



Supplementary Ground Investigation Report

Saltbox

Shripney Road
Bognor Regis
PO22 9NW

Prepared for:

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EPS Reference Number: UK17.2707d

Date Issued: 11th January 2019

Report Status: Issue 1



SALTBOX, BOGNOR REGIS

NON-TECHNICAL CLIENT SUMMARY

This report presents the findings of an intrusive Ground Investigation undertaken to determine ground conditions in order to give relevant information for use in geotechnical design at the site and its development. Pertinent findings and conclusions may be summarised as follows:

- Intrusive investigations for this phase of work involved the drilling of 11 deep (20m) boreholes, as well as the excavation of 22 shallow trial pits, with completion of soakaway tests at 2 of these locations. In addition to this, in-situ testing was undertaken at 49 locations to assist with derivation of road and pavement design parameters. Underlying geology was found to comprise topsoil overlying a notable thickness of relatively low strength clay soils with chalk bedrock beneath; which was encountered between approximately 2.0-5.0m. Groundwater was encountered at variable depths between 1.9m and 6.0m depth and this has been supplemented with extensive monitoring of rest levels over the past year, undertaken as part of previous phase of works and will be reported on separately.
- Whilst the natural shallow soils are possibly suitable for the use of conventional spread foundations, allowable bearing pressures are likely to be particularly limited (35kN/m^2) and may only prove suitable for very light loads and ancillary structures. Piles are likely to be the most appropriate solution for most of the structures, with approximate capacities for a CFA pile summarised below.

Depth of pile below ground level (m bgl)	Approximate Allowable Working Load (kN)		
	300mm Diameter Pile	450mm Diameter Pile	600mm Diameter Pile
12	190	355	575
14	255	470	750
18	435	790	1,225

- Due to the variable strength of the shallow soils and the likely applied loads at the site, consideration has been given to the suitability of several methods of ground floor construction. These are detailed in section 5.2, but may include either suspended construction, improvement of the ground beneath the slab or piled ground floor slabs.
- Both laboratory and in-situ CBR testing of subgrade was undertaken as part of the works with the full results being discussed in section 5.3.1. Given the size of the site and the amount of data collected it was deemed appropriate to divide it into separate areas based on the proposed development plan and representative CBR values were obtained ranging from 2.5% to 3.5%, depending on location. Some isolated soft areas were encountered, and suitable preparation will be required to ensure consistency across the site.
- Permeability testing undertaken as part of the works returned values representative of 'very low to practically impermeable conditions' confirming previous findings and suggesting that infiltration drainage systems are unlikely to be effective.

The above points represent a simplified summary of the findings of this assessment and should not form the basis for key decisions for the proposed development. A thorough review of the details is contained within the following report, or alternatively get in touch and we'll talk you through it.



Project Reference:	UK17. 2707d	
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Where ground investigations have been conducted, these have been limited to the level of detail required for the site in order to achieve the objectives of the investigation.

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The report has been written, reviewed and authorised by the persons listed above. It has also undergone EPS' in house quality management inspection. Should you require any further assistance regarding the information provided within the report, please do not hesitate to contact us.

The National Planning Policy Framework requires a competent person to prepare site investigation information, which is defined as a person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation. EPS considers that it fulfils these criteria and would welcome any request for staff CVs or case studies to demonstrate it.

As stated within DEFRA's Contaminated Land Statutory Guidance, with any complex risk assessment it is possible that different suitably qualified people may reach slightly different conclusions when interpreting the same information. EPS recognises this and considers the conclusions presented within this report to be robust and appropriate but input from the Local Authority and their judgement in line with this guidance would still be welcomed.



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1 INTRODUCTION

In September 2018, Environmental Protection Strategies Ltd (EPS) was commissioned by Kirk Saunders on behalf of Langmead Developments 1 Ltd to complete a Supplementary Ground Investigation at Saltbox, Shripney Road, Bognor Regis, PO22 9NW ('the site'). A site location plan is presented as Figure 1.

The work was commissioned in order to provide geotechnical information for use in design and construction of a commercial development comprising a number of trade and retail units, with associated parking areas and access roads, registered under Arun District Council Planning Application Ref: BE/135/18/PL.

This report presents the findings, conclusions, and recommendations of the most recent phase of ground investigation works and supplements a previous Phase I Geo-Environmental Desk Study and subsequent Phase II Intrusive Investigation undertaken for the same area by EPS.

1.1 Scope of Work

To perform an exploratory assessment of the site in accordance with the principles and requirements of BS5930:2015 '*Code of practice for ground investigations*' and BS EN 1997 '*Geotechnical Design*', the following tasks were undertaken:

Intrusive Investigation:

- Site walkover / obtaining photographic records.
- Health and safety briefing / site supervision.
- Formation of 11 boreholes using a cable percussive drilling rig, to a depth of 20m below ground level (bgl).
- Formation of 22 trial pits using a JCB style excavator to a maximum depth of 2.5m bgl.
- Completion of soil infiltration tests in general accordance with *BRE Digest 365* at two of the trial pit positions.
- Undertaking in-situ CBR testing using a dynamic cone penetrometer (DCP) at 49 locations.
- Logging of ground conditions including inspection of samples for visual and olfactory contamination on a precautionary basis.

Reporting:

- Data collection and interpretation.
- Reporting.

The findings of these investigations and their conclusions are presented in the following sections.



1.2 Limitations and Constraints

The purpose of this report is to present the findings of shallow soil sampling investigation conducted at the location(s) specified. When examining the data collected from the investigations made during the assessment, Environmental Protection Strategies Ltd (EPS) makes the following statements:

No investigation method is capable of completely identifying all ground conditions that might be present in the soil or groundwater under a site. Where outlined in our report, we have examined the ground beneath a site by constructing a number of boreholes and / or trial pits to recover soil and / or groundwater samples. The locations of these excavations and sampling points are considered to be representative of the condition of the whole site subsurface however, ground conditions are naturally variable and it may be possible that the ground conditions encountered may differ to those encountered during the investigation.

No visible evidence of Japanese Knotweed was identified during the site walkover. However, this plant can be difficult to identify in the early stages of growth and therefore it is not always possible to identify its presence at certain times of the year. For this reason, EPS cannot confirm that Japanese Knotweed rhizomes do not exist and it is recommended that if it is suspected that this species, or other similarly invasive plants are present at the site, a specialist contractor should be commissioned to make a detailed assessment.

This report does not include specific investigation for the presence of Potential Asbestos Containing Material (PACM). Specialist contractors should be commissioned to make detailed assessments and recommendations if these materials are suspected.

The investigation was carried out to assess the significance of contamination resulting from the use of the site as identified in this report. Unless EPS has otherwise indicated, no assessment of potential impact of any other previous uses has been made.



