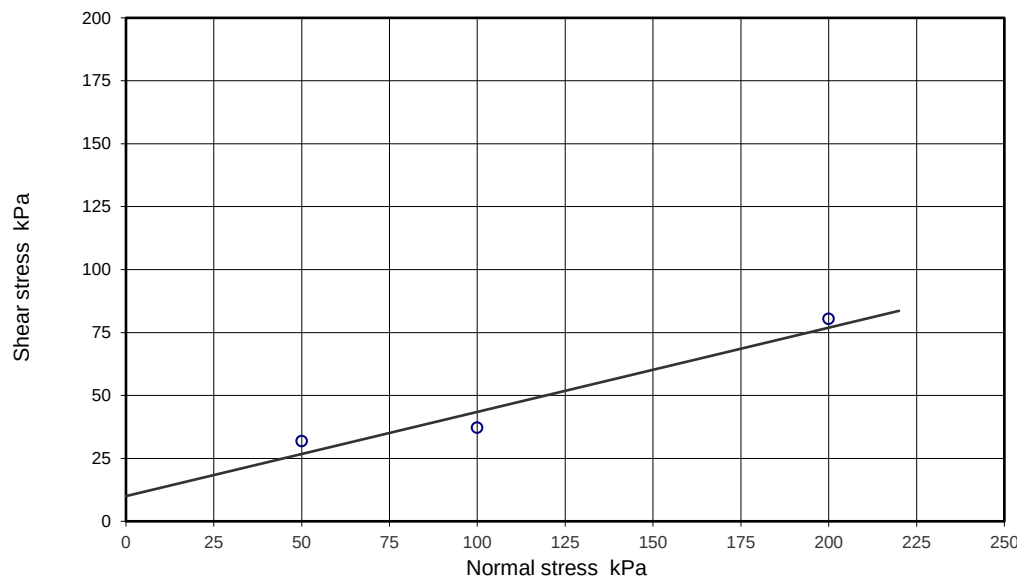
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.1	20.1	20.1			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.92	1.92	1.92			Mg/m ³
	Moisture Content	23.0	23.0	23.0			%
	Dry density	1.56	1.56	1.56			Mg/m ³
	Voids ratio	0.699	0.699	0.699			
Consolidation	Degree of Saturation	87	87	87			%
	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.827	2.378	2.461			mm
After test	Voids ratio after consolidation	0.629	0.498	0.491			
	Final Moisture content	29.4	27.0	25.9			%

Shearing stage(s)

Rate of displacement	Peak	0.01697	0.01697	0.01697			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	1.99	3.61	1.69			mm
	Shear stress	31.8	37.2	80.4			kPa
	Vertical Movement at peak shear stress	0.26	0.25	0.17			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	10
Ø'	degrees	18.5

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

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DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

