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**Proposed Orchard Hill School
Falling Lane
Yiewsley
West Drayton**

**Combined Geotechnical Assessment and
Ground Contamination Status Report**

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A preliminary and quantitative ground contamination risk assessment including development of conceptual models and statistical analysis of laboratory test data was beyond the remit of this report. Any comment regarding the contamination status of soils with respect to risks that may be posed to both human health and controlled water should be considered as preliminary and subject to further sampling, laboratory testing and analysis that may be required by regulators or warrantors.

EXECUTIVE SUMMARY

The following presents a summary of the main findings of the report. It is emphasised that no reliance should be placed on any individual point until the whole of the report has been read as other sections of the report may put into context the information contained herein.

The development proposals are understood to comprise the construction of a new school building together with new parking areas, an all-weather pitch, MUGA and areas of soft landscaping.

Reference to geological datasets indicates that the site is expected to be underlain by the Langley Silt Member and/or Lynch Hill Gravel Member overlying the London Clay Formation. The ground investigation confirmed the underlying soils to comprise a shallow thickness of made ground, overlying Langley Silt Member and, in turn, Lynch Hill Gravel Member deposits.

The Langley Silt Member and London Clay Formation are both classed as Unproductive Strata. The Lynch Hill Gravel member is classed as a Secondary A Aquifer. The site does not lie within an Environment Agency Source Protection Zone with regard to the protection of the quality of groundwater that is abstracted for potable supply. Groundwater was not encountered during the works.

Five of the samples tested (28%) recorded modified plasticity indices of 20% or above, falling into the medium volume change category. All but one of the other tested samples fell into the low volume change category. Statistical analysis of the data (assuming a normal distribution) suggests that some 32% of the soils would be expected to possess a medium volume change potential. The undisturbed sand and gravel soils of the Lynch Hill Gravel Member are non-plastic and hence can be considered to be non-shrinkable.

Whilst a net safe bearing capacity of 150kN/m² is available for pad foundations up to 3.5m by 5.0m in plan bearing within the Langley Silt Member deposits, designers will need to assess net allowable bearing capacity in the context of the magnitude of expected settlement discussed within this report (15mm immediate settlement and 25mm medium to long term settlement). An increased allowable bearing capacity of 200kN/m² may be assumed where foundations are deepened to bear within the Lynch Hill Gravel Member soils of at least dense relative density.

An AC-1 ACEC classification may be employed (as a minimum) for concrete where the conditions set out within this report are met. For all other scenarios, an AC-3 ACEC classification should be employed as a minimum.

Ground bearing floors may be considered where the conditions in the report are met. Where the criteria cannot be met, ground floors should be suspended.

Designers will need to select an appropriate design equilibrium CBR value taking into account proposed pavement thickness, expected winter groundwater conditions, the standard to which pavement is to be designed and any local authority or other regulatory/warrantor requirements together with construction conditions likely to prevail at the time of construction. The subgrade is likely to be susceptible to frost heave.

The results of infiltration tests indicate that the Langley Silt Member and Lynch Hill Gravel Member soils possess negligible to poor infiltration characteristics.

A previously undertaken preliminary ground contamination risk assessment for the site (desk Study) identified potential pollutant linkages relating to a mound of soils (located adjacent to

the playing fields and north of the existing school buildings) and backfilled mineral sites in the vicinity of the site.

It is understood that the mound of soils located north of the existing school buildings will be removed as part of the development. Comments on the waste classification of these soils for removal from site is included within the report.

Ground gas monitoring standpipes have been installed as part of the ground investigation and monitoring of the standpipes is ongoing. A ground gas risk assessment report will be issued on completion of the gas monitoring programme.

The results of laboratory testing of samples of made ground soils from across the site have been compared to highly conservative generic soil screening values. None of the samples recorded concentrations of contaminants in excess of the soil screening values and no unacceptable risks to future end users of the site in respect of the soils are considered to be present.

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- DPSH-B Dynamic Probe Records (P13970 & R17-12386)
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APPENDIX D

- Geotechnical Test Results (P14594, P13970 & R17-12386)
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1. INTRODUCTION

It is proposed to redevelop the existing school located at Falling Lane, Yiewsley, West Drayton. The development proposals are understood to comprise the construction of a new school building together with new parking areas, an all-weather pitch, MUGA and areas of soft landscaping. A copy of the proposed development layout is presented in Appendix A.

Several phases of ground investigation works have been undertaken by Ashdown Site Investigation Ltd at the site. The initial phase of works was undertaken in August 2017 and comprised the preparation of a desk study report and ground investigation works including preparation of a factual report on the ground investigation works. The scope of works undertaken during this phase was specified by MACE. The findings of the initial phase of works were reported within a Preliminary Ground Contamination Risk Assessment Report¹ and a Factual Report², both issued in September 2017.

During June 2019 Ashdown Site Investigation Ltd agreed with the client a scope of supplementary ground investigation works to enable interpretative reports to be prepared for the proposed development, based on plans provided at that time by the client. The agreed scope of the works, instructed by the client, and the terms and conditions under which they were undertaken were set out within the offer letters Q8665/Rev1 and Q8715, both dated 25th June 2019. The findings of the second investigation were covered in a Combined Geotechnical Assessment and Ground Contamination Status Report³ issued in August 2019. Structural loadings and expected bearing capacities of soils (assumed for preliminary design purposes by Atkins) were not advised at the time of preparation of the report.

Following issue of the latter report, Ashdown Site Investigation Ltd were advised that preliminary design had been undertaken by Atkins based on a bearing capacity of 150kN/m² derived by them based on their interpretation of data presented in the factual report issued in September 2017. This conflicted with the 100kN/m² bearing capacity advised within the report issued by Ashdown Site Investigation Ltd in August 2019; concerns regarding the potential for collapse settlement to occur within the Langley Silt Member deposits that are present within the upper part of the natural soil sequence beneath the site were a limiting factor in advising the bearing capacity of soils within the report. A revised report was subsequently issued in draft format during September 2019. After issue of the draft report, further discussions were held with the client regarding supplementary works needed to evaluate whether collapse settlement would occur under structural loading of saturated soils.

A scope of supplementary works was proposed by Ashdown Site Investigation Ltd and set out within the offer letter Q9576 dated 23rd March 2020, together with the terms and conditions under which the supplementary works were to be undertaken. The instruction to proceed with the works was received from the client, Laing O'Rourke.

The objectives of the supplementary works were to:

- a) Undertake undisturbed sampling of Langley Silt Member soils;
- b) Undertake oedometer testing of the soils; and
- c) Provide an updated assessment of the bearing capacity of soils including assessment of the potential for collapse settlement of soils under imposed structural loads.

¹ Ashdown Site Investigation Report No. R17-12386/ds, dated September 2017.

² Ashdown Site Investigation Report No. R17-12386, dated September 2017.

³ Ashdown Site Investigation Report No. P13970/R13788, dated August 2019.

The factual data (logs and test results) from all previous phases of ground investigation have been included in the appendices of this report and used to assist with the interpretation provided in this report.

The assessment has been prepared as an update to the draft report issued in September 2019 and the recommendations presented within this report supersede those presented with the reports previously issued in August and September 2019.

2. SITE DESCRIPTION

The site comprises an irregular shaped plot of land located at Falling Lane, Yiewsley, West Drayton, and is centred on the approximate Ordnance Survey national grid reference TQ 0613 8099. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

The site is bounded by residential properties to the south and east, Rabbsfarm School to the west and open land to the north, with access to the site off Falling Lane to the south.

The site is currently used as a school and comprises a single-storey main school building located within the southern half of the site, with five pre-fabricated classroom buildings located to its west and south west. A modern extension is present on the east of the main school building. An asphalt surfaced car park separates the school building from the pre-fabricated classroom to the south west.

A garden area (including a wooden structure used as a classroom) was present to the east of the main school building, with a multi-use games area (MUGA) present to the north east.

The northern part of the site is comprised of a grassed playing field, with an approximately 1m high mound separating the playing field from the school building and the MUGA to the south.

Mature trees are present along the boundaries of the site.

3. GEOLOGICAL AND HYDROGEOLOGICAL INFORMATION

3.1 Expected Geology and Aquifer Designation

The stratigraphic succession that may be expected to underlie the site is presented in the following table.

Table 1. Expected Strata and Aquifer Designation

Type	Stratum	Aquifer Designation
Superficial	Langley Silt Member	Unproductive Stratum
	Lynch Hill Gravel Member	Secondary A Aquifer
Bedrock	London Clay Formation	Unproductive Stratum

The Langley Silt Member generally comprises structureless sandy clay and silt with variable gravel content. The material may have been reworked by water flow to produce some lateral variability in the grain size of the soil. Where it has not been reworked by river action, it may be subject to significant collapse in volume under structural loading where it is affected by water flow or inundation.

The eastern boundary of the site is inferred to be on a boundary between the Langley Silt Member and Lynch Hill Gravel Member. The Lynch Hill Gravel Member forms part of the river terrace gravel associated with the Thames. It typically comprises sand, derived mainly from the Tertiary beds, together with gravel of sub angular flint, chert and Lower Greensand Formation rock types.

The London Clay Formation that underlies both the Langley Silt Member and Lynch Hill Gravel Member, comprises a blue grey silty clay, which tends to weather to brown near to the upper

surface. With depth, the clay becomes very stiff/hard, is frequently fissured and can contain some inclusions and beds of weak mudstone and siltstone.

3.1.1 Mining and Natural Ground Hazards

Screening of the site was undertaken by Terra Firma for past underground mining hazards and natural ground hazards. The screening report is included in Appendix B.

Based on this initial screen, ground stability hazards are known or considered likely to have occurred within the vicinity of the site. The ground hazards that have been identified are natural ground hazards relating to collapsible ground; this risk being associated with the Langley Silt Member deposits.

Assessment of the geotechnical characteristics of the soils encountered at the site is presented in Section 6 of this report.

3.1.2 Groundwater Source Protection Zones

The site does not lie within an Environment Agency Source Protection Zone with regard to the protection of the quality of groundwater that is abstracted for potable supply.

4. GROUND INVESTIGATION

4.1 Introduction

The initial phase of ground investigation works was undertaken at the site on the 30th August 2017 and comprised a series of dynamic sampler boreholes denoted WS01 to WS05 and HA01 to HA03.

The second phase of intrusive works comprised the drilling of a series of dynamic sampler boreholes and hand augered boreholes and the excavation of hand dug pits. Gas monitoring standpipes were installed in selected exploratory holes. The fieldwork was carried out on the 23rd and 24th July 2019.

The supplementary ground investigation works comprised the excavation of a series of cable percussion boreholes. The drilling work was carried out between the 14th and 15th April 2020.

The exploratory hole locations from all phases of works are shown on Figure 2.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the exploratory hole records given in Appendix C, together with notes to assist in their interpretation.

4.2 Exploratory Holes

The collective works undertaken at the site during all three phases of ground investigation are discussed below.

4.2.1 Cable Percussion Boreholes

Five boreholes, designated BH201 to BH205, were bored to a depth of 5.00 m below ground level using cable percussion drilling techniques.

4.2.2 Dynamic Sampler Boreholes

Eleven boreholes, designated WS01 to WS05, HA01 to HA03 and WS101 to WS103, were drilled to depths of between 1.00m and 3.00m below ground level.

The boreholes were formed by a series of 1.0m long, open ended, hollow steel tubes of up to 100mm diameter, each containing a removable plastic liner. The tubes, progressively reducing in diameter, were driven into the ground by means of a track-mounted drop weight. Each tube was extracted from the ground using a hydraulically operated jack and the enclosed sample was recovered in its plastic liner.

The system enables the recovery of relatively undisturbed samples for laboratory testing and detailed examination.

4.2.3 Trial Pits

Fourteen trial pits, designated CBR01 to CBR14, were dug using hand tools to depths of between 0.60m and 0.90m below ground level to enable in-situ testing to be carried out.

4.2.4 Hand Auger Boreholes

Two boreholes, designated HA01(2019) and HA02(2019), were bored into the bund in the centre of the site to a depth of 0.75m and 0.80m, respectively. The hand auger enables disturbed soil samples to be taken using a cutting tool twisted into the soil by hand.

4.3 Sampling

Undisturbed and disturbed samples of soil were taken at the depths shown in the exploratory hole records and were collected in plastic liners, plastic bags, plastic tubs or amber jars fitted with gas tight lids.

On collection the amber jars were stored in cool boxes with cooling blocks to maintain temperatures below 4°C until transferred to refrigerators upon return to the office and subsequently forwarded to the external accredited chemical testing laboratory.

4.4 In-situ Testing

The depths of in-situ testing, together with the test results, are either given on the exploratory hole records or are summarised separately in Appendix C.

4.4.1 Standard Penetration Testing

Standard penetration testing (SPT) was carried out within the cable percussion boreholes to assess the relative density of the coarse-grained Lynch Hill Gravel Member soils. The SPT tests were carried out in accordance with BS EN ISO 22476-3:2005.

4.4.2 DPSH Dynamic Probe (Super Heavy) Testing

Continuous dynamic probe tests were undertaken adjacent to boreholes WS01 to WS05 and WS101 to WS103. The tests were conducted to depths of between 2.20m and 3.00m below ground level using a super heavy DPSH-B⁴ probing geometry.

The DPSH-B configuration is similar to that of the standard penetration test (SPT); the main differences being that the tip comprises a 90° cone, the driving rods are lighter than those used for SPT testing and the blow counts are recorded over 100mm increments rather than 300mm, as is the case for the SPT.

The blow counts recorded and the calculated dynamic point resistances, which account for inertia of the anvil and driving rods, are presented on the borehole records and separately in Appendix C.

4.4.3 Undrained Shear Strength

Undrained shear strength determinations were made in-situ within the fine-grained soils using a Geonor hand shear vane.

⁴ As defined by BS EN ISO 22476-2:2005.

Additionally, undrained shear strength determinations were made within samples of the fine-grained soils held in the dynamic sampler liners using a hand penetrometer.

4.4.4 California Bearing Ratio Tests

Testing to determine the in-situ California Bearing Ratio (CBR) of soils was conducted at shallow depths within trial pits CBR01 to CBR14 and adjacent to boreholes WS01 to WS05 using a Transport Research Laboratory (TRL) cone penetrometer.

4.4.5 Soakage Testing

Falling head soakage tests were undertaken in boreholes WS03 and WS05 with the holes at a depth of 3.0m and 2.7m, respectively. The tests were carried out in general accordance with Kent County Council guidance⁵.

4.5 Installations

Gas and groundwater monitoring standpipes were installed to depths of between 2.5m and 2.7m below ground level within boreholes WS01, WS04 and WS05 during the initial phase of ground investigation works and within boreholes WS101 and WS103 to the respective depths of 2.00m and 3.00m below ground level during the second phase of ground investigation works. Descriptions of the installations are shown on the exploratory hole records in Appendix C.

The standpipes installed during the first phase of ground investigation works were not monitored by Ashdown Site Investigation Ltd. The monitoring of the standpipes installed during the second phase of ground investigation works encompassed six monitoring visits undertaken between the 29th July and 17th September 2019. Both monitored standpipes were recorded to be dry during each of the monitoring visits. The results of the monitoring are presented under separate cover⁶.

4.6 Laboratory Testing

Laboratory testing was scheduled by Ashdown Site Investigation Ltd. Results from the laboratory tests are provided in Appendix D.

4.6.1 Geotechnical Testing

Geotechnical testing was undertaken by Ashdown Site Investigation Ltd in accordance with the methods given in BS1377⁷. Chemical testing to enable classification of the chemical environment of soils in accordance with BRE SD1⁸ was undertaken by an external UKAS accredited laboratory.

4.6.2 Chemical Testing

Chemical testing of selected samples was undertaken by a laboratory with recognised (UKAS and MCERTS) accreditation for quality control.

⁵ The Soakaway Design Guide published by Kent County Council, 2000.

⁶ Ashdown Site Investigation Report No. P13970/R13789, dated September 2019.

⁷ BS1377:1990 Parts 1 to 8, Methods of test for soils for civil engineering purposes.

⁸ BRE Special Digest 1:2005 Concrete in Aggressive Ground.

5. GROUND CONDITIONS

The ground conditions encountered during all phases of ground investigation are discussed below.

5.1 Stratigraphy

5.1.1 Surface Covering

In general, each of the exploratory holes was excavated through a surface cover of topsoil some 100mm to 500mm in thickness.

Within trial pits CBR07, CBR09 and CBR13 asphalt some 100mm to 200mm thick was recorded. Trial pit CBR10 was excavated through a 50mm thick concrete surface.

5.1.2 Made Ground

Made ground, generally comprising gravelly sandy silty clay, locally becoming clayey sandy gravel, was recorded to depths of between 0.15m and 0.50m below ground level at a majority of the exploratory holes. The gravel fraction comprised variable quantities of flint, brick, crystalline rock and charcoal-like material.

Boreholes HA01(2019), HA02(2019) and HA01 to HA03, all excavated through an existing bund, encountered made ground to the full depth of the boreholes.

5.1.3 Langley Silt Member

Underlying the surfacing materials/made ground, the exploratory holes progressed into undisturbed, stiff, slightly sandy, silty, clay deposits. These soils, considered to represent the Langley Silt Formation indicated on the published geological map, were recorded to the full depth of the trial pits and borehole WS03, and to depths of between 2.00m and 3.50m below ground level in the remaining boreholes.

5.1.4 Lynch Hill Gravel Member

Beneath the Langley Silt Member deposits, where penetrated, the boreholes encountered dense to very dense sandy fine to coarse gravel of flint deposits which continued to the full depth of investigation.

These soils are considered to be representative of the Lynch Hill Gravel Member soils indicated on the published geology map.

5.2 Stability

Instability was recorded locally within the coarse-grained soils encountered.

5.3 Groundwater Conditions

Each of the exploratory holes was recorded to be dry on completion of drilling/excavation. The standpipes installed as part of the second phase of ground investigation works were recorded to be dry during each of the monitoring visits undertaken between July and September 2019. It should be noted that groundwater levels should be expected to fluctuate seasonally and that higher groundwater levels may prevail during wetter seasons.

6. GEOTECHNICAL ASSESSMENT

The geotechnical assessment has been prepared in connection with the development proposals shown on the drawings included in Appendix A.

In summary the proposed development is understood to comprise demolition of the existing buildings and the construction of a new school building together with new parking areas, an all-weather pitch, MUGA and areas of soft landscaping.

At the time of writing design was being progressed, but it is understood that pad foundations of up to 3.5m x 5.0m in plan and applied pressures of up to 150kN/m² are currently being considered.

6.1 Foundations

6.1.1 Soil Shrinkage/Heave Potential

The fine-grained soils of the Langley Silt Member have been classified as clays of low to intermediate plasticity with modified plasticity indices in the range of 8% to 24%, averaging 16% with a standard deviation of 8.4%. Five of the samples tested (28%) recorded modified plasticity indices of 20% or above, falling into the medium volume change category. All but one of the other tested samples fell into the low volume change category. Statistical analysis of the data (assuming a normal distribution) suggests that some 32% of the soils would be expected to possess a medium volume change potential.

The undisturbed sand and gravel soils of the Lynch Hill Gravel Member may be considered to be non-plastic and hence non-shrinkable.

It is recommended that the design of precautions against shrinkage and heave for any new foundation system (spread footings and ground beams etc.) should take into account current guidance such as that given by the Building Research Establishment (BRE)⁹ or the National House Builders Council (NHBC)¹⁰.

Whilst this report has been prepared to provide advice to assist designers in undertaking detailed design, the report itself does not represent a detailed design statement. It is recommended that an arboricultural survey of the site should be conducted to establish the species and maturity of the existing trees in the areas of the proposed new buildings. The survey should be extended to include a review of historical photographs and detailed site plans (if available) to establish the species and location of any felled trees that may affect foundation design. The information obtained from the arboricultural survey, information on proposed planting schemes and the findings of this report should be provided to the structural engineer responsible for the detailed design of foundation systems, including assessment of the volume change potential to be employed for design purposes, minimum founding depths for spread foundations, and requirements for placement of void formers et cetera.

⁹ www.bre.co.uk : BRE Digests 240, 241 and 242, Low rise buildings on shrinkable clay soils, parts 1, 2 and 3; and BRE Digest 298, The influence of trees on house foundations in clay soils and BRE Digest 412, Desiccation in clay soils.

¹⁰ <http://www.nhbc.co.uk/> : NHBC Standards, Chapter 4.2.

6.1.2 Spread Foundations

6.1.2.1 Foundation Depths for Spread Foundations

Foundations should be constructed to bear below soils that are likely to be affected by significant soil volume changes caused by seasonal changes in moisture content in order to avoid damage to foundations that could otherwise arise. In addition, all made ground and any soils disturbed by the construction or removal of any previously existing foundations or services should be regarded as being variable in nature and state of compaction and, as such, unsuitable as a founding medium for shallow footings. New footings should be constructed to bear below made ground/disturbed natural soils and soil subject to seasonal soil volume changes, whichever is the deeper, and onto undisturbed, competent, natural deposits.

Summary guidance on suitable minimum foundation depths to protect against the effects of seasonal soil volume changes in low and medium volume change potential soils is presented in the table below but designers undertaking detailed design of foundations should follow the detailed guidance such as that provided within Chapter 4.2 of the NHBC Standards.

Table 2. Indicative Minimum Foundation Depths

Tree Type	Water Demand of Tree	Tree Distance to Tree Height Ratio (D/H)									
		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.25
		Minimum Foundation Depth Required in Low Volume Change Potential Soils (m)									
Broad Leaf	High	2.50†	2.40	2.25	2.10	1.95	1.80	1.70	1.40	1.10	0.75
	Moderate	1.60	1.50	1.40	1.30	1.15	1.05	0.95	0.75*	0.75*	0.75*
	Low	1.20	1.10	1.05	0.95	0.85	0.75*	0.75*	0.75*	0.75*	0.75*
Coniferous	High	2.50†	2.20	1.90	1.65	1.35	1.05	0.75*	0.75*	0.75*	0.75*
	Moderate	1.60	1.35	1.15	0.90	0.75*	0.75*	0.75*	0.75*	0.75*	0.75*

Tree Type	Water Demand of Tree	Tree Distance to Tree Height Ratio (D/H)									
		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.25
		Minimum Foundation Depth Required in Medium Volume Change Potential Soils (m)									
Broad Leaf	High	†			2.50	2.35	2.20	2.00	1.70	1.35	0.90*
	Moderate	2.00	1.85	1.70	1.60	1.45	1.30	1.15	0.90*	0.90*	0.90*
	Low	1.50	1.40	1.30	1.15	1.05	0.90*	0.90*	0.90*	0.90*	0.90*
Coniferous	High	†		2.30	1.95	1.60	1.25	0.90*	0.90*	0.90*	0.90*
	Moderate	2.00	1.70	1.40	1.10	0.90*	0.90*	0.90	0.90*	0.90*	0.90*

* Minimum foundation depth required to protect against soil volume changes.

† Foundations deeper than 2.50m require specialist design to protect against soil volume changes.

Details on the water demand and mature height of common trees is given within Table 3 of Chapter 4.2 of the NHBC standards which should be referred to when assessing minimum foundation depths required for the proposed development. A summary is provided in the table below.

Table 3. Indicative Summary of Water Demand and Mature Height of Common Trees

Tree Type	High Water Demand		Moderate Water Demand		Low Water Demand	
	Tree	Height (m)	Tree	Height (m)	Tree	Height (m)
Broad Leaf	Elm	18 – 24*	Acacia	18	Birch	14
	Oak	16 – 24*	Alder	18	Elder	10
	Poplar	15 – 28*	Apple	10	Fig	8
	Willow	16 – 24*	Ash	11 – 23*	Hazel	8
	Eucalyptus	18	Laurel	10	Holly	12
	Hawthorn	10	Beech	20	Honey Locust	14
			Blackthorn	8	Hornbeam	17
			Cherry	8 – 17*	Laburnum	12
			Chestnut	20 – 24*	Magnolia	9
			Lime	22	Mulberry	9
			Maple	8 – 18*	Tulip Tree	20
			Pear	12		
			Plane	26		
			Plum	10		
			Sycamore	22		
			Tree of Heaven	20		
Coniferous	Cypress	18 – 20*	Cedar	20		
			Douglas Fir	20		
			Larch	20		
			Monkey Puzzle	18		
			Pine	20		
			Spruce	18		
			Wellingtonia	30		
			Yew	12		

* Dependent on particular species.

6.1.2.2 Bearing Capacity for Spread Foundations

Analysis of the strength data of the Langley Silt Member soils and calculation of net safe bearing capacity in accordance with the Brinch Hansen method indicates that for pad foundations up to 5.0m x 3.5m in plan, a net safe bearing capacity of 150kN/m² would be achievable assuming a factor of safety of 3 on shear failure.

Fifteen undisturbed samples obtained from the cable percussion boreholes were scheduled for oedometer testing to establish whether collapse settlement of the Langley Silt Member deposits was likely to occur. The tests were undertaken on saturated samples under loadings extending up to 300kN/m². The changes in void ratio measured for each increment above existing overburden pressures were analysed and no evidence of collapse settlement was recorded from

any of the tests. Analysis of the coefficients of volume compressibility (m_v) for loadings extending from existing overburden pressure to existing overburden pressure plus 150kN/m^2 indicates m_v values in the range $0.06\text{m}^2/\text{MN}$ to $0.58\text{m}^2/\text{MN}$ averaging $0.20\text{m}^2/\text{MN}$. Given that the Langley Silt Member extended to a maximum depth of 3.5m below ground level and assuming a depth of foundation at 1.0m below ground level, the estimated medium-term to long-term consolidation settlement of a $3.5\text{m} \times 5.0\text{m}$ pad foundation would be in the order of 25mm ; modelling stress distribution using the Newmark method. This consolidation settlement would be in addition to estimated immediate elastic settlement of approximately 15mm . Total settlements in the order of 40mm should therefore be expected on large pad foundations loaded to 150kN/m^2 . Smaller settlements would be expected on smaller and/or more lightly loaded pad foundations.

A net allowable bearing capacity of 200kN/m^2 may assumed for similarly dimensioned foundations where foundations are deepened to bear within the Lynch Hill Gravel Member soils of at least dense relative density, limiting total settlement to approximately 25mm .

Careful consideration should be given to ensuring risk of leakage from water supply pipework and drainage systems is appropriately managed and that any proposed soakaways / infiltration systems are located as far as practical away from structures to avoid loss of soils from beneath foundations.

Attention is drawn to the presence of interbedded fine-grained soils and coarse-grained soils beneath the site. Unless foundations are deepened to bear solely within the Lynch Hill Gravel Member, mixed soil conditions will be present beneath footings and designers should therefore consider the need for foundations to be reinforced due to the potential for differential cracking to develop as a result of coarse-grained and fine-grained soils settling at different rates under loading.

6.2 Groundwater

Groundwater was not encountered during the intrusive works or by the standpipe monitoring carried out as part of the second phase of ground investigation works.

It is noted that the majority of the ground investigation works and monitoring works, were conducted during summer periods and that higher groundwater levels may prevail during wetter seasons.

It is possible that heavy precipitation during construction could lead to the ingress of perched groundwater or surface water run-off into excavations. In such circumstances it would be expected that water entering excavations would be adequately managed by pumping from sumps.

6.3 Stability of Excavations

All made ground or coarse-grained natural soils exposed in excavations should be assumed to be unstable, even in the short term. Whilst fine-grained natural soils may remain stable for a short period of time if not subjected to surcharge loads (such as may be imposed by existing foundations, traffic or storage of materials), the stability of these deposits if left unsupported should be assumed to have the potential to deteriorate. Where stable excavations are required, excavations should either be suitably supported, or side slopes should be battered back to a safe angle of repose.

All excavations requiring human entry must be shored or battered as necessary to conform to current best practice, as accepted by the Health and Safety Executive (HSE)¹¹. Current legislation requires that where personnel access is required into any excavation a competent person must inspect excavation supports or battering of slopes at the start of the working shift and at other specified times. No work should take place until the excavation is safe. Excavations should also be inspected after any event that may have affected their stability, such as a significant weather event, changes in surcharge loadings imposed by temporary storage of materials or changes in site traffic plans or alteration of support systems. Inspections should be formally recorded and any faults that are found should be corrected immediately.

Particular attention must be paid to ensuring the stability of neighbouring sites and any live services.

6.4 Aggressivity to Concrete

The aggressivity of the soils to concrete has been assessed in accordance with guidance published by the BRE¹².

In consideration of the soils encountered beneath the site it is considered that 'natural ground conditions' may be assumed for the purpose of assessing the aggressivity of the chemical environment for concrete classification (ACEC class). Whilst groundwater was not encountered during the short period of the works, in the absence of long-term monitoring data, 'mobile groundwater' conditions should be conservatively assumed.

Assessment of the chemical analysis of the soil indicates a sulphate content falling into Design Sulfate Class DS-1 to DS-3 of Table C1. The results of the pH tests indicate that the underlying soils are alkaline.

In accordance with the guidance, provided natural ground is not substantially disturbed (for example, by cutting and filling to terrace the site, or by excavation and backfilling) and that all concrete for foundations is exposed only to freshly cut faces in natural undisturbed soils then a DS-1 design sulphate and AC-1 ACEC classification may be adopted. For all other scenarios a DS-3 design sulphate and AC-3 classification should be utilised.

6.5 Ground Floors

Current guidance¹³ suggests that ground bearing floor slabs may be considered where made ground soils are not present or are to be removed from beneath building footprints and the depth of foundations required to protect against seasonal soil volume changes close to trees is less than 1.5m. In such circumstances further works should be undertaken to demonstrate, that close to the time of construction, no significant soil desiccation is present. If ground bearing floors are adopted it is recommended that the potential for differential movement, both between the floor slab and walls and across the floor slab itself, should be anticipated. Such floors should be fully debonded from walls. Formations should be adequately proof rolled and any excessively soft materials excavated and replaced with a suitable, well graded granular fill. The depth of any fill should be limited to a maximum of 600mm unless placed to an engineering specification designed to limit internal settlement of the fill materials to a tolerance to be advised by the

¹¹ Relevant guidance is given on the HSE website, www.hse.gov.uk

¹² BRE Special Digest 1:2005 Concrete in Aggressive Ground.

¹³ <http://www.nhbc.co.uk/> : NHBC Standards, Chapter 4.2.

designer. The detailing of services through, or under, ground-bearing floors should incorporate flexible connections and, where appropriate, enhanced falls.

Where the above criteria cannot be met, ground floors should be suspended.

6.6 Pavement Design

Cone penetrometer tests undertaken to establish the California bearing ratio (CBR) of the in-situ soils indicated CBR values ranging between 2% and >50% but typically in the range 2% to 10% in the underlying Langley Silt Member and derived made ground at the time of the investigation. It is noted that CBR values are, in part, dependent on the moisture content of the tested soils and are consequently subject to seasonal variation. Current Highways England Guidance¹⁴ indicates that in situ CBR testing should be used to validate that CBR values at the time of construction are not lower than design equilibrium CBR values adopted for pavement design.

Equilibrium CBR values are derived from knowledge of soil classification data (plasticity index for soils exhibiting cohesion (clay type) and particle size distribution for granular soils) and pavement thickness. Current Highways England Guidance suggests a design equilibrium CBR value of 1% to 4%, averaging 3.5%, would be applicable to the natural soils for the construction of thin pavement (300mm).

Previous Highways England / Highways Agency guidance¹⁵ documents (now withdrawn) refer to an older research document published by the Transport and Road Research Laboratory¹⁶. This research document indicates that where a low water table prevails, for thin pavement construction design equilibrium CBR values of 3%, 5% and 6% could be adopted for construction in poor, average and good conditions respectively. These values reduce to 2.5%, 4% and 4.5% for high groundwater conditions in the respective construction conditions; a high groundwater table being defined as being within 1.0m of the pavement formation level. It is emphasised that groundwater monitoring data available for the site to date does not encompass winter conditions.

The current Highways England guidance suggests that, for a thick pavement construction (1200mm), a design equilibrium CBR value of 1% to 6%, averaging 5.0%, could be adopted. The TRRL document indicates that for a thick pavement construction design equilibrium CBR values of 4%, 6% and 8% could be adopted for construction in poor, average and good conditions, respectively, assuming a low groundwater table. These values reduce to 4%, 5% and 7% for high groundwater conditions in the respective construction conditions.

Laboratory CBR values ranging between 0.5% and 29% but typically in the range 1.0% to 5.0% were determined on disturbed, remoulded and soaked soil samples. These results are considered indicative of worst-case scenario values that could occur where the soils are reworked or heavily trafficked during periods of sustained precipitation.

Designers will need to select an appropriate design equilibrium CBR value taking into account proposed pavement thickness, expected winter groundwater conditions, the standard to which pavement is to be designed and any local authority or other regulatory/warrantor requirements together with construction conditions likely to prevail at the time of construction.

All formations should be proof rolled and any excessively large, soft, degradable or otherwise unsuitable materials thus identified should be removed and be replaced with well compacted

¹⁴ Highways England Design Manual for Roads and Bridges Interim Advice Note 73/06; Revision 1 2009; Draft HD25

¹⁵ Highways England Design Manual for roads and Bridges HD 25/94 (DMRB 7.2.2), 1994 and Interim Advice Note IAN 73/06, 2006.

¹⁶ Transport and Road Research Laboratory TRRL Report 1132; 1984.

coarse-grained fill. Prepared subgrades should be protected from severe adverse weather by ensuring they are graded to falls to prevent ponding, and they should be reasonably protected from trafficking during construction.

The subgrade should be assumed to be susceptible to frost heave.

6.7 Stormwater Infiltration Systems

In-situ infiltration testing¹⁷ was undertaken in the previously drilled boreholes WS03 and WS05. From the test results, calculations were made to estimate the infiltration rate that could be expected for soakaways constructed to discharge into the underlying soils within the test zone.

The infiltration rates derived from the tests are summarised in the following table.

Table 4. Calculated Infiltration Rates

Exploratory Hole	Test Response Zone Depth (m)		Stratum	Infiltration Rate (f) (m/sec)	Driving Head of Water (m)
	Top	Bottom			
WS03	2.00	3.00	Langley Silt Member	9.4×10^{-7}	2.25
WS05	2.00	2.70	Langley Silt Member and Lynch Hill Gravel Member	2.0×10^{-6}	2.00

The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

The results from the infiltration tests indicate that the Langley Silt Member and Lynch Hill Gravel Member soils possess negligible to poor infiltration characteristics. It is possible that the coarse-grained soils of the Lynch Hill Gravel may have a higher infiltration rate but only a limited section was exposed during the testing carried out within borehole WS05. The results from the infiltration tests should be provided to engineers responsible for the design of the drainage system.

To comply with building regulations¹⁸, point discharging infiltration systems (conventional ring or trench soakaways) are required to be constructed a minimum of 5.0m away from proposed or existing buildings. However, as discussed under Section 6.1.2.2, caution should be exercised in locating any soakaway close to existing or proposed buildings.

The infiltration testing conducted in the boreholes is intended to provide calculated soil infiltration rates to assist in the preliminary design of infiltration systems at the site. However, it should be noted that Regulators/Local Authorities may require further testing to be undertaken at a later stage in accordance with the BRE365 guidance. This guidance states the testing should be carried out at the locations and depths of the proposed soakaways, which will not be known until preliminary drainage design has been undertaken.

Monitoring of groundwater levels during the worst annual case (winter period) is often a requirement of Local Authorities and the BRE365 guidance suggests this should be undertaken prior to finalising design of infiltration systems.

¹⁷ Conducted in accordance with The Soakaway Design Guide, published by Kent County Council, July 2000.

¹⁸ The Building Regulations 2010; Part H; Drainage and Waste Disposal

We recommend that designers contact the local authority to establish whether additional soakage testing and/or winter groundwater monitoring is required.

If discharge to ground via infiltration systems is proposed, it is recommended that designers of the system provide for the prevention of pollution of groundwater. In this regard due consideration should be given to guidance provided within BRE 365 and by the Environment Agency. Attention is drawn to the assessment of risk posed to groundwater discussed under Section 7.3 of this report which concludes the soils at the site are not considered to pose a significant risk to controlled water (groundwater).

Appropriate consideration should also be given to whether there is a need for inclusion of interceptors and oil separators. The Local Authority and/or relevant water company should be consulted in relation to consent for discharge of water from rooftops, areas of hardstanding and roadways to drains.

7. GROUND CONTAMINATION STATUS

7.1 Introduction

The following potential sources of contamination were identified by the preliminary contamination risk assessment:

- Mound adjacent to school playing fields.
- Backfilled mineral sites in the vicinity of the site.

However, as part of the development, it is understood that the mound of soils adjacent to the playing fields will be removed from site. Detailed discussion in relation to the waste classification of these soils for removal from site is included in Section 9.

As part of one of the phases of the ground investigation, two standpipes were installed in the vicinity of the proposed building footprint. A separate gas risk assessment report has been prepared for the site and issued under separate cover¹⁹.

7.2 Testing of Made Ground Soils

7.2.1 Introduction

As part of the original ground investigation, the made ground soils encountered across the site were tested for a range of commonly occurring contaminants; heavy metals and polycyclic aromatic hydrocarbon (PAH) compounds. Selected samples were also screened for the presence of asbestos.

Similar testing was also undertaken from two samples of the mound material adjacent to the school playing field.

In addition, deeper samples of the natural soils were tested for their concentrations of heavy metals.

7.2.2 Soil Screening Values

To provide an indication of the contamination status of these soils the results of the laboratory testing results for the made ground soils have been compared to generic soil screening values (SSV). These SSV comprise the 'Suitable For Use Levels' (S4UL)²⁰ or, in lieu of an S4UL being developed for lead, the Category 4 Screening Level (C4SL)²¹.

However, SSV for a generic "school" site do not exist. As a precautionary initial screen of the data, assessment has been made against published SSV for the generic 'Public Open Space near Residential Housing' (POS_{resi}) land use²².

¹⁹ Ashdown Site Investigation Report No. P13970/R13789, dated September 2019.

²⁰ Nathanail, C.P, et al., The LQM/CIEH S4ULs for Human Health Risk Assessment, 2015, Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3071.

²¹ SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report, published by DEFRA, 2014.

²² SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. Final Project Report, published by DEFRA, 2014.

The POS_{resi} land use is intended to be representative of a predominately grassed area adjacent to high density housing, such as the central green area on many 1930 – 1970s housing estates and smaller areas commonly incorporated in new developments as informal grassed areas, or more formal landscaped areas with a mixture of open space which is covered in soil with planting. It is assumed that the close proximity to the place of residence will allow the tracking back of soil into residential properties to occur. The critical receptor for this land use is considered to be a young female child resident on site from ages >3 to <9. Exposure routes that are considered include the potential for ingestion of the soil and dust (both indoor and outdoor), dermal contact with soil and dust (both indoor and outdoor), the inhalation of dust (both indoor and outdoor) and the potential outdoor inhalation of soil vapours.

It is noted that these assumptions are highly conservative in the context of the development proposals for the site.

7.2.3 Analysis of Test Results

None of the samples of made ground recorded concentrations of heavy metals or PAH compounds in excess of their respective SSV.

None of the deeper samples of natural soils tested recorded concentrations of heavy metals above their respective SSV.

No suspected asbestos materials were noted within any of the exploratory holes undertaken at the site. Two samples of made ground were screened for the presence of asbestos. Neither of the samples recorded the presence of any asbestos materials.

Based on the findings of this investigation, no significant risk to end users is considered to be posed by asbestos materials within soils. However, due to the heterogeneity of made ground, there will always remain the potential for localised asbestos materials to be encountered during construction works. All workers at the site should be made aware of what actions to take in the event that suspected asbestos materials are identified at any time during the development works.

An asbestos survey of existing structures and infrastructure²³ was beyond the scope of this investigation. The potential for asbestos containing materials to be present within the fabric of buildings or infrastructure located on the site cannot be dismissed by reference to the soil test results contained within this report. It is recommended that relevant asbestos registers be inspected prior to commencing any demolition works at the site. Where asbestos is identified to be present within buildings or infrastructure, these materials should be appropriately removed by licensed contractors and asbestos materials disposed of in accordance with legal requirements prior to demolition to avoid contaminating soils at the site.

7.3 Conclusions

On the basis of the testing undertaken to date, the made ground soils are not considered to pose an unacceptable risk to future end users of the site or controlled waters, and as such remedial measures are not considered to be required in respect of the soils at the site. However, a watching brief (see Section 8 below) should be in place throughout the development works.

²³ As defined under Section 5(a) of the Control of Asbestos Regulations, 2012.

8. DISCOVERY STRATEGY

If, during the course of the site clearance and development works, any materials not previously identified by the investigation that are suspected of being 'contaminants' are encountered, then the following procedure should apply:

- All works in that area should cease and the site manager should be informed.
- Advice should be sought from suitably qualified and experienced personnel as to whether any further site inspection, sampling, testing and/or assessment is deemed necessary.
- If required, the conclusions of any assessment and any proposed remedial works (if required) should be agreed by the local authority.
- If necessary, full details of any remedial works should be included in a verification report for the site.

Suspected 'contamination' may take the following form, though it is noted that this list is not exhaustive and site operatives should ask if they are at all unsure of any findings:

- Soil or water looks oily and/or has an oily odour
- Soil or water has a solvent type of odour
- Significant quantities of man-made materials within fill such as paint cans, car parts, glass fragments
- Suspected asbestos containing materials (insulating boards, cement, loose fibres etc.)
- Significant volumes of clinker like or ashy material
- Sand bags, and/or subsurface concrete structures
- Animal carcasses or evidence of animal burial pits

9. REMOVAL OF MOUND MATERIALS AS WASTE

9.1 Waste Management – Legislative Framework

Waste is defined as "any substance or object which the holder discards or intends to discard"²⁴. Soils excavated during construction works are therefore generally considered to be waste²⁵ unless it is "uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated". Such materials are excluded from the Waste Framework Directive (WFD).

Soils and other materials taken for disposal should be handled, transferred and disposed of as controlled waste in accordance with current waste management^{26,27} and duty of care regulations²⁸ and comply with current codes of practice²⁹. Waste transfer notes detailing the site address, the waste type, details of the haulage contractor and full details of the disposal site must be kept by the waste producer.

²⁴ 2008 Waste Framework Directive (Directive 2008/98/EC)

²⁵ Guidance on the legal definition of waste and its application, Environment Agency, 2012

<https://www.gov.uk/government/publications/legal-definition-of-waste-guidance/decide-if-a-material-is-waste-or-not>

²⁶ The Waste (England and Wales) Regulation 2011

²⁷ Section 34, Environmental Protection Act 1990

²⁸ The Environmental Protection (Duty of Care) Regulations 1991

²⁹ Waste Duty of Care Code of Practice, Dept. for Environment Food & Rural Affairs, March 2016

Specifically, the disposal of any asbestos containing materials should be undertaken by appropriately trained personnel. The disposal of such material and other hazardous waste should be undertaken in accordance with the Hazardous Waste Regulations 2005³⁰.

It is a legal requirement (as discussed within the Waste Duty of Care Code of Practice) to correctly assess and classify waste. Characterisation of the waste in full accordance with current guidance³¹ was beyond the scope of this assessment.

Classification of waste requires analysis of total contaminant concentrations within the soils. As specified in WM3³²: "Landfill WAC analysis (specifically leaching test results) must **not** be used for waste classification and hazardous waste assessment purposes."

Environment Agency guidance³³ states "Before a waste can be accepted at a landfill site, the operator must be satisfied that the waste meets his (*sic*) permit conditions, the waste acceptance procedures and waste acceptance criteria." Figure 1 of that guidance provides a flow chart showing the waste classification process.

9.2 Analysis of Laboratory Test Results

Analysis of the results of the laboratory testing for the made ground soils comprising the mound was undertaken using the HazWasteOnline^{TM34} tool. The HazwasteOnline tool classifies soils in accordance with European Waste Catalogue (2002) following guidance published by the Environment Agency (WM3). The output sheets generated by the tool are presented in Appendix E.

The following table summarises the classification of soils tested, the appropriate code from the List of Wastes (LoW) and, where undertaken, the findings of the WAC testing.

Table 5. Summary of Classification of Samples from HazWasteOnline Analysis

Exploratory Hole Location	Sample Depth (m bgl)	Strata	Classification	Code from LoW	WAC Test Results (where testing undertaken)
HA01	0.30	Mound - Made Ground	Non Hazardous	17 05 04	Meets Inert WAC
HA02	0.40	Mound - Made Ground	Non Hazardous	17 05 04	Meets Inert WAC

Both the samples of made ground soils from the mound have been classified as non-hazardous construction and demolition waste, with a code from the List of Wastes (LoW) of 17-05-04. The WAC testing on both samples indicate the soils would likely be accepted at a landfill licensed to accept inert waste.