2 BACKGROUND AND PREVIOUS REPORTS

It should be noted that two reports have previously been undertaken for the site by EPS Ltd including a Phase I Geo-Environmental Desk Study (June 2017) and Phase II Geo-Environmental Assessment (January 2018). It is recommended that the following reports be reviewed before the reader examines the content of this document:

- *UK17.2707 Phase I Geo-Environmental Assessment, Saltbox, Bognor Regis (Issue 1) - 9th June 2017*
- *UK17.2707b Phase II Geo-Environmental Assessment, Saltbox, Bognor Regis (Issue 1) – 3rd January 2018*

A summary of the relevant information contained within these reports is presented in the following sections and has been updated to align with more recent findings where appropriate.

2.1 Site & Location Description

Detail	Description
Location	The site is located on the southern outskirts of Shripney, a small village situated around 2.5km north east of Bognor Regis town centre.
National Grid Reference	493787, 101706
Topographic Elevation	Approximately 5m Above Ordnance Datum (AOD).
Topographic Gradient	Approximately 1-2m Above Ordnance Datum (AOD) with levels sloping gently towards the south west.
Site Description (October 2018)	The area currently comprises a roughly rectangular parcel of land that is slightly wider towards its southern boundary and is used as an arable field. The area can be accessed off Shripney Road via a low metal farm gate, present towards the centre of the eastern boundary. No formal structures are noted within the site limits, which are all marked with low level shrubs or hedgerows. Close to the site entrance trailers and machinery associated with farming activities were present at the time of the most recent phase of site investigation works. Furthermore, the majority of the site was occupied by rows of newly planted crops, running approximately east-west across the field. A small rectangular area in the southern portion of the site had been left to lie fallow, although it did appear to have been previously ploughed.
Surrounding Land Use	The site is located within an area of fairly limited development, with the majority of surrounding land also used for agricultural purposes. However, a caravan site is situated adjacent to the south, with a series of residential dwellings present adjacent to its north-eastern corner, along Shripney Road, which runs parallel to the eastern boundary. A notable commercial estate is located around 450m south and south east and comprises a series of large standalone units.



2.2 Geo-Environmental Setting

Detail	Description
Geology	Geological maps of the area indicate the ground conditions to comprise River Terrace Deposits (clay, silt and sand) overlying the Lewes Nodular Chalk Formation.
Hydrogeology	Groundwater vulnerability maps for the area show that the underlying superficial geology is classified as a Secondary Aquifer with the Lewes Nodular Chalk Formation classified as a more sensitive Principal Aquifer. The site does not lie within a Source Protection Zone (SPZ) for groundwater abstraction.
Hydrology	The nearest surface water feature is a drainage channel which runs along the northern and western boundaries of the study area. Further ditches are networked to the east, west and south respectively, the majority of which join a more significant stream around 1.2m south east, which flows in a generally southerly direction.

2.3 Desk Study Recommendations and Summary of Previous Investigation

The results of the preliminary risk assessment indicated the study area to be relatively 'low risk' given its limited history of previous development and geo-environmental context. Furthermore, given the low sensitivity nature of the proposed commercial scheme, no specific environmental assessment was recommended. However, as intrusive works were already scheduled to inform ground conditions and support geotechnical design, confirmatory soil sampling was undertaken, to ensure the quality of shallow soils across the study area.

The subsequent intrusive investigation (reported on by EPS in January 2018) included the excavation of ten trial pits and the formation of two cable percussive boreholes to 20m depth.

The Phase II investigation confirmed the absence of any contamination in the shallow soils and reaffirmed that the site was safe and suitable for the proposed end use. The works also established the area is underlain by Superficial River Terrace Deposits (predominantly clay based), above the Lewes Nodular Chalk Formation, first encountered at approximately 3-4m bgl.

Initial observations concluded that due to the relatively low strength of the shallow soils, a piled foundation may be the most appropriate design solution and amongst other considerations, a CBR value of approximately 2% may need to be adopted for all new roads and pavements. However, due to the size of the property and scale of the proposed scheme, further works were requested in order to provide more detailed coverage of the area and supporting information for geotechnical design, as conducted by EPS in October/ November 2018.

It should be noted that two monitoring points were installed during the initial phase of ground investigation works in BH1 and BH2 and an extensive programme of ground gas and groundwater level monitoring has been carried out from January 2018 to January 2019 (at monthly intervals) and the results of this are due to be reported separately.

3 SUMMARY OF INTRUSIVE INVESTIGATIONS

The intrusive ground investigation was undertaken on the 30th October– 9th November 2018 in accordance with EPS standard operating procedures, copies of which will be made available on request. A summary of the site activities is presented in the following sections:

3.1 Exploratory Hole locations

Exploratory hole locations were selected through consideration of the proposed layout of the scheme, consultation with the client, below ground utilities information as well as operational and health and safety considerations.

The overall objective for the supplementary ground investigation works was to provide a detailed assessment of the ground conditions across the site with regards to the design and construction of a commercial scheme comprising a number of trade and retail units. Further rationale for each sampling location is provided within the table below:

Location	Maximum Depth (m bgl)	Rationale
BH03-BH13	20.0	Provide information on the nature and quality of underlying soils, particularly at depth, to assist with geotechnical (particularly pile) design.
TP03-TP22	2.5	Provide detailed site coverage regarding the nature and strength of the shallow ground conditions and to allow for the recovery of bulk soil samples to assist with road and pavement design parameters.
TP01-TP02	1.8	To offer further assessment of the infiltration characteristics of the shallow soils in pre-agreed locations, to inform likely surface water drainage strategy.
DCP01-DCP49	0.8	DCP tests were completed to provide more detailed site coverage of the shallow soils in relation to road and pavement design information.

All boreholes and trial pits were formed in accordance with standard EPS drilling methodologies and subcontractors were supervised at all times by an EPS engineer.

A detailed plan showing the locations of all of the intrusive positions is presented as Figure 2.

3.2 Soil Sampling & In-Situ Testing

Each exploratory hole was logged for ground conditions encountered and inspected for any physical evidence of contamination, such as soil staining, odour and the presence of separate phase liquids on a precautionary basis.



Where potentially volatile organic compounds are suspected, EPS carries a Photoionisation Detector (PID), which can be used to measure the relative concentrations of vapour associated with soil samples collected from different depths and locations at the site. PID readings are only used to provide EPS with a basic means to quantify areas of volatile organic compound in the field to help guide the investigation. However, given that no visual or olfactory evidence of impacted soils was encountered throughout the investigation, vapour monitoring was not conducted.

Alternating standard penetration tests (SPTs) and undisturbed samples were obtained at approximately 1m intervals within the deep cable percussive boreholes (BH1-BH11). For the SPT test, the number of blows required to advance a standard split spoon, over the final 300mm of a 450mm total drive was recorded, and is shown on the borehole records at the penetration resistance ("N" value).