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SE1 3LE

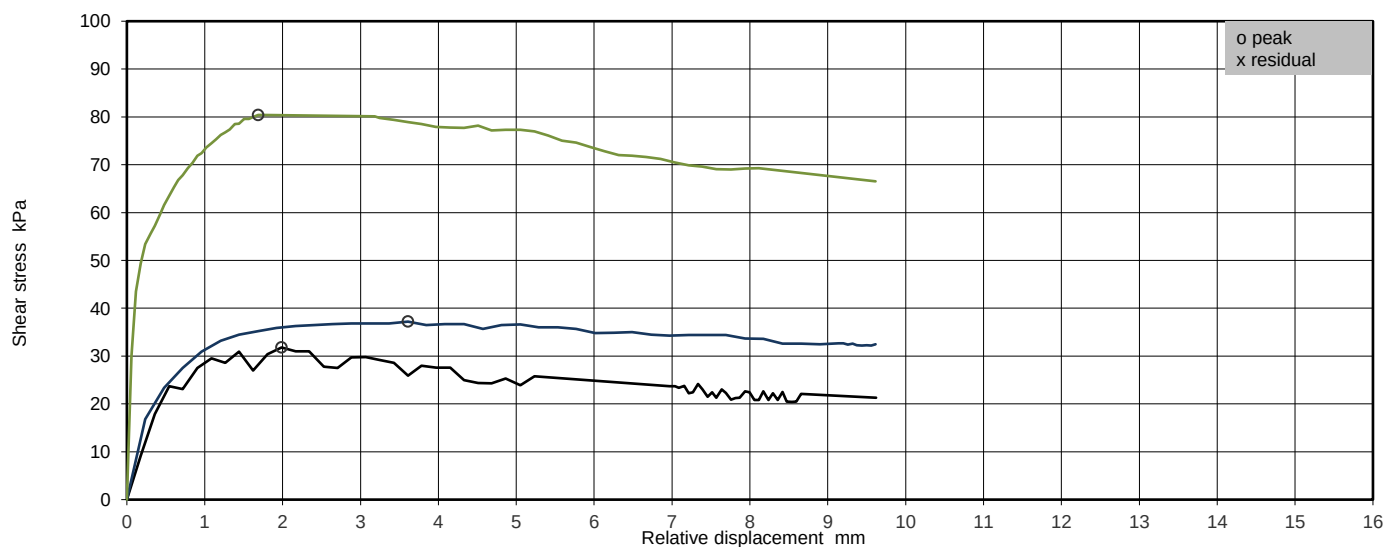
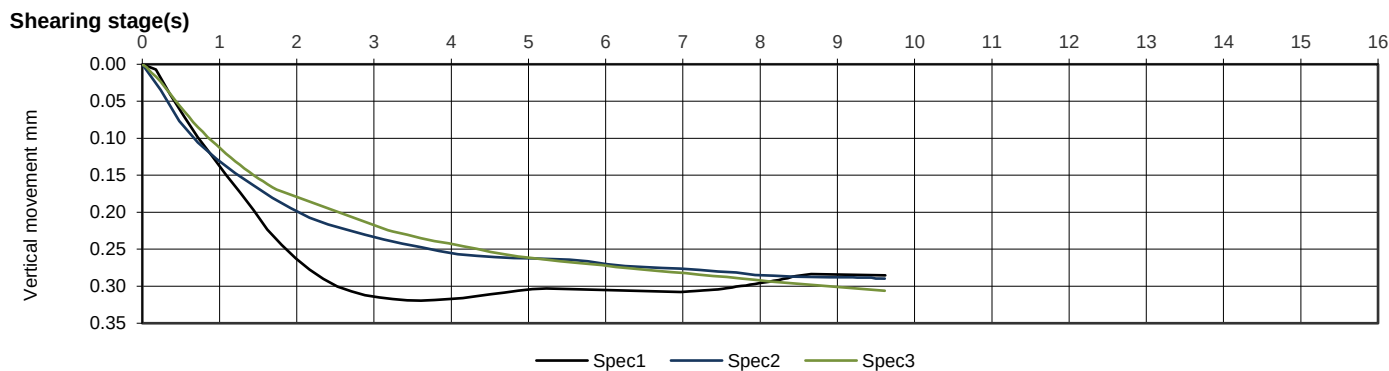
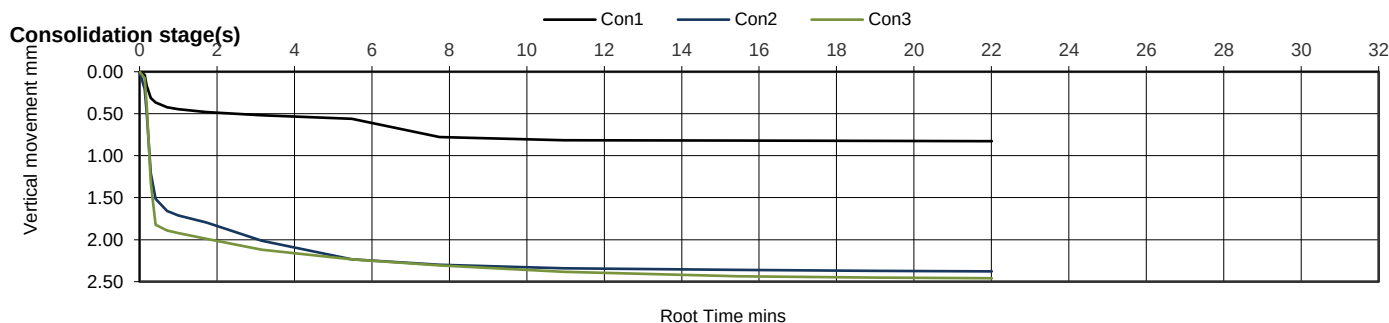
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Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

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Depth Top [m]: 2.70
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Remarks:

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Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 10/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.60
Depth Base [m]: 1.00
Sample Type: B