It is noted that the disposal site has the final decision on whether to accept any materials and we would recommend that all the testing and classification information be provided to them at the earliest opportunity.

Ashdown Site Investigation Ltd

³⁰ Hazardous Waste (England and Wales) Regulations 2005

³¹ As discussed in BS EN 14899:2005 Characterisation of waste

³² Technical Guidance WM3: Waste Classification – Guidance on the assessment of waste, 1st Edition v1.1, May 2018

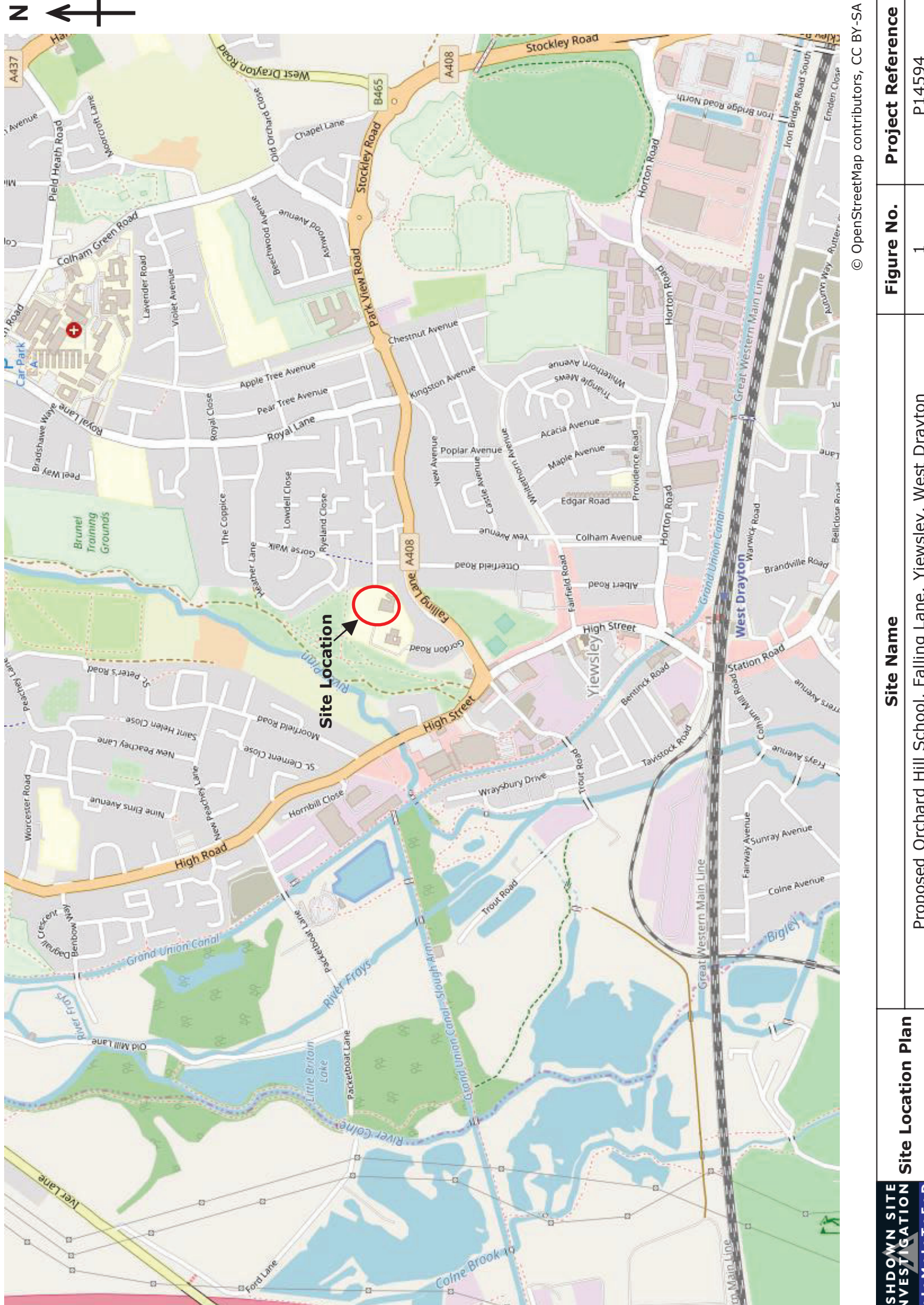
³³ Waste acceptance at landfills, November 2010

³⁴ <https://www.hazwasteonline.com/>

FIGURES

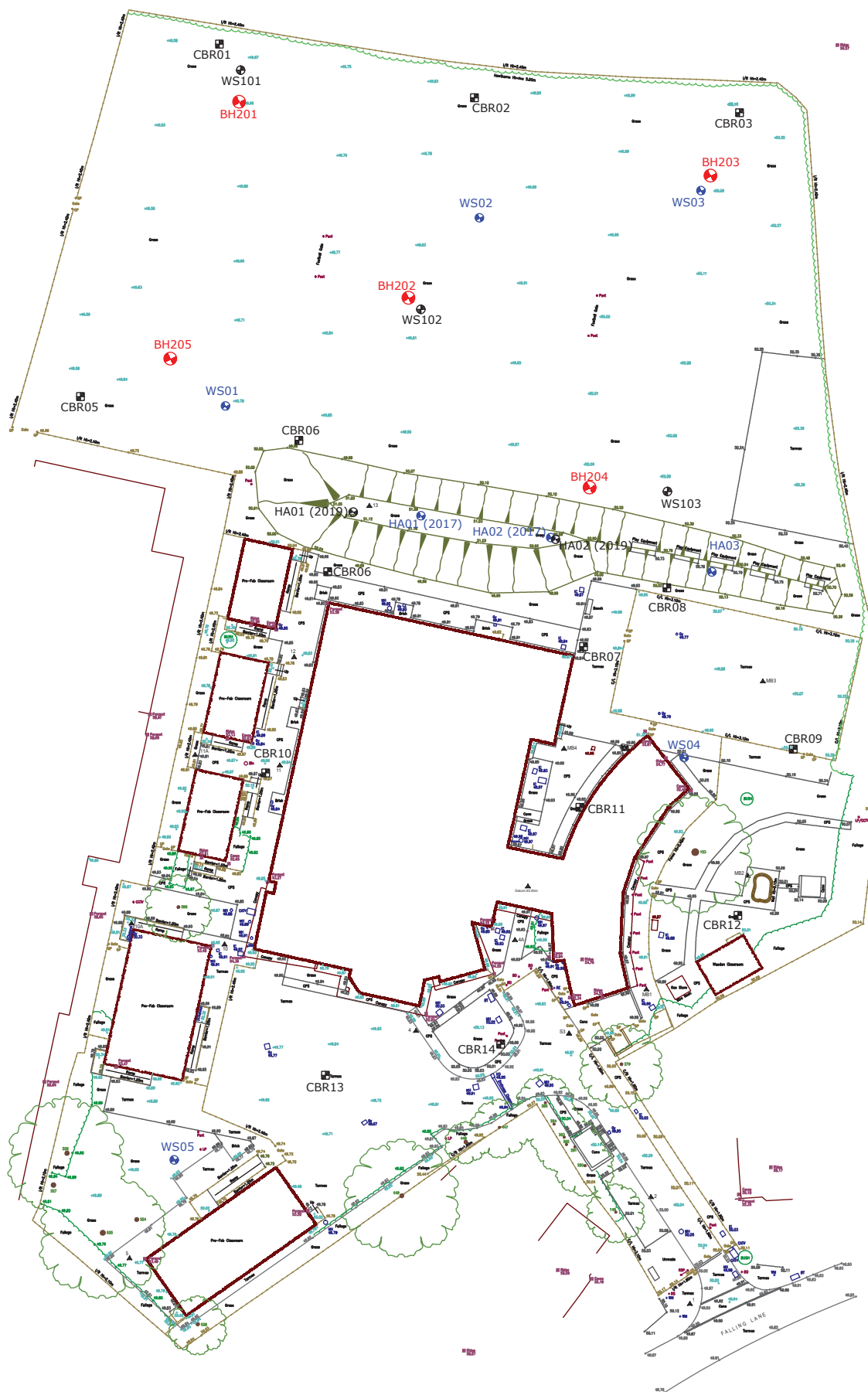
Figure 1 Site Location Plan

Figure 2 Site Plan



© OpenStreetMap contributors, CC BY-SA

ASHDOWN SITE INVESTIGATION I · M · I · T · E · D	Site Location Plan		Site Name		Project Reference	
	Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton		Falling Lane, Yiewsley, West Drayton		P14594	



Legend

- Borehole location for 2017 investigation (ref. R17-12386)
- Exploratory hole location for 2019 investigation (ref. P13970)
- Borehole location for 2020 investigation (ref. P14594)

ASHDOWN SITE INVESTIGATION

L · I · M · I · T · E · D

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling Common
East Sussex
BN6 8SG
01273 483119
contact@ashdownsi.co.uk

Site:

Proposed Orchard Hill School
Falling Lane
Viewsley
West Drayton

Report Ref:

P14594

Figure No.

2

Drawing Title

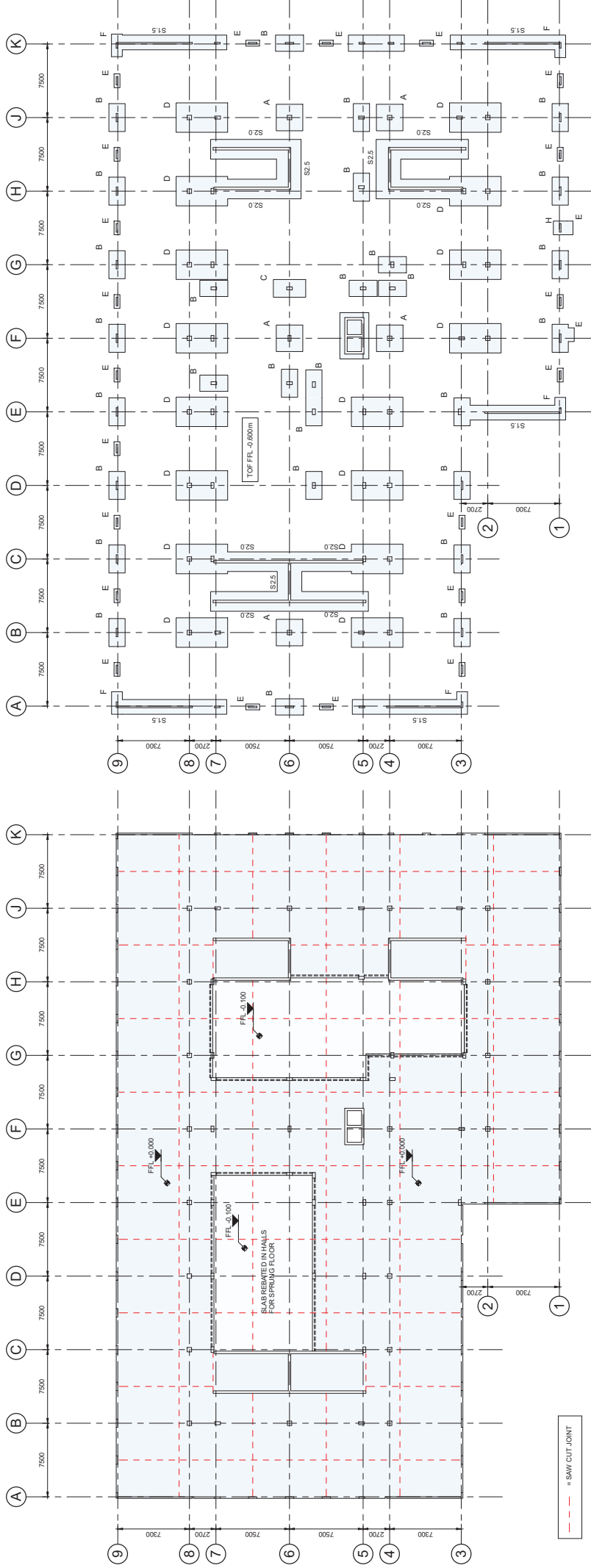
Site Plan

Scale

1:500

APPENDIX A

Proposed Development Layout



GROUND FLOOR SLAB
SCALE 1:200

FOUNDATIONS
SCALE 1:200

ASSUMED ALLOWABLE BEARING PRESSURE #150kN/m ²		
PAD FOUNDATION SCHEDULE		
REF	SIZE	No of#
A	2700 x 2700 x 6000dp	5
B	2650 x 1650 x 4500dp	31
C	3300 x 1800 x 4500dp	1
D	2650 x 1800 x 4500dp	1
E	2650 x 1800 x 4500dp	23
F	2300 x 1100 x 4500dp	5
H	1400 x 1400 x 4500dp	1
STRIP FOUNDATION SCHEDULE		
REF	SIZE	LENGTH
S2.0	1650 x 450dp	49.2
S2.0	2000 x 450dp	6.2
S2.5	2500 x 450dp	6.2

1. Do not cut, New this drawing.
2. All dimensions to be checked on site by the contractor and such.
3. Report of findings to be submitted to the architect.
4. The drawing is Copyright © Atkins Limited (2013).

SAW CUT JOINTS IN SLAB FORMED 24HRS AFTER CASTING

SLAB CONSTRUCTION

- 150mm RC20/25 GROUND BEARING SLAB
- ONE LAYER AS25 IN BOTTOM, 50mm COVER
- 150mm WELL COMPACTED hardcore
- SUITABLE WELL COMPACTED SLAB GRADE

ISOLATION JOINTS PROVIDED TO PERIMETER OF ALL WALLS, COLUMNS AND EXTERNAL SANDWICH PANEL WALLS.

MADE GROUND ON SITE TO BE REMOVED AND REPLACED WITH 150mm WELL COMPACTED hardcore

FOUNDATIONS TO BE FOUNDED ON 50mm OF GEN1 CONCRETE BUILDING ON APPROVED BEARING STRATA

FOUNDATIONS REINFORCED WITH 50kg/m³ OF 500B REINFORCEMENT

INSTILLUT WALLS AND COLUMNS TO BE CAST BETWEEN TOP OF FOUNDATION AND UNDERSEAL LOAD WALLS AND SANDWICH PANELS AS PER DETAIL PROVIDED

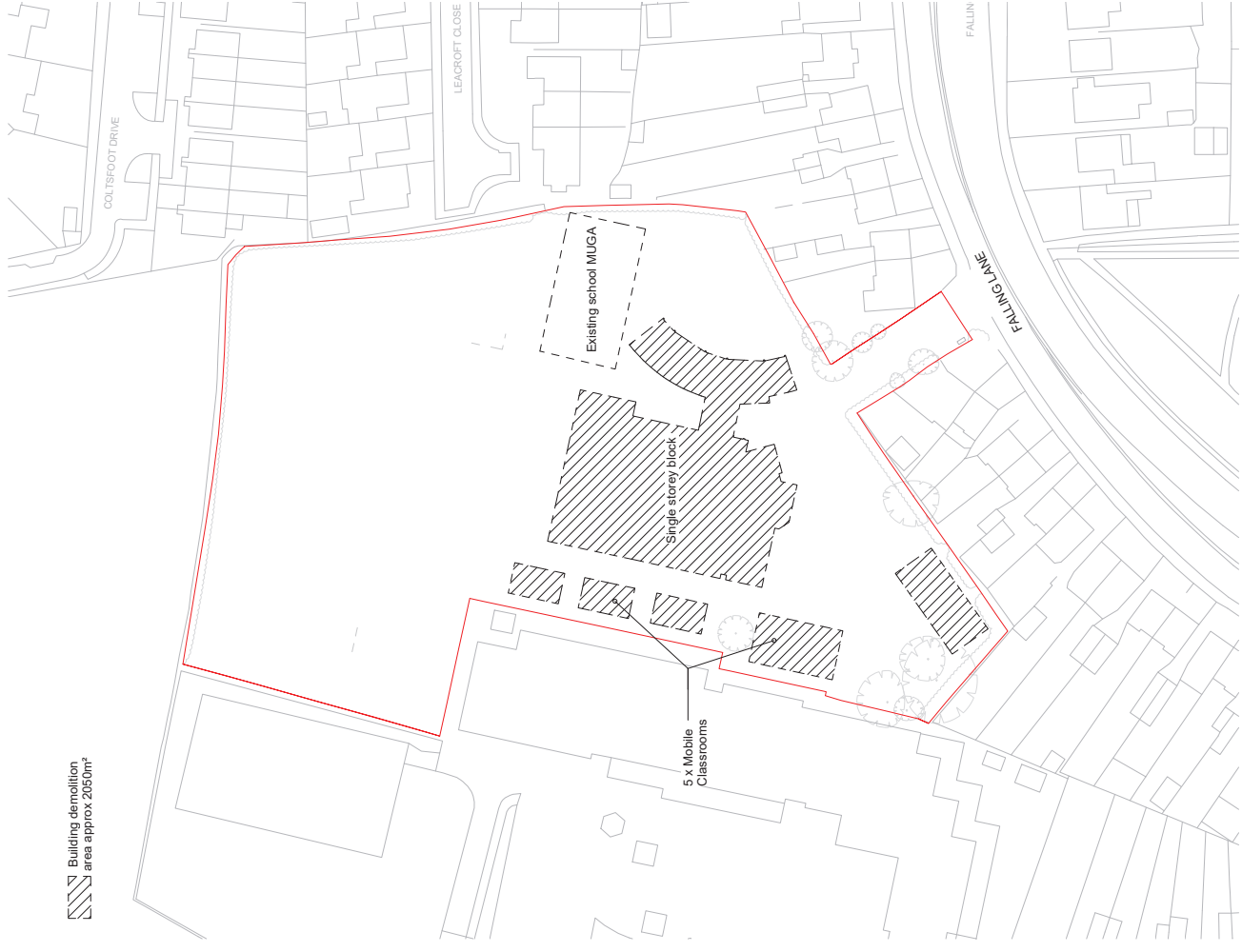
FOUNDATION CONCRETE GRADE TO BE RC25/30

FOUNDATIONS TO BE FOUNDED ON SUITABLE BEARING STRATA OF 150 kN/m²

FURTHER IS REQUIRED TO CONFIRM SUITABLE BEARING STRATA AND TO OBTAIN APPROVALS TO CONTAIN CONCRETE GRADE

Rev.	Date	Description	By	CHK	Appr
P2	05/11/19	IT SUBMISSION	AMS	AJT	SA
P1	11/01/19	PRELIMINARY ISSUE	AMS	AJT	SA

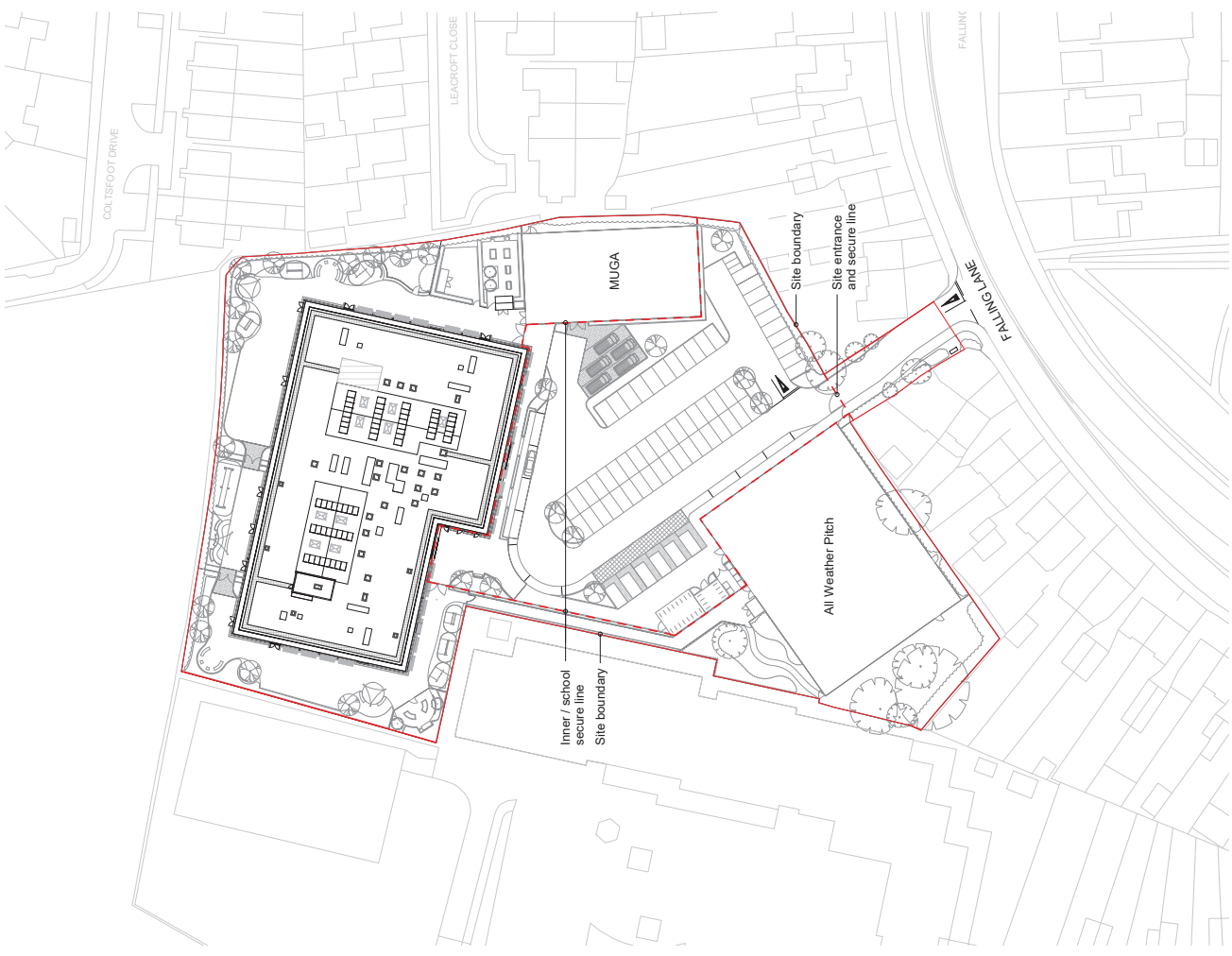
Drawn By: ORCHARD HILL
Ground Slab and Foundations
Drawing Number: ORC_ATK_Z1_00_DR_S_(14)_001
Revision: P2
Scale: 1:200 @ A1



Building demolition area approx 2050m²

1 GA Existing / Demolition Site Plan 1-500
SCALE 1:500

1. Drawn to scale 1:500
2. All dimensions to be checked on site by the contractor and such
3. All dimensions to be checked on site by the contractor and such
4. All dimensions to be checked on site by the contractor and such



2 GA Proposed Site Plan 1-500
SCALE 1:500

Rev.	Date	Description	By	Check	Appr.
P02	2019/04/11	Issued for IFT Submission	CC	CD	PG
P01	2019/04/09	Issued for IFT Submission	CC	CD	PG

Drawn To: Demolition and Proposed Site Plans
Drawing Number: ORC_ATK_ZZ_xx_DR_A_(90)_029
Revision: P02
Scale: 1:500 @ A1



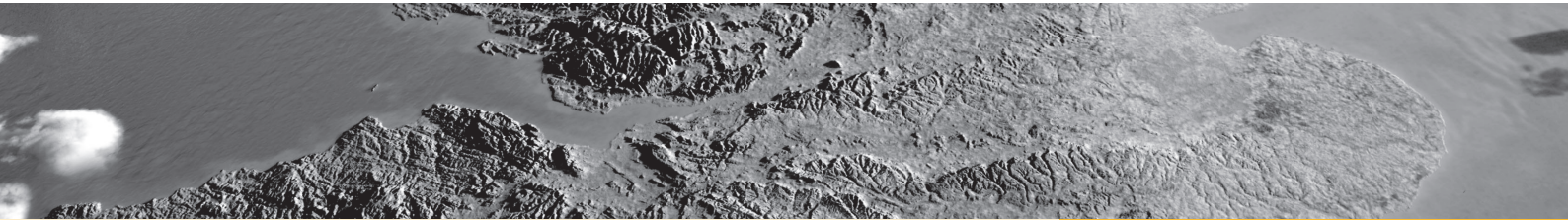
Orchard Hill / YPA & YPH



APPENDIX B

Terra Firma TerraSearch Report

Hazard Alert



Ground stability hazards are known or considered likely to have occurred within the vicinity of the Site (property and land). The ground hazards outlined below have been identified.

Identified

Terrafirma Ground Report required

Date: 18/07/2019

Property:

Orchard Hill School, Falling Lane, Yiewsley, West Drayton,

Your Search Reference:

66163.411

Terrafirma Reference:

TFC20190718103202-123439

Past underground mining hazard results

Coal	Not Identified
Rare minerals	Not Identified
Metalliferous Inc. Tin	Not Identified
Clay Inc. China and Ball	Not Identified
Stone Inc. Limestone	Not Identified
Evaporites Inc. Cheshire Brine	Not Identified

Natural ground hazards results

Running sands	Not Identified
Soluble rocks	Not Identified
Collapsible ground	Identified
Compressible ground	Not Identified
Clay subsidence	Not Identified
Landslip	Not Identified

NEXT STEPS

The Terrafirma Ground Report is an expert desktop assessment by an experienced geologist, including a professional opinion of the risk of instability from all natural and mining ground hazards. The report includes terms and conditions backed by £10 million professional indemnity per report.

This notice is based upon the TerraSearch® Hazard Alert information service and is not to be used in a property transaction as evidence of natural or mining-related ground instability.

This alert is not covered by TerraSearch® terms and conditions and is to be used solely for the purpose of highlighting an instability risk that may impact the completion, value or quiet enjoyment of a property. Further professional opinion is required to assess any such impact.

No liability will be held by Terrafirma to any persons not party to the commissioning of this Hazard Alert.



understand the ground

APPENDIX C

Exploratory Hole Notes

Exploratory Hole Records (P14594, P13970 & R17-12386)

DPSH-B Dynamic Probe Records (P13970 & R17-12386)

Summary of In-situ TRL Cone Penetrometer (CBR) Test Results (P13970 & R17-12386)

Summary of Borehole Falling Head Soakage Test Results (R17-12386)

NOTES FOR THE INTERPRETATION OF EXPLORATORY HOLE RECORDS

1 Symbols and abbreviations

Samples

U	'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
Uo	Sample not obtained.
U*	Full penetration of sample not obtained.
Pi	Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D	Disturbed Sample.
R	Root Sample.
B	Bulk Disturbed Sample.
W	Water Sample.
J	Jar Sample (sample taken in amber glass jar fitted with gas tight lid)
T	Tub Sample
Vi	Vial Sample

In situ Testing

S	Standard penetration test (SPT): Using the split spoon sampler.
C	Standard Penetration Test (SPT): using a solid cone instead of the sampler - conducted usually in coarse grained soils or weak rocks.
V	Shear Vane Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
H	Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column.

Excavation Method

CP	Cable Percussion Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HDP	Trial Pit excavated using hand tools

2 Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1:2002+A1:2013) and Part 2 Principles of classification (BS EN 14688-2:2004+A1:2013) as well as the BS5930:2015 code of Practice for Ground Investigations.

3 Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1:2003) as well as the BS5930:2015 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

4 Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk. See additional chalk classification notes.

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D Email: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119		Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton												
		Job Number: P14594												
		Start Date: 15/04/2020					Borehole Number: BH201							
End Date: 15/04/2020										Sheet 1 of 1				
Samples and In Situ Testing														
Standpipe Installation	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	SPT 'N' Value				Depth	Legend	Stratum Description			
					0	10	20	30	40	50				
	D	0.50									0.00		Topsoil.	
	D	1.00									0.10		Grey and brown sandy silty CLAY.	
	U	1.20	1.65	15							0.70		Stiff orange brown sandy silty CLAY. Sand is fine to medium. (Langley Silt Member)	
	D	1.70												
	U	1.70	2.15	20										
	D	2.20												
	U	2.20	2.65	80										
	D	3.00									2.60		Dense to very dense brown sandy angular to subangular GRAVEL of flint. (Lynch Hill Gravel Member)	
	C	3.00		75 (0 for 0mm/75 for 150mm)										
	D	4.00												
	C	4.00		75 (0 for 0mm/75 for 150mm)										
	D	5.00									5.00		End of borehole at 5.00m	
	C	5.00		N=72 (10,12,16,18,19,19)										
Remarks														
Casing: No casing installed.										Excavation Method: CP				
Groundwater: No groundwater encountered.										Borehole Diameter: 150mm				
Stability: Borehole stable during drilling.										Casing Diameter:				
Chiselling: n/a										Made By: PJ				
Notes: n/a														

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D Email: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119		Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton Job Number: P14594 Start Date: 14/04/2020 End Date: 14/04/2020 Borehole Number: BH202 Sheet 1 of 1									
Standpipe Installation Sample/ Test Type Depth From (m) Depth To (m) Test Result SPT 'N' Value Depth Legend Stratum Description											
		0.50				0.00		Topsoil.			
						0.10		Stiff brown slightly sandy silty CLAY. (Langley Silt Member)			
	D	1.00									
	U	1.20	1.65	20							
	D	1.70									
	U	1.70	2.15	20							
	D	2.20									
	U	2.20	2.65	28							
	D	3.00									
	C	3.00		75 (0 for 0mm/75 for 150mm)		3.00		Dense to very dense brown sandy clayey angular to subangular fine to coarse GRAVEL of flint. (Lynch Hill Gravel Member)			
	D	4.00									
	C	4.00		75 (0 for 0mm/75 for 150mm)							
	D	5.00									
	C	5.00		N=72 (10,12,16,18,19,19)		5.00		End of borehole at 5.00m			
Remarks Casing: No casing installed. Groundwater: No groundwater encountered. Stability: Borehole stable during drilling. Chiselling: n/a Notes: n/a Excavation Method: CP Borehole Diameter: 150mm Casing Diameter: Made By: PJ											

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Job Number: P14594

Start Date: 14/04/2020

End Date: 14/04/2020

Borehole Number: BH203

Sheet 1 of 1

Standpipe Installation	Sample/ Test Type	Samples and In Situ Testing				SPT 'N' Value				Depth	Legend	Stratum Description
		Depth From (m)	Depth To (m)	Test Result		0	10	20	30			
	D	0.50										
	D	1.00										
	U	1.20	1.65	20								
	U	1.70										
	U	1.70	2.15	20								
	D	2.20										
	U	2.20	2.65	25								
	D	2.70										
	U	2.70	3.15	20								
	U	3.20	3.65	60								
	D	4.00										
	C	4.00		60 (10,18/60 for 150mm)								
	D	4.55										
C	4.55		N=77 (10,12/15,21,20,21)									

Remarks	
---------	--

Casing: No casing installed.

Groundwater: No groundwater encountered.

Stability: Borehole stable during drilling.

Chiselling: n/a

Notes: n/a

Excavation Method: CP

Borehole Diameter: 150mm

Casing Diameter:

Made By: PJ

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D Email: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119		Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton												
		Job Number: P14594												
		Start Date: 14/04/2020					Borehole Number: BH204							
End Date: 14/04/2020										Sheet 1 of 1				
Samples and In Situ Testing														
Standpipe Installation		Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	SPT 'N' Value				Depth	Legend	Stratum Description		
		D	0.50							0.00		Topsoil.		
		D	1.00							0.50		Stiff brown slightly sandy silty CLAY. Sand is fine to medium. (Langley Silt Member)		
		U	1.20	1.65	20									
		D	1.70											
		U	1.70	2.15	20									
		D	2.00											
		U	2.20	2.65	25							Dense to very dense brown sandy clayey angular to subangular fine to coarse GRAVEL of flint. Sand is fine to medium. (Lynch Hill Gravel Member)		
		U	2.70	3.15	60									
		C	3.00		56 (8,15/56 for 150mm)									
		D	3.20											
		C	3.20											
		D	4.00							3.50		End of borehole at 5.00m		
		C	4.00		75 (0 for 0mm/75 for 150mm)									
		D	5.00											
		C	5.00		N=71 (10,12/15,17,18,21)									
Remarks												Excavation Method: CP		
Casing: No casing installed.												Borehole Diameter: 150mm		
Groundwater: No groundwater encountered.												Casing Diameter:		
Stability: Borehole stable during drilling.												Made By: PJ		
Chiselling: n/a														
Notes: n/a														

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D Email: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119		Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton Job Number: P14594 Start Date: 15/04/2020 End Date: 15/04/2020 Borehole Number: BH205 Sheet 1 of 1											
Standpipe Installation		Samples and In Situ Testing		SPT 'N' Value				Depth		Legend		Stratum Description	
Sample/ Test Type		Depth From (m)		Depth To (m)		Test Result		0 10 20 30 40 50					
D		0.50						0.00				Topsoil.	
D		1.00						0.10				Orange brown slightly sandy CLAY. Sand is fine to medium (Langley Silt Member).	
U		1.20		1.65		22		0.70				Stiff orange brown sandy CLAY. Sand is fine to medium. (Langley Silt Member)	
U		1.70		2.15		25							
D		2.20											
U		2.20		2.65		65		2.60				Dense to very dense brown sandy clayey angular to sub rounded fine to coarse GRAVEL of flint. (Lynch Hill Gravel Member)	
D		3.00				75 (0 for 0mm/75 for 150mm)							
C		3.00											
D		4.00				72 (12,17/72 for 225mm)							
C		4.00											
D		4.45				N=86							
C		4.45				(12,15/18,22,22,24)		5.00				End of borehole at 5.00m	
Remarks													
Casing: No casing installed.												Excavation Method: CP	
Groundwater: No groundwater encountered.												Borehole Diameter: 150mm	
Stability: Borehole stable during drilling.												Casing Diameter:	
Chiselling: n/a												Made By: PJ	
Notes: n/a													

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Job Number: P13970

Start Date: 23/07/2019

End Date: 23/07/2019

Borehole Number: **WS101**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing		Dynamic Probe		Legend	Depth	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm				
J T	0.05						0.00	Topsoil.
D	0.20						0.10	MADE GROUND: Brown grey slightly gravelly slightly sandy silty clay. Gravel is angular to subrounded fine to coarse occasional flint. Sand is fine to coarse.
J T	0.30							
H	0.50		210				0.45	
J T	0.70							Stiff to very stiff orange brown silty CLAY with rare gravel of flint. (Langley Silt Member)
D	0.80							
H	0.80		>250					
U	1.00	1.30						
V	1.00		>130					
J T	1.50							
H	1.50		>250					
D	1.70							
H	1.80		>250					
D	2.10						2.00	Dense to very dense grey brown sandy angular to subrounded fine to coarse GRAVEL of flint. (Lynch Hill Gravel Member)
J T	2.10						2.10	
								End of borehole at 2.10m

Remarks
Groundwater: Borehole dry during drilling.

Stability: Borehole unstable in coarse grained soils.

Notes: No further progress below 2.10m depth - gravel too dense. Standpipe installed to 2.00m depth; 2.00m to 1.00m slotted pipe with gravel surround; 1.00m to ground level plain pipe with bentonite seal; completed with gas tap and security cover concreted flush with ground surface.

Excavation Method: WLS

Borehole Diameter: Various

Made By: RJ

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D E-mail: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119					Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton																																							
Job Number: P13970					Start Date: 23/07/2019					Borehole Number: WS102					Sheet 1 of 1																													
End Date: 23/07/2019																																												
Samples and In Situ Testing															Dynamic Probe															Stratum Description														
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm					Legend	Depth																																	
	J T	0.05			0	5	10	15	20	25	30		0.00	Topsoil.																														
	J T	0.25											0.10	MADE GROUND / Reworked: Brown grey slightly gravelly slightly sandy silty clay. Gravel is angular to subrounded fine to coarse occasional flint.																														
													0.50																															
	D	0.60												Stiff orange brown slightly sandy silty CLAY. Sand is fine to medium.																														
	H	0.60		130										(Langley Silt Member)																														
	J T	0.80																																										
	V	1.00		>130																																								
	J T	1.20																																										
	D	1.30																																										
	D	1.50																																										
	J T	1.50																																										
	U	1.70	2.00																																									
	V	2.00		>130																																								
	H	2.25		115																																								
	J T	2.60											2.50	Dense to very dense brown grey sandy angular to subrounded fine to coarse GRAVEL of flint. Sand is fine to coarse. (Lynch Hill Gravel Member)																														
	D	2.80											3.00	End of borehole at 3.00m																														
</																																												

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Job Number: P13970

Start Date: 23/07/2019

End Date: 23/07/2019

Borehole Number: **WS103**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing		Dynamic Probe		Legend	Depth	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm				
J T	0.05						0.00	Topsoil.
D	0.25						0.10	MADE GROUND: Brown slightly gravelly sandy clay. Gravel is angular to subrounded fine to coarse flint and rare chalk.
J T	0.40						0.50	
H	0.60		140					Stiff to very stiff orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)
D	0.80							
H	0.80		140					
V	1.00		>130					
J T	1.20							
H	1.20		130					
D	1.30							
H	1.50		210					
D	1.80							
J T	1.80							
H	1.80		170					
V	2.00		>130					
D	2.20							
H	2.30		210					
J T	2.75						2.60	Dense to very dense brown grey clayey sandy angular to subangular fine to coarse GRAVEL of flint. (Lynch Hill Gravel Member)
D	2.80						3.00	End of borehole at 3.00m

Remarks
Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: Standpipe installed to 3.00m depth; 3.00m to 1.00m slotted pipe with gravel surround; 1.00m to ground level plain pipe with bentonite seal; completed with gas tap and security cover concreted flush with ground surface.

Excavation Method: WLS

Borehole Diameter: Various

Made By: RJ

Ashdown Site Investigation LIMITED E-mail: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119 <tr><td colspan="2">Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton</td></tr><tr><td colspan="2">Job Number: P13970</td></tr><tr><td colspan="2">Start Date: 23/07/2019</td></tr><tr><td colspan="2">End Date: 23/07/2019</td></tr><tr><td colspan="2">Trial Pit Number: CBR01</td></tr><tr><td colspan="2">Sheet 1 of 1</td></tr><tr><td colspan="2">Samples and In Situ Testing</td></tr><tr><td>Sample/ Test Type</td><td>Depth From (m)</td><td>Depth To (m)</td><td>Test Result</td><td>Legend</td><td>Depth/ Reduced Level</td><td>Stratum Description</td></tr><tr><td rowspan="4">B</td><td rowspan="4">0.30</td><td rowspan="4">0.60</td><td rowspan="4"></td><td rowspan="4"></td><td>0.00</td><td>Topsoil.</td></tr><tr><td>0.10</td><td>MADE GROUND: Brown gravelly slightly sandy clay. Gravel is angular to subrounded fine to coarse flint.</td></tr><tr><td>0.30</td><td>Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)</td></tr><tr><td>0.85</td><td>End of trial pit at 0.85m</td></tr><tr><td colspan="6">Remarks</td></tr><tr><td colspan="6">Groundwater: Trial pit dry during excavation.</td></tr><tr><td colspan="6">Stability: Trial pit stable during excavation.</td></tr><tr><td colspan="6">Notes: n/a</td></tr><tr><td colspan="6">Excavation Method: HDP</td></tr><tr><td colspan="6">Pit Length: n/a</td></tr><tr><td colspan="6">Pit Width: n/a</td></tr><tr><td colspan="6">Made By: RJ</td></tr>		Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton		Job Number: P13970		Start Date: 23/07/2019		End Date: 23/07/2019		Trial Pit Number: CBR01		Sheet 1 of 1		Samples and In Situ Testing		Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	Stratum Description	B	0.30	0.60			0.00	Topsoil.	0.10	MADE GROUND: Brown gravelly slightly sandy clay. Gravel is angular to subrounded fine to coarse flint.	0.30	Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)	0.85	End of trial pit at 0.85m	Remarks						Groundwater: Trial pit dry during excavation.						Stability: Trial pit stable during excavation.						Notes: n/a						Excavation Method: HDP						Pit Length: n/a						Pit Width: n/a						Made By: RJ					
Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton																																																																																			
Job Number: P13970																																																																																			
Start Date: 23/07/2019																																																																																			
End Date: 23/07/2019																																																																																			
Trial Pit Number: CBR01																																																																																			
Sheet 1 of 1																																																																																			
Samples and In Situ Testing																																																																																			
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	Stratum Description																																																																													
B	0.30	0.60			0.00	Topsoil.																																																																													
					0.10	MADE GROUND: Brown gravelly slightly sandy clay. Gravel is angular to subrounded fine to coarse flint.																																																																													
					0.30	Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)																																																																													
					0.85	End of trial pit at 0.85m																																																																													
Remarks																																																																																			
Groundwater: Trial pit dry during excavation.																																																																																			
Stability: Trial pit stable during excavation.																																																																																			
Notes: n/a																																																																																			
Excavation Method: HDP																																																																																			
Pit Length: n/a																																																																																			
Pit Width: n/a																																																																																			
Made By: RJ																																																																																			

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Job Number: P13970

Start Date: 23/07/2019

End Date: 23/07/2019

Trial Pit Number: **CBR02**

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level
B	0.30	0.50			0.00
					0.10
					0.15
				0.80	

Topsoil.

MADE GROUND: Brown gravelly slightly sandy clay. Gravel is angular to subrounded fine to coarse flint.

Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)

End of trial pit at 0.80m

Remarks	
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Groundwater: Trial pit dry during excavation.

Stability: Trial pit stable during excavation.

Notes: n/a

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

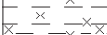
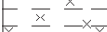
Job Number: P13970

Start Date: 23/07/2019

End Date: 23/07/2019

Trial Pit Number: CBR03

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level
B	0.40	0.60			0.00
					0.10
					0.25
					
					
					0.60
					End of trial pit at 0.60m

Remarks	
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Groundwater: Trial pit dry during excavation.

Stability: Trial pit stable during excavation.

Notes: n/a

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

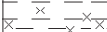
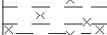
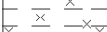
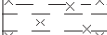
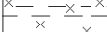
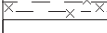
Job Number: P13970

Start Date: 23/07/2019

End Date: 23/07/2019

Trial Pit Number: CBR04

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description		
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	
B	0.60	0.80			0.00	Topsoil.
					0.10	MADE GROUND: Brown gravelly slightly sandy clay. Gravel is angular to subrounded fine to coarse flint.
					0.20	
						Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)
						
						
						
						
						
						
						
					0.80	End of trial pit at 0.80m

Remarks	
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Groundwater: Trial pit dry during excavation.

Stability: Trial pit stable during excavation.

Notes: n/a

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

ASHDOWN SITE INVESTIGATION

L · I · M · I · T · E · D

E-mail: contact@ashdownsi.co.uk
Web: www.ashdownsi.co.uk
Tel: 01273 483119

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

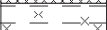
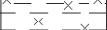
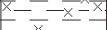
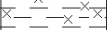
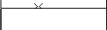
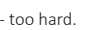
Job Number: P13970

Start Date: 23/07/2019

End Date: 23/07/2019

Trial Pit Number: CBR05

Sheet 1 of 1

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
B	0.20	0.40			0.00	Topsoil.
					0.10	MADE GROUND: Brown gravelly slightly sandy clay. Gravel is angular to subrounded fine to coarse flint.
					0.20	
						Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						

Remarks Groundwater: Trial pit dry during excavator. Stability: Trial pit stable during excavator. Notes: No further progress below 0.60m depth - too hard.	Excavation Method: HDP
	Pit Length: n/a
	Pit Width: n/a
	Made By: RJ

End Date: 23/07/2019

Sheet 1 of 1

Remarks Groundwater: Trial pit dry during excavation. Stability: Trial pit stable during excavation. Notes: No further progress below 0.80m depth - too hard.	Excavation Method: HDP
	Pit Length: n/a
	Pit Width: n/a
	Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

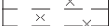
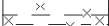
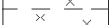
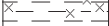
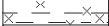
Job Number: P13970

Start Date: 24/07/2019

End Date: 24/07/2019

Trial Pit Number: **CBR07**

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description		
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	
B	0.70	0.90			0.00	Asphalt.
					0.20	MADE GROUND: Brown red yellow gravelly sandy clay. Gravel is angular to subangular fine to coarse brick and concrete with occasional clinker-like material. Sand is fine to coarse. Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)
					0.35	
						
						
						
						
						
						
					0.90	End of trial pit at 0.90m

Remarks	
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Groundwater: Trial pit dry during excavation.

Stability: Trial pit stable during excavation.