Hand shear vane tests, indicated as HVP on the records, were undertaken throughout selected trial pits, in appropriate (predominantly clay) materials. Where completed, the peak undrained shear strength for each test is presented in kPa on the trial pit logs.

3.3 Laboratory Testing

Samples obtained for pH and Sulphate analysis were submitted Exova Jones Environmental of Flintshire, who hold appropriate UKAS / MCERT accreditation for the required testing. Samples were transported in laboratory supplied containers and delivered to the laboratory by approved courier.

The geotechnical testing was undertaken by Soil Property Testing, Huntingdon, a UKAS accredited laboratory. Copies of chain of custody documentation are held by EPS and will be made available on request.

A laboratory testing schedule is included as Table 1.

4 FINDINGS OF THE INVESTIGATION

This section of the report provides a summary of the findings of the intrusive investigations undertaken at the site by EPS to date.

4.1 Ground Conditions

A total of 11 boreholes and 22 trial pits were formed during the most recent phase of intrusive works and the ground conditions encountered, from surface level, were interpreted to comprise:

- Topsoil
- River Terrace Deposits
- Lewes Nodular Chalk Formation

Site specific borehole and trial pit logs as well as representative cross sections are included as Appendix C and give descriptions and depths of strata encountered. A summary of the general strata encountered across the site is provided in the table below, with more detailed description given in the following sub-sections.

Geological Strata	Maximum Depth to Base of Strata (m bgl)	Strata Thickness (m)
Topsoil	0.6	0.3-0.6
River Terrace Deposits	5.0	>1.2-4.5
Lewes Nodular Chalk Formation	>20.0	Not Proven

4.1.1 Topsoil

Topsoil of a soft medium brown sandy silty clay with occasional coarse flint gravel and frequent recently active roots was encountered from the surface at all exploratory hole locations to a maximum depth of 0.6m.

It should be noted that no evidence of made ground indicators such as brick or concrete fragments were encountered across the site.

4.1.2 River Terrace Deposits

Soils interpreted to be representative of River Terrace Deposits were recorded directly beneath the topsoil in all locations and comprised generally soft, but occasionally firm yellowish brown to pale olive/ grey, sandy silty gravelly clay. The granular content was found to be comprised of flint and chalk where the flint varied from fine to cobble sized fragments and the chalk from fine to medium and becoming more common with depth, particularly towards the interface with the bedrock.

Field observations showed the boundary between the River Terrace Deposits and underlying chalk (see below) to be gradational and thus occasionally difficult to determine exactly at some locations. The depth of this interface was found to be highly variable (undulating) across the site as demonstrated with variations in depth between positions situated in close proximity of one another (e.g. 2m in BH10 and 5m in BH09). A notable difference was also found between the depth of the chalk where encountered in trial pit positions and nearby boreholes, which provides further evidence to the inexact nature of the boundary between the drift and bedrock geology, which was emphasised by the soils being recovered by two different methods.

4.1.3 Lewes Nodular Chalk Formation

Directly beneath the River Terrace Deposits were materials considered to be representative of the Lewes Nodular Chalk Formation. This material was typically recovered as weak and weathered structureless chalk in a soft to firm white clayey, silt matrix with (10-15%) flint and chalk gravel. It was observed that the strength and grading of this material changes with depth, and below approximately 10m medium density, coarser chalk gravel becomes more frequent, while the amount of fine matrix reduced to around (60%) on average. Chalk bedrock materials extended to beyond the maximum depth of each borehole (>20m) and was considered to be representative of CIRIA Grade Dm.

Chalk was not encountered within the majority of the shallow trial holes, due to the limited depth of these excavations.

4.2 Groundwater

Groundwater was encountered in all borehole (BH03-BH13) and in certain trial pits locations (TP03, TP06 & TP14), with the initial strike at each of these positions summarised in the table below:

Position	Approximate Water Strike (mbgl)	Position	Approximate Water Strike (m bgl)
BH03	6.0	BH10	1.9
BH04	5.9	BH11	4.0
BH05	5.0	BH12	4.0
BH06	4.0	BH13	4.0
BH07	5.0	TP03	2.1
BH08	7.0	TP06	2.3
BH09	2.0	TP14	2.5

Extensive return monitoring of rest groundwater levels has been undertaken within boreholes formed during the original intrusive works, and details of the findings will be issued with a separate monitoring report.