Preparation Details Sample carried out on lump

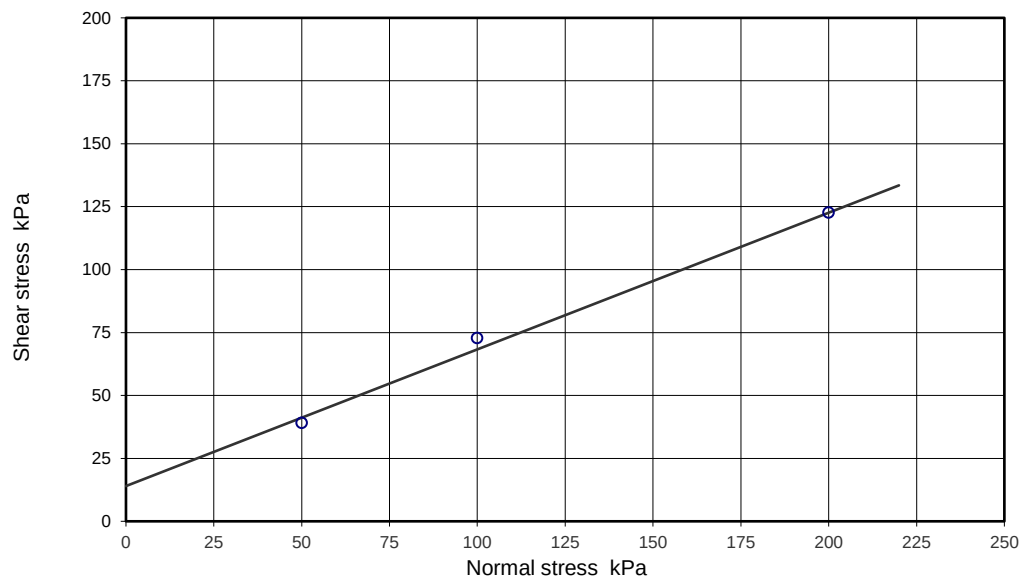
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	2.08	2.08	2.08			Mg/m ³
	Moisture Content	17.5	17.5	17.5			%
	Dry density	1.77	1.77	1.77			Mg/m ³
	Voids ratio	0.497	0.497	0.497			
	Degree of Saturation	93	93	93			%
Consolidation	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	1.229	1.899	2.787			mm
	Voids ratio after consolidation	0.405	0.411	0.342			
After test	Final Moisture content	20.2	18.5	17.0			%

Shearing stage(s)

Rate of displacement	Peak	0.01884	0.01884	0.01884			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	8.48	8.48	8.12			mm
	Shear stress	39.1	72.8	122.6			kPa
	Vertical Movement at peak shear stress	0.27	0.41	0.41			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	14
Ø'	degrees	28.5