Notes: n/a

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

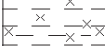
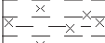
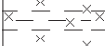
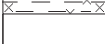
Job Number: P13970

Start Date: 24/07/2019

End Date: 24/07/2019

Trial Pit Number: **CBR09**

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description		
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	
B	0.50	0.70			0.00	Asphalt.
					0.15	MADE GROUND: Red brown gravelly sandy clay. Gravel is angular to subrounded fine to coarse flint, brick, crystalline rock and concrete. Sand is fine to coarse.
					0.40	
						Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)
						
						
						
						
						
						0.90

Remarks	
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Groundwater: Trial pit dry during excavation.

Stability: Trial pit stable during excavation.

Notes: n/a

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

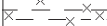
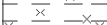
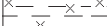
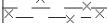
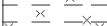
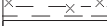
Job Number: P13970

Start Date: 24/07/2019

End Date: 24/07/2019

Trial Pit Number: CBR11

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level
B	0.50	0.70			0.00
					0.10
					0.20
					
					
					
					
					
					

Remarks	
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Groundwater: Trial pit dry during excavation.

Stability: Trial pit stable during excavation.

Notes: No further progress below 0.70m depth - too hard.

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

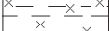
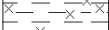
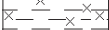
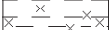
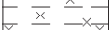
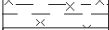
Job Number: P13970

Start Date: 24/07/2019

End Date: 24/07/2019

Trial Pit Number: CBR13

Sheet 1 of 1

Samples and In Situ Testing				Date: 01/01/2021	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Stratum Description
B	0.60	0.80			0.00 Asphalt.
					0.10 MADE GROUND: Grey brown sandy clayey angular to subrounded fine to coarse gravel of flint and crystalline rock. (Sub-base)
					0.25 Orange brown slightly sandy silty CLAY with rare gravel of flint. (Langley Silt Member)
					
					
					
					
					
					
					0.85 End of trial pit at 0.85m

Remarks	
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Groundwater: Trial pit dry during excavation.

Stability: Trial pit stable during excavation.

Notes: n/a

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

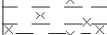
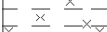
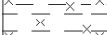
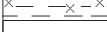
Job Number: P13970

Start Date: 24/07/2019

End Date: 24/07/2019

Trial Pit Number: **CBR14**

Sheet 1 of 1

Samples and In Situ Testing				Stratum Description		
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth/ Reduced Level	
B	0.30	0.50			0.00	Topsoil.
					0.10	
					0.25	
						MADE GROUND: Brown and orange brown gravelly silty sandy clay. Gravel is angular to subrounded fine to coarse flint and occasional brick.
						
						
						
						
						
						
		0.70	End of trial pit at 0.70m			

Remarks	
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Groundwater: Trial pit dry on excavation.

Stability: Trial pit stable during excavation.

Notes: n/a

Excavation Method: HDP

Pit Length: n/a

Pit Width: n/a

Made By: RJ

Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

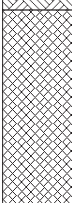
Job Number: P13970

Start Date: 24/07/2019

End Date: 24/07/2019

Borehole Number: **HA01 (2019)**

Sheet 1 of 1

Samples and In Situ Testing						Stratum Description	
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth	
	J T	0.05			 	0.00	Topsoil.
	J T	0.30				0.10	MADE GROUND: Orange brown slightly gravelly sandy silty clay. Gravel is subangular to subrounded fine to coarse flint and brick.
	J T	0.60				0.75	

Remarks	
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Groundwater: Borehole dry during excavation.

Stability: Borehole stable during excavation.

Notes: No further progress below 0.75m depth - too dense / gravelly.

Excavation Method: HA

Borehole Diameter: Various

Made By: RJ

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D E-mail: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119	Site Name: Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton					
	Job Number: P13970					
	Start Date: 24/07/2019			Borehole Number: HA02 (2019)		
End Date: 24/07/2019			Sheet 1 of 1			
Samples and In Situ Testing						
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Depth
	J T	0.05				0.00
	J T	0.40				0.10
	J T	0.80				0.80
Stratum Description						
Topsoil.						
MADE GROUND: Brown orange brown slightly gravelly sandy silty clay. Gravel is angular to subrounded fine to coarse occasional flint and brick. Sand is fine to coarse.						
End of borehole at 0.80m						
Remarks						
Groundwater: Borehole dry during excavation.						Excavation Method: HA
Stability: Borehole stable during excavation.						Borehole Diameter: Various
Notes: No further progress below 0.80m depth - too dense / gravelly.						Made By: RJ

Site Name: Hillingdon Young Persons Hub, Falling lane, Yiewsley, West Drayton

Job Number: R17-12386

Start Date: 30/08/2017

End Date: 30/08/2017

Borehole Number: HA01

Sheet 1 of 1

Standpipe		Samples and In Situ Testing			Dynamic Probe						Legend		Depth	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm										
				0	5	10	15	20	25	30			0.00	
J T	0.20												0.10	MADE GROUND: Brown gravelly sandy clay. Gravel is angular to subrounded fine to coarse flint and occasional charcoal- like material. Sand is fine to coarse.
J T	0.50													
J T	0.80												1.00	End of borehole at 1.00m

Remarks	
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Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: RJ

Site Name: Hillingdon Young Persons Hub, Falling lane, Yiewsley, West Drayton

Job Number: R17-12386

Start Date: 30/08/2017

End Date: 30/08/2017

Borehole Number: **HA02**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing			Dynamic Probe						Legend		Depth	Stratum Description	
	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm										
					0	5	10	15	20	25	30				
	J T	0.20												0.00	Topsoil. MADE GROUND: Brown gravelly sandy clay. Gravel is angular to subrounded fine to coarse flint and occasional brick and charcoal-like material. Sand is fine to coarse.
	J T	0.50												0.10	
	J T	0.80													
														1.00	End of borehole at 1.00m

Remarks	
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Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: RJ

Site Name: Hillingdon Young Persons Hub, Falling lane, Yiewsley, West Drayton

Job Number: R17-12386

Start Date: 30/08/2017

End Date: 30/08/2017

Borehole Number:

HA03

Sheet 1 of 1

Standpipe		Samples and In Situ Testing				Dynamic Probe		Legend		Depth		Stratum Description		
Sample/ Test Type		Depth From (m)	Depth To (m)	Test Result	Blows/100mm									
	J T	0.20									0.00	Topsoil.		
	J T	0.80									0.10	MADE GROUND: Brown gravelly sandy clay. Gravel is angular to rounded fine to coarse flint and occasional brick. and charcoal-like material. Sand is fine to coarse.		
											1.00	End of borehole at 1.00m		

Remarks	
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Groundwater: Borehole dry on completion.

Excavation Method: WLS

Stability: Borehole stable on completion.

Borehole Diameter: Various

Notes: n/a

Made By: RJ

Samples and In Situ Testing				Dynamic Probe		Legend	Depth	Stratum Description	
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm				
	J T	0.15	0.40				0.00	Topsoil MADE GROUND: Dark brown gravelly sandy clay. Gravel is angular to subrounded fine to medium flint and occasional brick. Sand is fine to coarse. Stiff varying orange brown slightly sandy silty CLAY. Sand is fine to medium. (Langley Silt Formation)	
	B	0.20							0.10
									0.20
	D	0.50							
	H	0.50		>250					
	J T	0.60		>250					
	H	0.80					>250		
	V	1.00					>130		
	D	1.50	2.00	140					
	H	1.50							
	J T	1.50							
	U	1.70							
	H	1.80					140		
V	2.00	>130							
J T	2.30	2.50					2.40	Very dense orange brown sandy angular to subangular fine to coarse GRAVEL of flint. Sand is fine to coarse. (Lynch Hill Gravel Member) End of borehole at 2.50m	
D	2.50						2.50		

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: No further progress below 2.50m depth - too dense. Standpipe installed to 2.50m depth; 1.00 to 2.50m slotted pipe with gravel surround; 1.00m to ground level plain pipe with bentonite seal; completed with gas tap and security cover concreted flush with ground surface.

Excavation Method: WLS

Borehole Diameter: Various

Made By: RJ

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D E-mail: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119		Site Name: Hillingdon Young Persons Hub, Falling lane, Yiewsley, West Drayton													
		Job Number: R17-12386													
		Start Date: 30/08/2017					Borehole Number: WS02								
		End Date: 30/08/2017													
Sheet 1 of 1															
Samples and In Situ Testing															
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe					Legend	Depth	Stratum Description			
					Blows/100mm										
					0	5	10	15	20	25	30				
	J T	0.15												0.00	Topsoil
														0.10	MADE GROUND: Brown gravelly sandy silty clay. Gravel is angular to subrounded fine to coarse flint. Sand is fine to coarse.
														0.30	Stiff varying to very stiff orange brown slightly sandy silty CLAY. Sand is fine to medium. (Langley Silt Formation)
	D	0.50													
	H	0.50		170											
	J T	0.50													
	H	0.80		>250											
	V	1.00		>130											
	H	1.20		>250											
	D	1.50													
	H	1.50		140											
	J T	1.50													
	U	1.70	2.00												
	V	2.00		>130											
	J T	2.30													
	D	2.60												2.40	Dense to very dense orange brown sandy very clayey angular to subangular fine to coarse GRAVEL of flint. Sand is fine to coarse. (Lynch Hill Gravel Member)
														2.60	End of borehole at 2.60m

Site Name: Hillingdon Young Persons Hub, Falling lane, Yiewsley, West Drayton

Job Number: R17-12386

Start Date: 30/08/2017

End Date: 30/08/2017

Borehole Number:

WS03

Sheet 1 of 1

Samples and In Situ Testing				Dynamic Probe		Legend	Depth	Stratum Description
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm			
	J T	0.15	0.30				0.00	Topsoil.
	B	0.20					0.10	MADE GROUND: Dark brown gravelly sandy clay. Gravel is angular to subrounded fine to coarse brick and occasional charcoal-like material. Sand is fine to coarse.
	D	0.50					0.20	Stiff varying to very stiff orange brown slightly sandy silty CLAY. Sand is fine to medium. (Langley Silt Formation)
	H	0.50		>250				
	J T	0.50						
	H	0.80		>250				
	V	1.00		>130				
	H	1.20		140				
	D	1.50						
	H	1.50		140				
	J T	1.50						
	U	1.70	2.00					
	V	2.00		120				
	D	2.50						
	H	2.50		225				
	J T	2.50						
	H	2.80		225				
	D	3.00					3.00	with rare gravel of flint towards base.
	V	3.00		>130				End of borehole at 3.00m

Remarks	
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Groundwater: Borehole dry on completion.

Stability: Borehole cased to 2.00m depth.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: RJ

Site Name: Hillingdon Young Persons Hub, Falling lane, Yiewsley, West Drayton

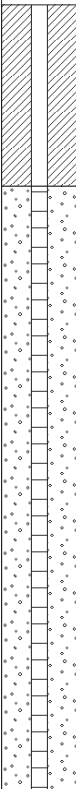
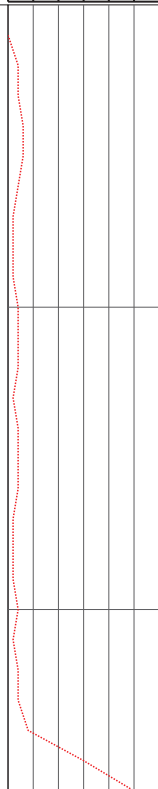
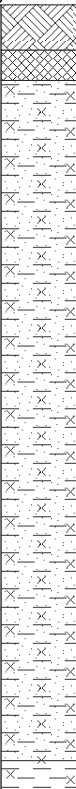
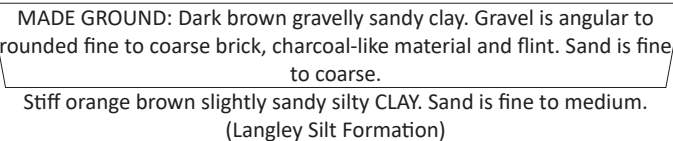
Job Number: R17-12386

Start Date: 30/08/2017

End Date: 30/08/2017

Borehole Number: **WS04**

Sheet 1 of 1

Samples and In Situ Testing				Dynamic Probe		Legend	Depth	Stratum Description
Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm			
	J T	0.20	0.60	115			0.00	Topsoil
	B	0.25					0.15	
	H	0.40					0.25	
	D	0.50	1.00	140				
	H	0.50		140				
	H	0.60						
	J T	0.60						
	U	0.70						
	V	1.00		>130			becoming stiff to very stiff below 1.00m depth.	
	H	1.20		225				
	D	1.50	>250	with rare gravel of siltstone at 1.50m depth.				
	H	1.50	>250					
	J T	1.50						
	H	1.60	2.00	>250				
	U	1.70						
V	2.00	110						
D	2.50	2.50						
J T	2.50		Dense to very dense orange brown sandy clayey angular to rounded fine to coarse GRAVEL of flint. Sand is fine to coarse. (Lynch Hill Gravel Member)					
D	2.60			End of borehole at 2.60m				

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: No Further Progress below 2.60m depth - too dense. Standpipe installed to 2.60m depth; 0.60 to 2.60m slotted pipe with gravel surround; 0.60m to ground level plain pipe with bentonite seal; completed with gas tap and security cover concreted flush with ground surface.

Excavation Method: WLS

Borehole Diameter: Various

Made By: RJ

ASHDOWN SITE INVESTIGATION L · I · M · I · T · E · D E-mail: contact@ashdownsi.co.uk Web: www.ashdownsi.co.uk Tel: 01273 483119		Site Name: Hillingdon Young Persons Hub, Falling lane, Yiewsley, West Drayton																																																																																																																																																																																																
		Job Number: R17-12386																																																																																																																																																																																																
		Start Date: 30/08/2017					Borehole Number: WS05																																																																																																																																																																																											
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Sheet 1 of 1																																																																																																																																																																																																		
Samples and In Situ Testing Dynamic Probe Standpipe Sample/ Test Type Depth From (m) Depth To (m) Test Result Blows/100mm Legend Depth Stratum Description <table><tr><td></td><td>J T</td><td>0.15</td><td rowspan="2">0.50</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.00</td><td>Topsoil</td></tr><tr><td></td><td>B</td><td>0.20</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.10</td><td>MADE GROUND: Brown slightly gravelly sandy silty clay. Gravel is angular to subrounded fine to coarse flint and rare brick. Sand is fine to coarse.</td></tr><tr><td></td><td>D</td><td>0.60</td><td rowspan="10">1.25</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.20</td><td>Stiff varying to very stiff orange brown slightly gravelly slightly sandy silty CLAY. Gravel is angular to rounded fine flint. Sand is fine to medium. (Langley Silt Formation)</td></tr><tr><td></td><td>J T</td><td>0.60</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>U</td><td>1.00</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>V</td><td>1.00</td><td>>130</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>H</td><td>1.30</td><td>>250</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>D</td><td>1.50</td><td>>250</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>H</td><td>1.50</td><td>>250</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>J T</td><td>1.50</td><td>>250</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>V</td><td>2.00</td><td>>130</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>D</td><td>2.20</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>J T</td><td>2.30</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>D</td><td>2.70</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2.50</td><td>Dense to very dense orange brown clayey sandy angular to subrounded fine to coarse GRAVEL of flint. Sand is fine to coarse. (Lynch Hill Gravel Member)</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2.70</td><td>End of borehole at 2.70m</td></tr></table>																J T	0.15	0.50							0.00	Topsoil		B	0.20								0.10	MADE GROUND: Brown slightly gravelly sandy silty clay. Gravel is angular to subrounded fine to coarse flint and rare brick. Sand is fine to coarse.		D	0.60	1.25							0.20	Stiff varying to very stiff orange brown slightly gravelly slightly sandy silty CLAY. Gravel is angular to rounded fine flint. Sand is fine to medium. (Langley Silt Formation)		J T	0.60											U	1.00											V	1.00	>130										H	1.30	>250										D	1.50	>250										H	1.50	>250										J T	1.50	>250										V	2.00	>130										D	2.20											J T	2.30											D	2.70								2.50	Dense to very dense orange brown clayey sandy angular to subrounded fine to coarse GRAVEL of flint. Sand is fine to coarse. (Lynch Hill Gravel Member)											2.70	End of borehole at 2.70m
	J T	0.15	0.50							0.00	Topsoil																																																																																																																																																																																							
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										2.70	End of borehole at 2.70m																																																																																																																																																																																							
Remarks Groundwater: Borehole dry on completion. Stability: Borehole cased to 2.00m depth. Notes: Nor further progress below 2.70m depth - too dense. Standpipe installed to 2.70m depth; 0.70 to 2.70m slotted pipe with gravel surround; 0.70m to ground level plain pipe with bentonite seal; completed with gas tap and security cover concreted flush with ground surface.											Excavation Method: WLS																																																																																																																																																																																							
											Borehole Diameter: Various																																																																																																																																																																																							
											Made By: RJ																																																																																																																																																																																							

ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

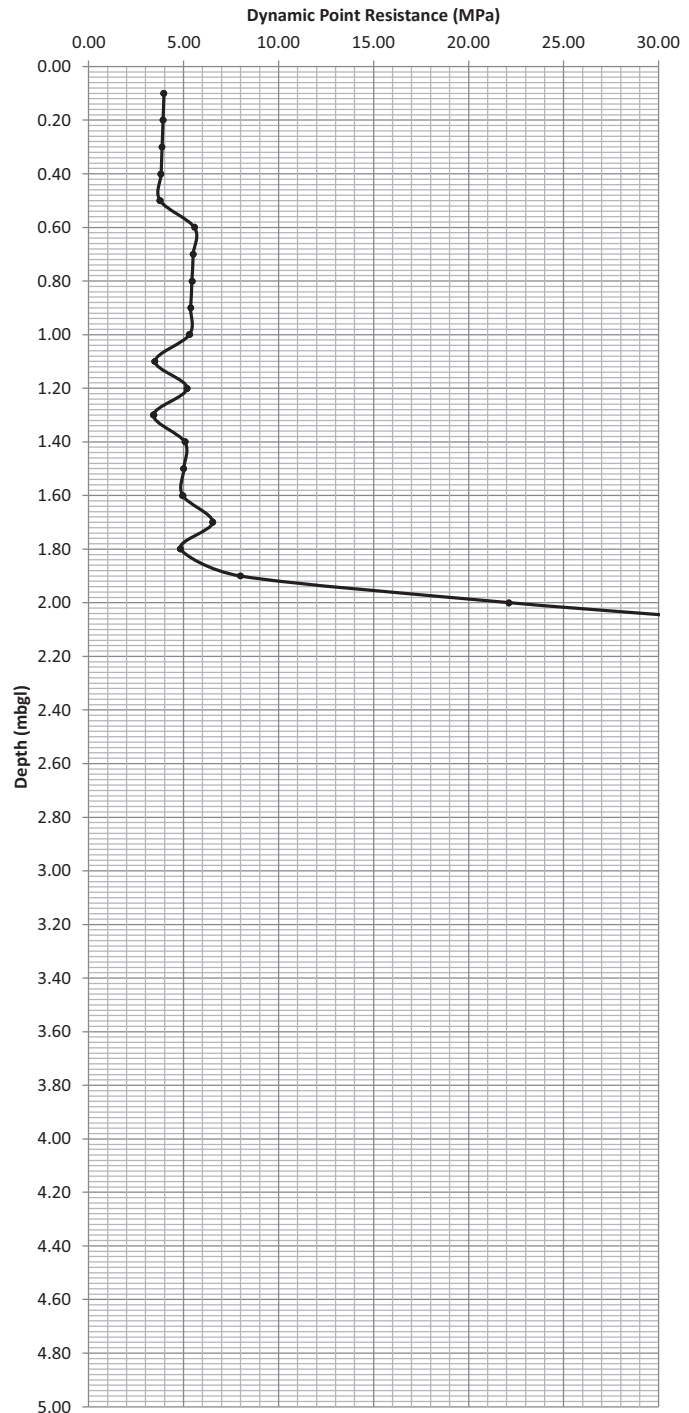
SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

Test Location Reference **WS101**

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	2	0.05	4.09	3.97
0.20	2	0.05	4.09	3.92
0.30	2	0.05	4.09	3.87
0.40	2	0.05	4.09	3.82
0.50	2	0.05	4.09	3.77
0.60	3	0.03	6.13	5.58
0.70	3	0.03	6.13	5.51
0.80	3	0.03	6.13	5.44
0.90	3	0.03	6.13	5.38
1.00	3	0.03	6.13	5.31
1.10	2	0.05	4.09	3.50
1.20	3	0.03	6.13	5.19
1.30	2	0.05	4.09	3.42
1.40	3	0.03	6.13	5.07
1.50	3	0.03	6.13	5.01
1.60	3	0.03	6.13	4.95
1.70	4	0.03	8.17	6.53
1.80	3	0.03	6.13	4.85
1.90	5	0.02	10.22	7.99
2.00	14	0.01	28.61	22.13
2.10	25	0.00	51.08	39.10
2.20	30	0.00	61.30	46.43
2.30				
2.40				
2.50				
2.60				
2.70				
2.80				
2.90				
3.00				
3.10				
3.20				
3.30				
3.40				
3.50				
3.60				
3.70				
3.80				
3.90				
4.00				
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:

No further progress below 2.20m depth - hammer bouncing.

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.82
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

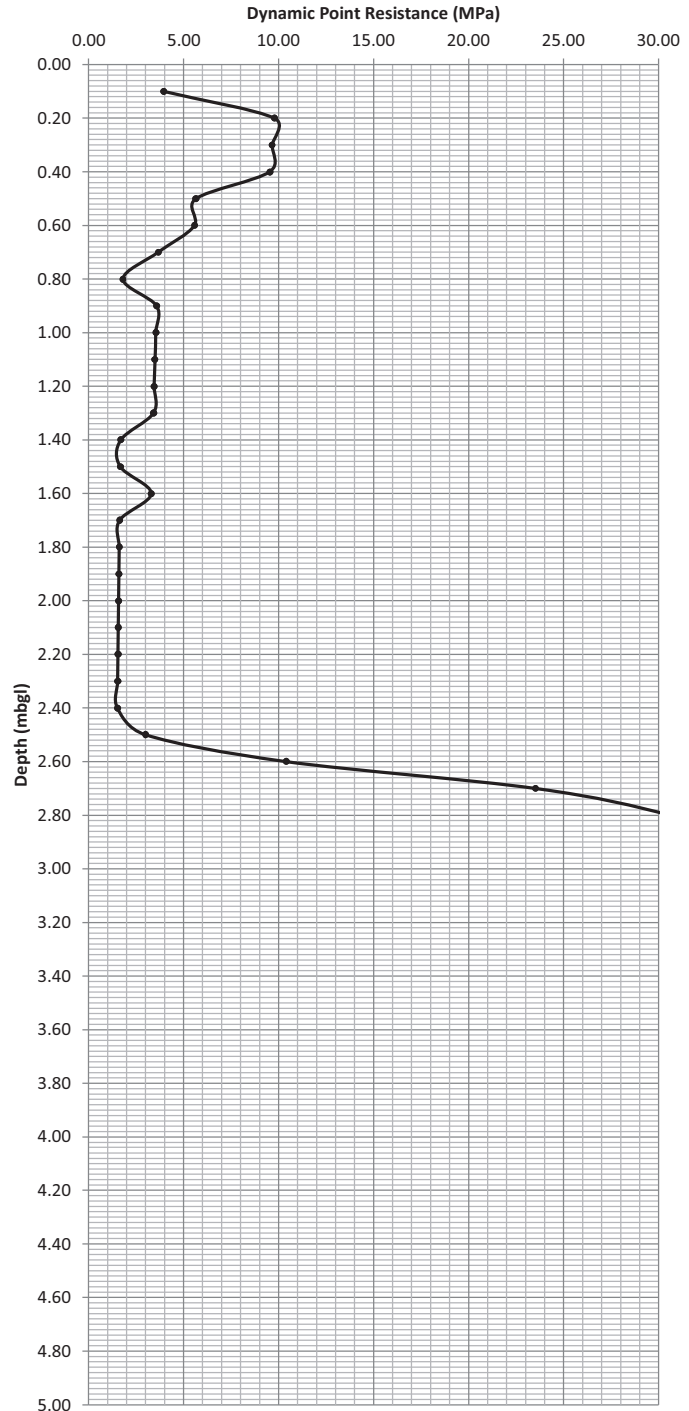
SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

Test Location Reference **WS102**

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	2	0.05	4.09	3.97
0.20	5	0.02	10.22	9.79
0.30	5	0.02	10.22	9.66
0.40	5	0.02	10.22	9.54
0.50	3	0.03	6.13	5.65
0.60	3	0.03	6.13	5.58
0.70	2	0.05	4.09	3.67
0.80	1	0.10	2.04	1.81
0.90	2	0.05	4.09	3.58
1.00	2	0.05	4.09	3.54
1.10	2	0.05	4.09	3.50
1.20	2	0.05	4.09	3.46
1.30	2	0.05	4.09	3.42
1.40	1	0.10	2.04	1.69
1.50	1	0.10	2.04	1.67
1.60	2	0.05	4.09	3.30
1.70	1	0.10	2.04	1.63
1.80	1	0.10	2.04	1.62
1.90	1	0.10	2.04	1.60
2.00	1	0.10	2.04	1.58
2.10	1	0.10	2.04	1.56
2.20	1	0.10	2.04	1.55
2.30	1	0.10	2.04	1.53
2.40	1	0.10	2.04	1.52
2.50	2	0.05	4.09	3.00
2.60	7	0.01	14.30	10.40
2.70	16	0.01	32.69	23.53
2.80	21	0.00	42.91	30.58
2.90	24	0.00	49.04	34.61
3.00	30	0.00	61.30	42.84
3.10				
3.20				
3.30				
3.40				
3.50				
3.60				
3.70				
3.80				
3.90				
4.00				
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:

No further progress below 3.00m depth - hammer bouncing.

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.82
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

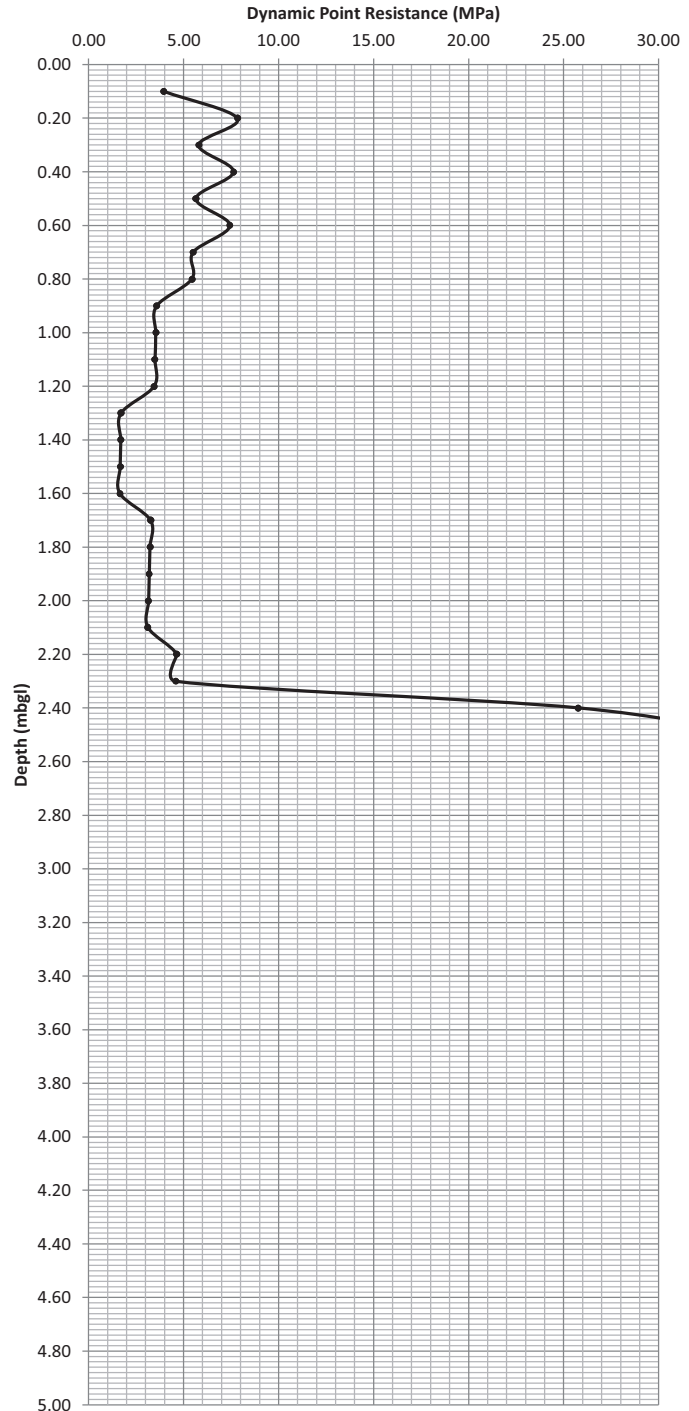
SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

Test Location Reference **WS103**

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	2	0.05	4.09	3.97
0.20	4	0.03	8.17	7.83
0.30	3	0.03	6.13	5.80
0.40	4	0.03	8.17	7.63
0.50	3	0.03	6.13	5.65
0.60	4	0.03	8.17	7.44
0.70	3	0.03	6.13	5.51
0.80	3	0.03	6.13	5.44
0.90	2	0.05	4.09	3.58
1.00	2	0.05	4.09	3.54
1.10	2	0.05	4.09	3.50
1.20	2	0.05	4.09	3.46
1.30	1	0.10	2.04	1.71
1.40	1	0.10	2.04	1.69
1.50	1	0.10	2.04	1.67
1.60	1	0.10	2.04	1.65
1.70	2	0.05	4.09	3.27
1.80	2	0.05	4.09	3.23
1.90	2	0.05	4.09	3.20
2.00	2	0.05	4.09	3.16
2.10	2	0.05	4.09	3.13
2.20	3	0.03	6.13	4.64
2.30	3	0.03	6.13	4.60
2.40	17	0.01	34.73	25.77
2.50	23	0.00	46.99	34.51
2.60	26	0.00	53.12	38.62
2.70	29	0.00	59.25	42.65
2.80	33	0.00	67.43	48.05
2.90				
3.00				
3.10				
3.20				
3.30				
3.40				
3.50				
3.60				
3.70				
3.80				
3.90				
4.00				
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:

No further progress below 2.80m depth - hammer bouncing.

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.82
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

ASHDOWN SITE INVESTIGATION LTD

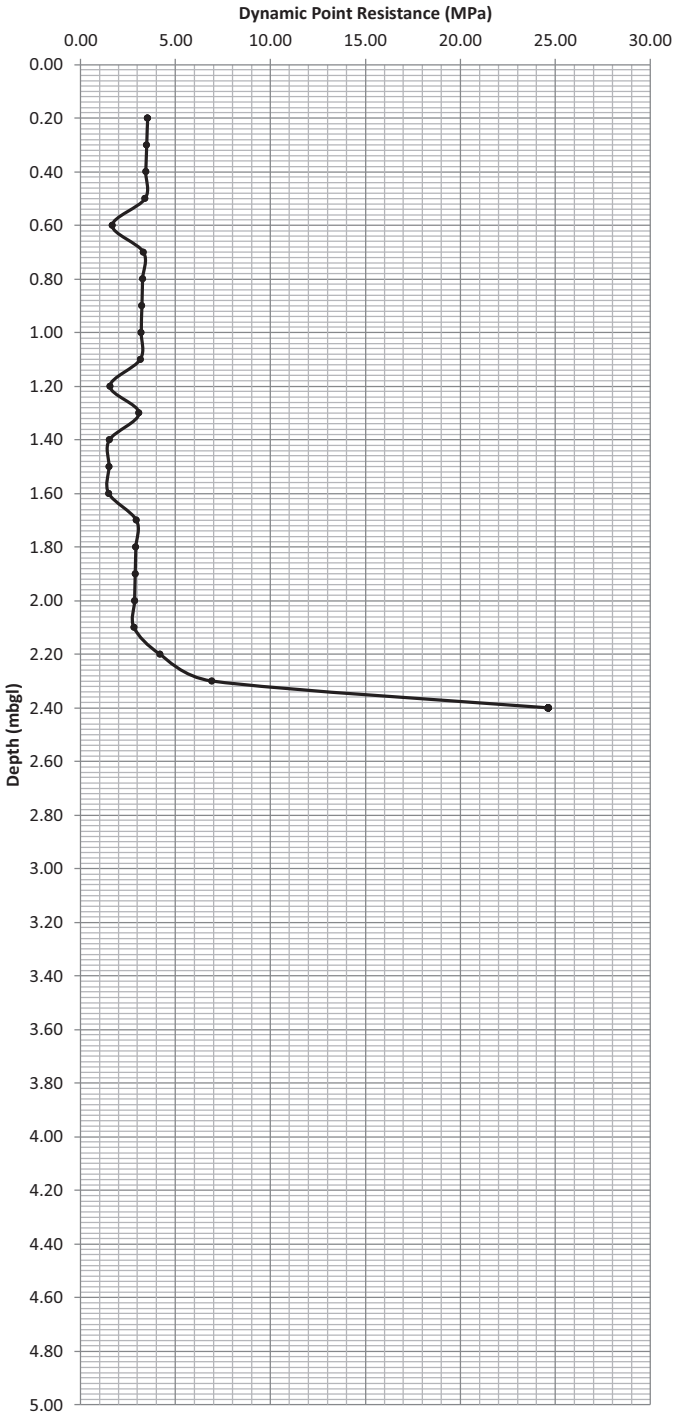
Dynamic Probe Record

SITE Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton

Report Ref. R17-12386

Test Location Reference WS01

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20	2	0.05	3.69	3.53
0.30	2	0.05	3.69	3.49
0.40	2	0.05	3.69	3.44
0.50	2	0.05	3.69	3.40
0.60	1	0.10	1.84	1.68
0.70	2	0.05	3.69	3.31
0.80	2	0.05	3.69	3.27
0.90	2	0.05	3.69	3.23
1.00	2	0.05	3.69	3.20
1.10	2	0.05	3.69	3.16
1.20	1	0.10	1.84	1.56
1.30	2	0.05	3.69	3.08
1.40	1	0.10	1.84	1.52
1.50	1	0.10	1.84	1.51
1.60	1	0.10	1.84	1.49
1.70	2	0.05	3.69	2.95
1.80	2	0.05	3.69	2.92
1.90	2	0.05	3.69	2.88
2.00	2	0.05	3.69	2.85
2.10	2	0.05	3.69	2.82
2.20	3	0.03	5.53	4.19
2.30	5	0.02	9.22	6.91
2.40	18	0.01	33.19	24.63
2.50				
2.60				
2.70				
2.80				
2.90				
3.00				
3.10				
3.20				
3.30				
3.40				
3.50				
3.60				
3.70				
3.80				
3.90				
4.00				
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:
No further progress below 2.40m- hammer bouncing

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.74
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

ASHDOWN SITE INVESTIGATION LTD

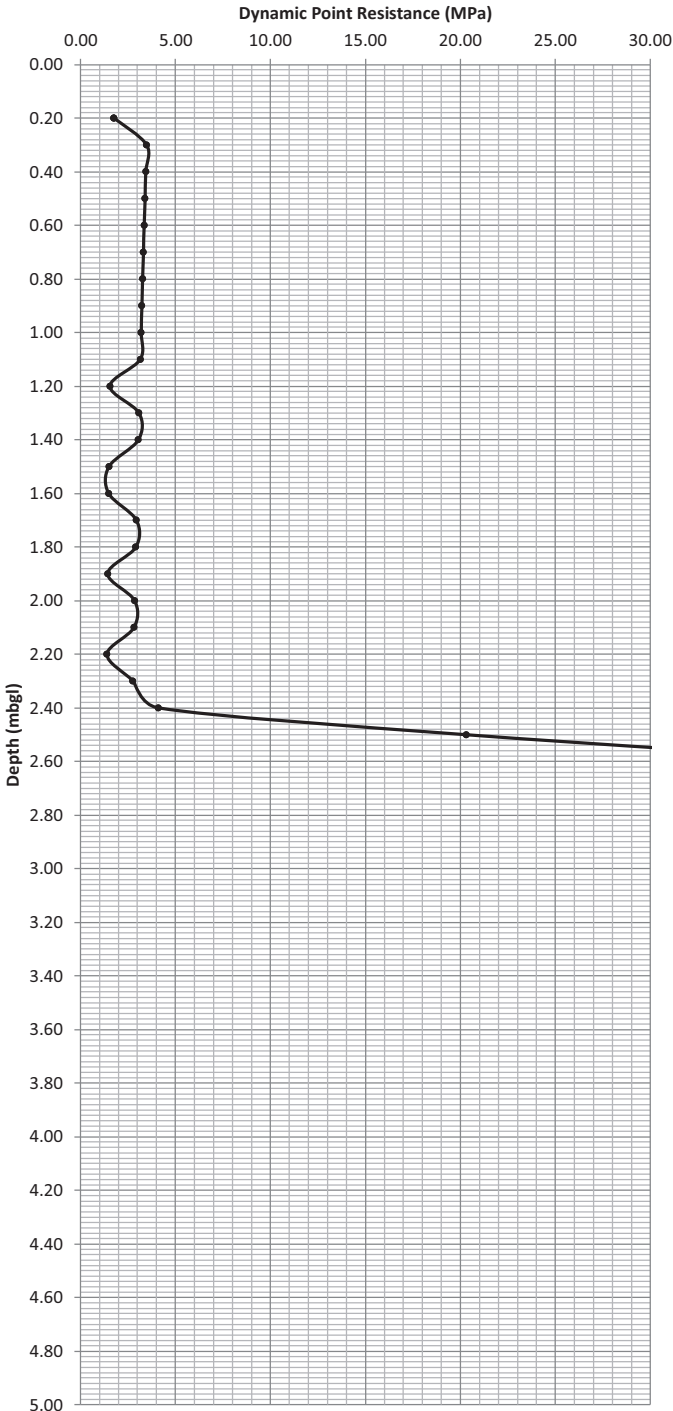
Dynamic Probe Record

SITE Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton

Report Ref. R17-12386

Test Location Reference WS02

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20	1	0.10	1.84	1.77
0.30	2	0.05	3.69	3.49
0.40	2	0.05	3.69	3.44
0.50	2	0.05	3.69	3.40
0.60	2	0.05	3.69	3.36
0.70	2	0.05	3.69	3.31
0.80	2	0.05	3.69	3.27
0.90	2	0.05	3.69	3.23
1.00	2	0.05	3.69	3.20
1.10	2	0.05	3.69	3.16
1.20	1	0.10	1.84	1.56
1.30	2	0.05	3.69	3.08
1.40	2	0.05	3.69	3.05
1.50	1	0.10	1.84	1.51
1.60	1	0.10	1.84	1.49
1.70	2	0.05	3.69	2.95
1.80	2	0.05	3.69	2.92
1.90	1	0.10	1.84	1.44
2.00	2	0.05	3.69	2.85
2.10	2	0.05	3.69	2.82
2.20	1	0.10	1.84	1.40
2.30	2	0.05	3.69	2.76
2.40	3	0.03	5.53	4.10
2.50	15	0.01	27.66	20.31
2.60	31	0.00	57.16	41.56
2.70				
2.80				
2.90				
3.00				
3.10				
3.20				
3.30				
3.40				
3.50				
3.60				
3.70				
3.80				
3.90				
4.00				
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:
No further progress below 2.60m- hammer bouncing

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.74
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

ASHDOWN SITE INVESTIGATION LTD

Dynamic Probe Record

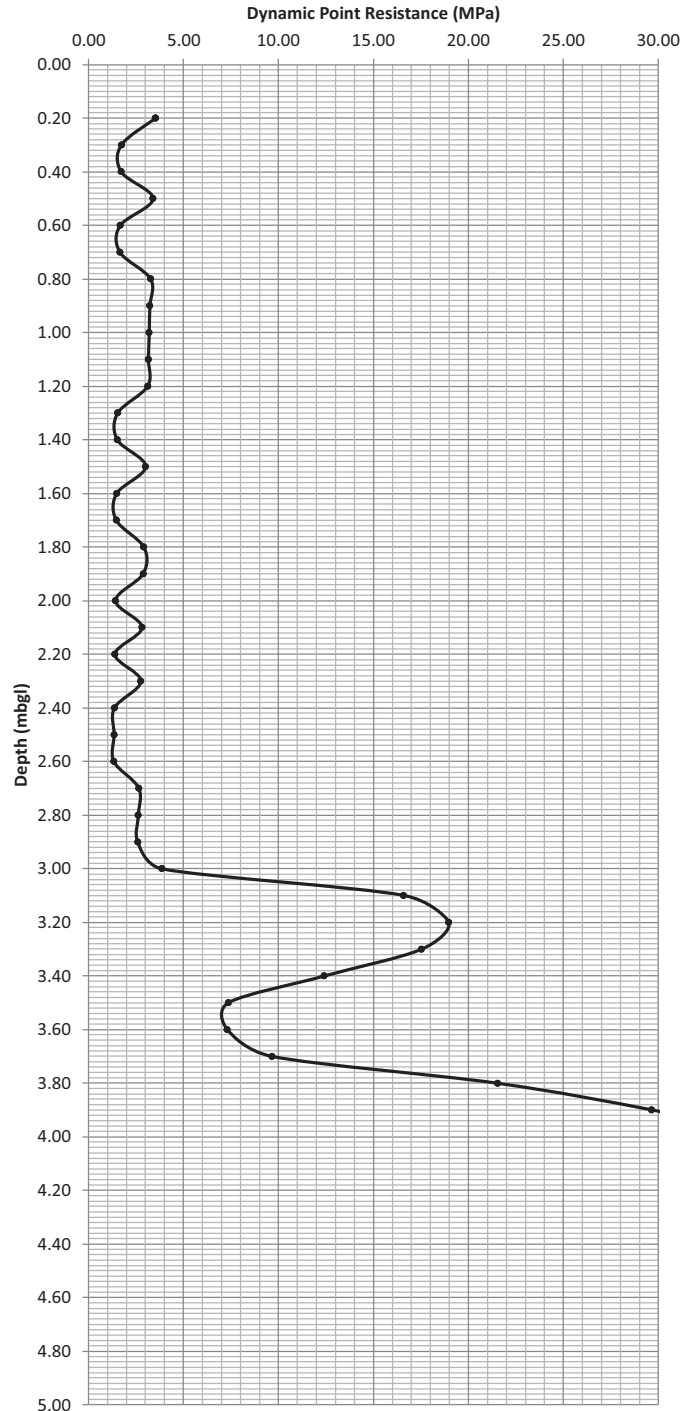
SITE Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton

Report Ref.