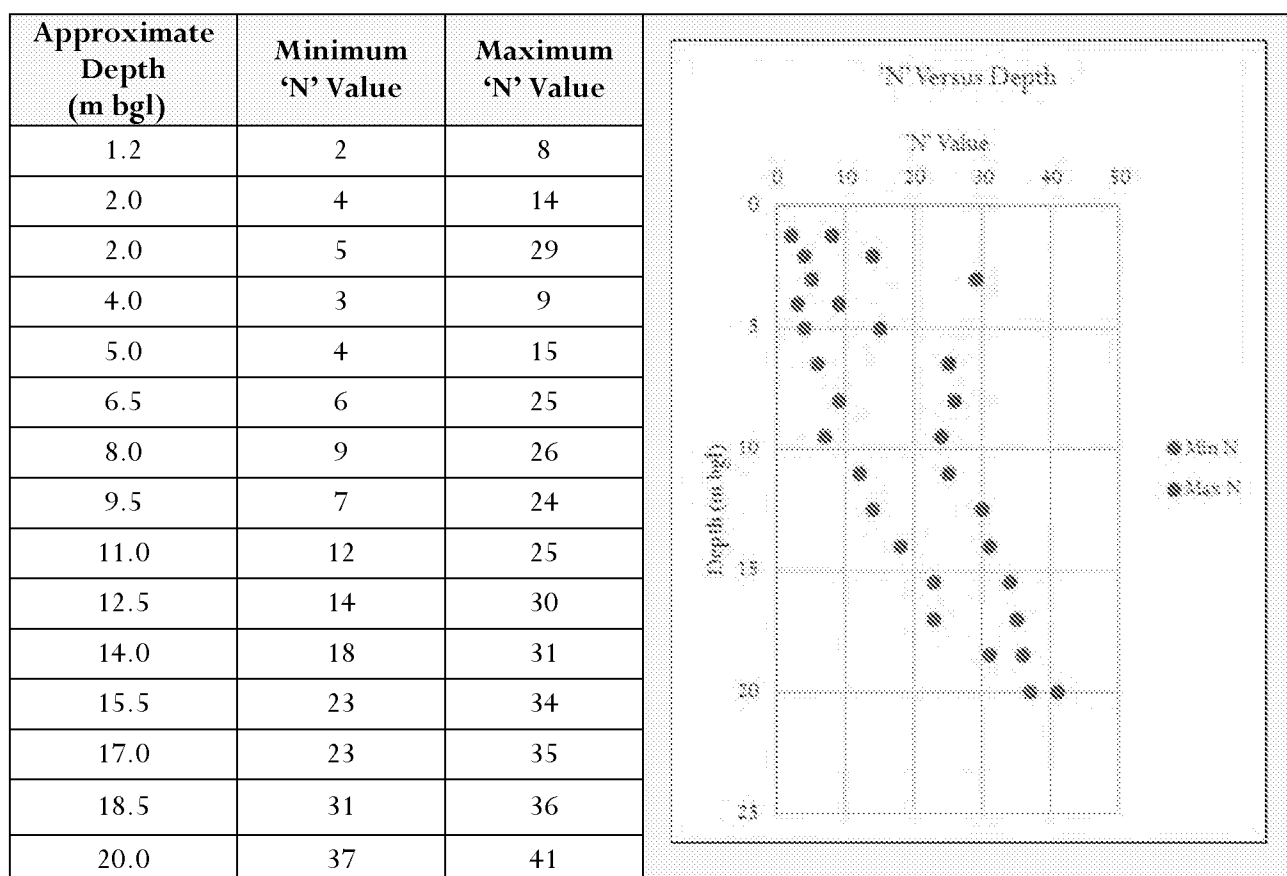
4.3 Physical Evidence of Contamination

No visual or olfactory evidence of impacted materials were identified at any of the intrusive locations, with all of the recovered soils appearing as natural deposits. In addition, no other palpable evidence of contamination including waste or putrefiable material was encountered in any of the positions formed during this or the previous phase of ground investigation works.

4.4 Geotechnical Testing

4.4.1 In-Situ Geotechnical Testing

The results of in-situ geotechnical testing are summarised in the table below and are shown graphically as Appendix D. This data was recovered during the formation of the cable percussive boreholes.



4.4.2 Geotechnical Laboratory Testing

The results of geotechnical laboratory testing are summarised in the table below.

Strata	Range of Parameters									
	Moisture Content (%)		Plasticity Index (%)		CBR Value (%)		Bulk Dry Density (Mg/m ³)		Shear Strength (kPa)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
River Terrace Deposits (clay soils)	11.6	30.8	7 (5)	32	1.2	4.5	n/a		3	125
Lewes Nodular Chalk Formation	n/a	n/a	n/a		n/a	n/a	1.60	1.76	n/a	

() indicates plasticity index modified for granular content

The natural moisture content was established for thirty nine samples of soil in accordance with BS1377 Part 1:7.3 and BS1377: Part 2:3.2.

Atterberg limit tests were undertaken on thirty nine samples of soil in accordance with BS1377: Part 1:7.4 and BS1377: Part 2:3.2 & 4.2.

California Bearing Ratio (CBR) tests were scheduled for twenty samples of shallow soils in accordance with BS 1377: Part1, 4:1990:7.4.

Triaxial tests (multi-stage) were completed for six samples of predominantly cohesive soils in accordance with BS1377: Part 7: 1990: 8.

Saturated bulk density was determined for four samples of chalk bedrock in accordance with BS1377: Part 1:8 and BS1377: Part 2:3.3.

One-Dimensional consolidation tests were undertaken on two samples of shallow cohesive soils in accordance with BS1377 Part 5:1990:3.5.

Sulphate contents and pH values determinations were carried out by the analytical laboratory, the results of which are included in Appendix E and summarised in section 5.7.

A laboratory analysis testing schedule is presented as Table 1 and all geotechnical sample results obtained from the laboratory are included as Appendix E.

5 GEOTECHNICAL APPRAISAL

The findings of this and the previous assessment have indicated ground conditions across the site to comprise topsoil overlying generally low strength clays of the River Terrace Deposits, underlain by weak and weathered structureless Chalk which becomes more competent with depth.

The information in the sections above has been collected to supplement previous phases of intrusive works, however the below recommendations should supersede those made within the previous Phase II Geo-Environmental Assessment, as completed by EPS in January 2018; Report Ref: UK17.2707b.

5.1 Structural Foundations

5.1.1 *Spread Foundations*

Whilst spread foundations are not considered suitable for the proposed main commercial units (as discussed below), they may well be feasible for ancillary buildings or other very lightly loaded structures.

If conventional spread foundations are adopted, these will be likely be formed upon the River Terrace Deposits, but due to the variable (generally low) strength of these deposits allowable bearing pressures will also be particularly limited. An allowable bearing pressure of a maximum of 35kN/m^2 is considered suitable at a depth of around 1m below existing ground level, with only a very modest increase in this with depth. The allowable bearing capacity is the permissible increase in vertical stress at the level of the underside of the foundation, above existing overburden pressure, which may be calculated on the basis of a soil density of 18kN/m^3 .

At the above allowable bearing capacities, total settlements may be in the magnitude of roughly 20mm to 25mm. Settlements in cohesive soils will likely comprise both immediate settlement and consolidation settlement.

A minimum foundation depth of 0.9m, is considered suitable for the site, below existing or proposed ground level, subject to the following provisos:

- a) All foundations should fully penetrate any particularly soft soils and extend a minimum of 150mm into competent, undisturbed natural strata, with an undrained shear strength of at least 25kPa.
- b) The cohesive soil (clays) will be subject to volume change, (subsidence and / or heave) due to the presence of trees. Foundation design will therefore need to take into account the presence of trees, both those to remain and those to be planted as well as to be removed from site. The cohesive soils should be considered as having a 'medium volume change potential' in accordance with NHBC Standards Chapter 4.2 'Building Near Trees'.

It is recommended that a full survey is undertaken of any trees/ vegetation on or close to the site in order that the impact of these may be taken in to account in foundation design.

5.1.2 Piles

For the main buildings included with the proposed scheme, the use of a deep foundation solution, such as piles is suggested.

The ground conditions are considered suitable for the use of bored or driven piles. It is likely that if bored piles were adopted, these would have to be cased through water bearing soils, as identified at varying depths throughout the profile of the Superficial River Terrace Deposits. Furthermore, the use of driven piles may cause noise and vibration nuisance to site neighbours and may ordinarily negate their use. The pile type should take into account the presence of groundwater, which has been shown to rest at a level of approximately 2m across certain sections of the study area, the full details of which (seasonal variation) will be included within the anticipated monitoring report.

A preliminary assessment of potential pile capacities, for a single isolated continuous flight auger (CFA) has been provided in the table below, although in view of the wide variety of piles sizes available, and the range of installation plant and techniques, the design of the piles should be carried out by, and should remain the responsibility of the specialist piling contractor, who will reflect their own methods, experience and design procedures within their proposals.