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

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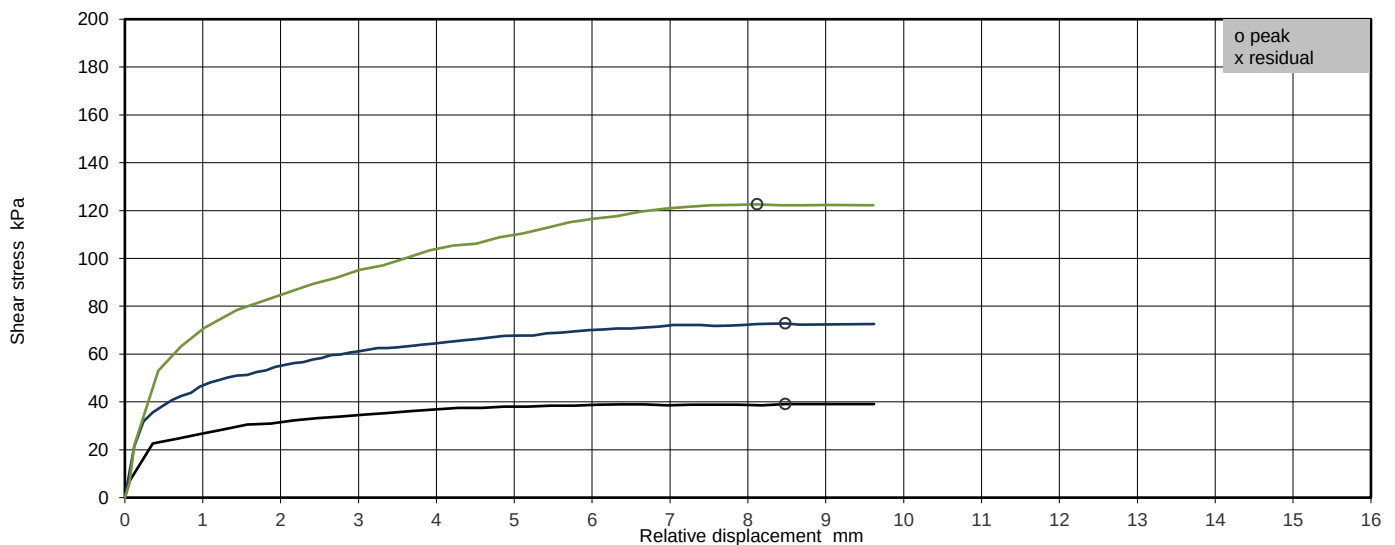
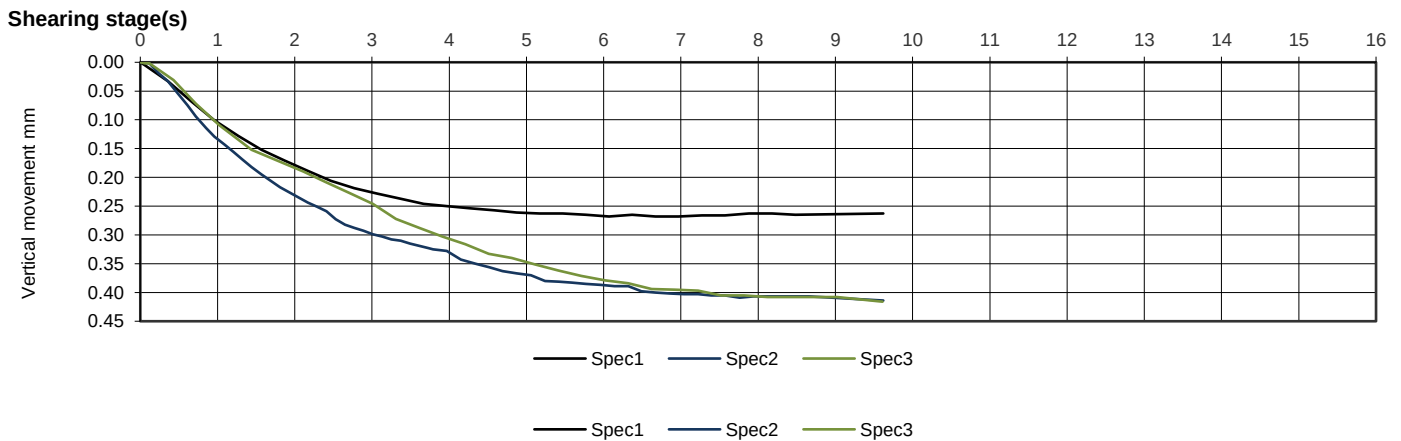
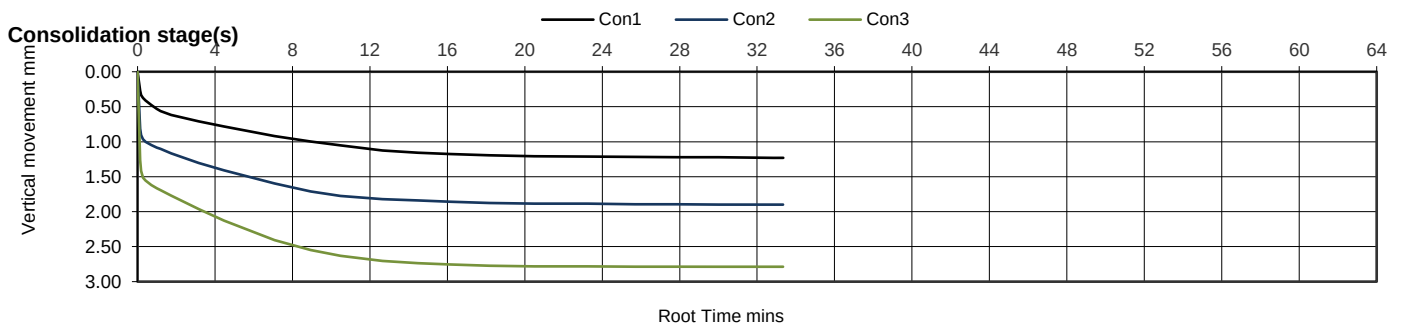
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Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 10/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.60
Depth Base [m]: 1.00
Sample Type: B



Remarks:

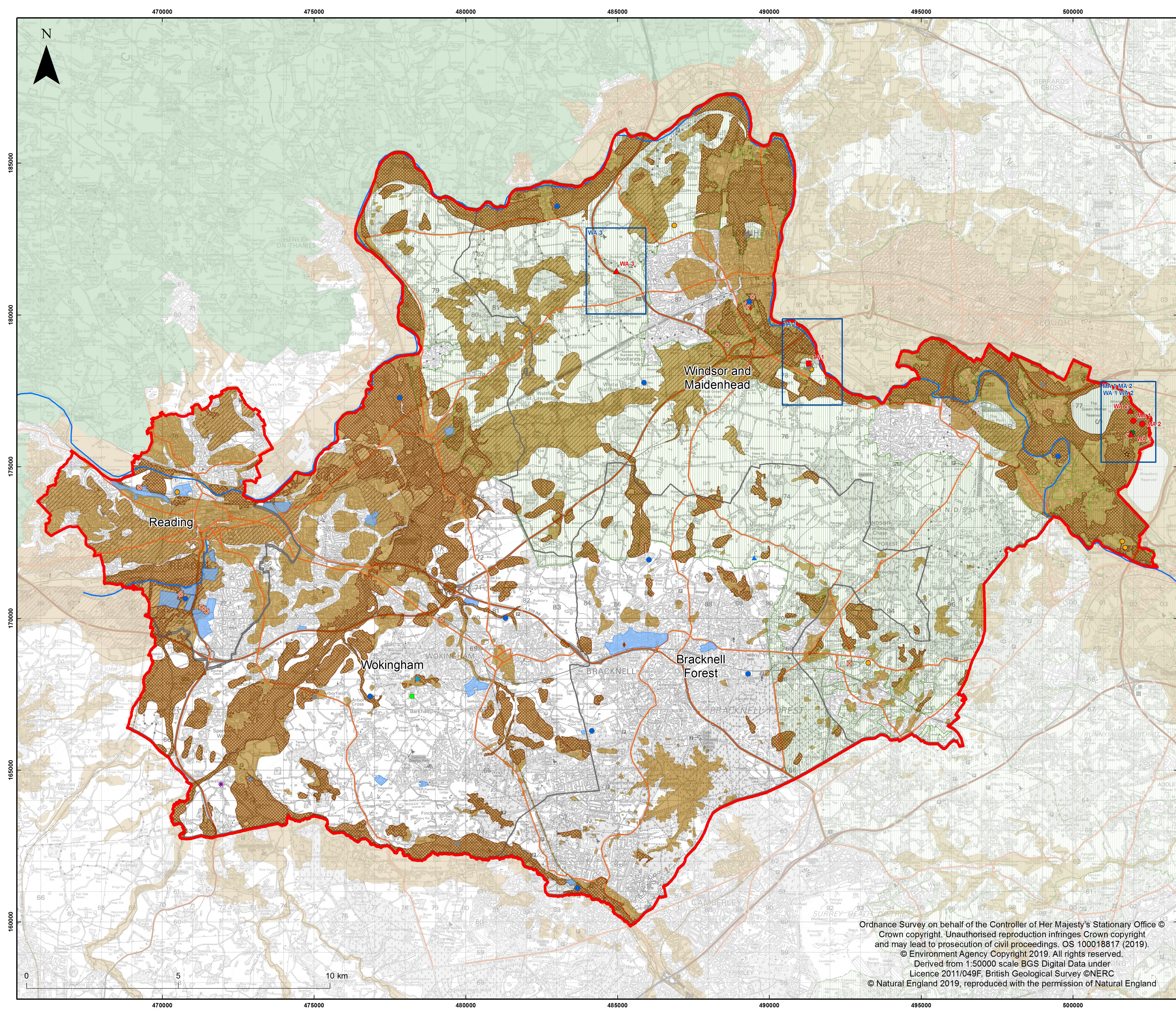
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Appendix D - Joint Minerals & Waste Plan Draft Policies Map (June 2020)



Central & Eastern Berkshire - Joint Minerals & Waste Plan Draft Policies Map (June 2020)

Proposed Allocations

- Mineral allocation
- Transport allocation
- ▲ Waste allocation

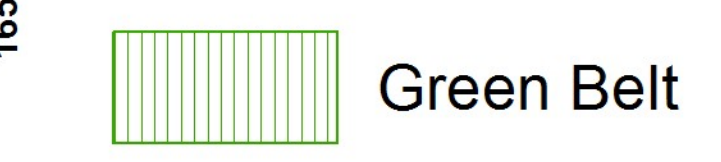
Preferred Waste Areas



Safeguarded Sites

- Aggregate recycling
- ✚ Clinical Waste
- ▲ Composting
- End of Life Vehicle
- Green Waste/Kitchen Waste
- ◆ Household Waste Recycling Centre
- + Metal Recycling
- Sharp Sand and Gravel Extraction
- ★ Sharp Sand and Gravel Extraction/Soft Sand Extraction
- Sharp Sand and Gravel Processing
- Soft Sand
- * Waste Electrical and Electronic Equipment
- Wastewater Treatment Works
- Waste Transfer Station

— Navigable Rivers



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