R17-12386

Test Location Reference **WS03**

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20	2	0.05	3.69	3.53
0.30	1	0.10	1.84	1.74
0.40	1	0.10	1.84	1.72
0.50	2	0.05	3.69	3.40
0.60	1	0.10	1.84	1.68
0.70	1	0.10	1.84	1.66
0.80	2	0.05	3.69	3.27
0.90	2	0.05	3.69	3.23
1.00	2	0.05	3.69	3.20
1.10	2	0.05	3.69	3.16
1.20	2	0.05	3.69	3.12
1.30	1	0.10	1.84	1.54
1.40	1	0.10	1.84	1.52
1.50	2	0.05	3.69	3.01
1.60	1	0.10	1.84	1.49
1.70	1	0.10	1.84	1.47
1.80	2	0.05	3.69	2.92
1.90	2	0.05	3.69	2.88
2.00	1	0.10	1.84	1.43
2.10	2	0.05	3.69	2.82
2.20	1	0.10	1.84	1.40
2.30	2	0.05	3.69	2.76
2.40	1	0.10	1.84	1.37
2.50	1	0.10	1.84	1.35
2.60	1	0.10	1.84	1.34
2.70	2	0.05	3.69	2.65
2.80	2	0.05	3.69	2.63
2.90	2	0.05	3.69	2.60
3.00	3	0.03	5.53	3.87
3.10	13	0.01	23.97	16.59
3.20	15	0.01	27.66	18.96
3.30	14	0.01	25.81	17.53
3.40	10	0.01	18.44	12.41
3.50	6	0.02	11.06	7.38
3.60	6	0.02	11.06	7.31
3.70	8	0.01	14.75	9.66
3.80	18	0.01	33.19	21.53
3.90	25	0.00	46.10	29.64
4.00	31	0.00	57.16	36.43
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:

No further progress below 4.0m- hammer bouncing

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.74
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

ASHDOWN SITE INVESTIGATION LTD

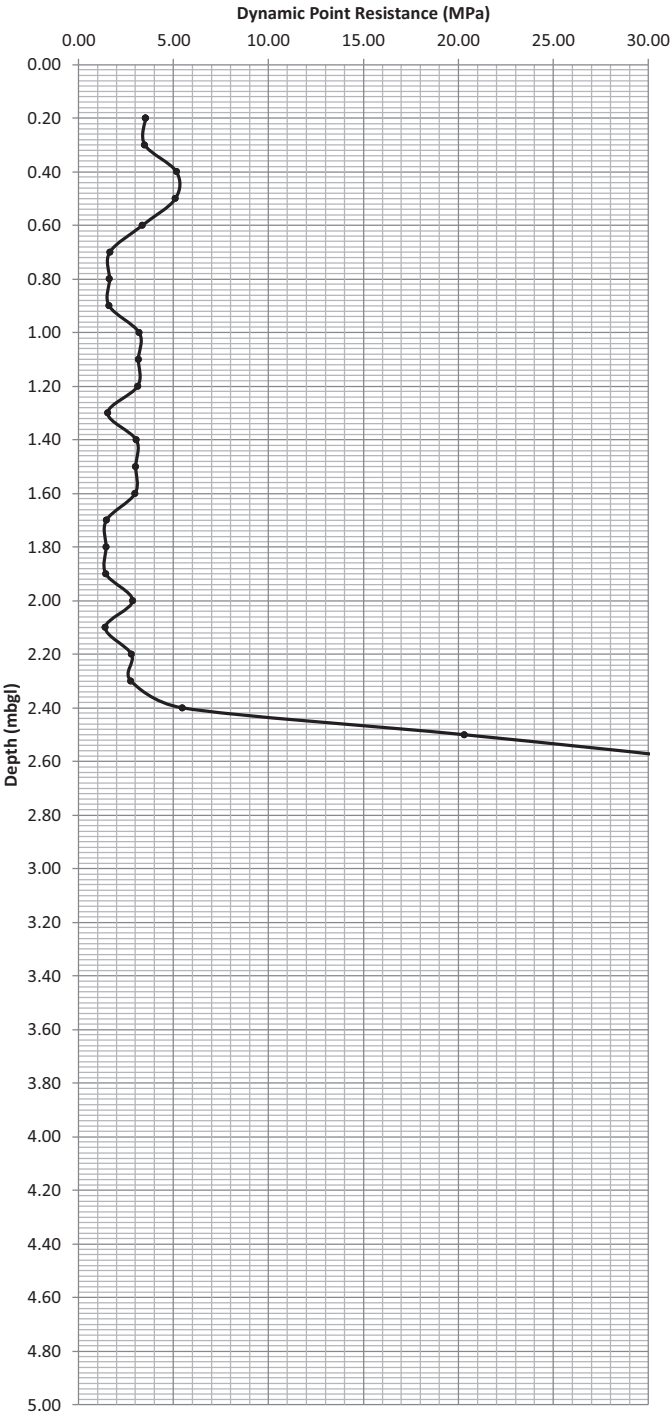
Dynamic Probe Record

SITE Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton

Report Ref. R17-12386

Test Location Reference WS04

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20	2	0.05	3.69	3.53
0.30	2	0.05	3.69	3.49
0.40	3	0.03	5.53	5.16
0.50	3	0.03	5.53	5.10
0.60	2	0.05	3.69	3.36
0.70	1	0.10	1.84	1.66
0.80	1	0.10	1.84	1.64
0.90	1	0.10	1.84	1.62
1.00	2	0.05	3.69	3.20
1.10	2	0.05	3.69	3.16
1.20	2	0.05	3.69	3.12
1.30	1	0.10	1.84	1.54
1.40	2	0.05	3.69	3.05
1.50	2	0.05	3.69	3.01
1.60	2	0.05	3.69	2.98
1.70	1	0.10	1.84	1.47
1.80	1	0.10	1.84	1.46
1.90	1	0.10	1.84	1.44
2.00	2	0.05	3.69	2.85
2.10	1	0.10	1.84	1.41
2.20	2	0.05	3.69	2.79
2.30	2	0.05	3.69	2.76
2.40	4	0.03	7.38	5.47
2.50	15	0.01	27.66	20.31
2.60	25	0.00	46.10	33.51
2.70	32	0.00	59.00	42.47
2.80	38	0.00	70.07	49.94
2.90				
3.00				
3.10				
3.20				
3.30				
3.40				
3.50				
3.60				
3.70				
3.80				
3.90				
4.00				
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:
No further progress below 2.80m- hammer bouncing

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.74
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

ASHDOWN SITE INVESTIGATION LTD

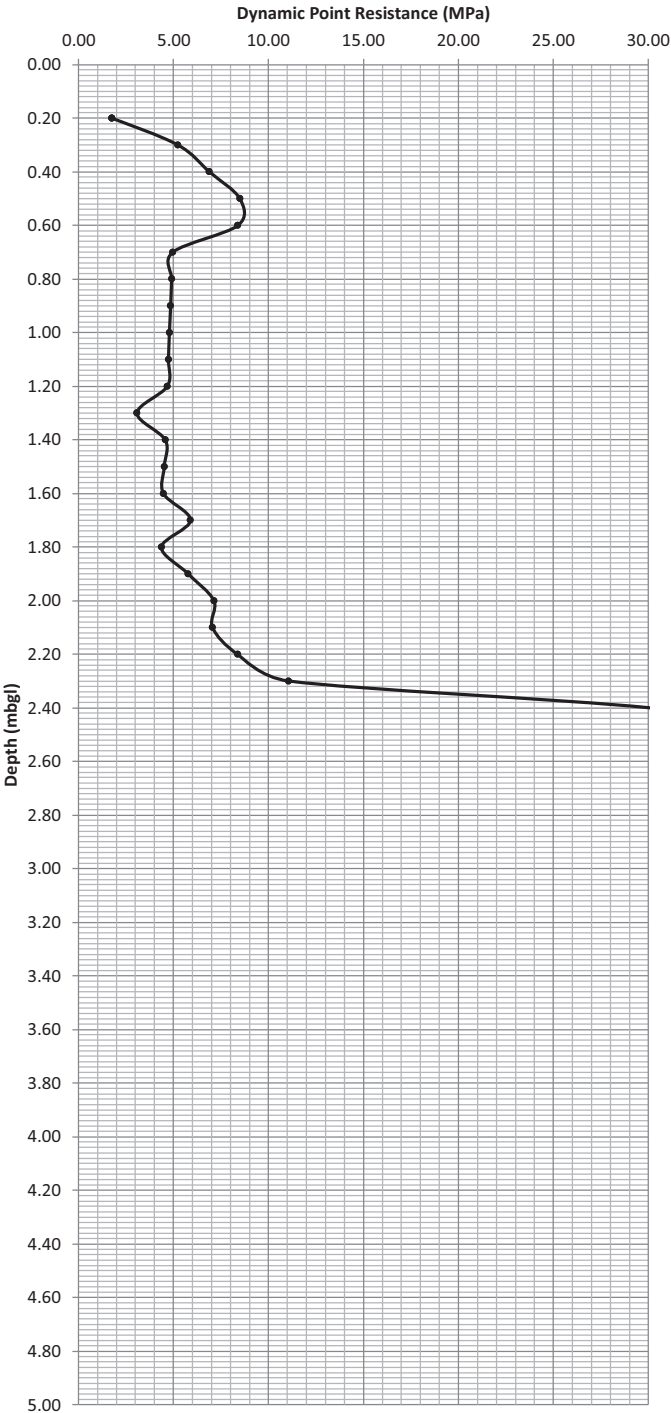
Dynamic Probe Record

SITE Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton

Report Ref. R17-12386

Test Location Reference WS05

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10				
0.20	1	0.10	1.84	1.77
0.30	3	0.03	5.53	5.23
0.40	4	0.03	7.38	6.89
0.50	5	0.02	9.22	8.50
0.60	5	0.02	9.22	8.39
0.70	3	0.03	5.53	4.97
0.80	3	0.03	5.53	4.91
0.90	3	0.03	5.53	4.85
1.00	3	0.03	5.53	4.79
1.10	3	0.03	5.53	4.74
1.20	3	0.03	5.53	4.68
1.30	2	0.05	3.69	3.08
1.40	3	0.03	5.53	4.57
1.50	3	0.03	5.53	4.52
1.60	3	0.03	5.53	4.47
1.70	4	0.03	7.38	5.90
1.80	3	0.03	5.53	4.37
1.90	4	0.03	7.38	5.77
2.00	5	0.02	9.22	7.13
2.10	5	0.02	9.22	7.06
2.20	6	0.02	11.06	8.38
2.30	8	0.01	14.75	11.06
2.40	22	0.00	40.57	30.10
2.50	29	0.00	53.47	39.27
2.60	32	0.00	59.00	42.90
2.70	35	0.00	64.54	46.45
2.80				
2.90				
3.00				
3.10				
3.20				
3.30				
3.40				
3.50				
3.60				
3.70				
3.80				
3.90				
4.00				
4.10				
4.20				
4.30				
4.40				
4.50				
4.60				
4.70				
4.80				
4.90				
5.00				



Notes:
No further progress below 2.70m- hammer bouncing

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m ²
E _{theor}	473 J
Energy Ratio	0.74
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

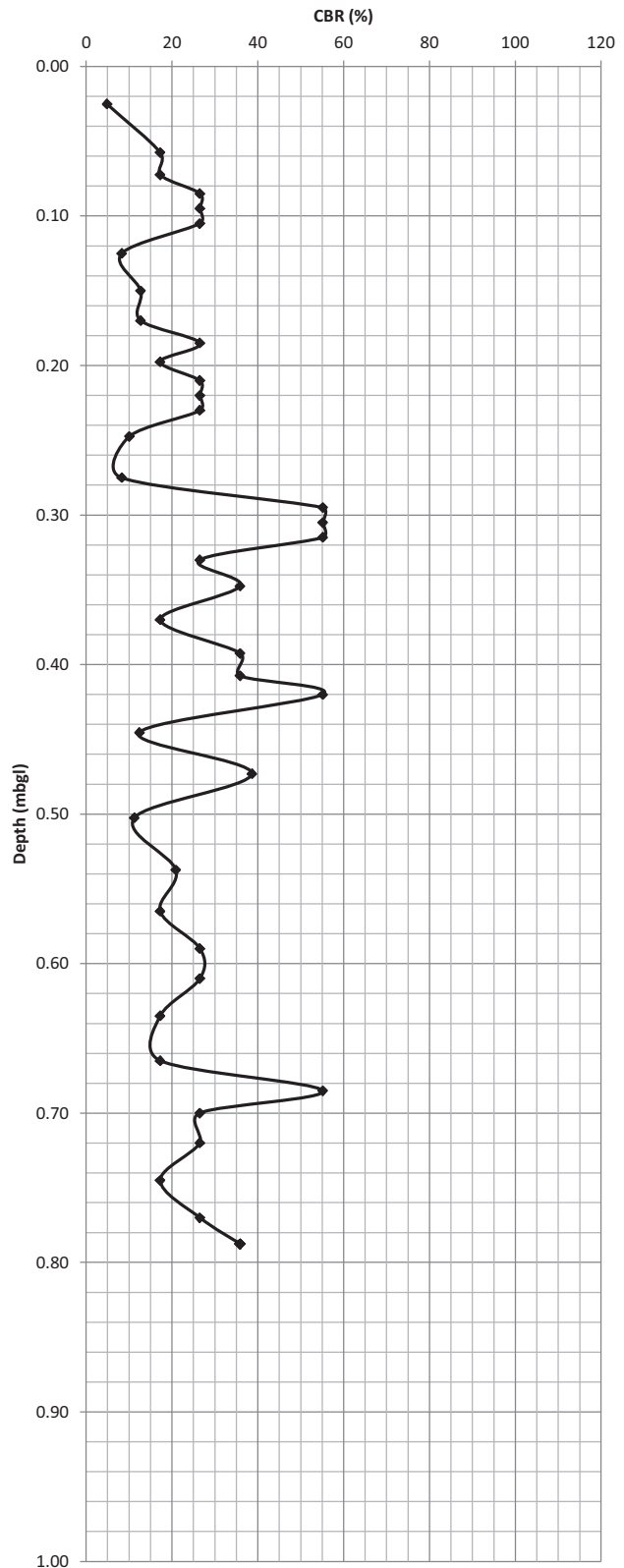
TRL Dynamic Cone Penetrometer Record

SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

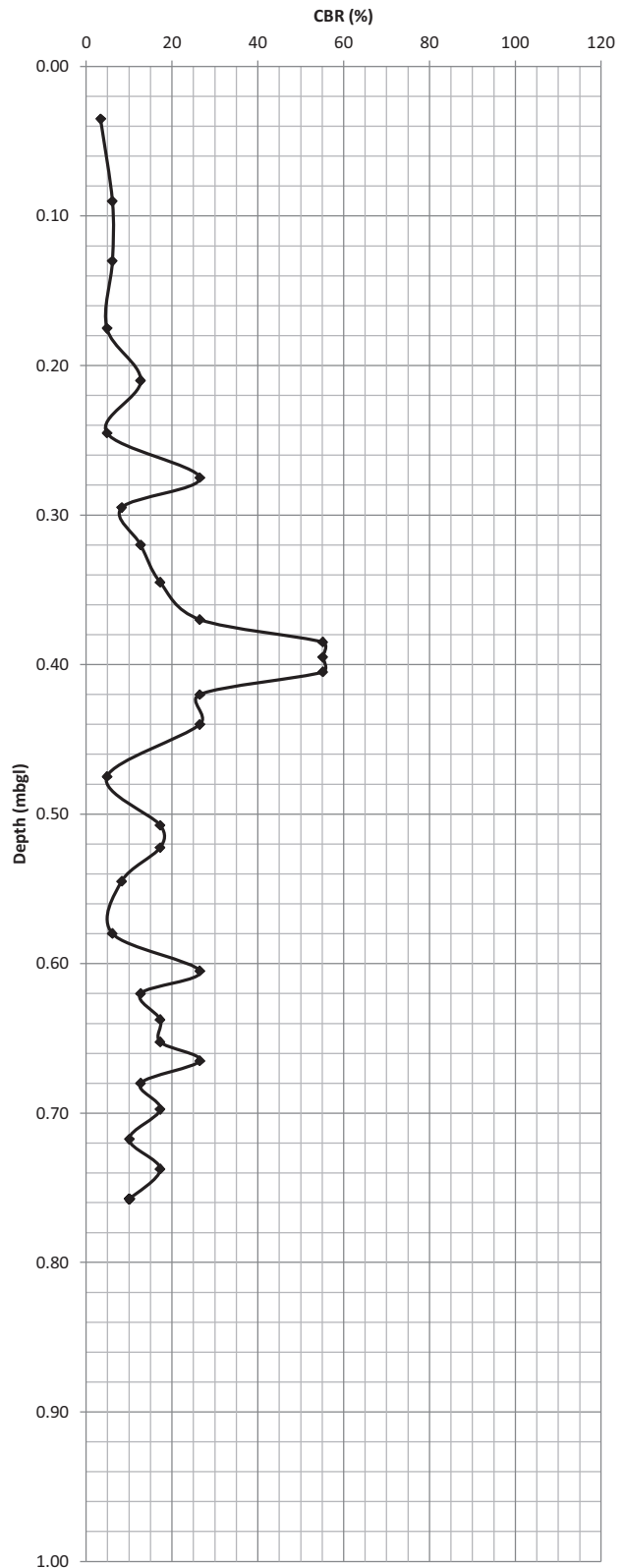
Test Location Reference	CBR01
Depth of Start of Test (mbgl)	0.00

[illegible]

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

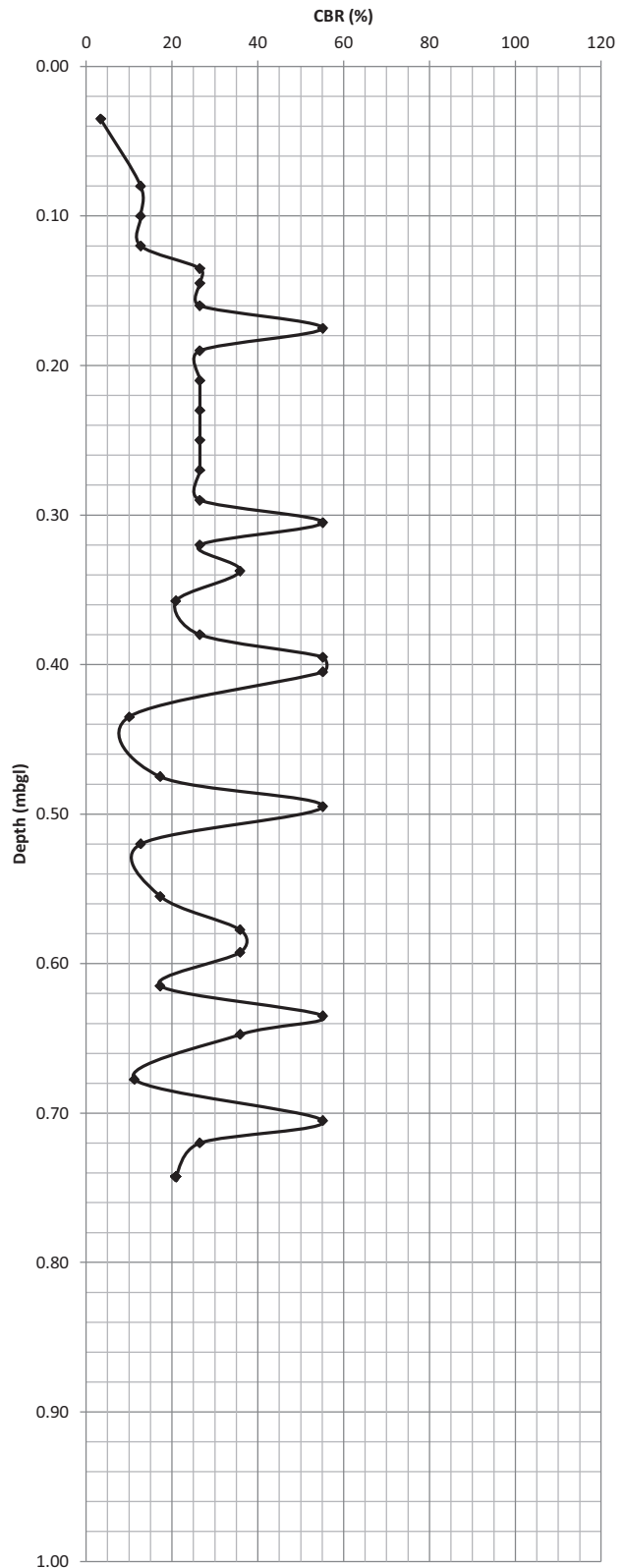
P13970



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

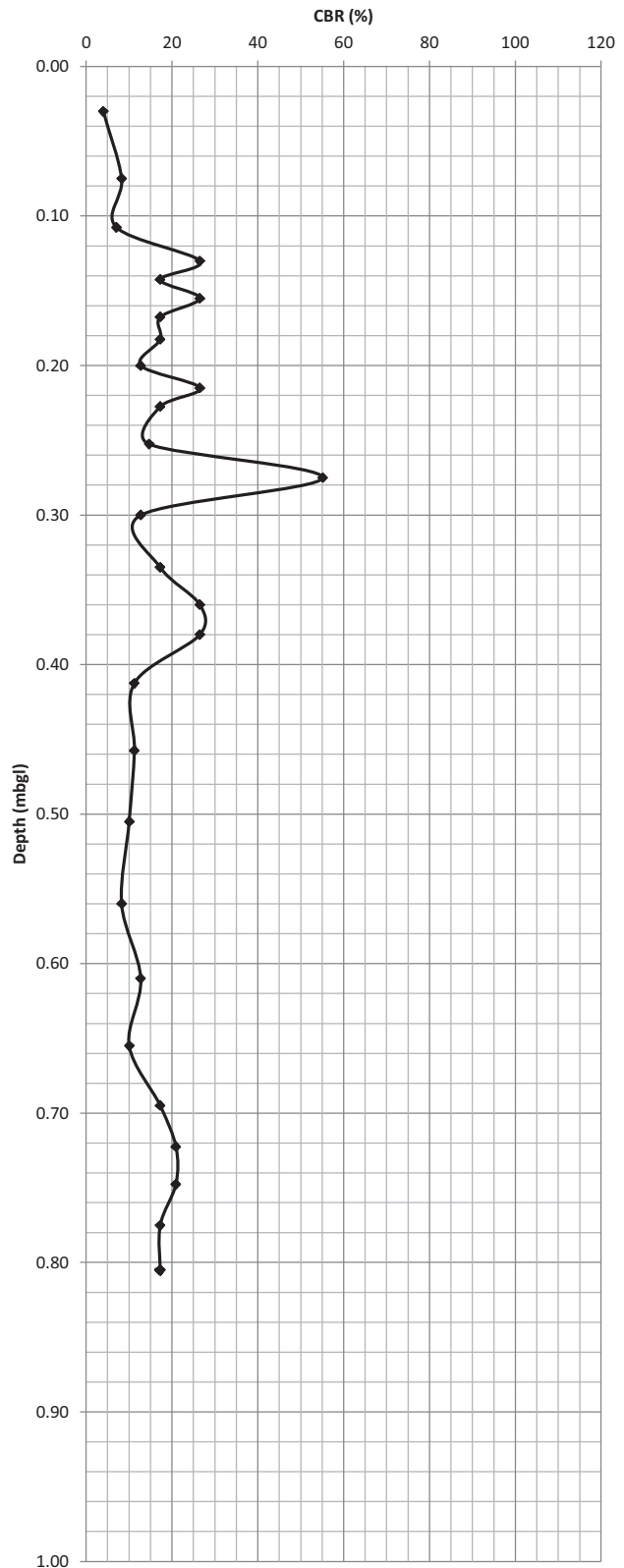
P13970



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

P13970



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

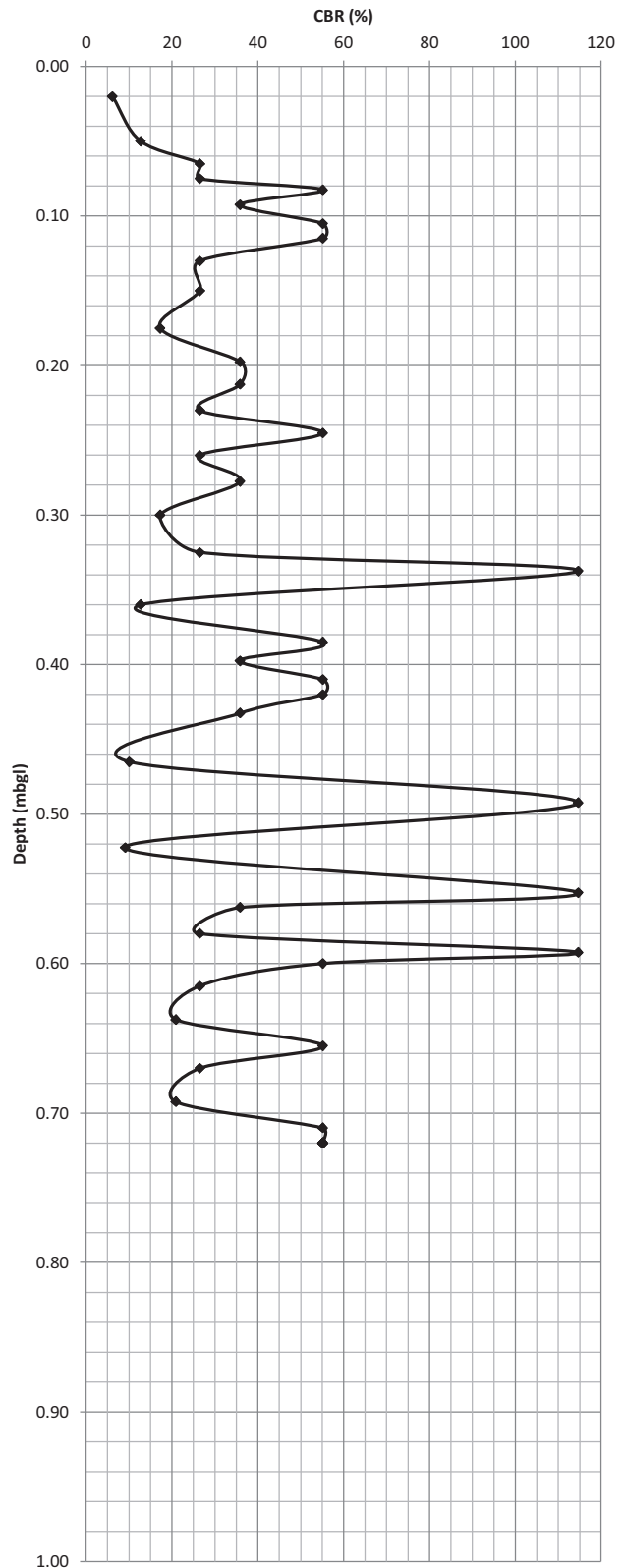
TRL Dynamic Cone Penetrometer Record

SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

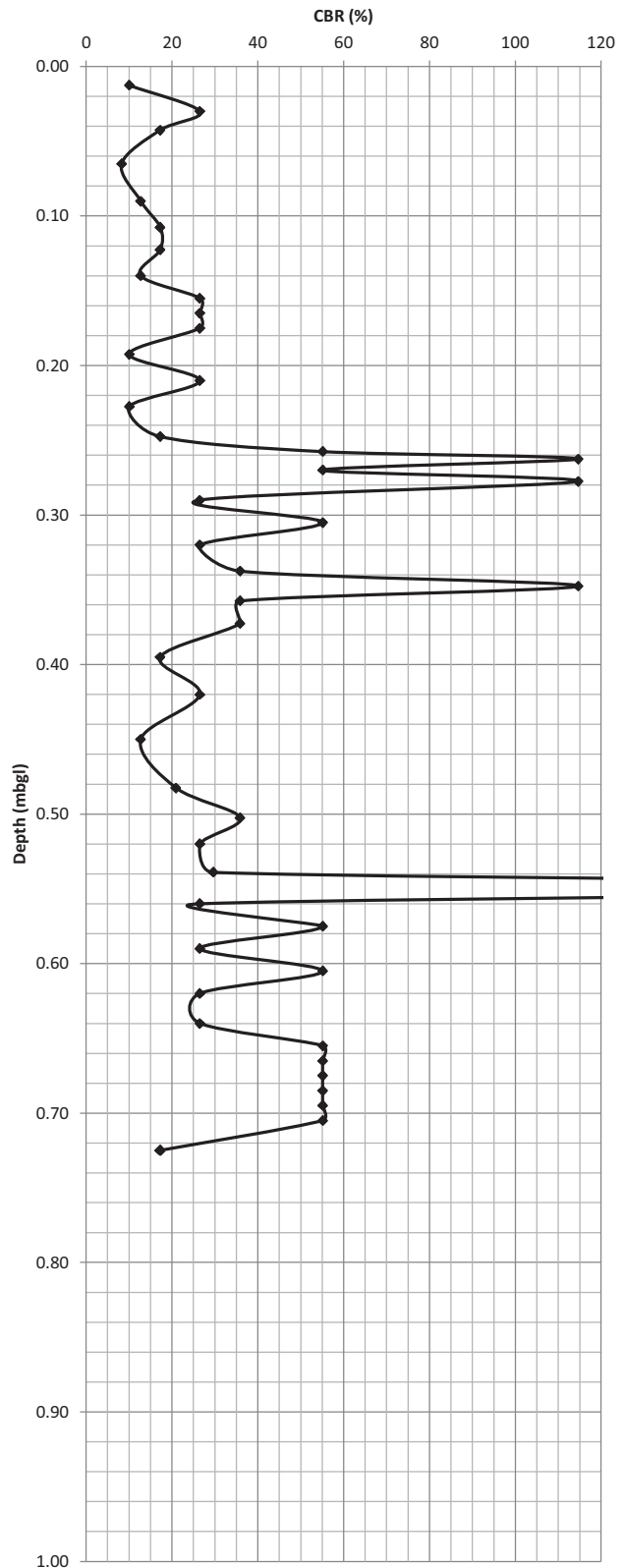
Test Location Reference	CBR05
Depth of Start of Test (mbgl)	0.00

[illegible]

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

P13970



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

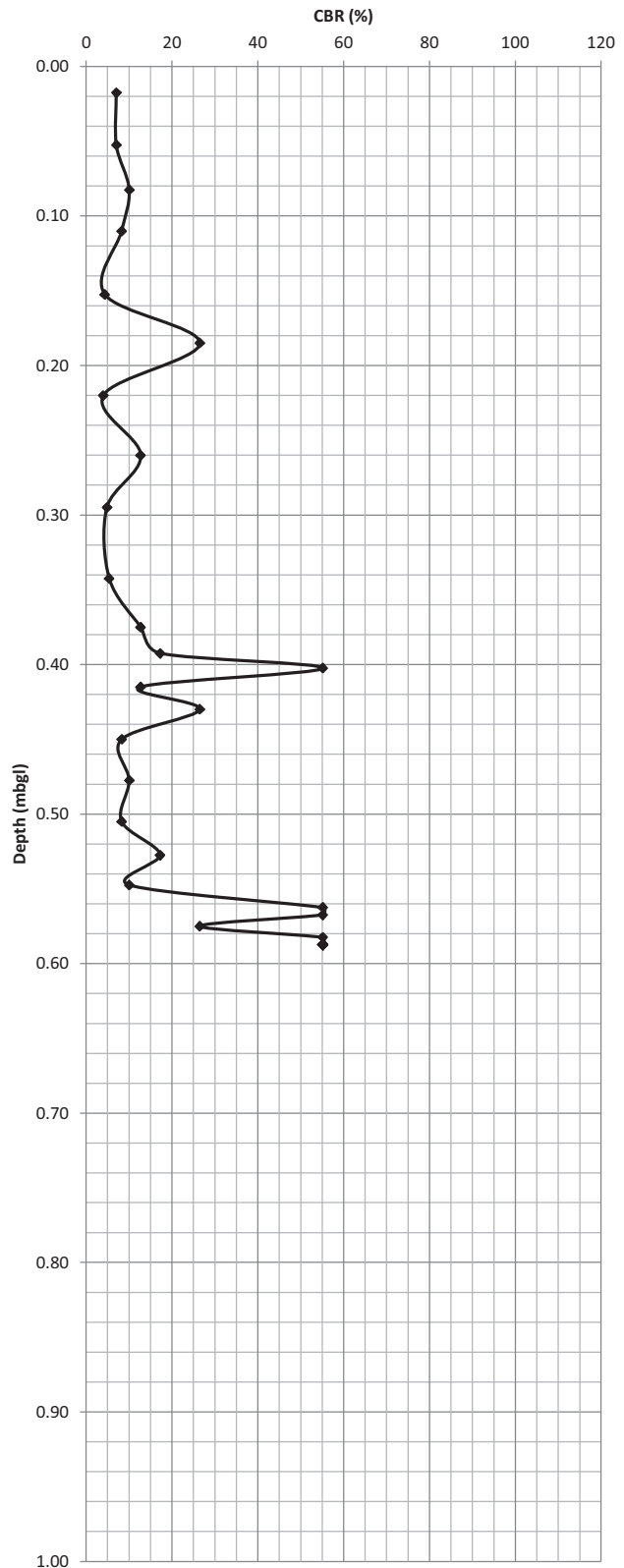
TRL Dynamic Cone Penetrometer Record

SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

Test Location Reference	CBR07
Depth of Start of Test (mbgl)	0.00

[illegible]

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

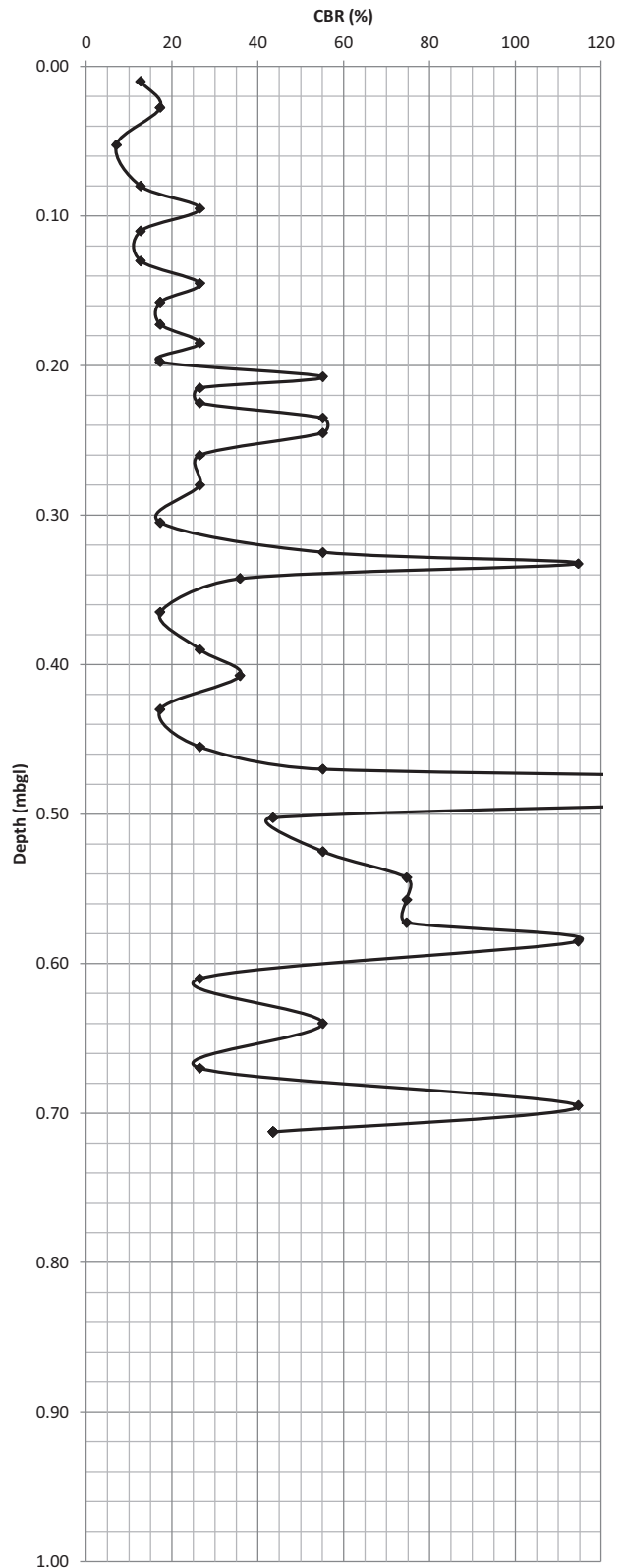
TRL Dynamic Cone Penetrometer Record

SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

Test Location Reference	CBR08
Depth of Start of Test (mbgl)	0.00

[illegible]

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

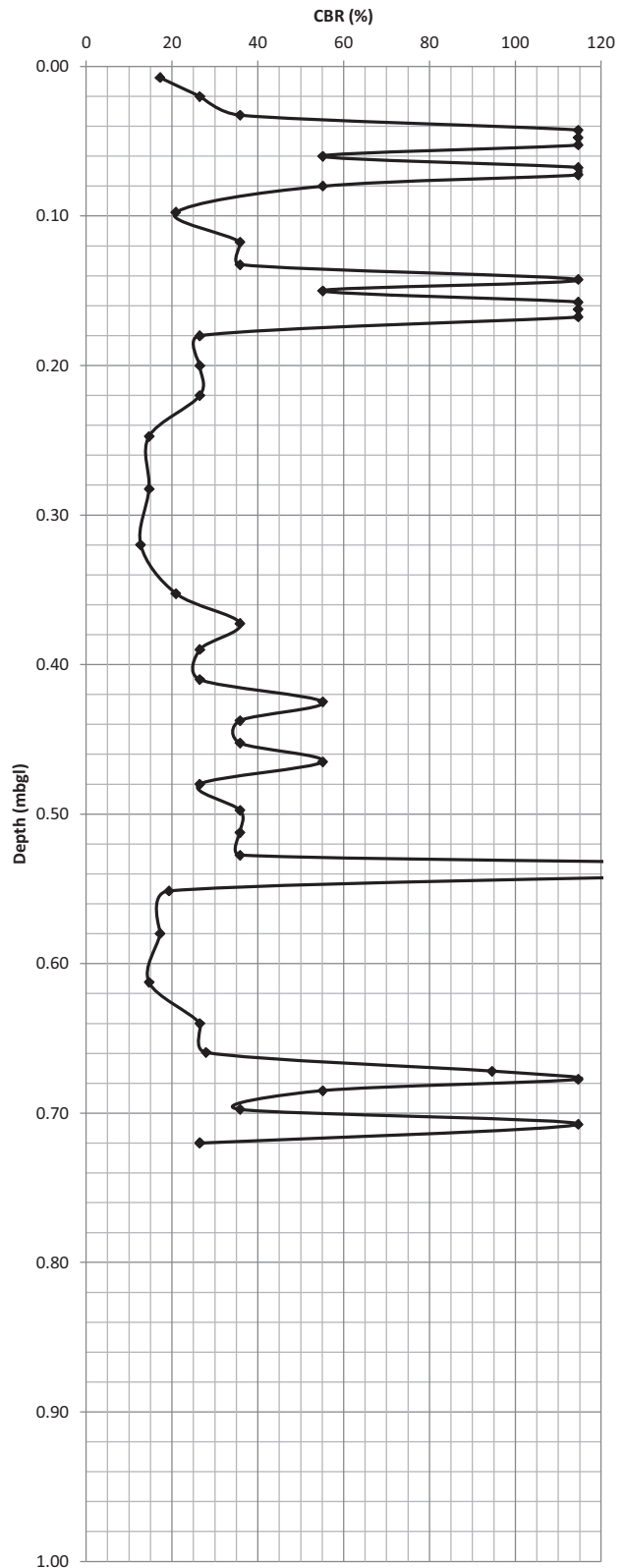
TRL Dynamic Cone Penetrometer Record

SITE Proposed Orchard Hill School, Falling Lane, Yiewsley, West Drayton

Report Ref.