Depth of pile below ground level (m bgl)	Approximate Allowable Working Load (kN)		
	300mm Diameter Pile	450mm Diameter Pile	600mm Diameter Pile
12	190	355	575
14	255	470	750
18	435	790	1,225

Note: A Factor of Safety of 2.5 has been adopted

5.2 Ground Floor Construction

As floor slabs for the type of building intended are likely to be quite sensitive to movements and given the presence of relatively low strength and shrinkable soils encountered, suspended ground floor construction would normally be considered most appropriate solution with the incorporation of a suitable sub-floor void.

However, it is recognised that suspended ground floor construction may well be both uneconomic and difficult for such large structures. Therefore, various options to facilitate the adoption of a ground bearing floor slab have been explored, due to the sensitivity of the near surface soils and likely building requirements and these are detailed in the sub-sections below:

5.2.1 Ground Bearing Floor Slab

To allow the use of a ground bearing floor slab, a proportion of the near surface shrinkable soils would have to be removed and replaced with a controlled and compacted granular fill, subject to the influence of any trees/vegetation.

However, this will lead to settlement of the underlying soils, particularly given their low strength and sensitive nature, due to the increase in vertical stress from both the compacted fill and the required floor loading. It should also be noted that this method will also generate a large amount of spoil at the site which will need to be disposed of. Initial settlement analysis has therefore been undertaken for subsurface soils present in relation to potential structural loadings of a ground bearing floor. These are included within the following table:

Increase in Applied Vertical Stress (kN/m ²)	Potential Magnitude of Total Settlement (mm)
10	15-20
20	35-40
30	65-70

The table indicates the calculated range of magnitudes of total settlement expected for a defined load; which have been estimated to represent potential construction scenarios given the nature of current development proposals. The range in magnitudes has been calculated using 'worst case' consolidation factors reported by the laboratory for soils at a given depth, which gives an indication of potential variation in settlement which could be expected, depending on the composition of the soils recovered.

The above suggests that the use of ground bearing floor slabs may not be appropriate for use in proposed larger structures but however may prove feasible in smaller, lighter buildings, subject to the applied loads.

5.2.2 Ground Improvement

Various methods of ground improvement exist which could be used to improve the shallow soils in-situ, and while costly, such methods do have the advantage of changing the soil characteristics and therefore reduce the risk of excessive and differential settlement, although it should be noted that chalk does not typically tend to respond well to these methods. Several possible improvement methods are discussed below, however other methods may be considered:

5.2.3 Vibro Stone Columns

Vibro Stone Columns work using a hollow vibrating poker to create a cavity in the soil which is then backfilled with hard inert stone, free of clay and silt fines. The technique requires the host soils to be capable of retaining the stone inserted and subsequently compacted.

Specialist contractors suggest that this technique is not suitable for '*organic soils, peat and very soft clays*' and careful consideration will need to be given to spacing, length and relative strength of the columns given the nature of the ground conditions encountered.

5.2.4 *Vibro-Concrete Columns*

Vibro Concrete Columns (VCC) offer a ground improvement method similar to the above without the risk of losing the included material amongst the soft soils. This is achieved by the insertion of fresh concrete into the hole via the vibro poker head with the additional control of designed pumping and withdrawal rates. This technique may be suitable for certain parts of the site and may present a cost alternative solution to traditional piling methods. However, it is a technique best suited for limited thicknesses of weak or soft soils and specialist advice on suitability from a ground improvement contractor should be sought.

5.2.5 *Cement / Lime Stabilisation*

In cohesive soils lime solution can be introduced which reacts via flocculation and base exchange to create a material with reduced plasticity index and increased shear strength. This process can be accelerated with the introduction of powdered gypsum and may prove effective across certain areas. Again, advice from a specialist contractor should be sought before adopting this method.

5.2.6 *Piled Ground Floor Slab*

A further solution, and possibly the least risky, would be to adopt a piled ground floor slab. Due to the costs associated with this method it may prove more efficient/ cost effective to combine this with one or more of the techniques described above to limit the area of the site over which this has to be implemented.

5.3 **External Works**

5.3.1 *Pavement Design*

The subgrade across the site comprises predominantly cohesive River Terrace Deposits of variable (generally low) strength.

To initially assess California Bearing Ratio (CBR) values for the shallow soils, reference has been made to the *Department of Transport Design Manual for Roads and Bridges, Volume 7, Pavement Design and Maintenance*. This publication gives estimates of CBR values based upon plasticity index and grading. For a silty clay with a plasticity index of roughly 30%, a CBR value of roughly 3-4% is recommended for a thin or thick pavement respectively, constructed under average conditions. This gives an indication of the range of parameters which may be applicable for the site, but was substantiated through in-situ and laboratory testing, as outlined below.

DCP testing was undertaken at 49 locations across the site, and these locations are illustrated in Figure 2 and graphical summaries of the data are provided as Appendix F of this report. Given the variable nature of the shallow soils and the size of the proposed development, it has been considered appropriate to subdivide the site into several main areas (Unit 1, Unit 2, and Eastern Area). These areas are discussed separately below and are defined in Appendix G.

In-situ DCP testing provided reasonably consistent results with several anomalous high and low values, this can be attributed largely to the variations in soil strength both laterally and vertically within the profile of the River Terrace Deposits. It is also possible that the presence of granular layers within the subsurface has led to a distortion of some of the results.

In-situ testing undertaken in the vicinity of proposed Unit 1 provided relatively consistent results throughout the soil profile and showed CBR values between 4% and 6%. Laboratory testing undertaken on seven samples in this area returned a value of approximately 3% with some localised soft spots (1.5% at TP17).

In the proposed Unit 2 area the DCP testing showed values averaging in the 4% to 6% range but with several lows of around 2.5%. Laboratory testing was also variable, with an average value of 2.5%; but several localised areas returning values of approximately 1.5%.

Across the Eastern portion of the site in-situ testing showed variable results with some tests showing anomalously high results and an apparent stiffer layer between 350 and 450mm. The majority of the dataset falls within the 4-6% range while laboratory testing predominantly returns a value of 2.5%.

Given consideration of all the sources of information outlined above, representative CBR values have been determined and are shown in the table below, along with corresponding values of the approximate modulus of subgrade reaction, k:

Area	CBR Value (%)	Approximate Modulus of Subgrade Reaction, k (kN/m ² /m)
Unit 1	3	27,000
Unit 2	2.5	24,500
Eastern Area	3.5	30,000

Once the formation level for the new pavement has been achieved, proof rolling should be carried out using a heavy roller, and any soft or loose areas revealed should be excavated and a greater depth of sub-base provided. As highlighted previously, both the laboratory and in-situ testing have established that localised soft spots are likely to be present, so it is imperative that proof rolling is undertaken as described above before pavements are constructed using the quoted CBR values. G. However, TP17 located to the southern extent of the site also recorded a CBR of 1.5%, as did the minimum value from the test in TP20 and in these areas, greater depths of subbase may be required to achieve the appropriate CBR values.

Exposed subgrades will likely deteriorate rapidly on exposure to wet weather and should be shaped to shed water. Sub-base should be placed as soon as possible to minimise the exposure of the subgrade to adverse weather conditions.

5.4 Groundworks

Whilst excavations in the cohesive soils may remain stable for short periods during construction, the long-term stability of excavations should not be relied upon, particularly given the low strength of these soils and the presence of relatively shallow groundwater.

Heavy plant and stockpiles of materials should not be permitted close to the edges of unsupported excavations.

Further reference should be made to CIRIA Report No. 97 '*Trenching Practice*' 1992.

Groundwater level monitoring was undertaken as part of the previous Phase II Geo-Environmental Assessment completed by EPS in January 2018 and over the period of approximately one month groundwater levels ranged from 1.37m to 2.17m. Therefore, groundwater ingress is expected within shallow excavations made for foundations or drainage and it likely that some form of groundwater control will be required.

5.5 Drainage

Soakaway tests were undertaken at two locations across the site, in general accordance with BRE Digest 365. Infiltration rates are summarised in the table below:

Trial Pit Location & Depth (mbgl)	Indicative Infiltration Rate (m/s)	Comments
TP01 (1.6)	8.64×10^{-7}	Some extrapolation required as the effective depth was not reached within a period of 30 hours.
TP02 (1.6)	1.73×10^{-6}	Over the duration of the test (29 hours) the depth of the pit was noted to decrease due to silting of the base. The final depth has been used to calculate the infiltration rate.

The infiltration rates recorded are considered to be indicative of 'very low to practicably impermeable conditions' and are likely to have been influenced by the presence of both clay soils throughout the shallow profile and groundwater.

The results of this testing have confirmed the findings of the initial infiltration testing performed during the previous phase of ground investigation works, with the calculated rates being within a similar range.

As a result, it is concluded that the use of infiltration drainage is not likely to be suitable for the proposed development, and alternative methods should be explored. In addition to this, it should be noted that any soakaway drainage systems should be located at least 10m away from any existing or proposed structures to mitigate against any risk of chalk dissolution features. While information gathered for previous phases of works has shown there to be a 'very low' risk of ground dissolution features at the site the presence of chalk bedrock at the site necessitates this.

5.6 Concrete Grade

Sulphate contents and pH values determinations were carried out by the geotechnical laboratory, the results of which are also included within Appendix E. Results for concrete grade testing are summarised within the following table:

Strata	Water soluble Sulphate (Mg/l SO ₄)		pH	
	Min	Max	Min	Max
River Terrace Deposits	8.8	16.5	8.03	8.49



Lewes Nodular Chalk Formation	6.5	20.0	7.72	8.85
----------------------------------	-----	------	------	------

In accordance with Part 1 of the BRE Special Digest 1 '*Concrete in Aggressive Ground*' 2005, for datasets between five and nine samples, the mean of the highest two values has been used. This has given a design sulphate class of DS-1 is considered suitable for concrete in direct contact with the River Terrace Deposits and Lewes Nodular Chalk Formation encountered at the site, with an aggressive chemical environment for concrete (ACEC) of AC-1.

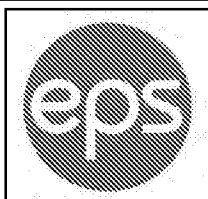
Should stabilisation (cement/lime) be considered for floor slab construction, further detailed assessment of the presence of sulphates may be necessary, as these can have a significant effect on the performance of such stabilisation.



FIGURES



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Licence Number: 100054115



Date: December 2018



- KEY:**
- Approximate Site Boundary
 - Approximate Cable Percussive Borehole Location
 - Approximate DCP Test Location
 - Approximate Trial Pit Location
 - Soakaway Location

Fig No: 2

Title: Exploratory Hole Location Plan

Project: Saltbox, Bognor Regis

Scale: NTS - For illustration purposes only
Drawn By: DB
Job No: UK17.2707D
Dwg No: Saltbox/1218/02
Date: December 2018





TABLES



Table 1 – Laboratory Testing Schedule

Sample ID	Sample Depth (m bgl)	Moisture Content/ Plastic Limits	Triaxial Test	CBR	Oedometer Consolidation Test	Saturated Bulk Density	pH & Sulphates
TP03	0.4-0.6	1	-	1	-	-	-
TP04	0.4-0.6	1	-	1	-	-	-
TP05	0.3-0.6	1	-	1	-	-	-
TP06	0.3-0.6	1	-	1	-	-	-
TP07	0.4-0.6	1	-	1	-	-	-
TP08	0.35-0.6	1	-	1	-	-	-
TP09	0.4-0.6	1	-	1	-	-	-
TP10	0.3-0.6	1	-	1	-	-	-
TP11	0.4-0.6	1	-	1	-	-	-
TP12	0.4-0.6	1	-	1	-	-	-
TP13	0.4-0.6	1	-	1	-	-	-
TP14	0.5-0.7	1	-	1	-	-	-
TP15	0.5-0.7	1	-	1	-	-	-
TP16	0.6-0.8	1	-	1	-	-	-
TP17	0.4-0.6	1	-	1	-	-	-
TP18	0.3-0.6	1	-	1	-	-	-
TP19	0.4-0.6	1	-	1	-	-	-
TP20	0.3-0.5	1	-	1	-	-	-
TP21	0.4-0.6	1	-	1	-	-	-
TP22	0.4-0.6	1	-	1	-	-	-
BH03	1.7	1	-	-	-	-	-
BH03	1.2-1.65	1	-	-	1	-	-
BH03	3.0	1	-	-	-	-	-
BH04	1.7	1	-	-	-	-	-
BH05	2.0-2.45	1	-	-	-	-	-
BH05	4.0	1	-	-	-	-	-
BH06	1.2-1.65	1	1	-	-	-	-
BH07	2.0-2.45	1	1	-	-	-	-
BH07	3.0	1	-	-	-	-	-
BH07	4.0-4.45	1	1	-	-	-	-
BH07	11.0	-	-	-	-	1	-
BH08	1.2-1.65	1	-	-	-	-	-
BH08	3.0-3.45	1	-	-	-	-	-
BH09	1.0	1	-	-	-	-	-
BH09	14.0	-	-	-	-	1	-
BH10	20.0	-	-	-	-	1	-
BH11	1.2-1.65	1	1	-	1	-	-
BH11	2.0	1	-	-	-	-	-
BH11	3.0-3.5	1	-	-	-	-	-
BH11	20.0	-	-	-	-	1	-
BH12	2.0	1	-	-	-	-	-
BH13	1.7	1	-	-	-	-	-
BH13	3.0-3.65	1	1	-	-	-	-