P13970

Test Location Reference	CBR09
Depth of Start of Test (mbgl)	0.00

[illegible]

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

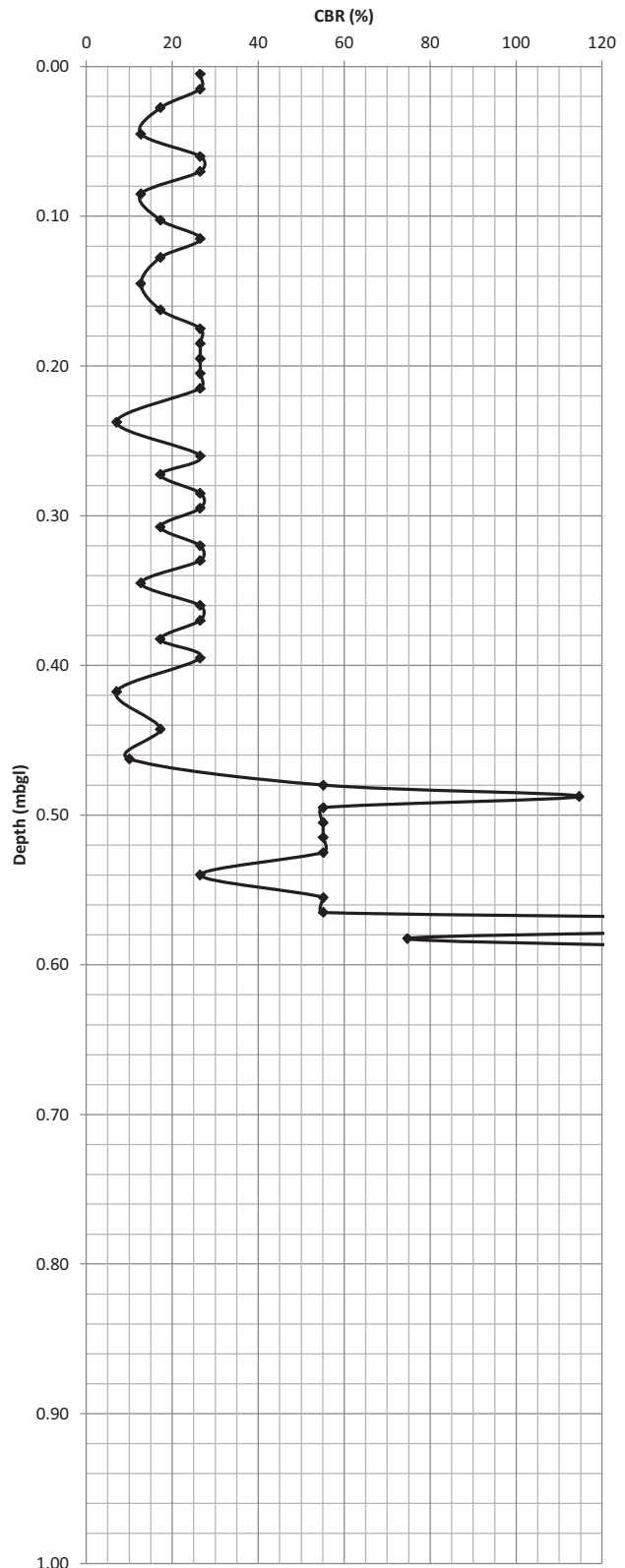
TRL Dynamic Cone Penetrometer Record

P13970

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

P13970



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

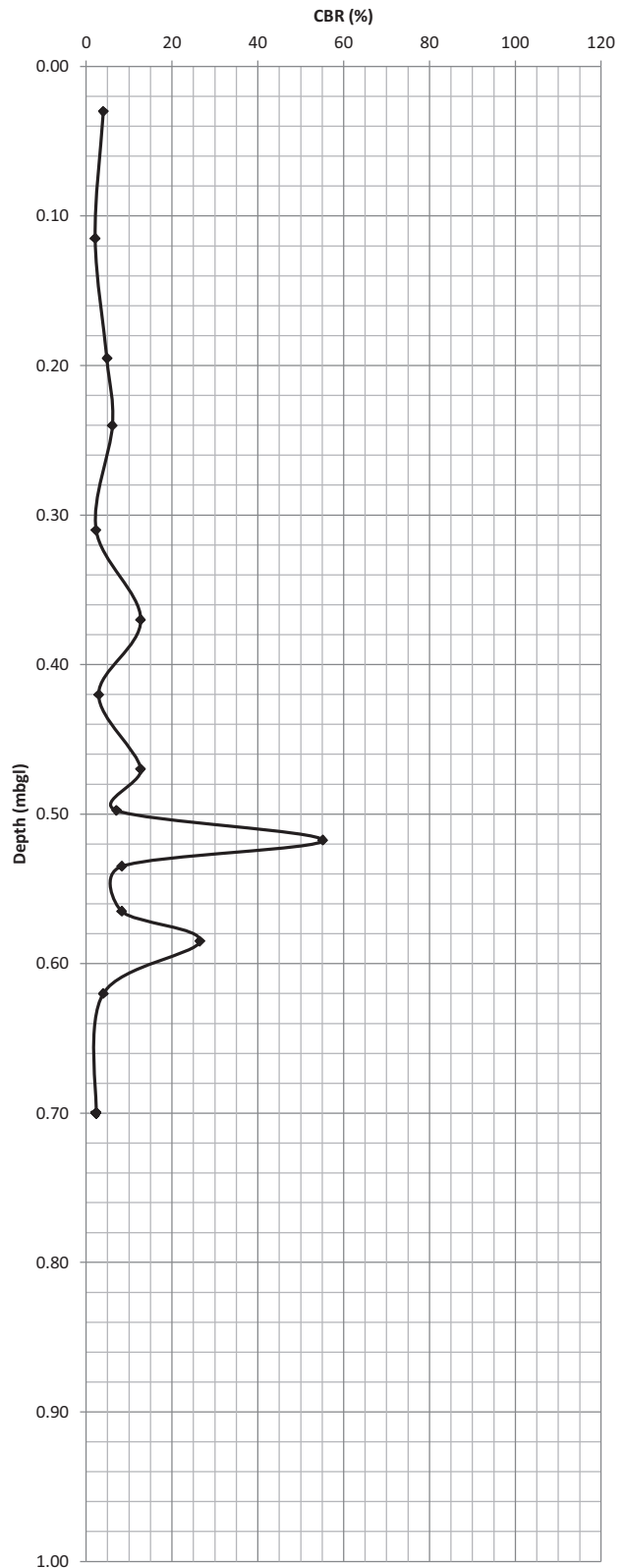
TRL Dynamic Cone Penetrometer Record

P13970

Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

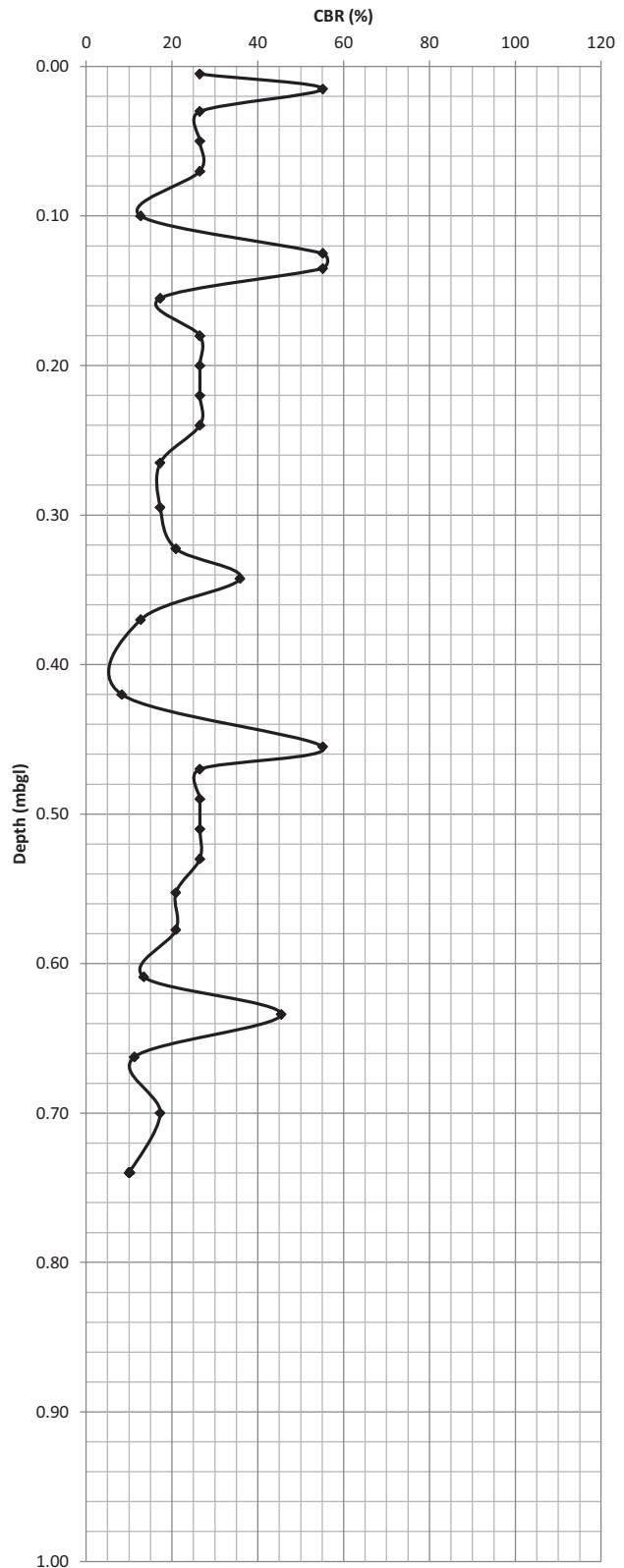
P13970



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

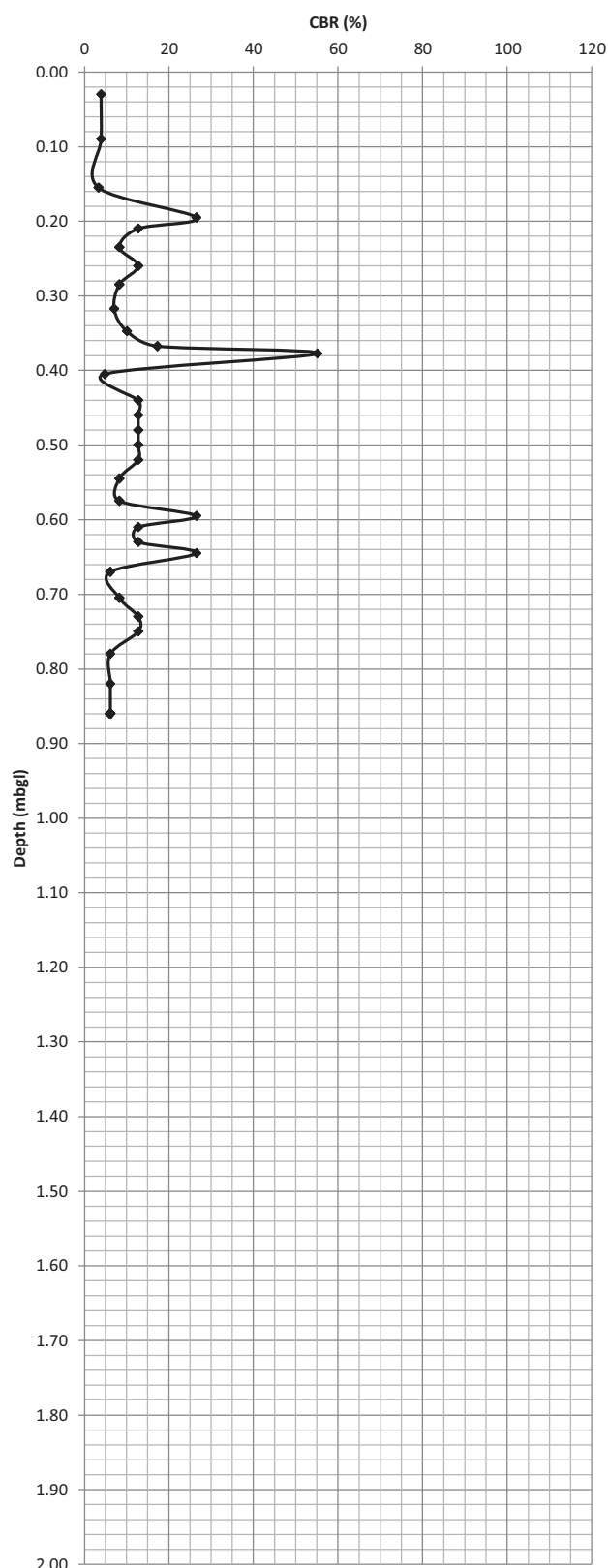
P13970



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

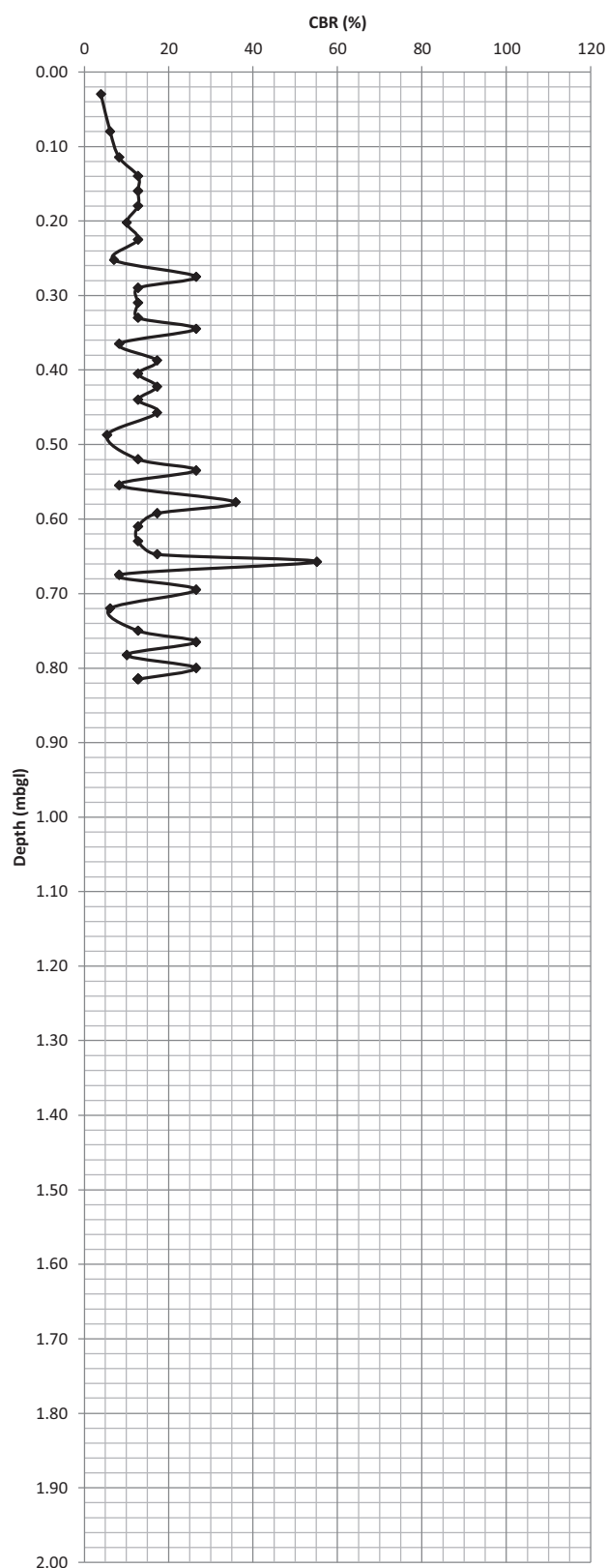
R17-12386



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

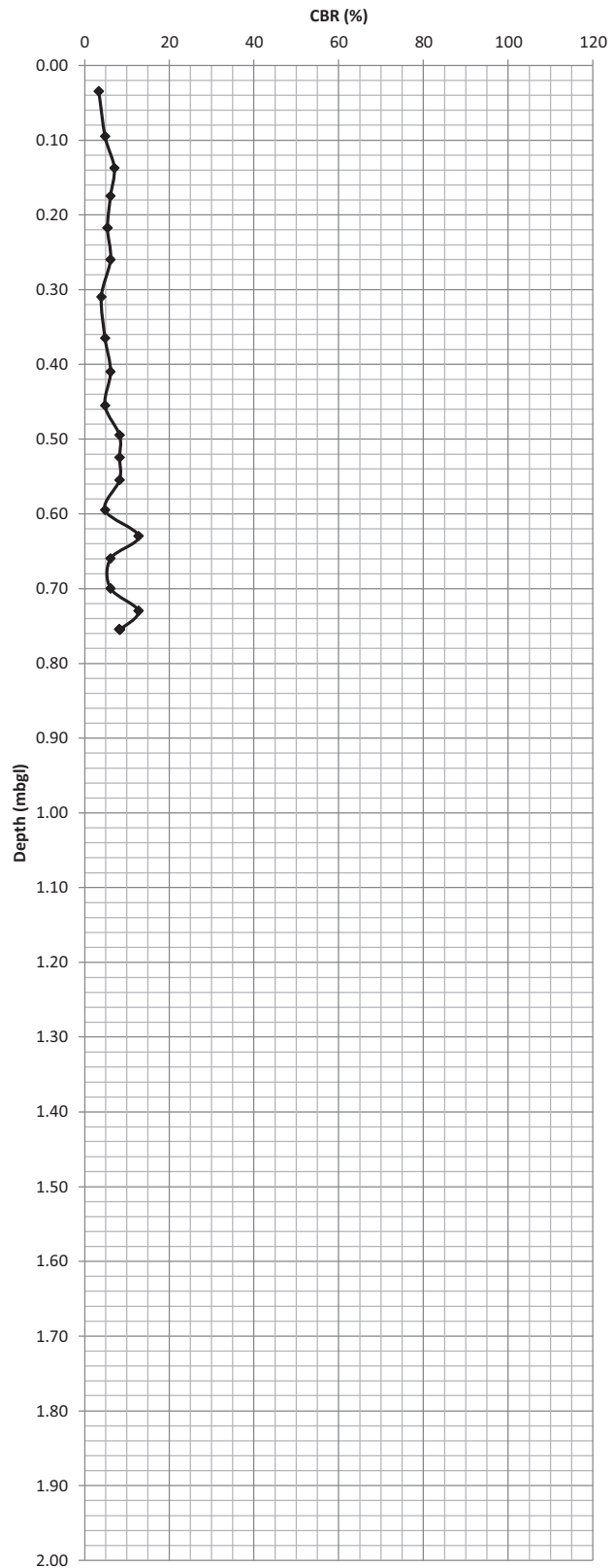
R17-12386



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

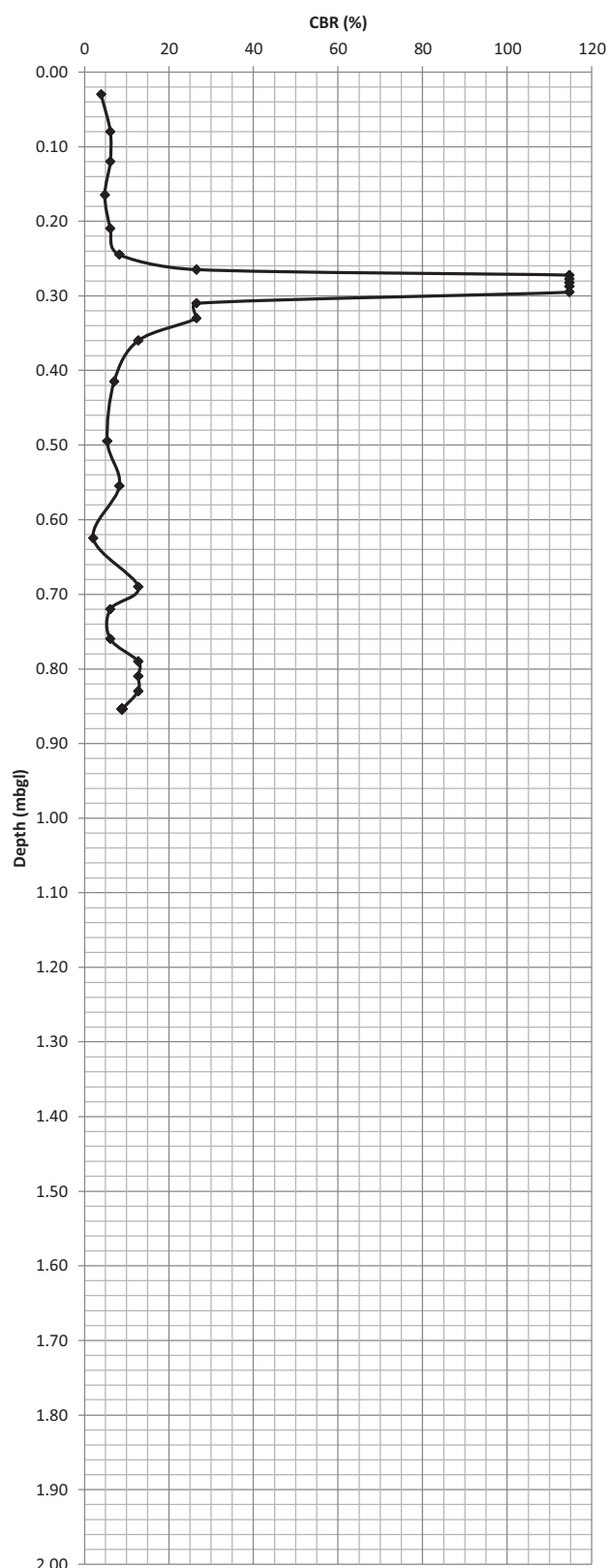
R17-12386



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

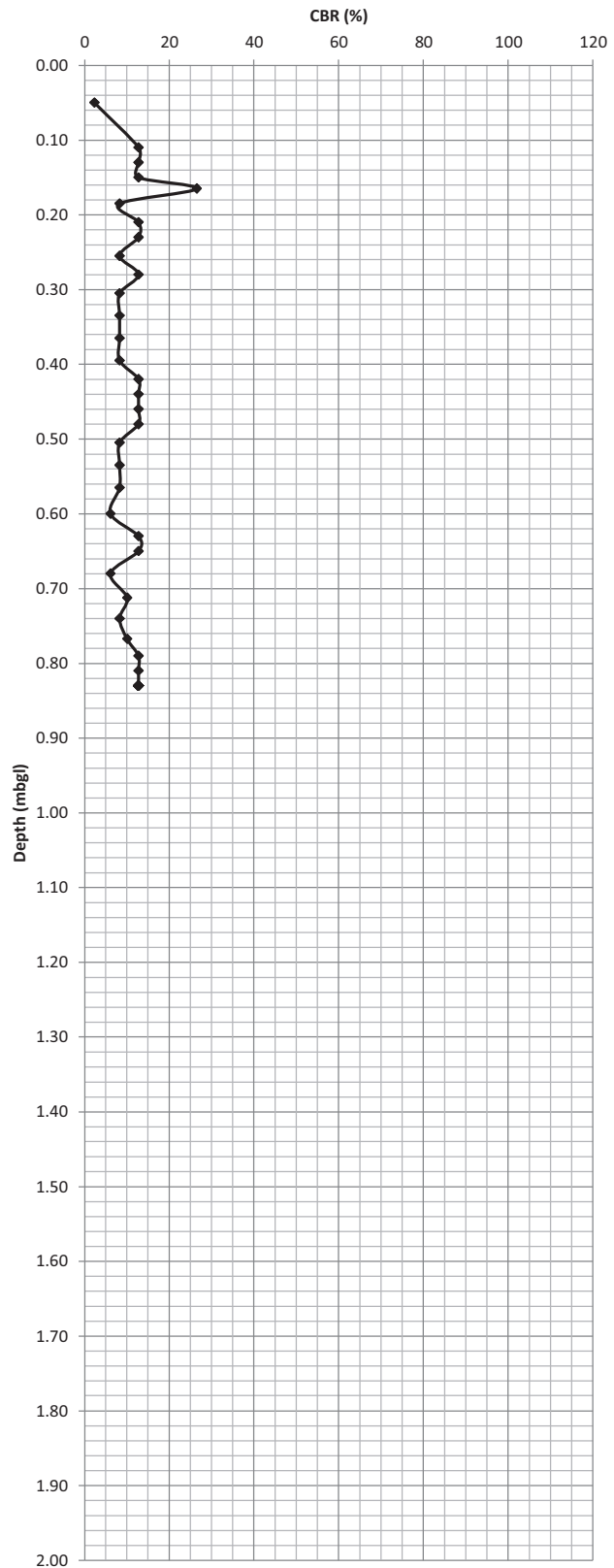
R17-12386



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

TRL Dynamic Cone Penetrometer Record

R17-12386



Notes: CBR Value calculated in accordance with the TRRL equation given in TRL Road Note 8.

ASHDOWN SITE INVESTIGATION LIMITED

Site: Hillingdon Young Persons Hub, Falling Lane,
Yiewsley, West Drayton

Report No.: R17-12386
Sheet No.: 1 of 1

SUMMARY OF BOREHOLE FALLING HEAD SOAKAGE TEST RESULTS

WS03		WS05	
Time (mins)	Depth to water (m bgl)	Time (mins)	Depth to water (m bgl)
0	0.00	0	0.00
1	0.02	1	0.01
2	0.03	2	0.06
5	0.11	3	0.12
10	0.13	5	0.15
15	0.18	10	0.18
30	0.21	15	0.23
60	0.28	40	0.28
75	0.30	55	0.33
90	0.34	100	0.38
		160	0.65
Borehole Depth (m bgl)	3.00	Borehole Depth (m bgl)	2.70
Casing Depth (m bgl)	2.00	Casing Depth (m bgl)	2.00
Borehole Diameter (mm)	92.00	Borehole Diameter (mm)	92.00
Casing Diameter (mm)	105.00	Casing Diameter (mm)	105.00

Notes: bgl – below ground level.

APPENDIX D

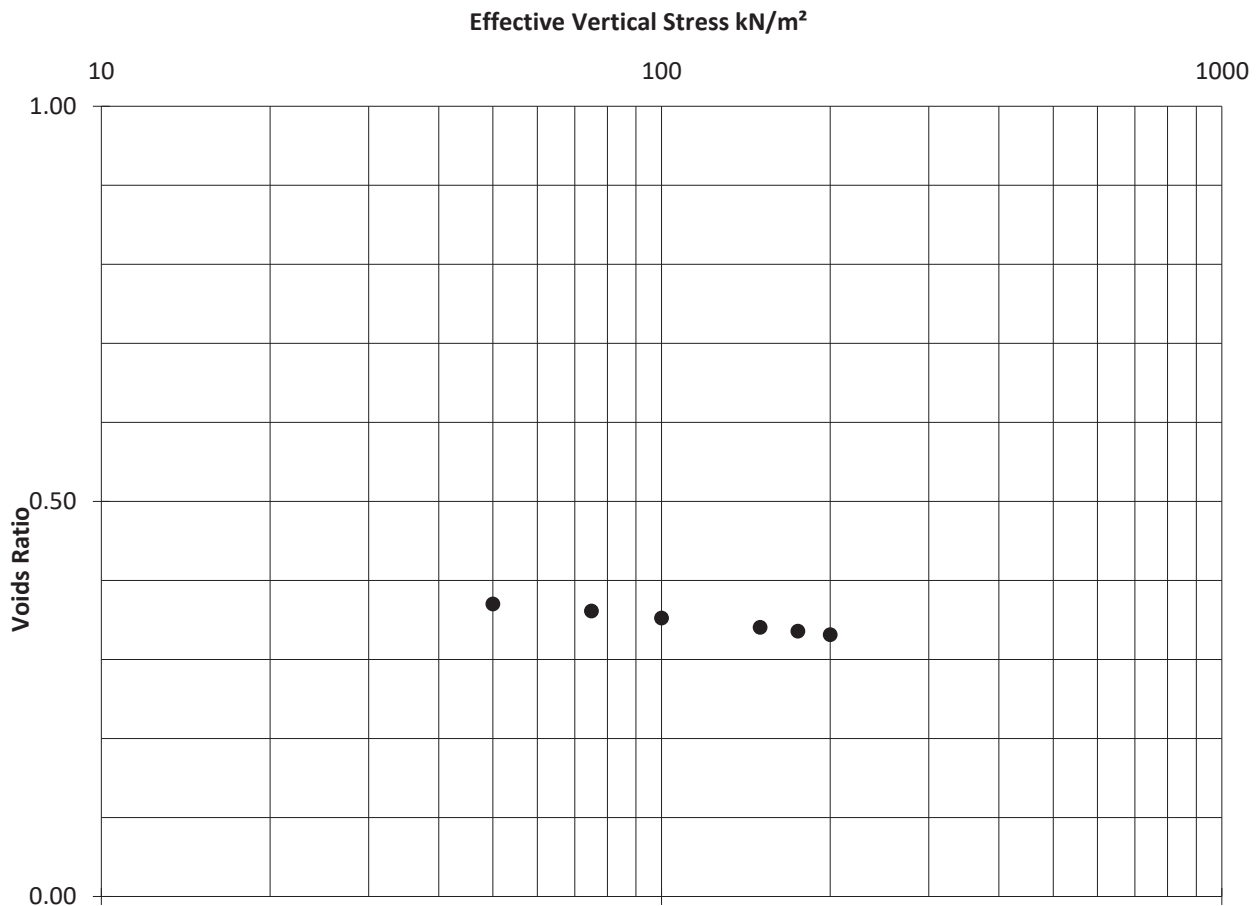
Geotechnical Test Results (P14594, P13970 & R17-12386)

Contamination Test Results (P13970 & R17-12386)

ASHDOWN SITE INVESTIGATION LTD

OEDOMETER CONSOLIDATION TEST

Site : Proposed Orchard School, Falling Lane, Yiewsley	BH No. 202
Job No.: P14594	Depth (m): 2.20



Vertical stress (kN/m^2)	m_v m^2/MN	c_v m^2/yr
0		
50	1.23	76
75	0.26	1.8
100	0.26	0.75
150	0.18	0.60
175	0.14	0.51
200	0.13	0.39
250	0.13	0.34
300	0.14	0.24

Initial Sample Thickness
= 19.6mm

negative m_v indicates
swelling coefficient

OEDOMETER CONSOLIDATION TEST

negative m_v indicates
swelling coefficient

OEDOMETER CONSOLIDATION TEST

negative m_v indicates
swelling coefficient

OEDOMETER CONSOLIDATION TEST

negative m_v indicates
swelling coefficient



TEST CERTIFICATE

One Dimensional Consolidation Test

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



4041

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

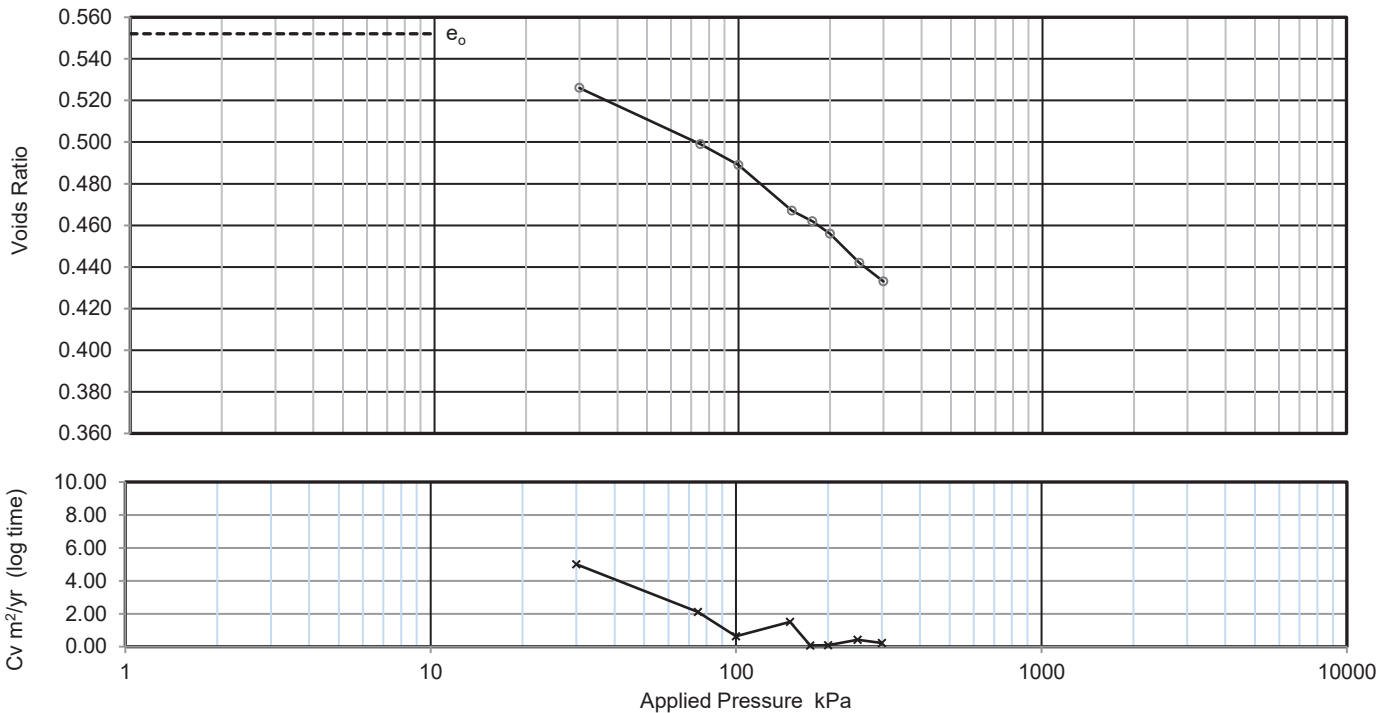
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 04/05/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496619
Hole No.: BH201
Sample Reference: Not Given
Sample Description: Orangish brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.552	-	-	-	-
30	0.526	0.56	5	14	0.00062
75	0.499	0.4	2.1	9.2	0.00064
100	0.489	0.26	0.64	1.4	0.0013
150	0.467	0.29	1.5	5.1	0.0013
175	0.462	0.15	0.077	0.18	N/A
200	0.456	0.17	0.084	0.093	0.0013
250	0.442	0.19	0.42	0.55	0.0013
300	0.433	0.12	0.23	0.2	0.0019

Preparation

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

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

Initial	Final	
50.10	-	mm
20.10	18.56	mm
20	18	%
2.05	2.18	Mg/m3
1.71	1.85	Mg/m3
0.552	0.433	
95	110	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

Remarks:

Signed:

Monika Janoszek

Monika Janoszek

PL Deputy Head of Geotechnical Section

for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis.



4041

TEST CERTIFICATE

One Dimensional Consolidation Test

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



Environmental Science

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

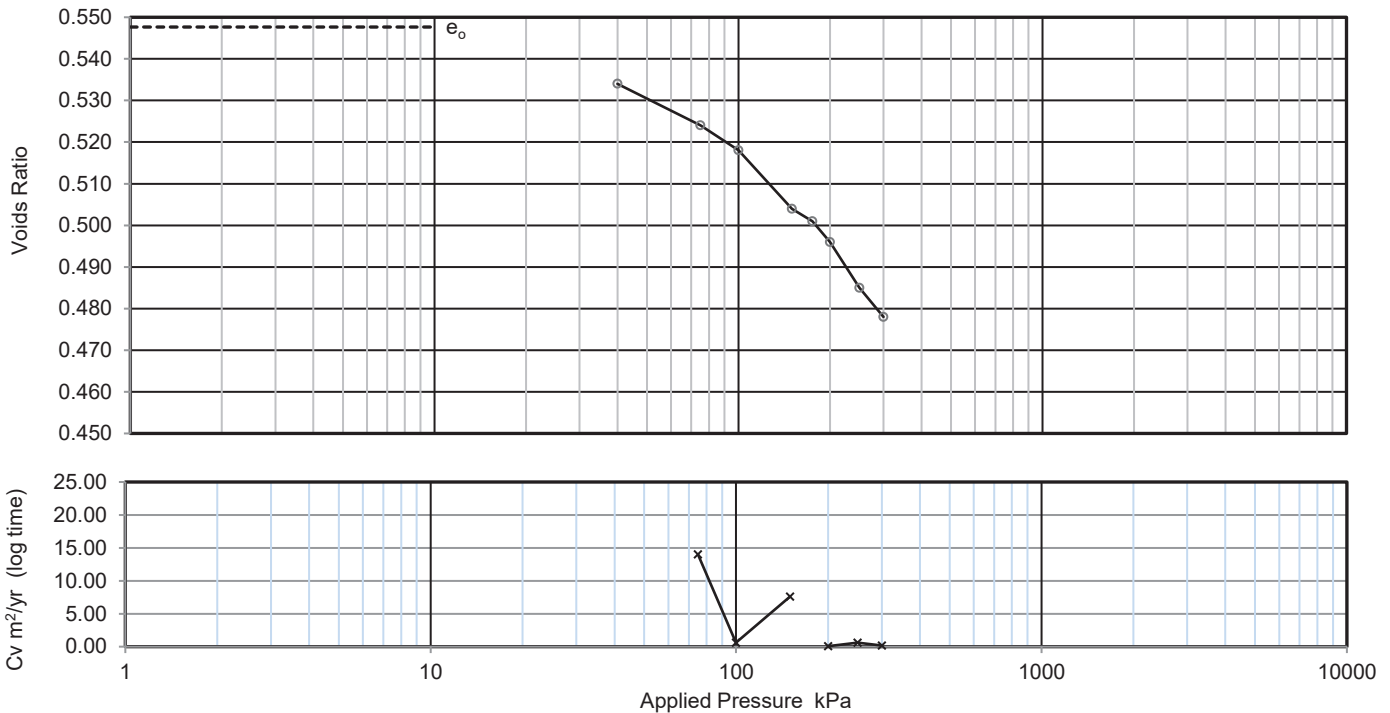
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 28/04/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496620
Hole No.: BH201
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

Depth Top [m]: 1.70
Depth Base [m]: 2.15
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.548	-	-	-	-
40	0.534	0.21	N/A	51	0.00035
75	0.524	0.19	14	7.3	0.00074
100	0.518	0.18	0.63	1.2	N/A
150	0.504	0.18	7.6	3.4	0.0012
175	0.501	0.065	N/A	N/A	N/A
200	0.496	0.13	0.074	N/A	N/A
250	0.485	0.15	0.61	0.61	0.0019
300	0.478	0.1	0.16	0.2	N/A

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.03	-	mm
20.15	19.24	mm
19	18	%
2.03	2.12	Mg/m3
1.71	1.79	Mg/m3
0.548	0.478	
90	100	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis.



4041

TEST CERTIFICATE

One Dimensional Consolidation Test

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



Environmental Science

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

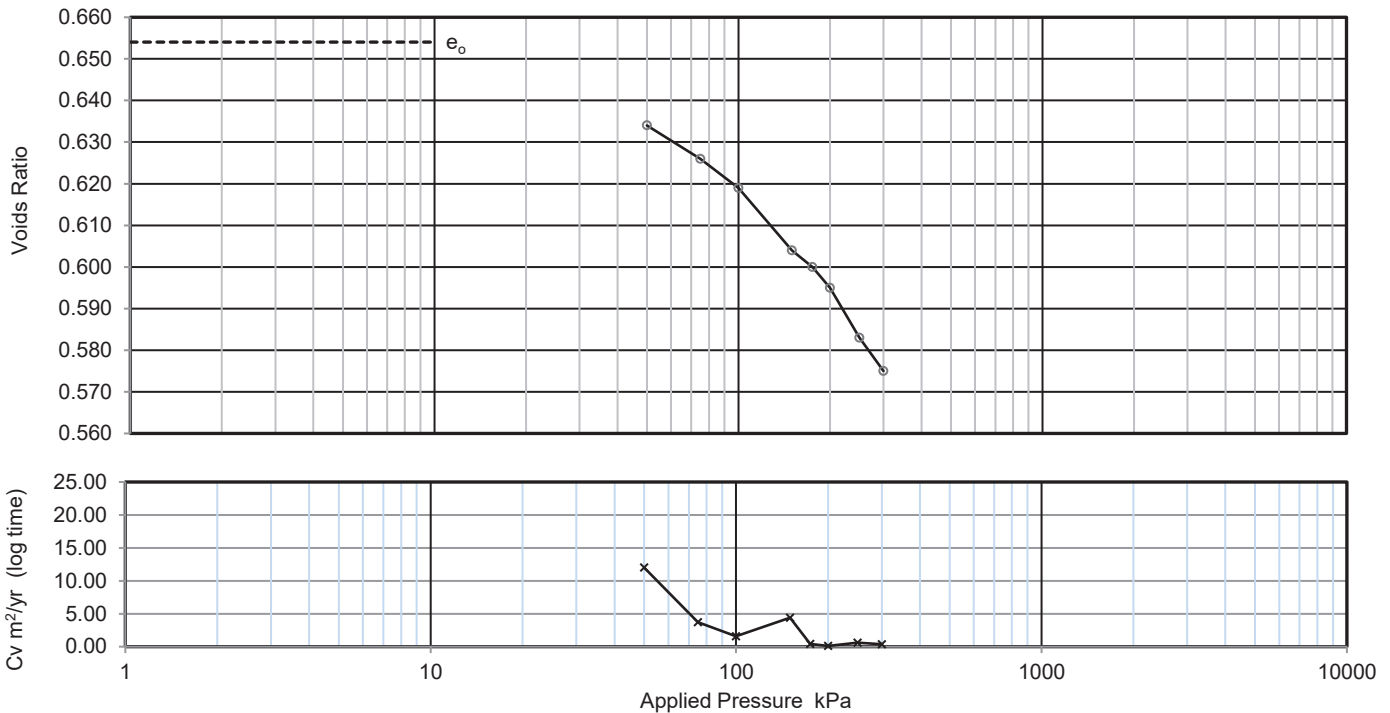
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 04/05/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496621
Hole No.: BH201
Sample Reference: Not Given
Sample Description: Orangish brown slightly sandy CLAY

Depth Top [m]: 2.20
Depth Base [m]: 2.65
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.654	-	-	-	-
50	0.634	0.24	12	20	0.00064
75	0.626	0.19	3.7	9.7	0.00043
100	0.619	0.18	1.6	7.6	0.00064
150	0.604	0.18	4.4	8.6	0.00043
175	0.600	0.11	0.39	0.32	N/A
200	0.595	0.13	0.11	0.17	0.00062
250	0.583	0.15	0.63	1.7	0.00064
300	0.575	0.11	0.38	0.69	0.0013

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.02	-	mm
20.04	19.08	mm
22	21	%
1.96	2.04	Mg/m3
1.60	1.68	Mg/m3
0.654	0.575	
90	99	%
22.0		°C
Not measured		kPa
		%

Note: C_v corrected to 20°C

Remarks:

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Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd



4041

TEST CERTIFICATE

One Dimensional Consolidation Test

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



Environmental Science

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

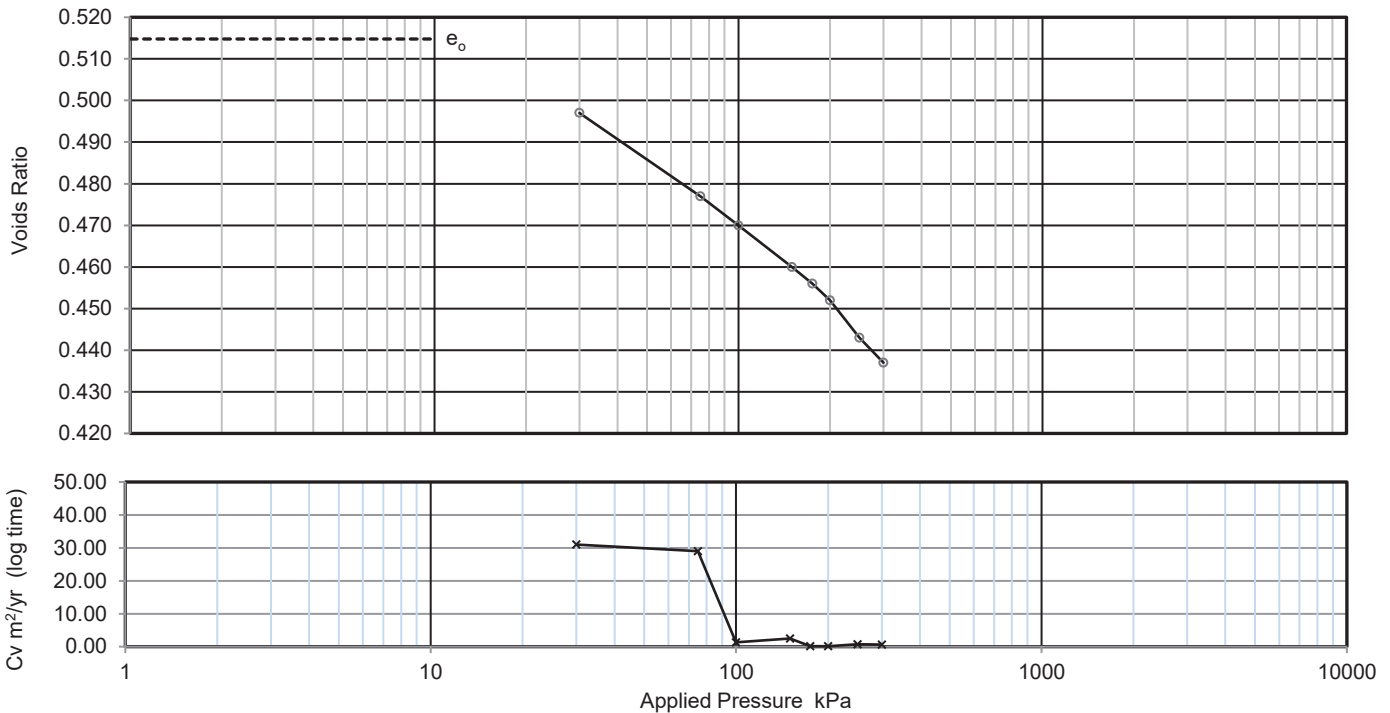
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 27/04/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496622
Hole No.: BH202
Sample Reference: Not Given
Sample Description: Orangish brown slightly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.515	-	-	-	-
30	0.497	0.39	31	N/A	0.00064
75	0.477	0.3	29	31	0.0013
100	0.470	0.18	1.3	3.9	0.001
150	0.460	0.15	2.5	13	0.00062
175	0.456	0.11	0.15	0.47	0.00064
200	0.452	0.11	0.13	0.46	0.00064
250	0.443	0.12	0.7	2	0.00062
300	0.437	0.088	0.59	0.66	0.0013

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.00	-	mm
20.02	18.99	mm
20	20	%
2.10	2.21	Mg/m3
1.75	1.84	Mg/m3
0.515	0.437	
104	119	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

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TEST CERTIFICATE

One Dimensional Consolidation Test

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



Environmental Science

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

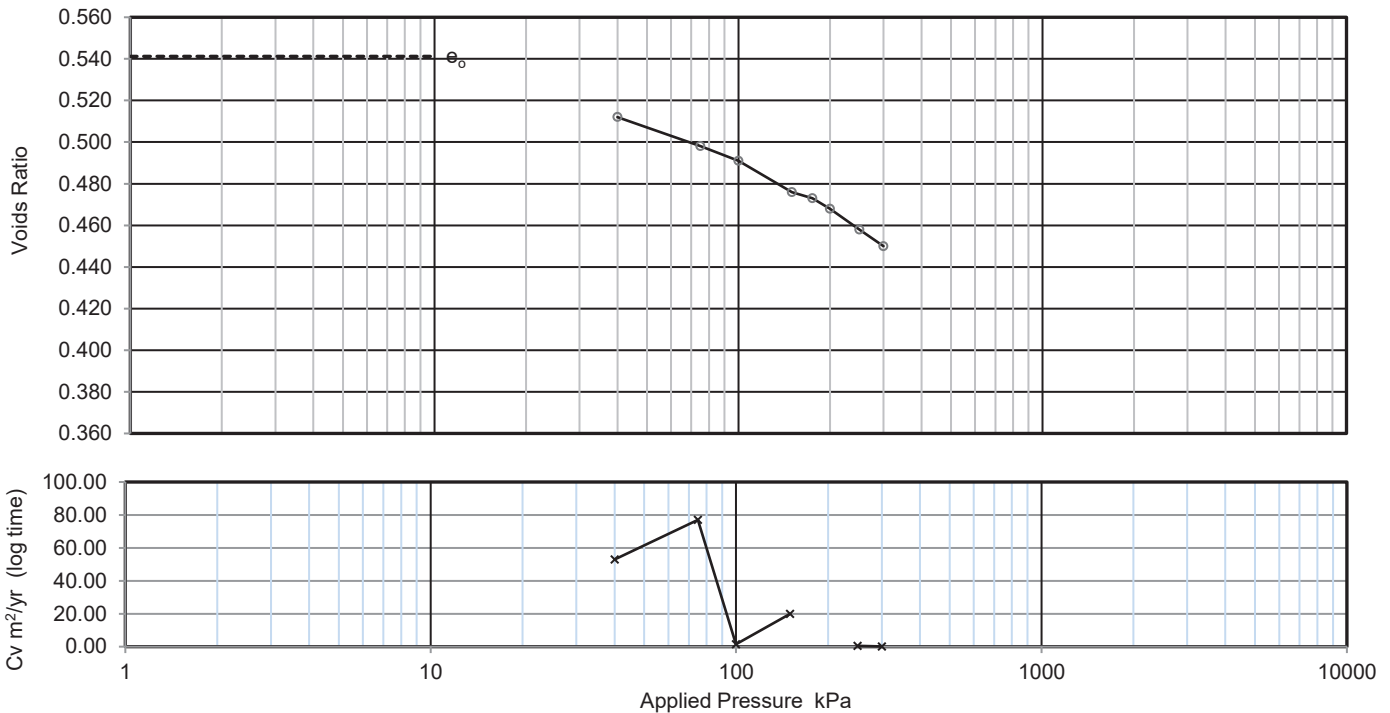
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 28/04/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496623
Hole No.: BH202
Sample Reference: Not Given
Sample Description: Brown sandy CLAY

Depth Top [m]: 1.70
Depth Base [m]: 2.15
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.541	-	-	-	-
40	0.512	0.47	53	54	0.00089
75	0.498	0.27	77	17	0.0011
100	0.491	0.2	1.4	0.93	0.0012
150	0.476	0.19	20	6.3	0.0015
175	0.473	0.077	N/A	N/A	N/A
200	0.468	0.14	N/A	0.077	N/A
250	0.458	0.14	0.44	0.57	0.0018
300	0.450	0.11	0.13	0.2	0.0019

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.04	-	mm
20.02	18.84	mm
18	18	%
2.04	2.16	Mg/m3
1.72	1.83	Mg/m3
0.541	0.450	
90	108	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

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One Dimensional Consolidation Test