Sample ID	Sample Depth (m bgl)	Moisture Content/ Plastic Limits	Triaxial Test	CBR	Oedometer Consolidation Test	Saturated Bulk Density	pH & Sulphates
BH03	4.0	-	-	-	-	-	1
BH04	12.0	-	-	-	-	-	1
BH05	3.0	-	-	-	-	-	1
BH05	19.0	-	-	-	-	-	1
BH06	3.0	-	-	-	-	-	1
BH07	2.0	-	-	-	-	-	1
BH07	13.0	-	-	-	-	-	1
BH08	7.0	-	-	-	-	-	1
BH08	17.0	-	-	-	-	-	1
BH09	1.0	-	-	-	-	-	1
BH10	4.0	-	-	-	-	-	1
BH10	8.0	-	-	-	-	-	1
BH11	3.0	-	-	-	-	-	1
BH11	6.0	-	-	-	-	-	1
BH11	16.0	-	-	-	-	-	1
BH12	3.0	-	-	-	-	-	1
BH12	20.0	-	-	-	-	-	1
BH13	2.0	-	-	-	-	-	1
BH13	5.0	-	-	-	-	-	1

Notes:

mbgl meters below ground level
1 Sample Taken
- Sample Not Analysed
CBR California Bearing Ratio



APPENDICES



APPENDIX A

Selected Site Photographs

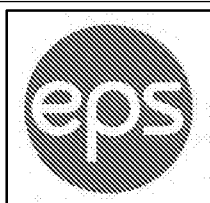


Key:

----- Approximate Site Boundary

⑤ Approximate Photograph Location and Direction

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Title: Site Location Plan

Project: Saltbox, Shripney Road,
Bognor Regis, PO22 9NW

Fig No: Appendix A

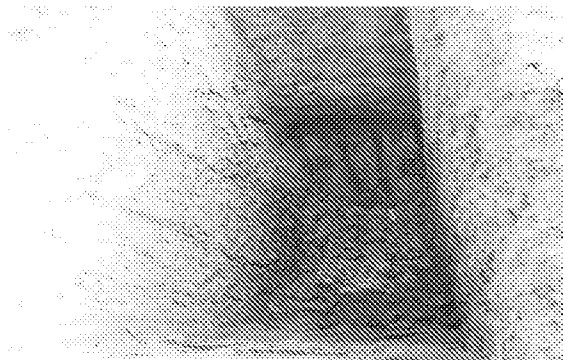
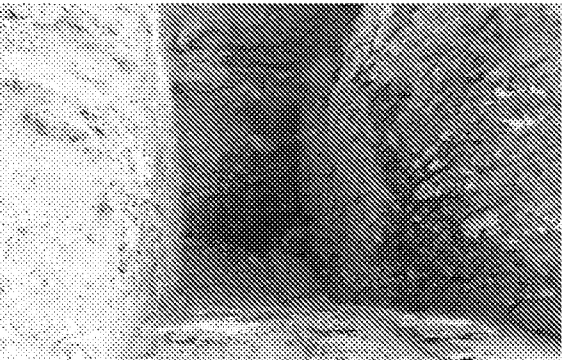
Scale: NTS

Drawn By: DB Approved By: BV

Job No: UK17.2707D

Dwg No: Saltbox/1218/A

Date: December 2018

Photo 1: Photograph of the east of the site facing south with the main site entrance to the left of the field of view. 	Photo 2: Photograph of the western site boundary, facing south. 
Photo 3: Image facing east across the northern portion of the area. 	Photo 4: Completed excavation TP05. 
Photo 5: Completed excavation TP14. 	Photo 6: Completed excavation TP16. 



APPENDIX B

Proposed Development Plan

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LIST OF INFORMANTS:
INFORMANT 1
INFORMANT 2
INFORMANT 3
INFORMANT 4
INFORMANT 5

REVISIONS
DESCRIPTION
DATE
DRN
REV
SIG
REV

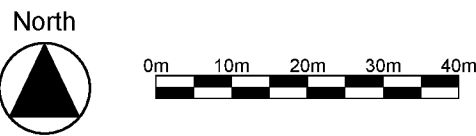
Landuse Plot	Area Use	Height m	Site Area	
			Hectares	Acres
Unit 1	B8 - Warehouse/Distribution	10	2.89	7.1
Unit 2	B8 - Warehouse/Distribution	10	1.33	3.3
Unit 3	B8 - Warehouse/Distribution	10	0.49	1.2
Units 4 & 5	A3 - Drive-thru restaurants	4/5	1.01	2.5
Unit 8	A1 - Shops/Retail	8.5		
	B1 - Office			
Units 6 & 7	B8 - Warehouse/Distribution	7	0.23	0.6
Unit 9	Car Showroom	5	0.86	2.1

For units 1, 2, 3, 6, 7 & 9 the height is to underside of haunch

This drawing contains critical information in colour. To ensure this information is legible, only print or copy this drawing in full colour.

PARAMETERS LEGEND:

- A1 - SHOP/RETAIL
- A3 - RESTAURANT
- B1/B8 - INDUSTRIAL UNITS
- B8 - WAREHOUSE / DISTRIBUTION
- CAR SHOWROOM
- FUTURE EXPANSION
- FUTURE EXPANSION - EXTERNAL AREA
- FOOTWAYS
- SHARED PEDESTRIAN / CYCLE ROUTE
- GREEN SPACE GATEWAY CORRIDOR
- GREEN SPACE: ECOLOGY BUFFER
- GREEN SPACE: HIGHWAY VERGE
- GREEN SPACE: VILLAGE BUFFER
- LANDSCAPE
- ATTENUATION POND
- SWALE
- HIGHWAY/PARKING
- SOLAR POINT
- HIGHWAY PRIMARY CORRIDOR
- GREEN SPACE: STRUCTURAL PLANTING
- EASEMENT ZONE
- MARKER BUILDINGS TO REFLECT LOCAL CONTEXT



MountfordPigott
Architects Landscape Design

SITE MASTERPLAN
BLOCK PLAN
1744-P01

1:1000 @ A1
DRAWN BY MW
07.12.18

SALTBOX - BOGNOR REGIS



APPENDIX C

Site Specific Borehole & Trial Pit Logs



Borehole Log

Borehole No.