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



Environmental Science

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

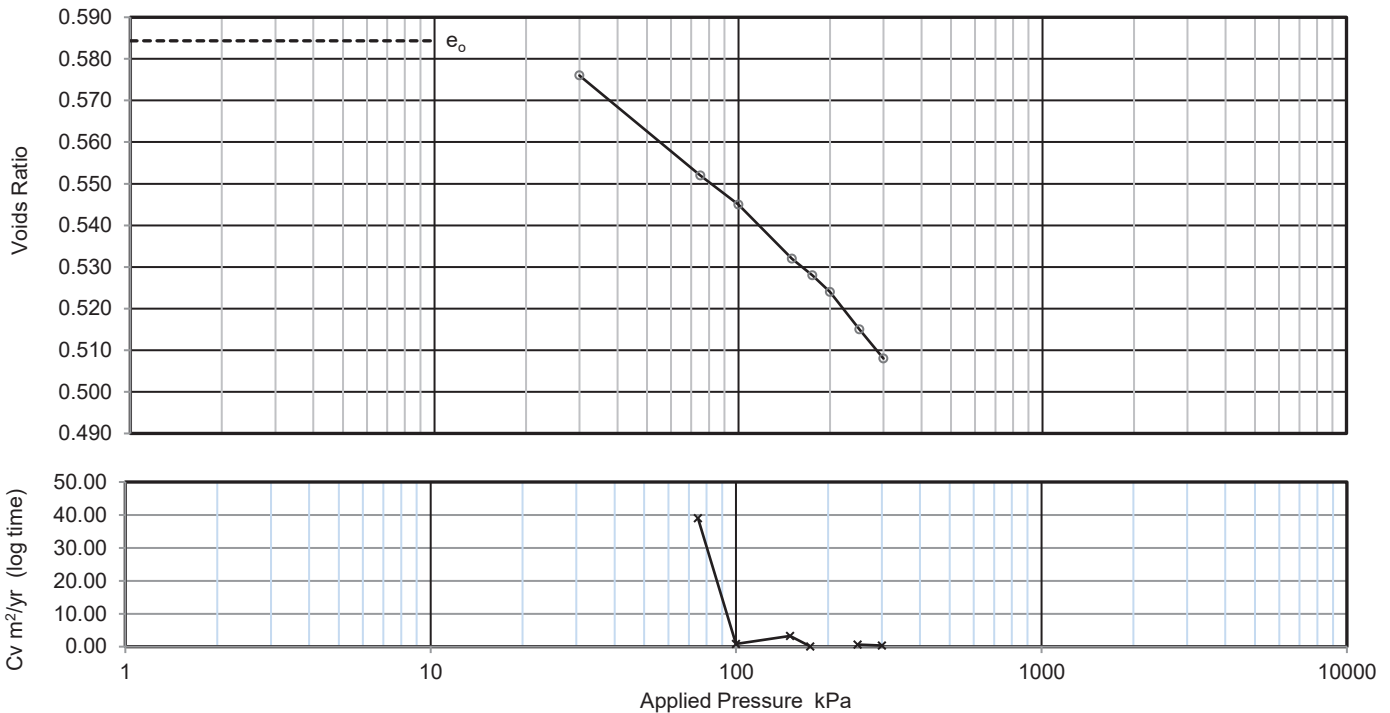
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 27/04/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496624
Hole No.: BH203
Sample Reference: Not Given
Sample Description: Orangish brown slightly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.584	-	-	-	-
30	0.576	0.18	N/A	67	N/A
75	0.552	0.34	39	54	0.00061
100	0.545	0.16	0.83	4.5	0.00062
150	0.532	0.18	3.3	24	0.0004
175	0.528	0.1	0.091	0.14	N/A
200	0.524	0.11	N/A	0.17	0.0012
250	0.515	0.12	0.65	1.1	0.00064
300	0.508	0.089	0.33	0.36	0.0013

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.00	-	mm
20.00	19.03	mm
22	22	%
2.05	2.14	Mg/m3
1.67	1.76	Mg/m3
0.584	0.508	
102	112	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

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TEST CERTIFICATE

One Dimensional Consolidation Test

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



4041

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

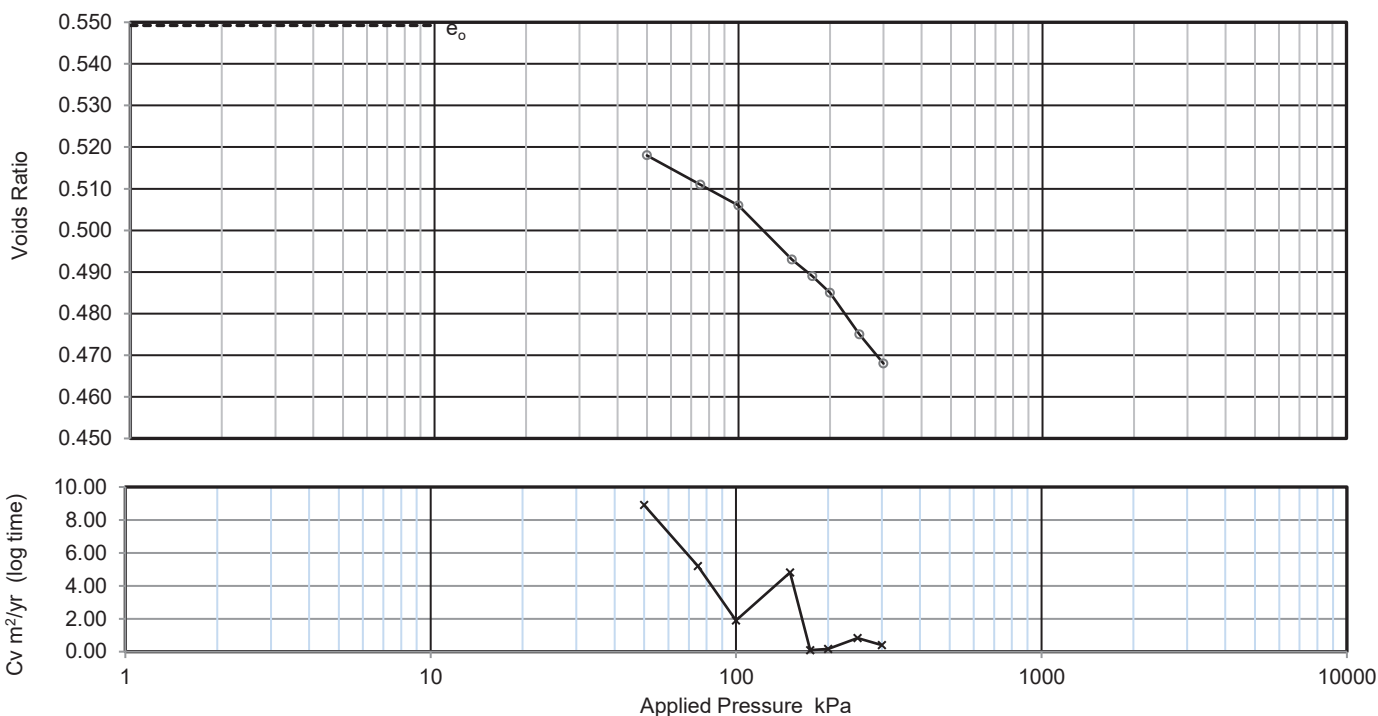
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 04/05/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496625
Hole No.: BH203
Sample Reference: Not Given
Sample Description: Orangish brown slightly sandy CLAY

Depth Top [m]: 2.20
Depth Base [m]: 2.65
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.549	-	-	-	-
50	0.518	0.41	8.9	10	0.00062
75	0.511	0.17	5.2	11	0.00043
100	0.506	0.15	1.9	9.7	0.00062
150	0.493	0.17	4.8	11	0.00064
175	0.489	0.093	0.094	0.33	N/A
200	0.485	0.12	0.17	0.24	0.00062
250	0.475	0.13	0.83	2.3	0.00062
300	0.468	0.097	0.39	0.77	0.0013

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.11	-	mm
20.14	19.09	mm
19	19	%
2.04	2.15	Mg/m3
1.71	1.80	Mg/m3
0.549	0.468	
92	107	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

Remarks:

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TEST CERTIFICATE

One Dimensional Consolidation Test

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



Environmental Science

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

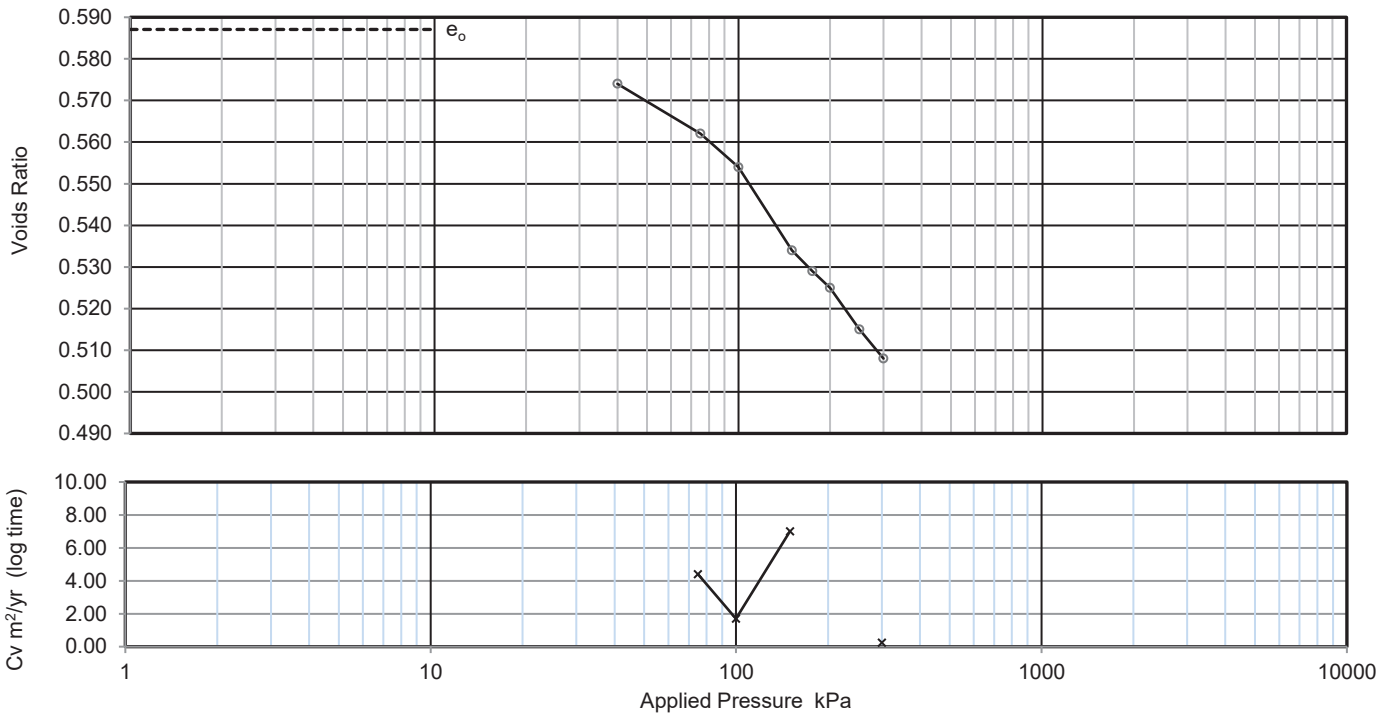
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 27/04/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496627
Hole No.: BH204
Sample Reference: Not Given
Sample Description: Brown slightly sandy CLAY

Depth Top [m]: 1.70
Depth Base [m]: 2.15
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.587	-	-	-	-
40	0.574	0.21	N/A	N/A	0.00036
75	0.562	0.21	4.4	43	0.00062
100	0.554	0.21	1.7	2.4	0.00064
150	0.534	0.25	7	18	0.00042
175	0.529	0.12	N/A	0.85	N/A
200	0.525	0.12	N/A	0.26	N/A
250	0.515	0.13	N/A	2.3	N/A
300	0.508	0.099	0.25	0.58	0.0013

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.07	-	mm
19.96	18.96	mm
22	20	%
2.04	2.11	Mg/m3
1.67	1.76	Mg/m3
0.587	0.508	
101	104	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

Remarks:

Signed:

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PL Deputy Head of Geotechnical Section
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TEST CERTIFICATE

One Dimensional Consolidation Test

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



4041

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

Client: Ashdown Site Investigations Ltd
Client Address: The Old Dairy, Swanborough Farm,
Swanborough, Lewes,
East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

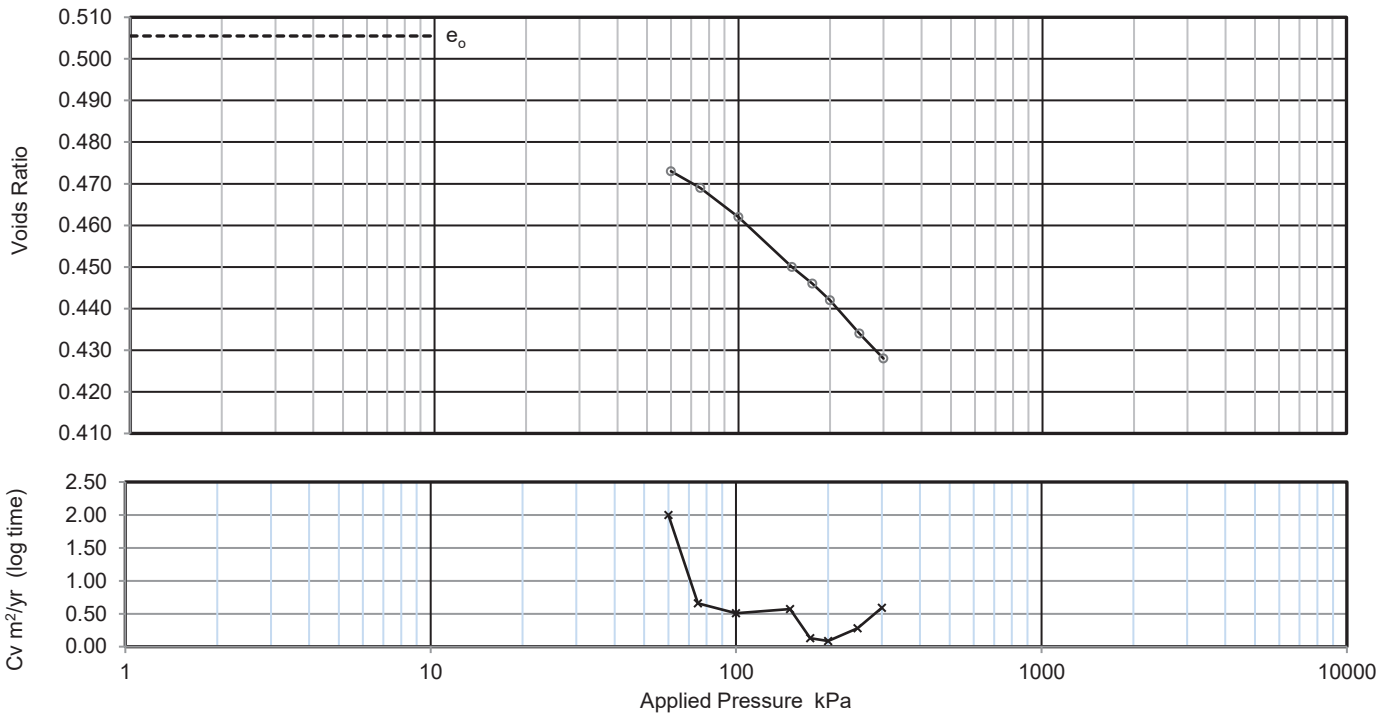
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 27/04/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496628
Hole No.: BH204
Sample Reference: Not Given
Sample Description: Orangish brown slightly CLAY

Depth Top [m]: 2.70
Depth Base [m]: 3.15
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.506	-	-	-	-
60	0.473	0.36	2	12	0.0013
75	0.469	0.19	0.66	0.36	0.0011
100	0.462	0.18	0.51	0.4	0.0013
150	0.450	0.17	0.57	0.96	0.00065
175	0.446	0.12	0.13	0.14	N/A
200	0.442	0.11	0.086	0.11	N/A
250	0.434	0.1	0.28	0.56	0.00065
300	0.428	0.091	0.59	0.23	N/A

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.01	-	mm
19.88	18.85	mm
20	19	%
2.12	2.21	Mg/m3
1.76	1.86	Mg/m3
0.506	0.428	
107	117	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

Remarks:

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TEST CERTIFICATE

One Dimensional Consolidation Test

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



Environmental Science

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

Client: Ashdown Site Investigations Ltd
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Contact: Simon Lyle
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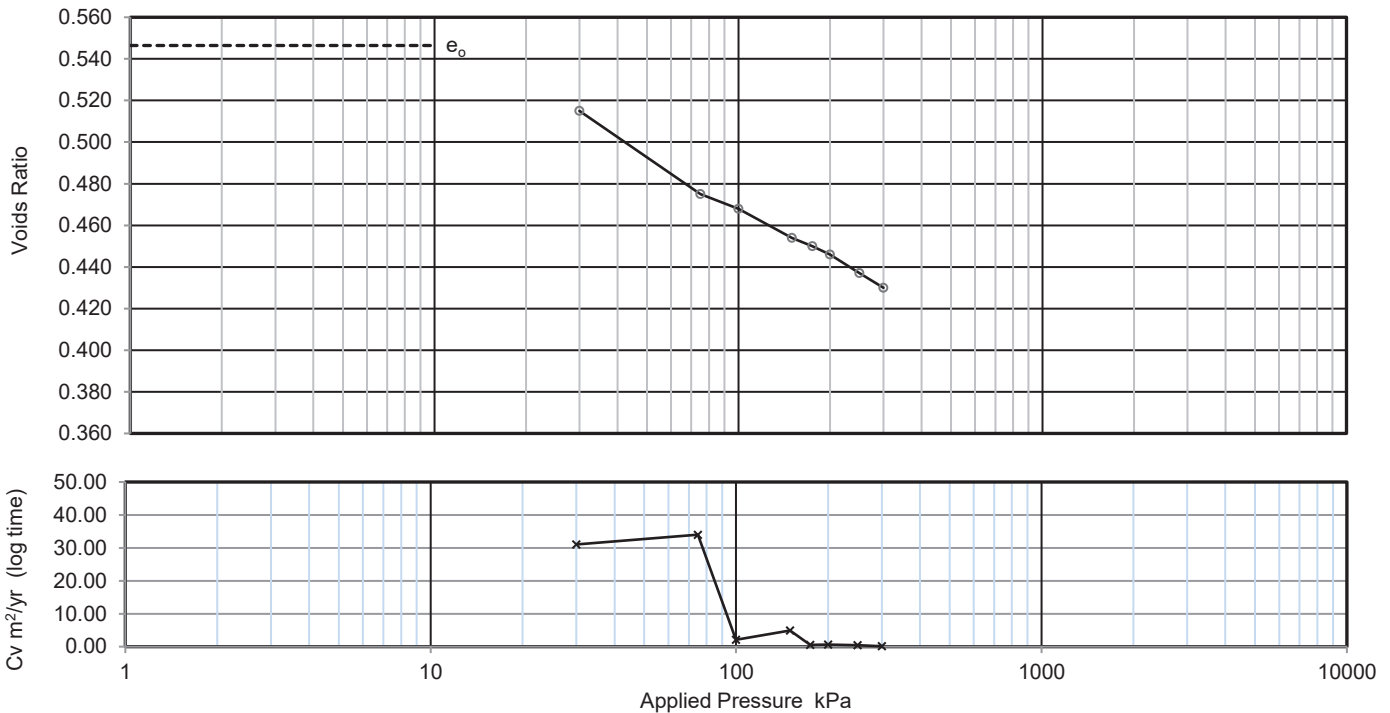
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 27/04/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496629
Hole No.: BH205
Sample Reference: Not Given
Sample Description: Orangish brown slightly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.546	-	-	-	-
30	0.515	0.69	31	14	0.0014
75	0.475	0.58	34	23	0.00062
100	0.468	0.19	2.1	1.7	0.0011
150	0.454	0.19	4.9	4.7	0.00062
175	0.450	0.11	0.53	0.42	N/A
200	0.446	0.12	0.66	0.48	N/A
250	0.437	0.13	0.41	1.7	0.00036
300	0.430	0.099	0.13	0.54	N/A

Preparation

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

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

Initial	Final	
50.02	-	mm
19.96	18.45	mm
20	20	%
2.06	2.23	Mg/m3
1.71	1.85	Mg/m3
0.546	0.430	
98	124	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

Remarks:

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Unit 8 Harrowden Road
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Northampton NN4 7EB



4041

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

Client: Ashdown Site Investigations Ltd
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East Sussex, BN7 9PF

Contact: Simon Lyle
Site Address: Proposed Orchard School, Falling Lane, Yiewsley, West Drayton

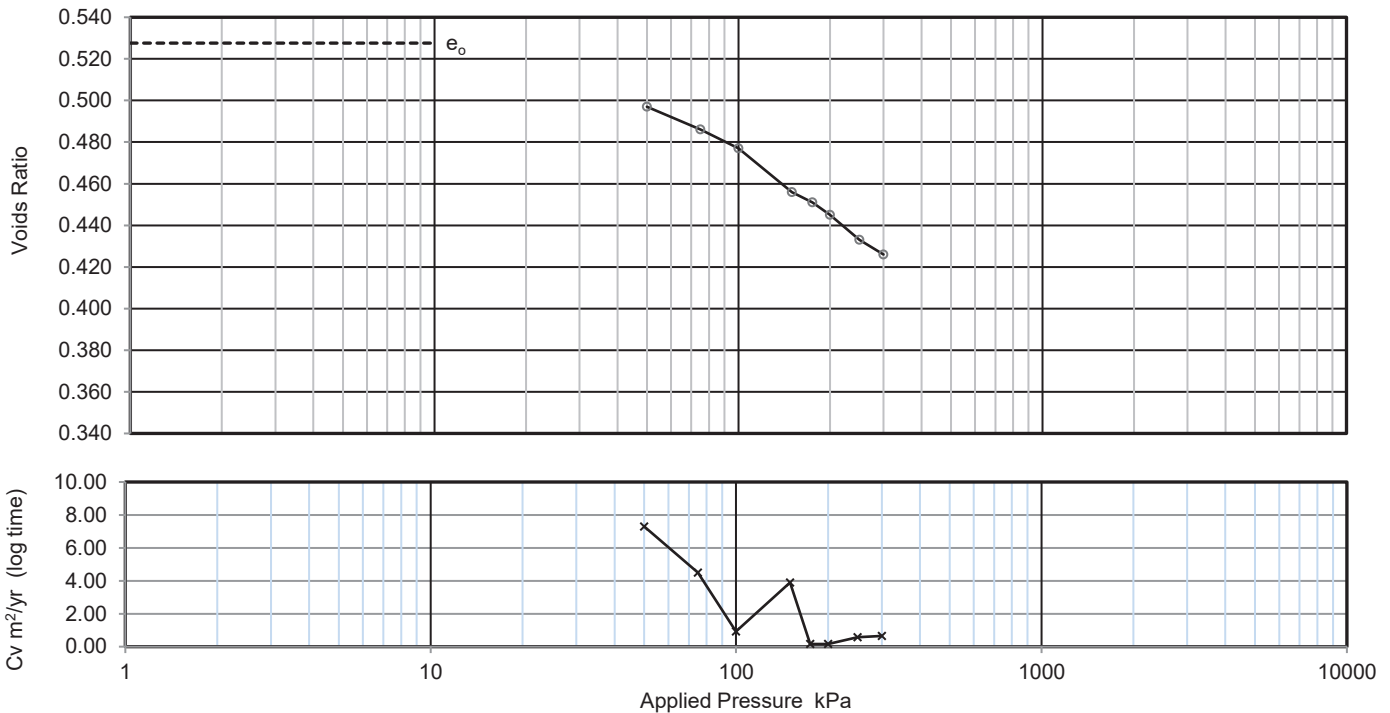
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: P14594
Job Number: 20-96994
Date Sampled: Not Given
Date Received: 21/04/2020
Date Tested: 04/05/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1496630
Hole No.: BH205
Sample Reference: Not Given
Sample Description: Orangish brown slightly sandy CLAY

Depth Top [m]: 2.20
Depth Base [m]: 2.65
Sample Type: U



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root) m2/yr	Csec
0	0.528	-	-	-	-
50	0.497	0.4	7.3	10	0.001
75	0.486	0.29	4.5	9	0.00062
100	0.477	0.25	0.92	3.1	0.00064
150	0.456	0.28	3.9	9	0.00064
175	0.451	0.14	0.16	1	N/A
200	0.445	0.17	0.16	0.31	N/A
250	0.433	0.16	0.58	2.9	0.0013
300	0.426	0.097	0.66	4.3	0.0013

Preparation

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

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

Initial	Final	
50.04	-	mm
20.05	18.72	mm
18	19	%
2.04	2.21	Mg/m3
1.73	1.86	Mg/m3
0.528	0.426	
90	117	%
22.0		°C
Not measured		kPa
		%

Note: Cv corrected to 20°C

Remarks:

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Signed:

Monika Janoszek

Monika Janoszek

PL Deputy Head of Geotechnical Section

for and on behalf of i2 Analytical Ltd

ASHDOWN SITE INVESTIGATION LIMITED

Soil Classification Summary

Site Name:	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No:	P13970
------------	---	---------	--------

BH/TP No.	Depth (m)	Nat. Moist. Cont. (w %)	Equiv. Moist. Cont. (wa %)	Atterberg Limits			Class'n	Cons. Index (Ic)	% passing 425 µm sieve	Visual Description of Sample
				WI %	Wp %	Ip %				
CBR01	0.30	7.8		32	20	12	CL	2.02*	100	Very stiff dark brown slightly sandy silty CLAY.
CBR02	0.30	9.1		28	16	12	CL	1.58*	100	Very stiff dark brown slightly sandy silty CLAY.
CBR03	0.40	6.7		30	19	11	CL	2.12*	100	Very stiff dark brown sandy silty CLAY.
CBR04	0.60	12		27	19	8	CL	1.88*	100	Very stiff dark brown slightly sandy silty CLAY.
CBR05	0.20	11		33	18	15	CL	1.47*	100	Very stiff dark brown silty CLAY.
CBR06	0.50	15		36	22	14	CI	1.50*	100	Very stiff dark brown sandy silty CLAY.
CBR07	0.70	21		36	17	19	CI	0.79*	98	Stiff brown slightly sandy silty CLAY with rare fine to coarse gravel of brick.
CBR08	0.50	15		37	17	20	CI	1.10*	100	Very stiff dark brown slightly sandy silty CLAY.
CBR09	0.50	22		40	22	18	CI	1.00*	100	Very stiff dark brown slightly sandy silty CLAY.
CBR10	0.40	25		40	16	24	CI	0.63*	100	Firm brown mottled black CLAY.

Test Method: Classification Tests BS1377: Part 2: 1990: Method 4.4, 5.3 and 5.4	Sheet No. 1
* Consistency index based on natural moisture content and not the equivalent moisture content.	

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Very stiff brown slightly sandy silty CLAY with rare fine to coarse gravel of flint.	BH/TP No.	CBR01
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.30

Specimen Preparation

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

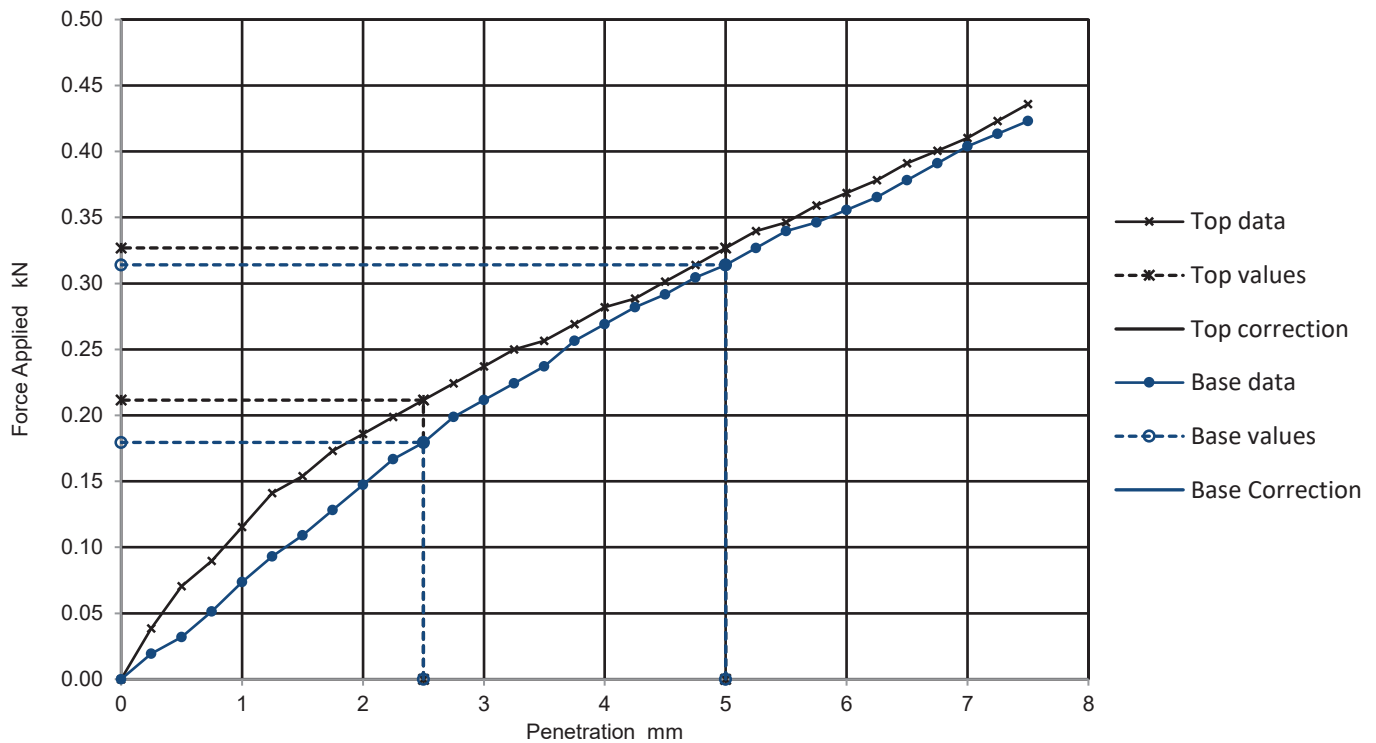
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	1.66 Mg/m3
	Dry density	1.53 Mg/m3
	Moisture content	8.2 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	2.45 mm
Dry density after soaking	1.51 Mg/m3

Surcharge applied	2.02 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
TOP	1.6	1.6	1.6	1.6
BASE	1.4	1.6	1.6	

Moisture Content %
24
24

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

1

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Very stiff brown slightly sandy silty CLAY with rare fine to coarse gravel of flint.	BH/TP No.	CBR02
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.30

Specimen Preparation

Condition	
Details	

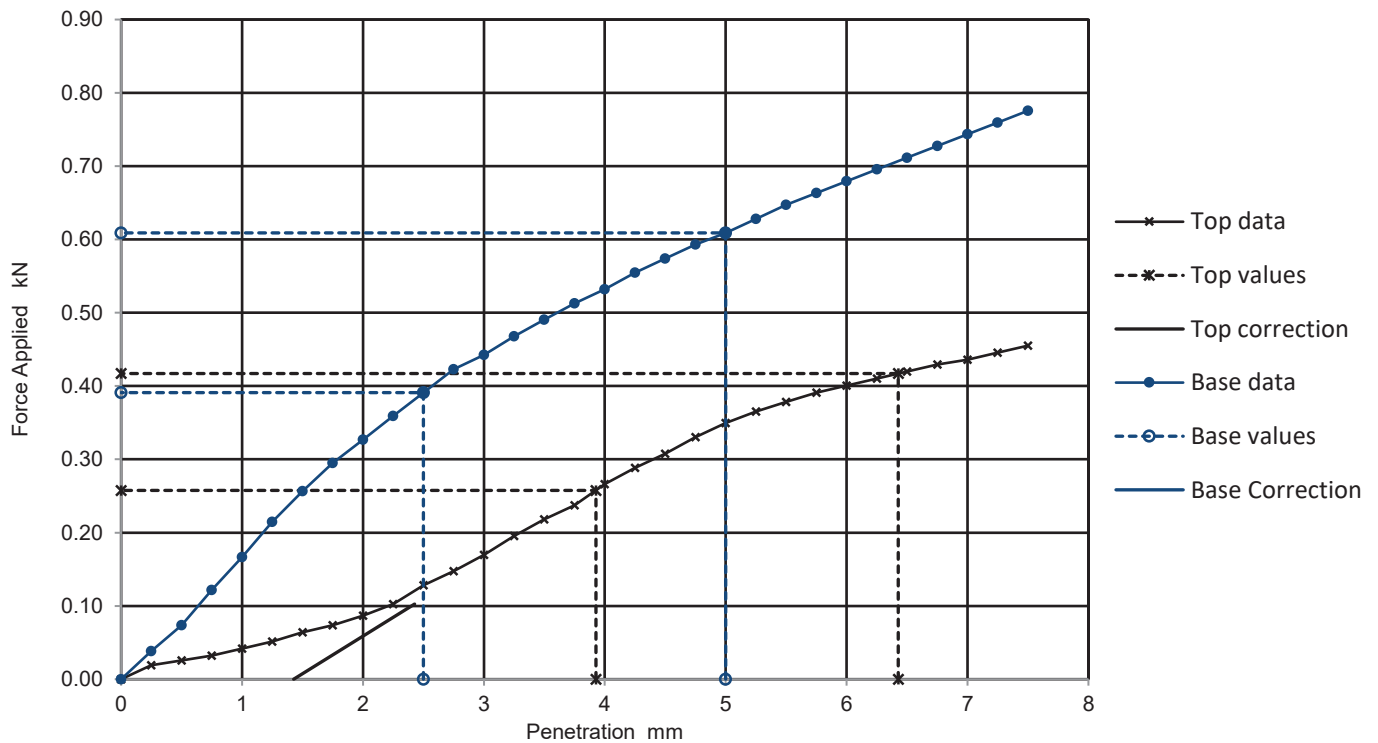
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	1.78 Mg/m3
	Dry density	1.62 Mg/m3
	Moisture content	9.6 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	2.89 mm
Dry density after soaking	1.59 Mg/m3

Surcharge applied	2.003 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
Yes	2.0	2.1	2.1	N/A
No	3.0	3.0	3.0	

Moisture Content %
22
21

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

2

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Very stiff brown slightly sandy silty CLAY.	BH/TP No.	CBR03
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.40

Specimen Preparation

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

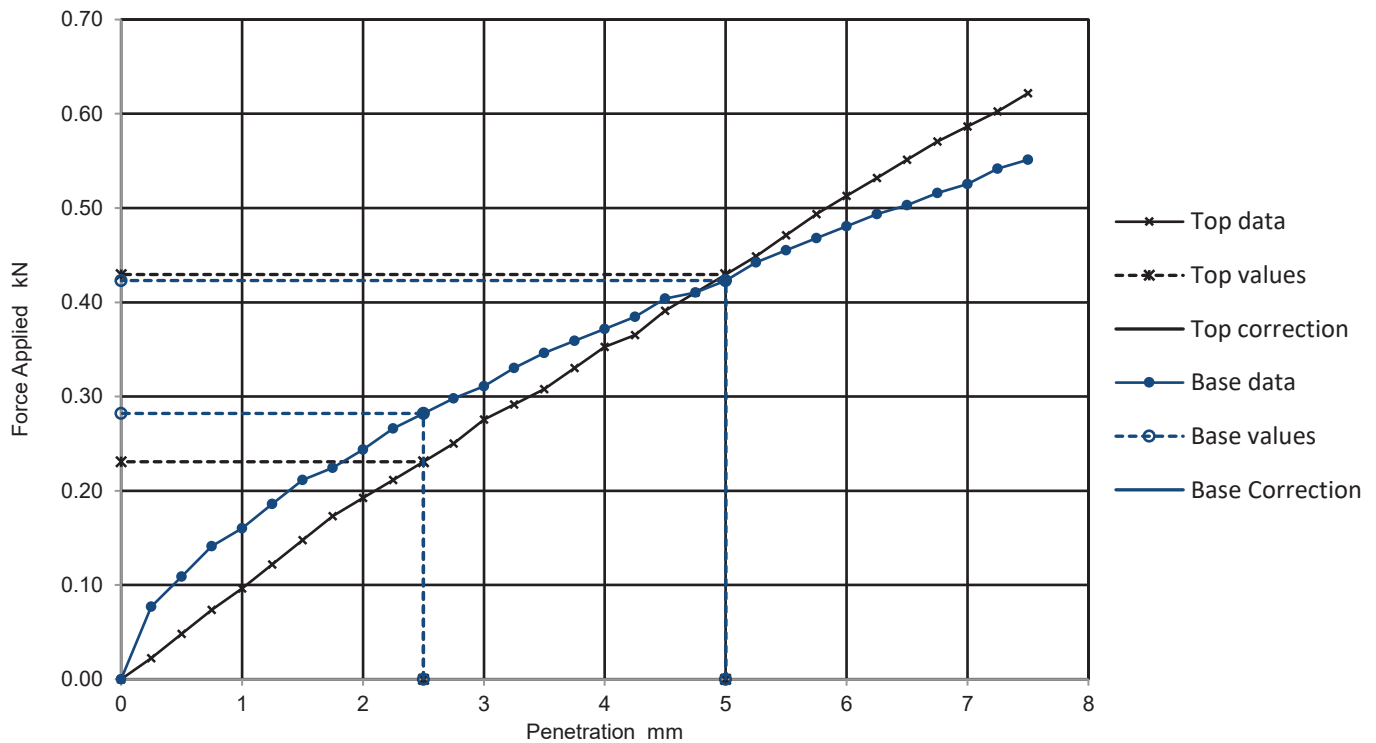
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	1.65 Mg/m3
	Dry density	1.55 Mg/m3
	Moisture content	6.7 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	3.12 mm
Dry density after soaking	1.51 Mg/m3

Surcharge applied	3.978 kg
	2 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
TOP	1.7	2.1	2.1	2.1
BASE	2.1	2.1	2.1	

Moisture Content %
25
25

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

3

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Very stiff brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint and limestone.	BH/TP No.	CBR04
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.60

Specimen Preparation

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

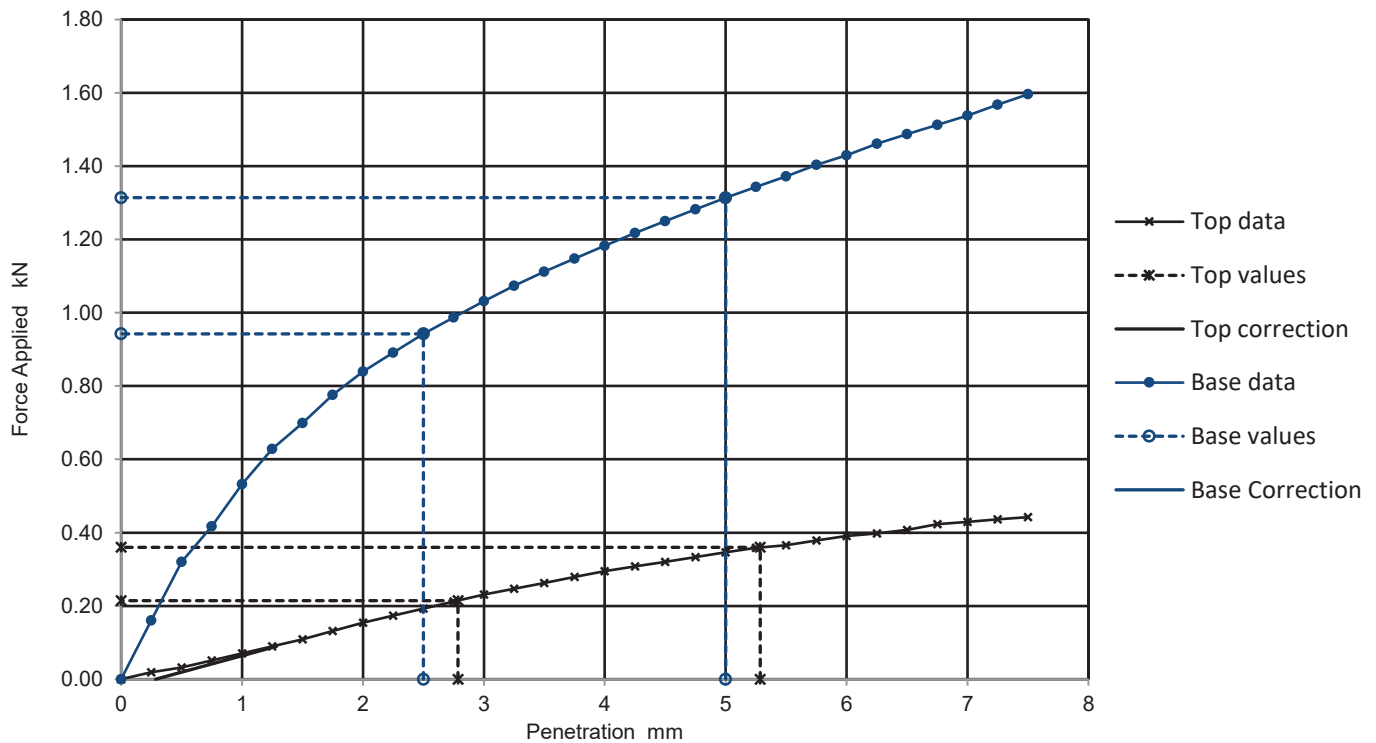
Material retained on 20mm sieve removed*	1 %
--	-----

Initial Specimen details	Bulk density	1.89 Mg/m3
	Dry density	1.69 Mg/m3
	Moisture content	12.0 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	3.46 mm
Dry density after soaking	1.64 Mg/m3

Surcharge applied	2.275 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
Yes	1.6	1.8	1.8	N/A
No	7.1	6.6	7.1	

Moisture Content %
21
19

General remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Test specific remarks

Sheet No

4

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Very stiff brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint.	BH/TP No.	CBR05
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.20

Specimen Preparation

Condition	
Details	

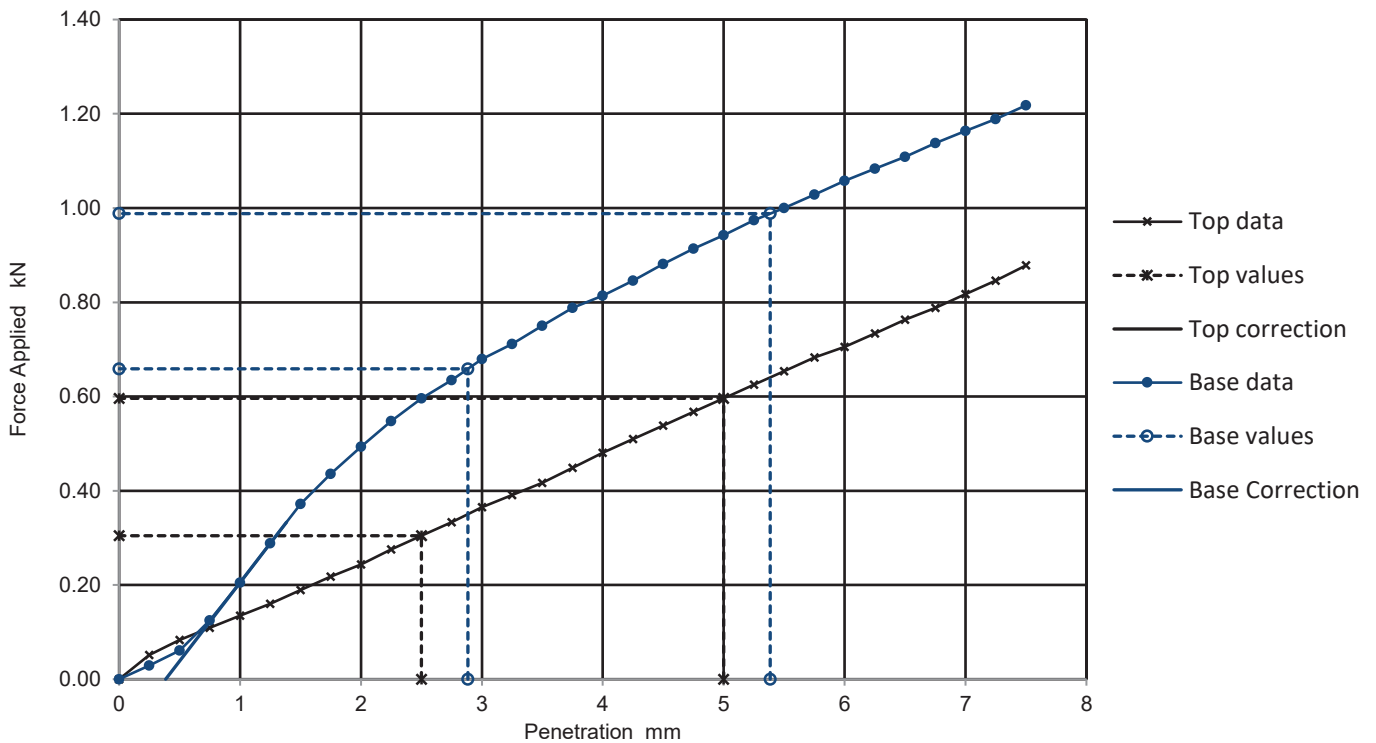
Material retained on 20mm sieve removed*	1 %
--	-----

Initial Specimen details	Bulk density	1.87 Mg/m3
	Dry density	1.68 Mg/m3
	Moisture content	11.0 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	2.64 mm
Dry density after soaking	1.65 Mg/m3

Surcharge applied	2001.46 kg 1211 kPa
-------------------	------------------------

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
No	2.3	3.0	3.0	N/A
Yes	5.0	4.9	5.0	

Moisture Content %
20
20

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

5

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Very stiff brown slightly sandy silty CLAY with rare fine to coarse gravel of flint.	BH/TP No.	CBR06
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.50

Specimen Preparation

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

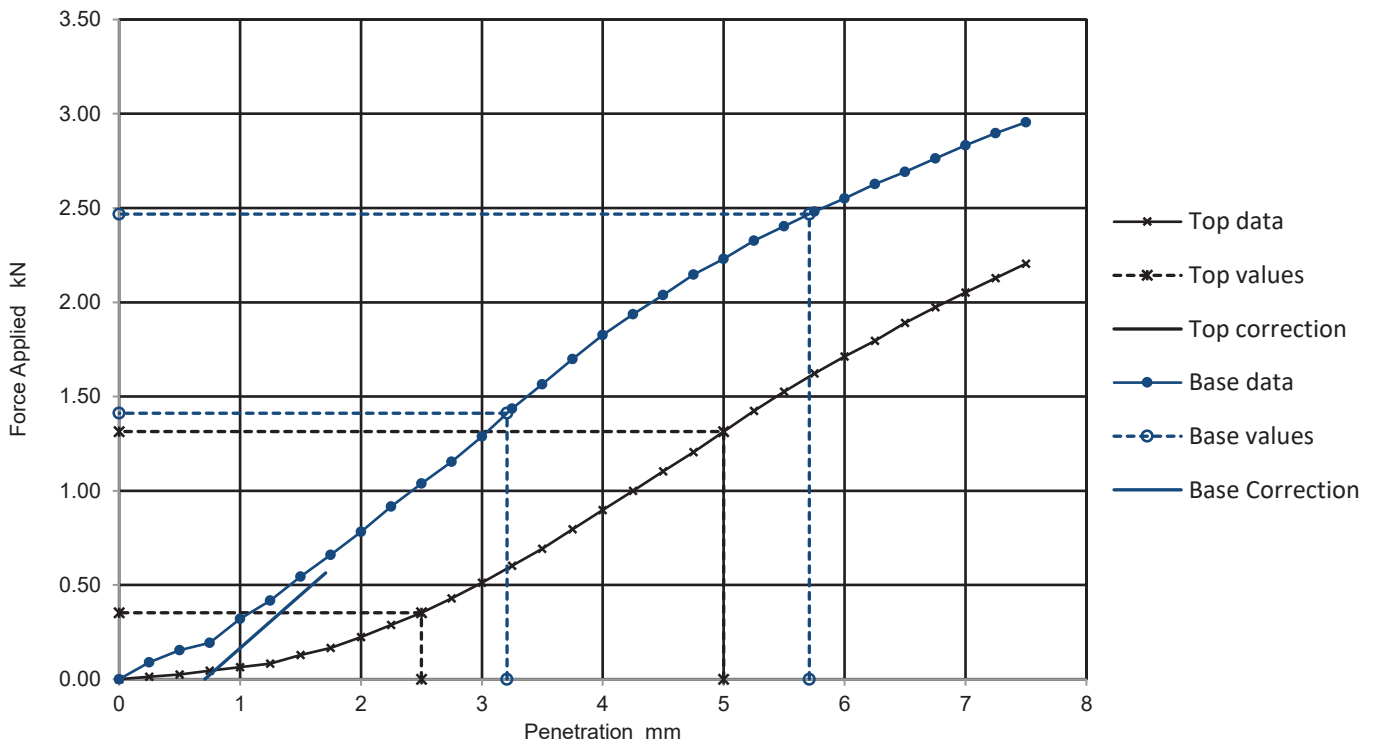
Material retained on 20mm sieve removed*	1 %
--	-----

Initial Specimen details	Bulk density	2.03 Mg/m3
	Dry density	1.77 Mg/m3
	Moisture content	15.0 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	1.15 mm
Dry density after soaking	1.75 Mg/m3

Surcharge applied	1.999 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
No	2.7	6.6	6.6	N/A
Yes	11.0	12.0	12.0	

Moisture Content %
18
18

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

6

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Firm brown slightly sandy silty CLAY with rare fine to coarse gravel of brick.	BH/TP No.	CBR07
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.70

Specimen Preparation

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

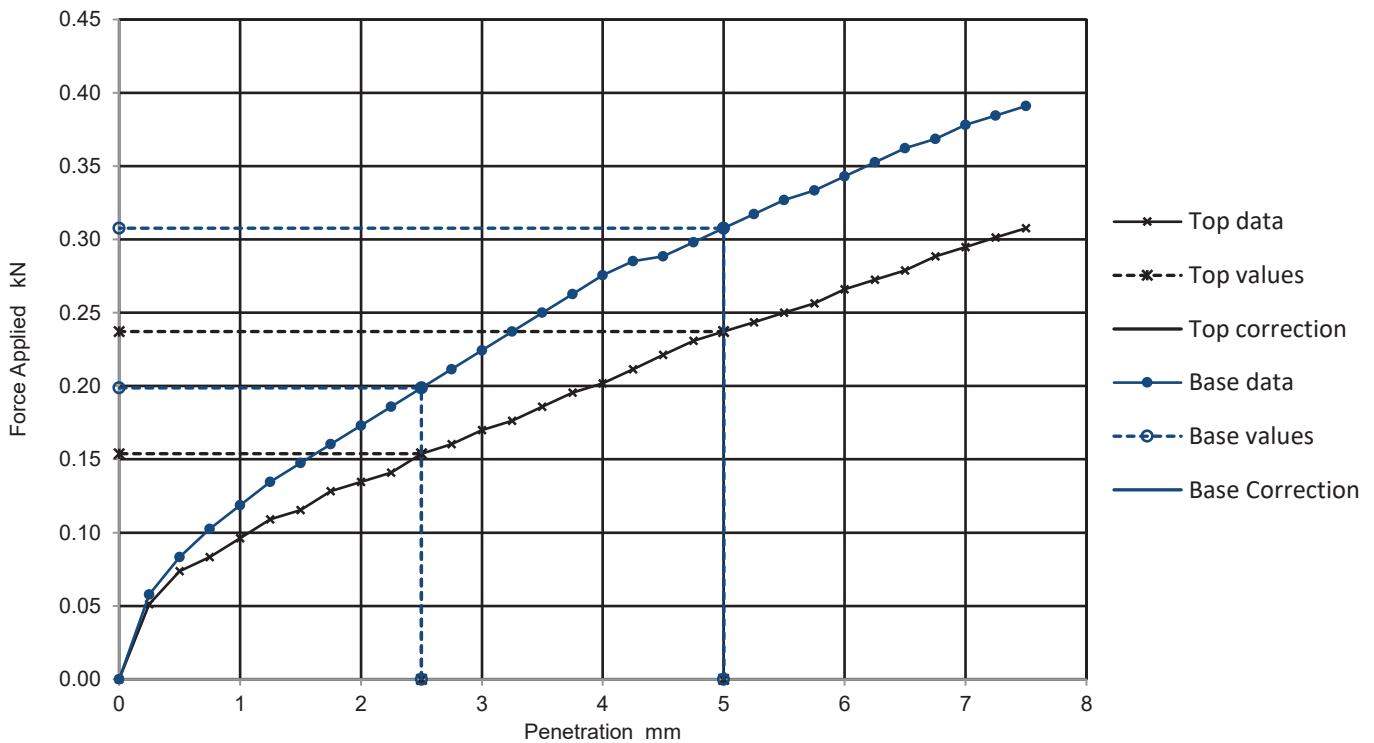
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	2.05 Mg/m3
	Dry density	1.69 Mg/m3
	Moisture content	21.0 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	NIL mm
Dry density after soaking	Mg/m3

Surcharge applied	2275 kg
	1376 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
TOP	1.2	1.2	1.2	N/A
BASE	1.5	1.5	1.5	

Moisture Content %
22
21

General remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Test specific remarks

Sheet No

7

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Very stiff brown slightly sandy silty CLAY with rare fine to coarse gravel of flint.	BH/TP No.	CBR08
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.50

Specimen Preparation

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

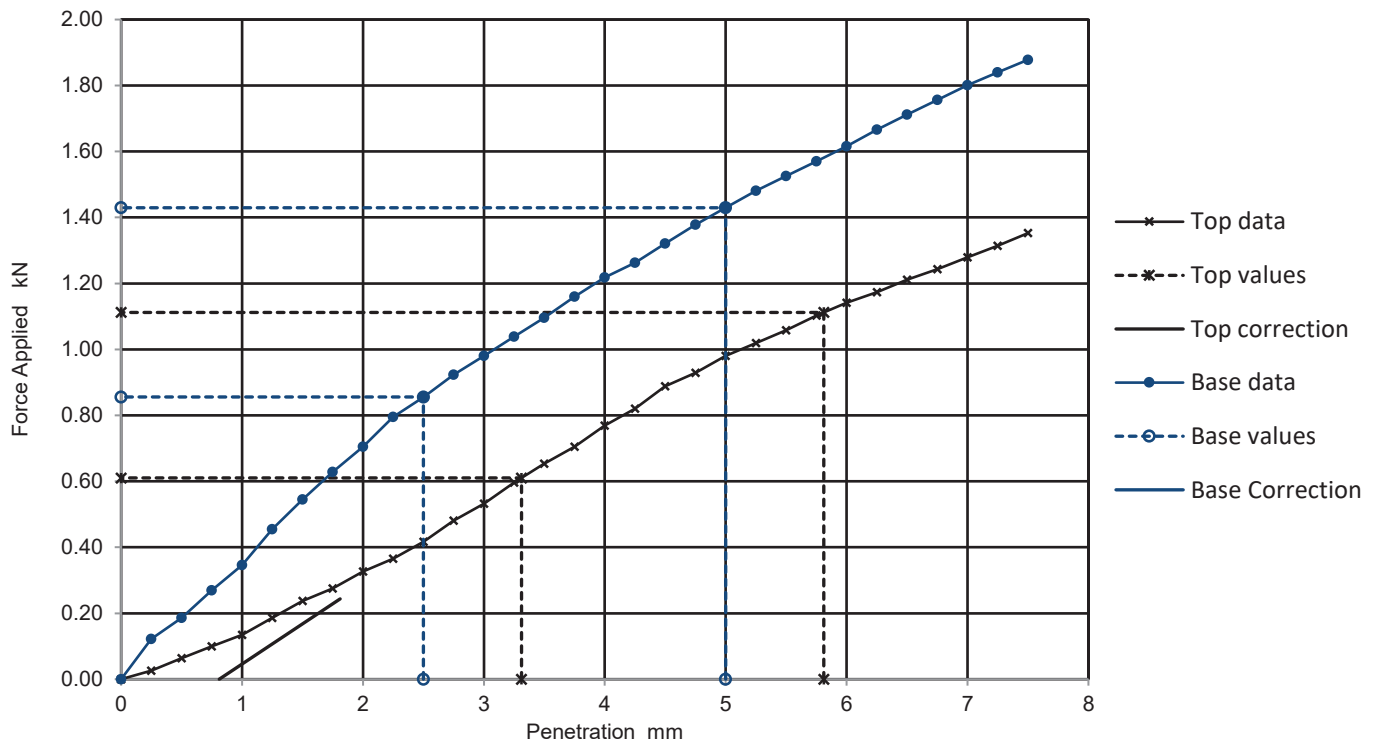
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	2.00 Mg/m3
	Dry density	1.74 Mg/m3
	Moisture content	15.0 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	2.43 mm
Dry density after soaking	1.71 Mg/m3

Surcharge applied	1.987 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
Yes	4.6	5.6	5.6	N/A
No	6.5	7.1	7.1	

Moisture Content %
19
18

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

8

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Brown CLAY.	BH/TP No.	CBR09
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.50

Specimen Preparation

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

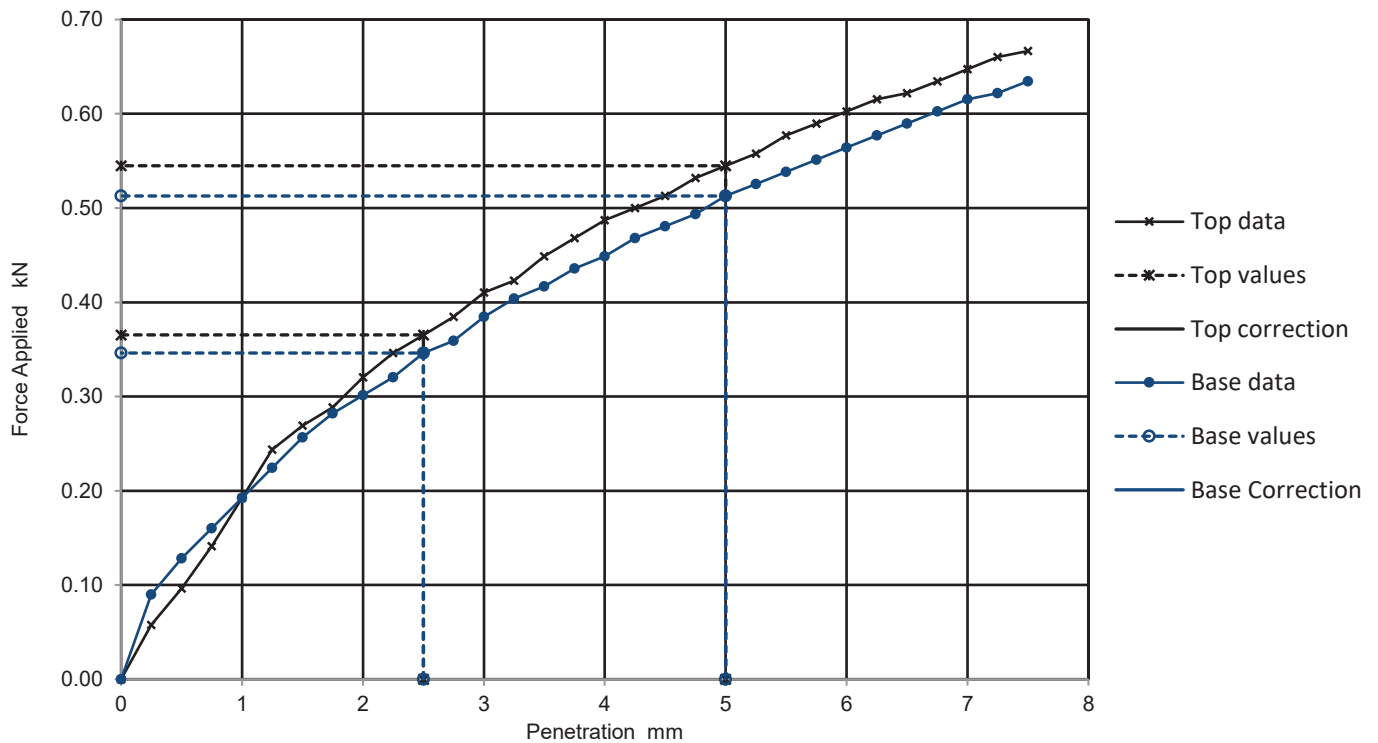
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	2.02 Mg/m3
	Dry density	1.66 Mg/m3
	Moisture content	22.0 %

Soaking details	
Period of soaking	4 days
Time to surface	days
Amount of swell recorded	0.19 mm
Dry density after soaking	1.65 Mg/m3

Surcharge applied	1.998 kg
	1 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values %				Moisture Content %
		2.5mm	5.0mm	Highest	Average	
TOP		2.8	2.7	2.8	2.7	23
BASE		2.6	2.6	2.6		22

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

9

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Brown CLAY with rare fine to medium flint gravel.	BH/TP No.	CBR10
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.40

Specimen Preparation

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

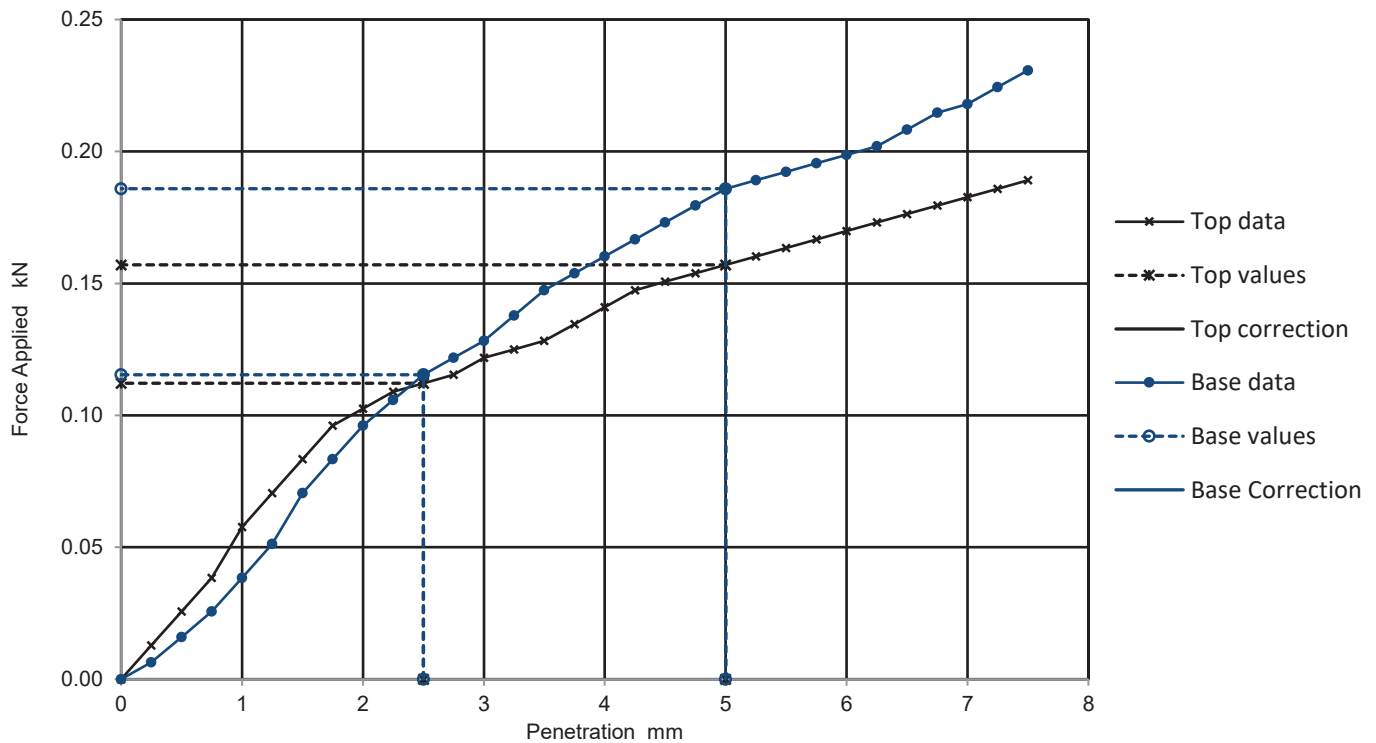
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	1.99 Mg/m3
	Dry density	1.60 Mg/m3
	Moisture content	24.0 %

Soaking details	
Period of soaking	4 days
Time to surface	4 days
Amount of swell recorded	NIL mm
Dry density after soaking	Mg/m3

Surcharge applied	2.008 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
No	0.9	0.8	0.9	0.9
No	0.9	0.9	0.9	

Moisture Content %
25
24

General remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Test specific remarks

Sheet No

10

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse concrete, flint and limestone.	BH/TP No.	CBR11
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.50

Specimen Preparation

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

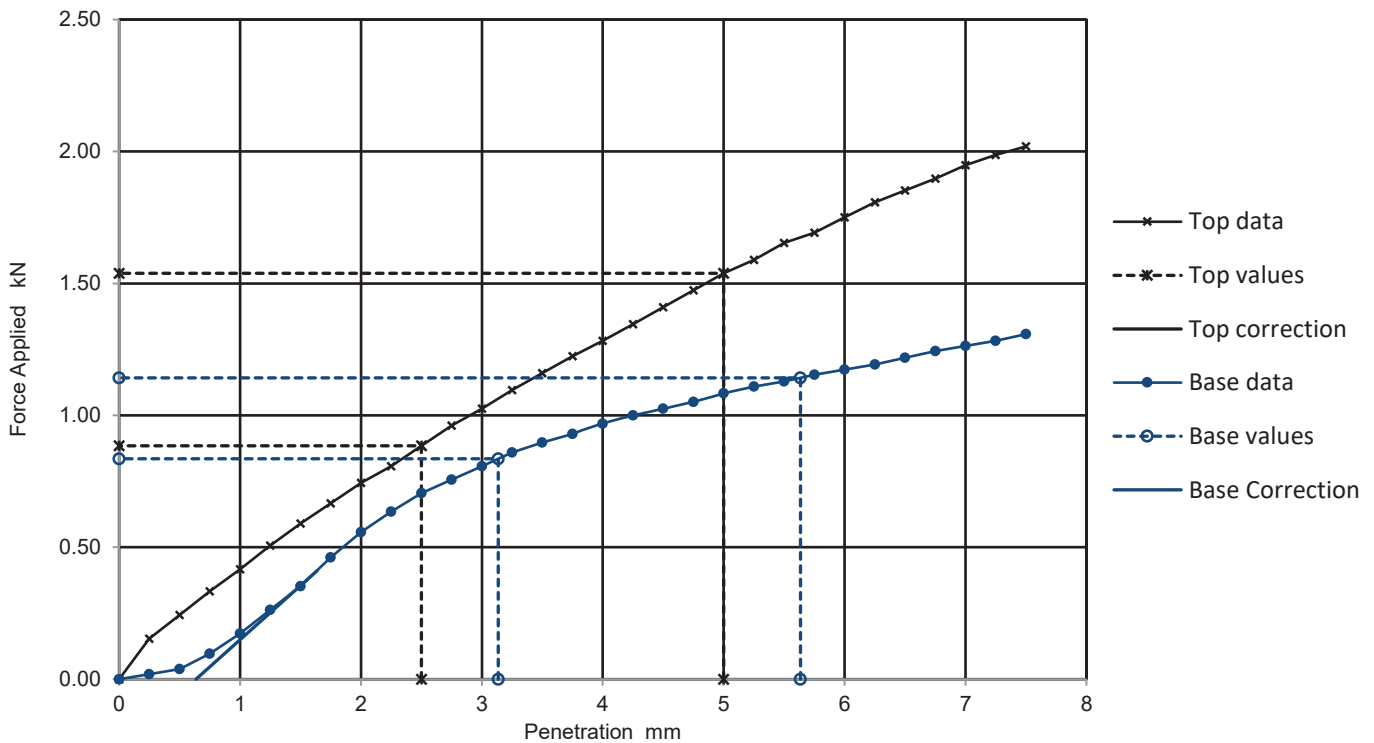
Material retained on 20mm sieve removed*	8 %
--	-----

Initial Specimen details	Bulk density	2.07 Mg/m3
	Dry density	1.77 Mg/m3
	Moisture content	17.0 %

Soaking details	
Period of soaking	4 days
Time to surface	10 days
Amount of swell recorded	0.18 mm
Dry density after soaking	1.77 Mg/m3

Surcharge applied	2.275 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
No	6.7	7.7	7.7	N/A
Yes	6.3	5.7	6.3	

Moisture Content %
17
19

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

11

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Brown slightly sandy silty CLAY with rare limy sandstone gravel.	BH/TP No.	CBR12
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.40

Specimen Preparation

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

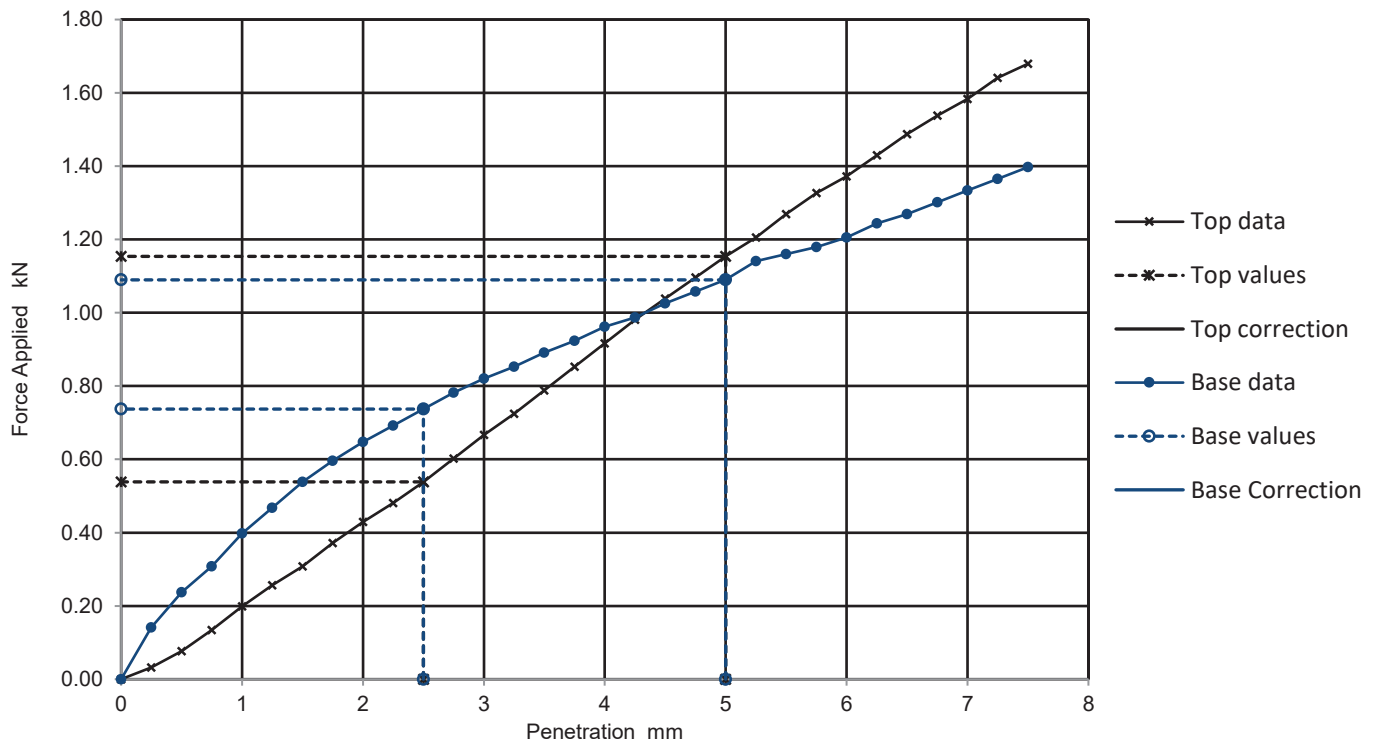
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	2.01 Mg/m3
	Dry density	1.75 Mg/m3
	Moisture content	15.0 %

Soaking details	
Period of soaking	4 days
Time to surface	4 days
Amount of swell recorded	0.52 mm
Dry density after soaking	1.74 Mg/m3

Surcharge applied	2.005 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
TOP	4.1	5.8	5.8	5.7
BASE	5.6	5.4	5.6	

Moisture Content %
19
19

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

12

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse flint.	BH/TP No.	CBR13
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.60

Specimen Preparation

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

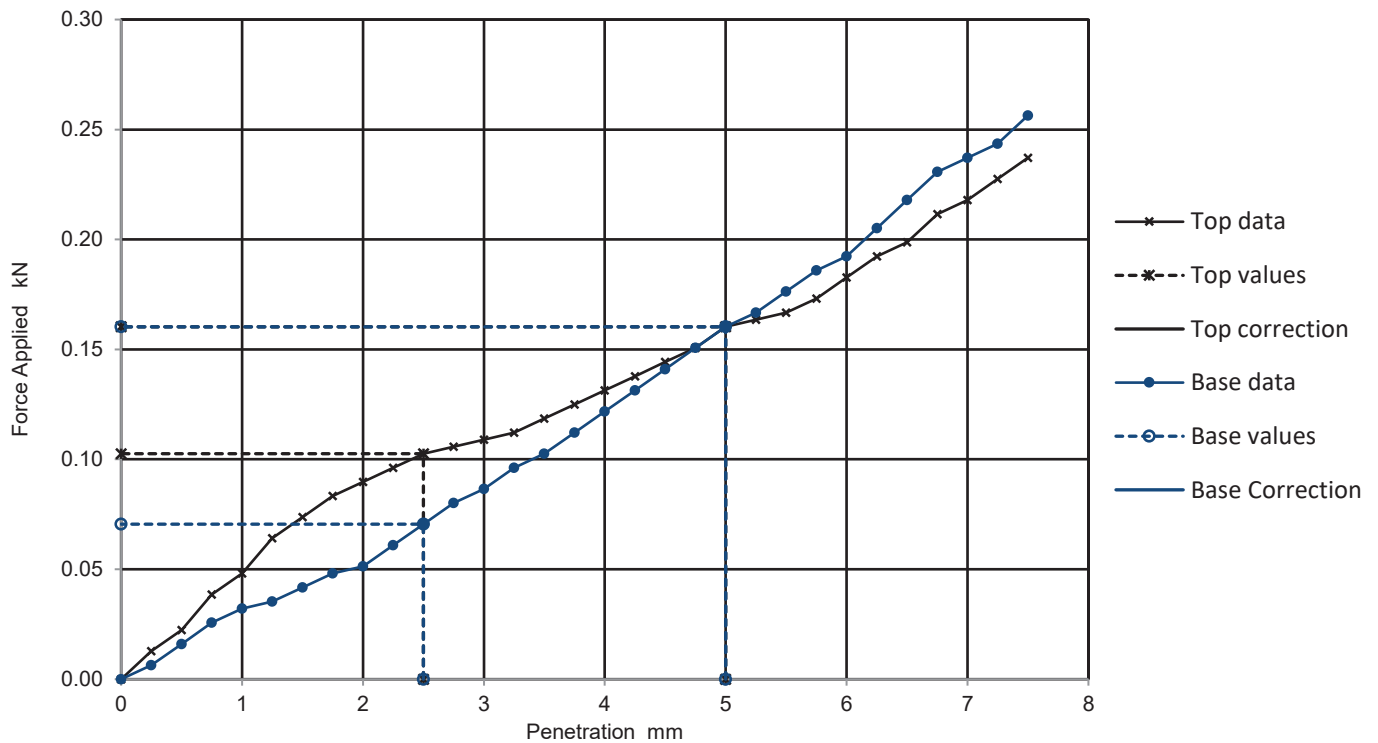
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	1.99 Mg/m3
	Dry density	1.64 Mg/m3
	Moisture content	21.0 %

Soaking details	
Period of soaking	4 days
Time to surface	4 days
Amount of swell recorded	0.07 mm
Dry density after soaking	1.64 Mg/m3

Surcharge applied	2.003 kg
	1 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values %				Moisture Content %
		2.5mm	5.0mm	Highest	Average	
TOP		0.8	0.8	0.8	0.8	21
BASE		0.5	0.8	0.8		21

General remarks

Test specific remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
 * retained fraction percentage based on initial mass and not dry mass of sample.

Sheet No

13

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No.	P13970
Soil Description	Brown slightly sandy silty CLAY with rare fine to medium flint gravel.	BH/TP No.	CBR14
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.30

Specimen Preparation

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

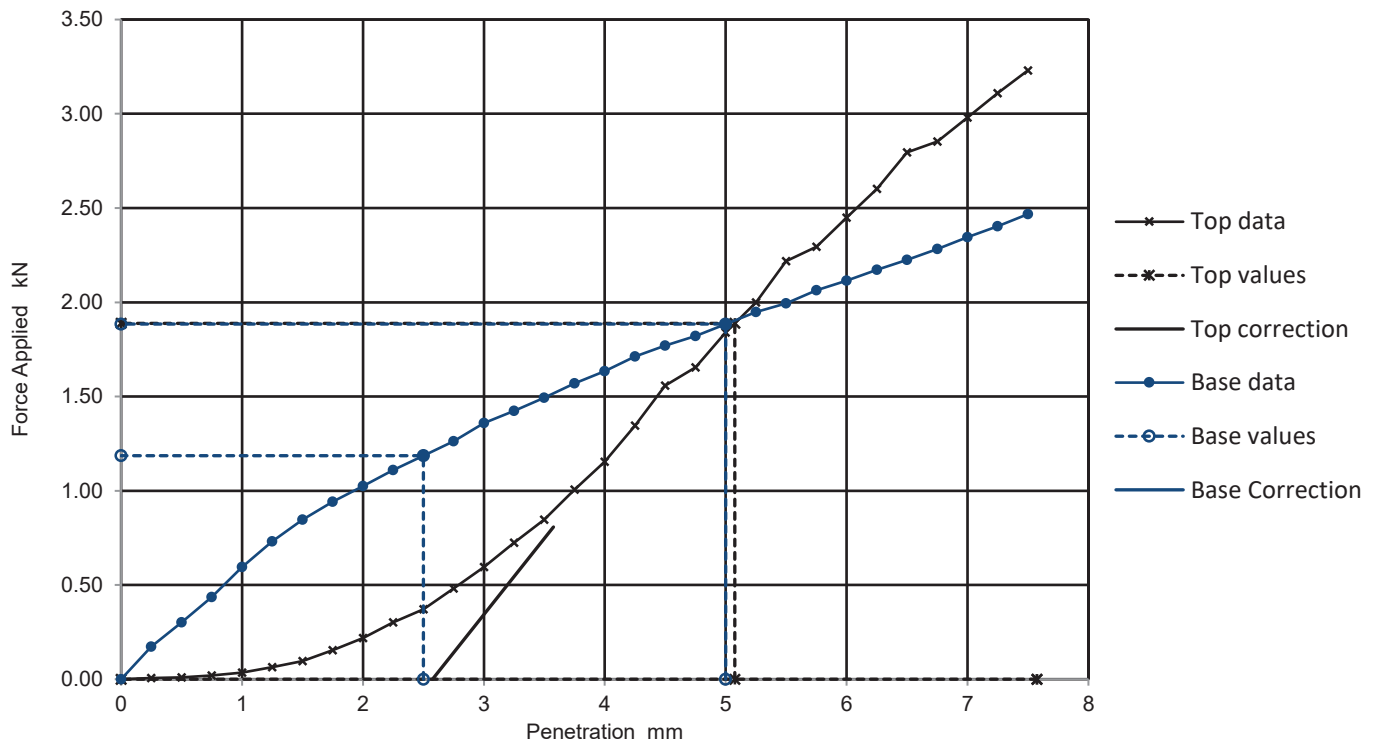
Material retained on 20mm sieve removed*	0 %
--	-----

Initial Specimen details	Bulk density	2.02 Mg/m3
	Dry density	1.77 Mg/m3
	Moisture content	14.0 %

Soaking details	
Period of soaking	4 days
Time to surface	4 days
Amount of swell recorded	0.43 mm
Dry density after soaking	1.77 Mg/m3

Surcharge applied	2.002 kg
	1 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
Yes	14.0		14.0	N/A
	9.0	9.4	9.4	

Moisture Content %
17
18

General remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Test specific remarks

Sheet No

14

ASHDOWN SITE INVESTIGATION LIMITED

Soil Classification Summary

Site Name:	Orchard Hill School, Hillingdon Young Persons Hub, Yiewsley	Job No:	P13970
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BH/TP No.	Depth (m)	Nat. Moist. Cont. (w %)	Equiv. Moist. Cont. (wa %)	Atterberg Limits			Class'n	Cons. Index (Ic)	% passing 425 µm sieve	Visual Description of Sample
				WI %	Wp %	Ip %				
CBR11	0.50	18		39	21	18	CI	1.17*	95	Very stiff dark brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse flint.
CBR12	0.40	15		33	13	20	CL	0.90*	100	Stiff dark brown slightly sandy silty CLAY.
CBR13	0.60	22		32	18	14	CL	0.71*	100	Firm dark brown slightly sandy silty CLAY.
CBR14	0.30	18		34	19	15	CL	1.07*	100	Very stiff dark brown slightly sandy silty CLAY.

ASHDOWN SITE INVESTIGATION LIMITED

Soil Classification Summary

Site Name:	Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton	Job No:	R17-12386
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BH/TP No.	Depth (m)	Nat. Moist. Cont. (w %)	Equiv. Moist. Cont. (wa %)	Atterberg Limits			Class'n	Cons. Index (Ic)	% passing 425 µm sieve	Visual Description of Sample
				WI %	Wp %	Ip %				
WS03	3.00	16		30	16	14	CL	1.00*	95	Very stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine flint.
WS04	1.50	18		40	16	24	CI	0.92*	99	Stiff dark brown slightly gravelly silty CLAY. Gravel is fine siltstone.
WS05	1.50	14		38	18	20	CI	1.20*	100	Very stiff brown slightly sandy silty CLAY.
WS05	2.20	14		34	18	16	CL	1.25*	95	Very stiff brown slightly gravelly silty CLAY. Gravel is fine to coarse flint.

ASHDOWN SITE INVESTIGATION LIMITED

Quick Undrained Triaxial Summary

Site Name:	Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton	Job No:	R17-12386
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BH/TP No.	Depth (m)	Nat. Moist. Cont. (w %)	Undrained Triaxial Tests					Shear Vane Strength kPa	Hand Pen. Strength kPa	Visual Description of Sample
			Bulk Density Mg/m3	Sample Diameter mm	Cell Pressure kPa	Max.Dev. Stress kPa	Shear Strength kPa			
WS01	1.70	21	2.23	70	50	144	72		110	Brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium flint. (Sample unsuitable for shear vane).
WS02	1.70	18	2.28	70	50	181	91		185	Brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium flint. (Sample unsuitable for shear vane).
WS03	1.70	19	2.16	82	50	175	88	95	115	Brown slightly sandy CLAY.
WS04	0.70	19	1.86	86	50	161	81	>130	240	Brown slightly sandy CLAY. (Sample collapsed on extrusion and unsuitable to test).
WS04	1.70	20	2.02	74	50	149	75	100	155	Brown slightly sandy CLAY.
WS05	1.00	15	2.08	80				>130	>250	Brown slightly sandy CLAY with occasional dark brown iron staining and a single medium root.

Test Method: Quick Undrained Triaxial Test BS1377: Part 7: 1990	Sheet No. 1
---	-------------

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton	Job No.	R17-12386
Soil Description	Dark brown slightly gravelly silty CLAY. Gravel is fine to coarse flint.	BH/TP No.	WS01
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.20

Specimen Preparation

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

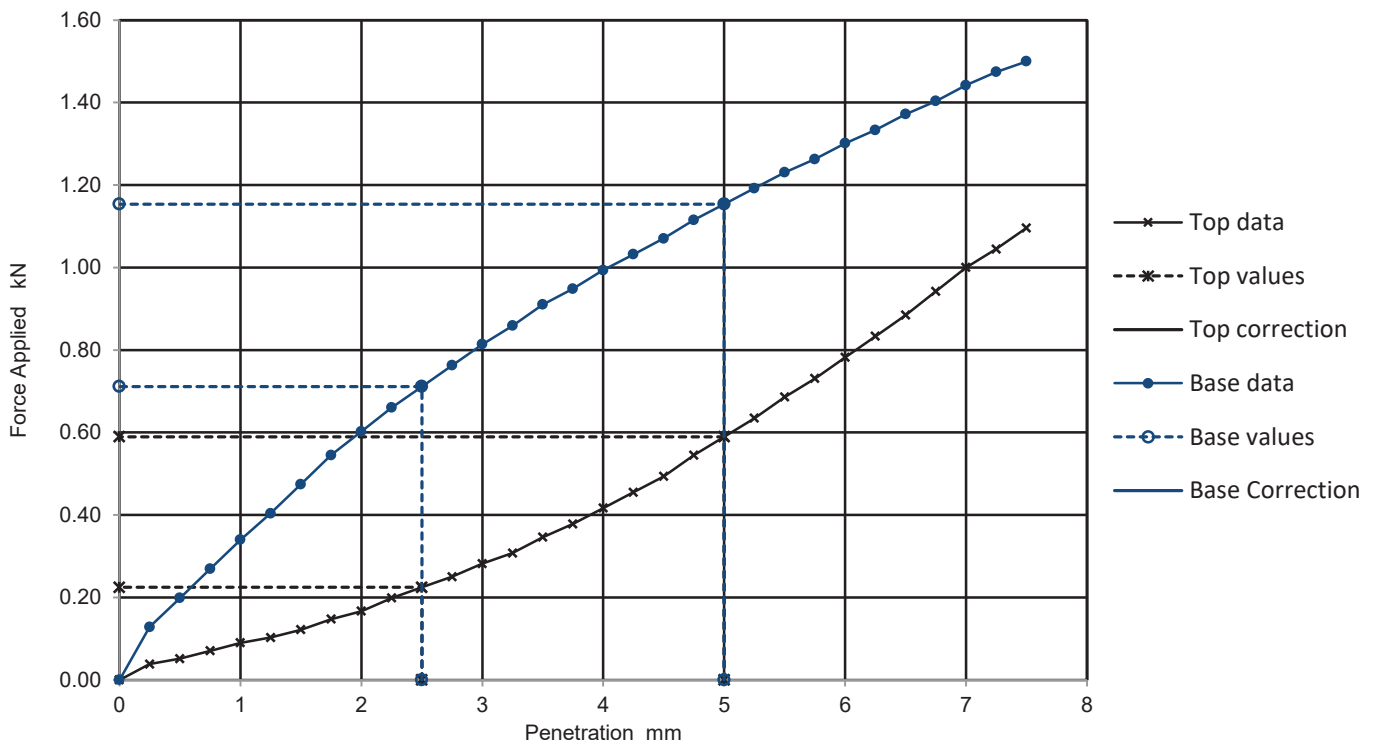
Material retained on 20mm sieve removed*	4 %
--	-----

Initial Specimen details	Bulk density	1.91 Mg/m3
	Dry density	1.61 Mg/m3
	Moisture content	19.0 %

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

Surcharge applied	13 kg
	8 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
No	1.7	2.9	2.9	N/A
No	5.4	5.8	5.8	

Moisture Content %
20
19

General remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Test specific remarks

Sheet No

1

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton	Job No.	R17-12386
Soil Description	Brown slightly gravelly silty CLAY. Gravel is fine to coarse flint.	BH/TP No.	WS04
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.25

Specimen Preparation

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

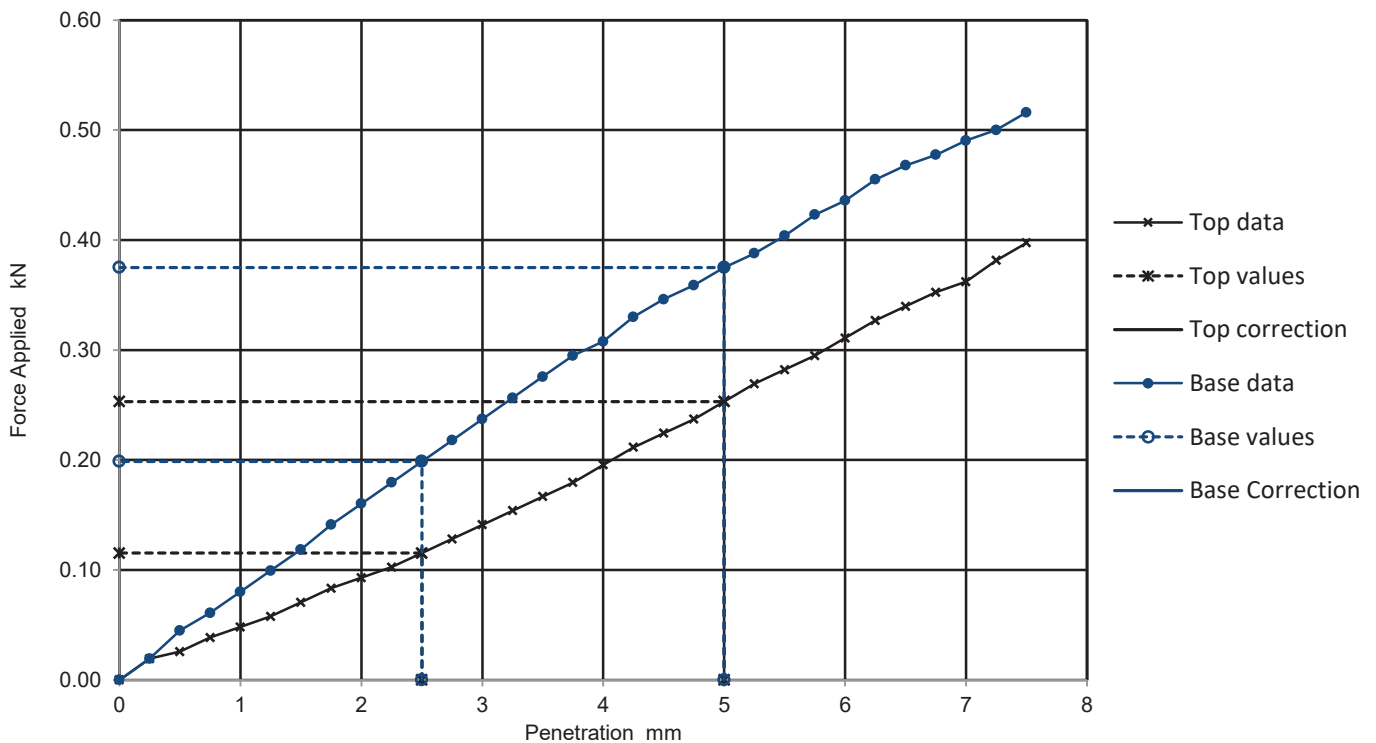
Material retained on 20mm sieve removed*	2 %
--	-----

Initial Specimen details	Bulk density	1.96 Mg/m3
	Dry density	1.63 Mg/m3
	Moisture content	20.0 %

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

Surcharge applied	13 kg
	8 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
No	0.9	1.3	1.3	N/A
No	1.5	1.9	1.9	

Moisture Content %
19
20

General remarks

Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Test specific remarks

Sheet No

2

ASHDOWN SITE INVESTIGATION LIMITED

California Bearing Ratio (CBR)

Site Name	Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Drayton	Job No.	R17-12386
Soil Description	Brown slightly gravelly silty CLAY. Gravel is fine to coarse flint.	BH/TP No.	WS05
Test Method	BS1377 : Part 4 : 1990, clause 7	Depth (m)	0.20

Specimen Preparation

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

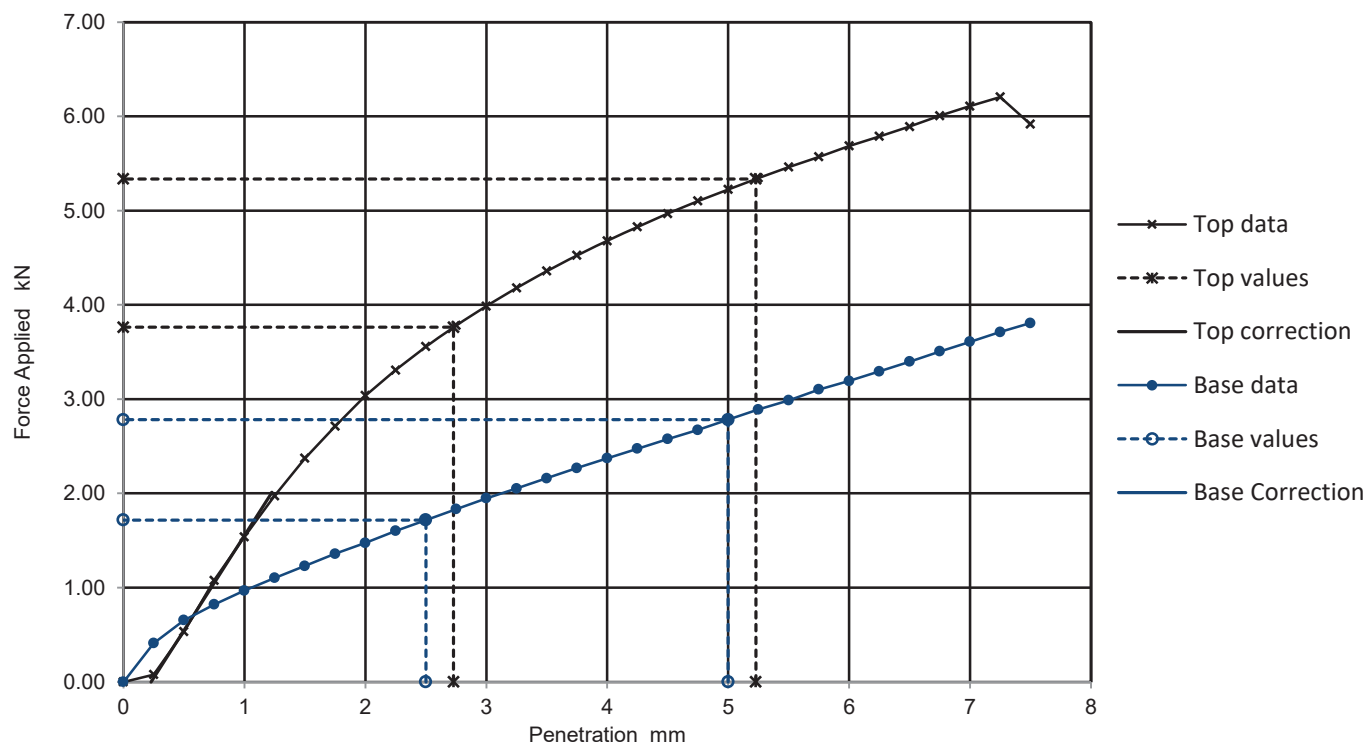
Material retained on 20mm sieve removed*	1 %
--	-----

Initial Specimen details	Bulk density	1.79 Mg/m3
	Dry density	1.61 Mg/m3
	Moisture content	11.0 %

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

Surcharge applied	13 kg
	8 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values %			
	2.5mm	5.0mm	Highest	Average
Yes	29.0	27.0	29.0	N/A
No	13.0	14.0	14.0	

Moisture Content %
12
10

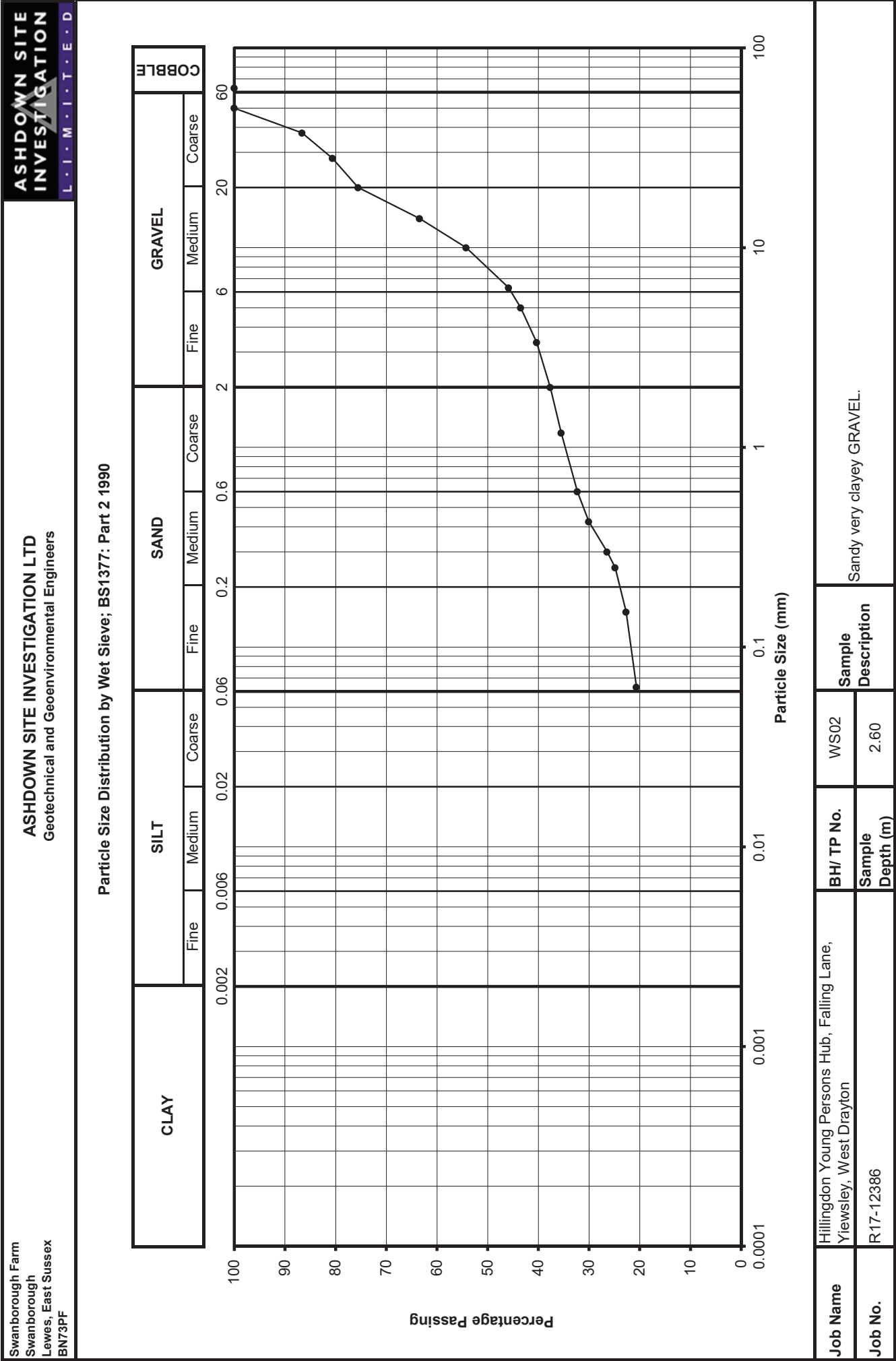
General remarks

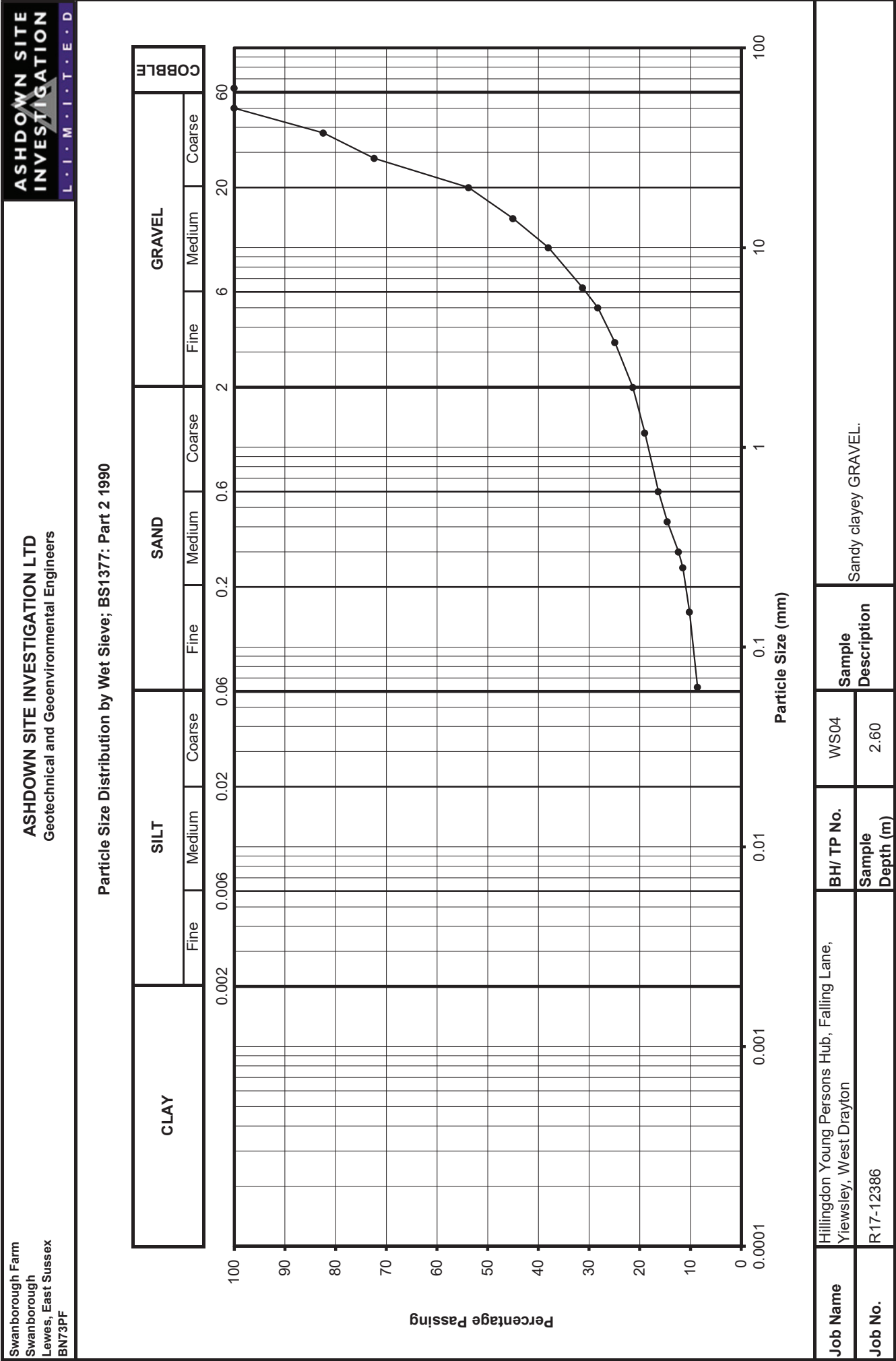
Where CBR values at each end are within 10% of the mean value the average is reported.
* retained fraction percentage based on initial mass and not dry mass of sample.

Test specific remarks

Sheet No

3







Alex Bewick
Ashdown Site Investigations Ltd
Unit 3 The Grain Store
Ditchling Common Business Park
Ditchling Common
West Sussex
BN6 8SG

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 19-10818

Site Reference: Orchard Hill School, Yiewsley

Project / Job Ref: P13970

Order No: 7808

Sample Receipt Date: 30/07/2019

Sample Scheduled Date: 30/07/2019

Report Issue Number: 1

Reporting Date: 05/08/2019

Authorised by:

Dave Ashworth
Technical Manager

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Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate						
DETS Report No: 19-10818	Date Sampled	24/07/19	24/07/19			
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Orchard Hill School, Yiewsley	TP / BH No	HA01	HA02			
Project / Job Ref: P13970	Additional Refs	None Supplied	None Supplied			
Order No: 7808	Depth (m)	0.30	0.40			
Reporting Date: 05/08/2019	DETS Sample No	424511	424512			

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected			
pH	pH Units	N/a	MCERTS	6.8	6.2			
Total Sulphate as SO ₄	mg/kg	< 200	NONE	972	541			
Total Sulphate as SO ₄	%	< 0.02	NONE	0.10	0.05			
Organic Matter	%	< 0.1	MCERTS	3.2	2.8			
Arsenic (As)	mg/kg	< 2	MCERTS	11	10			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3	< 0.2			
Chromium (Cr)	mg/kg	< 2	MCERTS	24	22			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	272	76			
Lead (Pb)	mg/kg	< 3	MCERTS	185	130			
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	20	18			
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3			
Zinc (Zn)	mg/kg	< 3	MCERTS	239	121			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 19-10818	Date Sampled	24/07/19	24/07/19			
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Orchard Hill School, Yiewsley	TP / BH No	HA01	HA02			
Project / Job Ref: P13970	Additional Refs	None Supplied	None Supplied			
Order No: 7808	Depth (m)	0.30	0.40			
Reporting Date: 05/08/2019	DETS Sample No	424511	424512			

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	0.11			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	0.97	0.85			
Anthracene	mg/kg	< 0.1	MCERTS	0.19	0.17			
Fluoranthene	mg/kg	< 0.1	MCERTS	2.27	2.42			
Pyrene	mg/kg	< 0.1	MCERTS	1.93	2.23			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	1.06	1.50			
Chrysene	mg/kg	< 0.1	MCERTS	1.43	1.49			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.80	2.29			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.62	0.70			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.31	1.74			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	1.01	0.95			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.20	0.16			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.83	0.87			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	13.6	15.5			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - EPH Banded (Type F)						
DETS Report No: 19-10818	Date Sampled	24/07/19	24/07/19			
Ashdown Site Investigations Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Orchard Hill School, Yiewsley	TP / BH No	HA01	HA02			
Project / Job Ref: P13970	Additional Refs	None Supplied	None Supplied			
Order No: 7808	Depth (m)	0.30	0.40			
Reporting Date: 05/08/2019	DETS Sample No	424511	424512			

Determinand	Unit	RL	Accreditation				
EPH (>C8 - C10)	mg/kg	< 1	MCERTS	< 1	< 1		
EPH (>C10 - C12)	mg/kg	< 1	MCERTS	< 1	< 1		
EPH (>C12 - C16)	mg/kg	< 1	MCERTS	1	< 1		
EPH (>C16 - C21)	mg/kg	< 1	MCERTS	15	11		
EPH (>C21 - C40)	mg/kg	< 6	MCERTS	95	70		
EPH (C8 - C40)	mg/kg	< 6	MCERTS	112	81		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2																																							
DETS Report No: 19-10818		Date Sampled		24/07/19		<table border="1"> <thead> <tr> <th colspan="3">Landfill Waste Acceptance Criteria Limits</th> </tr> <tr> <th>Inert Waste Landfill</th> <th>Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill</th> <th>Hazardous Waste Landfill</th> </tr> </thead> <tbody> <tr> <td>3%</td> <td>5%</td> <td>6%</td> </tr> <tr> <td>--</td> <td>--</td> <td>10%</td> </tr> <tr> <td>6</td> <td>--</td> <td>--</td> </tr> <tr> <td>1</td> <td>--</td> <td>--</td> </tr> <tr> <td>500</td> <td>--</td> <td>--</td> </tr> <tr> <td>100</td> <td>--</td> <td>--</td> </tr> <tr> <td>--</td> <td>>6</td> <td>--</td> </tr> <tr> <td>--</td> <td>To be evaluated</td> <td>To be evaluated</td> </tr> </tbody> </table>				Landfill Waste Acceptance Criteria Limits			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	3%	5%	6%	--	--	10%	6	--	--	1	--	--	500	--	--	100	--	--	--	>6	--	--	To be evaluated	To be evaluated
Landfill Waste Acceptance Criteria Limits																																							
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Ashdown Site Investigations Ltd		Time Sampled		None Supplied																																			
Site Reference: Orchard Hill School, Yiewsley		TP / BH No		HA01																																			
Project / Job Ref: P13970		Additional Refs		None Supplied																																			
Order No: 7808		Depth (m)		0.30																																			
Reporting Date: 05/08/2019		DETS Sample No		424511																																			
Determinand		Unit		MDL																																			
TOC ^{MU}		%		< 0.1		1.9																																	
Loss on Ignition		%		< 0.01		4.90																																	
BTEX ^{MU}		mg/kg		< 0.05		< 0.05																																	
Sum of PCBs		mg/kg		< 0.1		< 0.1																																	
Mineral Oil ^{MU}		mg/kg		< 10		< 10																																	
Total PAH ^{MU}		mg/kg		< 1.7		13.6																																	
pH ^{MU}		pH Units		N/a		6.8																																	
Acid Neutralisation Capacity		mol/kg (+/-)		< 1		< 1																																	
Eluate Analysis				10:1						Cumulative 10:1 mg/kg		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																											
Arsenic ^U				< 0.01						0.5		2																											
Barium ^U				< 0.02						20		100																											
Cadmium ^U				< 0.0005						0.04		1																											
Chromium ^U				< 0.005						0.5		10																											
Copper ^U				0.02						2		50																											
Mercury ^U				< 0.0005						0.01		0.2																											
Molybdenum ^U				< 0.001						0.5		10																											
Nickel ^U				< 0.007						0.4		10																											
Lead ^U				< 0.005						0.5		10																											
Antimony ^U				< 0.0060						0.06		0.7																											
Selenium ^U				< 0.005						0.1		0.5																											
Zinc ^U				0.005						4		50																											
Chloride ^U				< 1						800		15000																											
Fluoride ^U				< 0.5						10		150																											
Sulphate ^U				< 1						1000		20000																											
TDS				28						4000		60000																											
Phenol Index				< 0.01						1		-																											
DOC				9						89.8		500																											
Leach Test Information																																							
Sample Mass (kg)				0.10																																			
Dry Matter (%)				93.2																																			
Moisture (%)				7.4																																			
Stage 1																																							
Volume Eluate L10 (litres)				0.89																																			
Results are expressed on a dry weight basis, after correction for moisture content where applicable Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation M Denotes MCERTS accredited test U Denotes ISO17025 accredited test																																							

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/2																																							
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Landfill Waste Acceptance Criteria Limits																																							
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3%	5%	6%																																					
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--	To be evaluated	To be evaluated																																					
Ashdown Site Investigations Ltd		Time Sampled	None Supplied																																				
Site Reference: Orchard Hill School, Yiewsley		TP / BH No	HA02																																				
Project / Job Ref: P13970		Additional Refs	None Supplied																																				
Order No: 7808		Depth (m)	0.40																																				
Reporting Date: 05/08/2019		DETS Sample No	424512																																				
Determinand		Unit	MDL																																				
TOC ^{MU}		%	< 0.1		1.6																																		
Loss on Ignition		%	< 0.01		4																																		
BTEX ^{MU}		mg/kg	< 0.05		< 0.05																																		
Sum of PCBs		mg/kg	< 0.1		< 0.1																																		
Mineral Oil ^{MU}		mg/kg	< 10		< 10																																		
Total PAH ^{MU}		mg/kg	< 1.7		15.6																																		
pH ^{MU}		pH Units	N/a		6.2																																		
Acid Neutralisation Capacity		mol/kg (+/-)	< 1		< 1																																		
Eluate Analysis			10:1			Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)																																
			mg/l			mg/kg																																	
Arsenic ^U			< 0.01			< 0.1	0.5	2	25																														
Barium ^U			< 0.02			< 0.2	20	100	300																														
Cadmium ^U			< 0.0005			< 0.005	0.04	1	5																														
Chromium ^U			< 0.005			< 0.05	0.5	10	70																														
Copper ^U			0.09			0.9	2	50	100																														
Mercury ^U			< 0.0005			< 0.01	0.01	0.2	2																														
Molybdenum ^U			< 0.001			< 0.01	0.5	10	30																														
Nickel ^U			< 0.007			< 0.07	0.4	10	40																														
Lead ^U			< 0.005			< 0.05	0.5	10	50																														
Antimony ^U			< 0.0060			< 0.06	0.06	0.7	5																														
Selenium ^U			< 0.005			< 0.05	0.1	0.5	7																														
Zinc ^U			0.016			0.16	4	50	200																														
Chloride ^U			< 1			< 10	800	15000	25000																														
Fluoride ^U			< 0.5			< 5	10	150	500																														
Sulphate ^U			< 1			< 10	1000	20000	50000																														
TDS			25			250	4000	60000	100000																														
Phenol Index			< 0.01			< 0.1	1	-	-																														
DOC			22.2			222	500	800	1000																														
Leach Test Information																																							
Sample Mass (kg)			0.10																																				
Dry Matter (%)			93.8																																				
Moisture (%)			6.6																																				
Stage 1																																							
Volume Eluate L10 (litres)			0.89																																				
Results are expressed on a dry weight basis, after correction for moisture content where applicable Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation M Denotes MCERTS accredited test U Denotes ISO17025 accredited test																																							



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Rose Lane
Lenham Heath
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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 19-10818	
Ashdown Site Investigations Ltd	
Site Reference: Orchard Hill School, Yiewsley	
Project / Job Ref: P13970	
Order No: 7808	
Reporting Date: 05/08/2019	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
424511	HA01	None Supplied	0.30	6.9	Brown sandy clay with stones and vegetation
424512	HA02	None Supplied	0.40	6.2	Brown sandy clay with stones and vegetation

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 19-10818

Ashdown Site Investigations Ltd

Site Reference: Orchard Hill School, Yiewsley

Project / Job Ref: P13970

Order No: 7808

Reporting Date: 05/08/2019

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 17-13823

Issue: 1

Date of Issue: 08/09/2017

Contact: David Harris

Customer Details: Ashdown Site Investigation Ltd
The Old Dairy
Swanborough Farm
Lewes
East Sussex BN7 3PF

Quotation No: Q15-00267

Order No: P17-5208

Customer Reference: R17-12386

Date Received: 01/09/2017

Date Approved: 08/09/2017

Details: Hillingdon Young Persons Hub, Falling Lane, Yeiwsley, West D

Approved by:

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 17-13823

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
110660	WS01 1.50	30/08/2017	01/09/2017	Silty loam	
110661	WS03 2.50	30/08/2017	01/09/2017	Silty loam	
110662	WS04 2.50	30/08/2017	01/09/2017	Silty loam	
110663	WS02 1.50	30/08/2017	01/09/2017	Silty loam	
110664	WS05 0.60	30/08/2017	01/09/2017	Silty loam	
110665	WS04 0.50	30/08/2017	01/09/2017	Silty loam	



Results Summary

Report No.: 17-13823

ELAB Reference				110660	110661	110662	110663	110664	110665
Customer Reference									
Sample ID									
Sample Type				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location				WS01	WS03	WS04	WS02	WS05	WS04
Sample Depth (m)				1.50	2.50	2.50	1.50	0.60	0.50
Sampling Date				30/08/2017	30/08/2017	30/08/2017	30/08/2017	30/08/2017	30/08/2017
Determinand	Codes	Units	LOD						
Anions									
Water Soluble Sulphate	M	g/l	0.02	0.03	0.02	0.03	0.03	0.03	0.03
Inorganics									
Total Sulphur	N	%	0.01	0.65	0.03	0.01	0.02	0.02	0.01
Acid Soluble Sulphate (SO ₄)	U	%	0.02	0.09	0.09	0.10	0.10	0.08	0.08
Miscellaneous									
pH	M	pH units	0.1	7.3	8.5	8.5	8.4	7.9	8.1



Method Summary

Report No.: 17-13823

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	07/09/2017	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	08/09/2017	115	Ion Chromatography
Water soluble anions	M	Air dried sample	05/09/2017	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	06/09/2017	216	IR

Tests marked N are not UKAS accredited



Report Information

Report No.: 17-13823

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 17-13822

Issue: 1a

Date of Issue: 06/09/2017

Contact: David Harris

Customer Details: Ashdown Site Investigation Ltd
The Old Dairy
Swanborough Farm
Lewes
East Sussex BN7 3PF

Quotation No: Q15-00267

Order No: P17-5210

Customer Reference: R17-12386

Date Received: 01/09/2017

Date Approved: 06/09/2017

Details: Hillingdon Young Persons Hub, Falling Lane, Yiewsley, West Dr

Approved by:

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 17-13822

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
110649	HA01 0.20	30/08/2017	01/09/2017	Silty loam	
110650	HA02 0.50	30/08/2017	01/09/2017	Silty loam	
110651	WS01 0.60	30/08/2017	01/09/2017	Silty loam	
110652	WS02 0.15	30/08/2017	01/09/2017	Silty loam	
110653	WS02 0.50	30/08/2017	01/09/2017	Silty loam	
110654	WS03 0.15	30/08/2017	01/09/2017	Silty loam	
110655	WS03 0.50	30/08/2017	01/09/2017	Silty loam	
110656	WS04 0.20	30/08/2017	01/09/2017	Silty loam	
110657	WS04 0.60	30/08/2017	01/09/2017	Silty loam	
110658	WS05 0.15	30/08/2017	01/09/2017	Silty loam	
110659	WS05 0.60	30/08/2017	01/09/2017	Silty loam	

Results Summary

Report No.: 17-13822

ELAB Reference	110649	110650	110651	110652	110653	110654
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	HA01	HA02	WS01	WS02	WS02	WS03
Sample Depth (m)	0.20	0.50	0.60	0.15	0.50	0.15
Sampling Date	30/08/2017	30/08/2017	30/08/2017	30/08/2017	30/08/2017	30/08/2017

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	12.9	12.2	15.5	13.0	13.4	8.7
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	27.7	25.5	41.3	31.3	39.4	22.9
Copper	M	mg/kg	5	37.2	34.2	21.8	29.2	21.4	16.7
Lead	M	mg/kg	5	104	104	17.4	79.9	16.5	17.2
Mercury	M	mg/kg	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	21.0	19.0	29.9	21.1	27.5	15.8
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5	118	98.5	76.2	90.7	75.2	101
Inorganics									
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Water Soluble Boron	N	mg/kg	0.5	0.7	1.0	0.5	0.7	0.6	0.5
Miscellaneous									
pH	M	pH units	0.1	7.6	7.4	n/t	6.9	n/t	7.2
Soil Organic Matter	U	%	0.1	2.9	2.4	n/t	2.4	n/t	1.2
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	n/t	< 0.1
Acenaphthylene	M	mg/kg	0.1	0.2	< 0.1	n/t	< 0.1	n/t	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	n/t	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	n/t	< 0.1	n/t	< 0.1
Phenanthrene	M	mg/kg	0.1	0.8	< 0.1	n/t	0.8	n/t	< 0.1
Anthracene	M	mg/kg	0.1	0.2	< 0.1	n/t	0.1	n/t	< 0.1
Fluoranthene	M	mg/kg	0.1	2.4	< 0.1	n/t	1.9	n/t	0.2
Pyrene	M	mg/kg	0.1	2.2	< 0.1	n/t	1.6	n/t	0.2
Benzo(a)anthracene	M	mg/kg	0.1	1.4	< 0.1	n/t	1.0	n/t	0.1
Chrysene	M	mg/kg	0.1	1.6	< 0.1	n/t	1.1	n/t	0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	1.7	< 0.1	n/t	1.1	n/t	0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	1.8	< 0.1	n/t	1.3	n/t	0.2
Benzo (a) pyrene	M	mg/kg	0.1	1.8	< 0.1	n/t	1.1	n/t	0.2
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	1.4	< 0.1	n/t	1.0	n/t	0.2
Dibenzo(a,h)anthracene	M	mg/kg	0.1	0.4	< 0.1	n/t	0.4	n/t	0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	1.2	< 0.1	n/t	0.7	n/t	0.1
Total PAH(16)	M	mg/kg	0.4	17.4	0.4	n/t	12.4	n/t	1.8



2683

Results Summary

Report No.: 17-13822

ELAB Reference	110655	110656	110657	110658	110659
Customer Reference					
Sample ID					
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS03	WS04	WS04	WS05	WS05
Sample Depth (m)	0.50	0.20	0.60	0.15	0.60
Sampling Date	30/08/2017	30/08/2017	30/08/2017	30/08/2017	30/08/2017

Determinand	Codes	Units	LOD					
Metals								
Arsenic	M	mg/kg	1	11.2	11.9	12.5	11.3	11.3
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	31.8	26.2	27.2	22.3	30.4
Copper	M	mg/kg	5	18.8	47.9	24.4	29.8	17.8
Lead	M	mg/kg	5	15.2	108	28.4	76.6	13.1
Mercury	M	mg/kg	0.5	< 0.5	0.5	< 0.5	0.5	< 0.5
Nickel	M	mg/kg	5	20.6	18.5	22.4	17.5	20.5
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5	84.6	143	66.0	94.0	62.3
Inorganics								
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Water Soluble Boron	N	mg/kg	0.5	0.5	0.7	0.6	1.0	0.8
Miscellaneous								
pH	M	pH units	0.1	n/t	7.8	n/t	7.7	n/t
Soil Organic Matter	U	%	0.1	n/t	3.0	n/t	2.5	n/t
Polyaromatic hydrocarbons								
Naphthalene	M	mg/kg	0.1	n/t	0.2	n/t	< 0.1	n/t
Acenaphthylene	M	mg/kg	0.1	n/t	0.1	n/t	< 0.1	n/t
Acenaphthene	M	mg/kg	0.1	n/t	< 0.1	n/t	< 0.1	n/t
Fluorene	M	mg/kg	0.1	n/t	< 0.1	n/t	< 0.1	n/t
Phenanthrene	M	mg/kg	0.1	n/t	0.9	n/t	< 0.1	n/t
Anthracene	M	mg/kg	0.1	n/t	0.4	n/t	< 0.1	n/t
Fluoranthene	M	mg/kg	0.1	n/t	2.4	n/t	0.1	n/t
Pyrene	M	mg/kg	0.1	n/t	2.1	n/t	0.1	n/t
Benzo(a)anthracene	M	mg/kg	0.1	n/t	1.4	n/t	< 0.1	n/t
Chrysene	M	mg/kg	0.1	n/t	1.7	n/t	< 0.1	n/t
Benzo (b) fluoranthene	M	mg/kg	0.1	n/t	1.7	n/t	< 0.1	n/t
Benzo(k)fluoranthene	M	mg/kg	0.1	n/t	1.7	n/t	0.1	n/t
Benzo (a) pyrene	M	mg/kg	0.1	n/t	1.8	n/t	0.1	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	n/t	1.5	n/t	0.2	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.1	n/t	0.4	n/t	< 0.1	n/t
Benzo[g,h,i]perylene	M	mg/kg	0.1	n/t	1.3	n/t	0.1	n/t
Total PAH(16)	M	mg/kg	0.4	n/t	17.8	n/t	0.8	n/t



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Results Summary

Report No.: 17-13822

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
110649	0.20	HA01	Brown soil with stones	No asbestos detected	n/t	n/t	n/t	n/t
110650	0.50	HA02	Brown soil with stones and clinker	No asbestos detected	n/t	n/t	n/t	n/t
110652	0.15	WS02	Brown soil with stones	No asbestos detected	n/t	n/t	n/t	n/t
110658	0.15	WS05	Brown soil with stones	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 17-13822

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Hexavalent chromium	N	As submitted sample	05/09/2017	110	Colorimetry
pH	M	Air dried sample	06/09/2017	113	Electromeric
Aqua regia extractable metals	M	Air dried sample	06/09/2017	118	ICPMS
PAH (GC-FID)	M	As submitted sample	04/09/2017	133	GC-FID
Water soluble boron	N	Air dried sample	05/09/2017	202	Colorimetry
Soil organic matter	U	Air dried sample	05/09/2017	BS1377:P3	Titrimetry
Asbestos identification	U	As submitted sample	05/09/2017	PMAN	Microscopy

Tests marked N are not UKAS accredited



Report Information

Report No.: 17-13822

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

APPENDIX E

HazWaste Online Output Sheets

Waste Classification Report



F9DNT-J8TQM-ACZ3H

Job name

P13970 - Orchard Hill School, Yiewsley, West Drayton

Description/Comments

Project

P13970

Site

Orchard Hill School, Yiewsley, West Drayton

Related Documents

#	Name	Description
1	19-10818.1.hwol	.hwol file used to create the Job

Waste Stream Template

ASI QTS

Classified by

Name:
Stuart Card
Date:
21 Aug 2019 16:22 GMT
Telephone:
01273 483119

Company:
Ashdown Site Investigation Limited
Unit 3, The Old Grain Store
Ditchling Common Business Park
Ditchling
BN6 8SG

Report

Created by: Stuart Card
Created date: 21 Aug 2019 16:22 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	HA01-0.30-24/07/2019	0.30	Non Hazardous		2
2	HA02-0.40-24/07/2019	0.40	Non Hazardous		4

Appendices

	Page
Appendix A: Classifier defined and non CLP determinands	6
Appendix B: Rationale for selection of metal species	7
Appendix C: Version	8

Classification of sample: HA01-0.30-24/07/2019

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

Sample details

Sample Name:	LoW Code:
HA01-0.30-24/07/2019	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.30 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
6.9%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	● pH		PH		6.8	pH		6.8	pH	6.8 pH		
2	● arsenic { arsenic trioxide }				11	mg/kg	1.32	14.524	mg/kg	0.00145 %		
	033-003-00-0	215-481-4	1327-53-3									
3	● boron { boron tribromide/trichloride/trifluoride (combined) }				<1	mg/kg	13.43	<13.43	mg/kg	<0.00134 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2									
4	● cadmium { cadmium sulfide }			1	0.3	mg/kg	1.285	0.386	mg/kg	0.00003 %		
	048-010-00-4	215-147-8	1306-23-6									
5	● chromium in chromium(III) compounds { chromium(III) oxide }				24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
		215-160-9	1308-38-9									
6	● chromium in chromium(VI) compounds { chromium(VI) oxide }				<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	● copper { copper sulphate pentahydrate }				272	mg/kg	3.929	1068.702	mg/kg	0.107 %		
	029-023-00-4	231-847-6	7758-99-8									
8	● lead { lead chromate }			1	185	mg/kg	1.56	288.566	mg/kg	0.0185 %		
	082-004-00-2	231-846-0	7758-97-6									
9	● mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	● nickel { nickel chromate }				20	mg/kg	2.976	59.525	mg/kg	0.00595 %		
	028-035-00-7	238-766-5	14721-18-7									
11	● selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		<LOD
	034-002-00-8											
12	● zinc { zinc chromate }				239	mg/kg	2.774	663.021	mg/kg	0.0663 %		
	024-007-00-3											

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
13	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
15	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
16	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
17	phenanthrene				0.97 mg/kg		0.97 mg/kg	0.000097 %			
		201-581-5	85-01-8								
18	anthracene				0.19 mg/kg		0.19 mg/kg	0.000019 %			
		204-371-1	120-12-7								
19	fluoranthene				2.27 mg/kg		2.27 mg/kg	0.000227 %			
		205-912-4	206-44-0								
20	pyrene				1.93 mg/kg		1.93 mg/kg	0.000193 %			
		204-927-3	129-00-0								
21	benzo[a]anthracene				1.06 mg/kg		1.06 mg/kg	0.000106 %			
	601-033-00-9	200-280-6	56-55-3								
22	chrysene				1.43 mg/kg		1.43 mg/kg	0.000143 %			
	601-048-00-0	205-923-4	218-01-9								
23	benzo[b]fluoranthene				1.8 mg/kg		1.8 mg/kg	0.00018 %			
	601-034-00-4	205-911-9	205-99-2								
24	benzo[k]fluoranthene				0.62 mg/kg		0.62 mg/kg	0.000062 %			
	601-036-00-5	205-916-6	207-08-9								
25	benzo[a]pyrene; benzo[def]chrysene				1.31 mg/kg		1.31 mg/kg	0.000131 %			
	601-032-00-3	200-028-5	50-32-8								
26	indeno[123-cd]pyrene				1.01 mg/kg		1.01 mg/kg	0.000101 %			
		205-893-2	193-39-5								
27	dibenz[a,h]anthracene				0.2 mg/kg		0.2 mg/kg	0.00002 %			
	601-041-00-2	200-181-8	53-70-3								
28	benzo[ghi]perylene				0.83 mg/kg		0.83 mg/kg	0.000083 %			
		205-883-8	191-24-2								
29	TPH (C6 to C40) petroleum group				112 mg/kg		112 mg/kg	0.0112 %			
			TPH								
30	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	602-039-00-4	215-648-1	1336-36-3								
Total:									0.218 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free product identified. TPH in soil unlikely to be flammable at concentrations <500mg/kg and not at concentrations recorded.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0112%)

Classification of sample: HA02-0.40-24/07/2019

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

Sample details

Sample Name:	LoW Code:
HA02-0.40-24/07/2019	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.40 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
6.2%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	● pH		PH		6.2	pH		6.2	pH	6.2 pH		
2	● arsenic { arsenic trioxide }				10	mg/kg	1.32	13.203	mg/kg	0.00132 %		
	033-003-00-0	215-481-4	1327-53-3									
3	● boron { boron tribromide/trichloride/trifluoride (combined) }				<1	mg/kg	13.43	<13.43	mg/kg	<0.00134 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2									
4	● cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6									
5	● chromium in chromium(III) compounds { chromium(III) oxide }				22	mg/kg	1.462	32.154	mg/kg	0.00322 %		
		215-160-9	1308-38-9									
6	● chromium in chromium(VI) compounds { chromium(VI) oxide }				<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
7	● copper { copper sulphate pentahydrate }				76	mg/kg	3.929	298.608	mg/kg	0.0299 %		
	029-023-00-4	231-847-6	7758-99-8									
8	● lead { lead chromate }			1	130	mg/kg	1.56	202.776	mg/kg	0.013 %		
	082-004-00-2	231-846-0	7758-97-6									
9	● mercury { mercury dichloride }				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	● nickel { nickel chromate }				18	mg/kg	2.976	53.573	mg/kg	0.00536 %		
	028-035-00-7	238-766-5	14721-18-7									
11	● selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		<LOD
	034-002-00-8											
12	● zinc { zinc chromate }				121	mg/kg	2.774	335.672	mg/kg	0.0336 %		
	024-007-00-3											

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
13	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
14	acenaphthylene				0.11 mg/kg		0.11 mg/kg	0.000011 %		
		205-917-1	208-96-8							
15	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9							
16	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7							
17	phenanthrene				0.85 mg/kg		0.85 mg/kg	0.000085 %		
		201-581-5	85-01-8							
18	anthracene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
		204-371-1	120-12-7							
19	fluoranthene				2.42 mg/kg		2.42 mg/kg	0.000242 %		
		205-912-4	206-44-0							
20	pyrene				2.23 mg/kg		2.23 mg/kg	0.000223 %		
		204-927-3	129-00-0							
21	benzo[a]anthracene				1.5 mg/kg		1.5 mg/kg	0.00015 %		
	601-033-00-9	200-280-6	56-55-3							
22	chrysene				1.49 mg/kg		1.49 mg/kg	0.000149 %		
	601-048-00-0	205-923-4	218-01-9							
23	benzo[b]fluoranthene				2.29 mg/kg		2.29 mg/kg	0.000229 %		
	601-034-00-4	205-911-9	205-99-2							
24	benzo[k]fluoranthene				0.7 mg/kg		0.7 mg/kg	0.00007 %		
	601-036-00-5	205-916-6	207-08-9							
25	benzo[a]pyrene; benzo[def]chrysene				1.74 mg/kg		1.74 mg/kg	0.000174 %		
	601-032-00-3	200-028-5	50-32-8							
26	indeno[123-cd]pyrene				0.95 mg/kg		0.95 mg/kg	0.000095 %		
		205-893-2	193-39-5							
27	dibenz[a,h]anthracene				0.16 mg/kg		0.16 mg/kg	0.000016 %		
	601-041-00-2	200-181-8	53-70-3							
28	benzo[ghi]perylene				0.87 mg/kg		0.87 mg/kg	0.000087 %		
		205-883-8	191-24-2							
29	TPH (C6 to C40) petroleum group				81 mg/kg		81 mg/kg	0.0081 %		
			TPH							
30	polychlorobiphenyls; PCB				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	602-039-00-4	215-648-1	1336-36-3							
Total:								0.0987 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free product identified. TPH in soil unlikely to be flammable at concentrations <500mg/kg and not at concentrations recorded.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0081%)

Appendix A: Classifier defined and non CLP determinands

• pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

• boron tribromide/trichloride/trifluoride (combined) (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Conversion factor: 13.43
Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06 Aug 2015
Hazard Statements: Skin Corr. 1B H314 , Skin Corr. 1A H314 , Acute Tox. 2 H300 , Acute Tox. 2 H330 , EUH014

• chromium(III) oxide (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

• acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

• acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

• anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2 H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

• **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s)/Risk Phrase(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species

cadmium {cadmium sulfide}

Worst case species

chromium in chromium(III) compounds {chromium(III) oxide}

Worst case species

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species

copper {copper sulphate pentahydrate}

Worst case species

lead {lead chromate}

Worst case species

mercury {mercury dichloride}

Worst case species

nickel {nickel chromate}

Worst case species

selenium {selenium compounds with the exception of cadmium sulposelenide and those specified elsewhere in this Annex}

Worst case species

zinc {zinc chromate}

Worst case species

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018

HazWasteOnline Classification Engine Version: 2019.231.3945.7989 (19 Aug 2019)

HazWasteOnline Database: 2019.231.3945.7989 (19 Aug 2019)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004

1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010

2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010