BH03

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

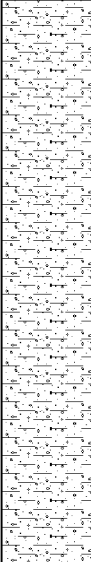
Level:

Scale
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Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.20	D		0.40		TOPSOIL: Medium brown sandy silty gravelly CLAY with recently active roots and flint gravel.		
		0.50	D				Firm orangey brown sandy gravelly CLAY with chalk and flint gravel and rare flint cobbles. (RTD)		
		1.00	B						
		1.00	D						
		1.20 - 1.65	U	Pl: 11 MC: 15.8 UU: 54.0 UU: 70.0 UU: 80.0					
		1.70	D	Pl: 8 MC: 14.4					
		2.00	D						
		2.00 - 2.45	ES						
		2.00	SPT	N=7 (2,2/1,2,2,2)					
		3.00	D						
		3.00 - 3.45	ES						
		3.00	SPT	N=11 (2,3/3,2,3,3) Pl: 8 MC: 12.7					
		4.00	D		4.50				
		4.00 - 4.45	U						
		4.50	D						
		5.00	D						
		5.00	SPT	N=13 (3,3/4,3,3,3)			Soft white structureless CHALK made up of a clay matrix with no identified chalk gravel. (LPCK)		
6.00	D		6.00						
6.50	SPT	N=18 (3,4/4,4,6,4)						Soft white structureless CHALK with rare medium angular hard chalk gravel. Approximately 85% matrix. (LPCK)	
7.00	D								
8.00	D								
8.00	SPT	N=26 (4,5/5,5,7,9)							
9.00	D								
9.50	SPT	N=7 (3,2/2,1,2,2)							
10.00	B								
10.00	D							White structureless CHALK with rare chalk and flint gravel with increasing frequency and size with depth. Hardness increasing with depth. (60% matrix) (LPCK)	
		11.00	D		10.00			11	

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 6.0m.





Borehole Log

Borehole No.

BH03

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

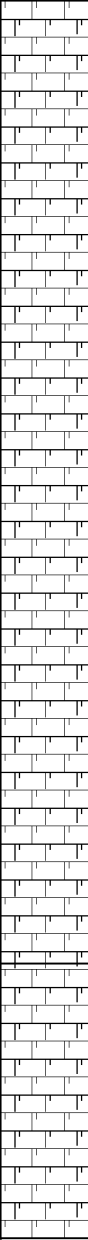
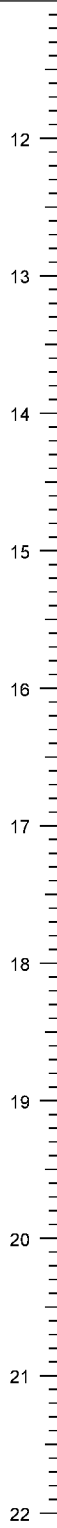
Level:

Scale
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Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	In Situ Results							
		11.00	SPT	N=25 (3,4/4,6,7,8)				White structureless CHALK with rare chalk and flint gravel with increasing frequency and size with depth. Hardness increasing with depth. (60% matrix) (LPCK)			
		12.00	D	N=20 (7,4/4,4,6,6)							
		12.50	SPT								
		13.00	D	N=30 (7,6/7,7,8,8)							
		14.00	D								
		14.00	SPT								
		15.00	D								
		15.50	SPT	N=34 (8,8/9,9,8,8)							
		16.00	D								
		17.00	D	N=32 (8,9/6,7,9,10)							
		17.00	SPT								
		18.00	D	N=33 (9,8/7,8,9,9)						18.00	
		18.50	SPT								
		19.00	D								
		20.00	D	N=41 (10,10/10,9,10,12)				20.00			End of Borehole at 20.000m
		20.00	SPT								

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 6.0m.





Borehole Log

Borehole No.

BH04

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

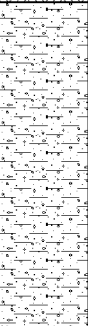
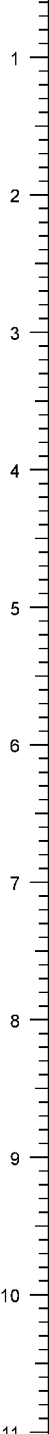
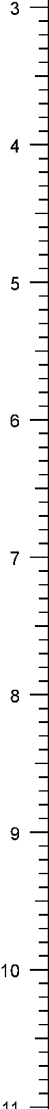
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.20	D	Pl: 7 MC: 19.9 N=14 (2,3/3,4,3,4) N=29 (4,6/6,7,8,8) N=15 (3,3/3,4,4,4) N=25 (3,3/5,5,7,8) N=16 (4,3/3,4,4,5) N=24 (3,3/5,6,7,6)	0.60			TOPSOIL: Dark brown sandy gravelly CLAY with numerous flint gravel.	
		0.50	D					Firm orangey brown sandy gravelly CLAY with chalk and flint gravel. (RTD)	
		1.00	B		3.00			White with brownish mottling structureless CHALK with a clay matrix (80%) and fine rounded weak chalk gravel. (LPCK)	
		1.00	D						
		1.20 - 1.65	U						
		1.70	D						
		2.00	D						
		2.00	SPT						
		3.00	D						
		3.00	SPT						
		4.00	D						
		4.00 - 4.45	U						
		4.50	D						
		5.00	D						
		5.00	SPT						
		6.00	D		6.00			White with brownish mottling structureless CHALK with a clay matrix same as previous but without the presence of intact chalk fragments. (LPCK) (100% matrix)	
		6.50	SPT						
		7.00	D						
		8.00	D						
		8.00	SPT						
		9.00	D		10.00			Brownish white structureless CHALK with frequent medium to coarse weak subangular chalk gravel and infrequent flint gravel in a clay matrix (50%). Gravel becoming more common with depth. (LPCK)	
		9.50	SPT						
		10.00	B						
		10.00	D						
		11.00	D						

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 5.9m.





Borehole Log

Borehole No.

BH04

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

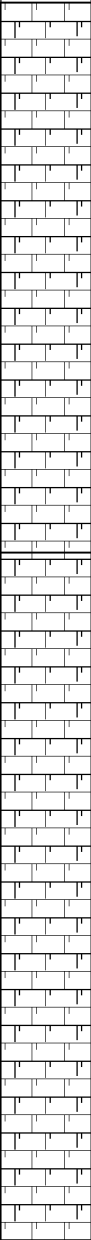
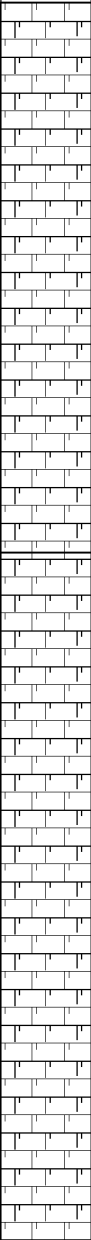
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		11.00	SPT	N=24 (4,6/6,5,5,8)	15.00			Brownish white structureless CHALK with frequent medium to coarse weak subangular chalk gravel and infrequent flint gravel in a clay matrix (50%). Gravel becoming more common with depth. (LPCK)	12
		12.00	D						
		12.50	SPT	N=30 (4,5/6,7,8,9)					13
		13.00	D						
		14.00	D						14
		14.00	SPT	N=30 (7,7/7,7,8,8)					
		15.00	D						15
		15.50	SPT	N=34 (7,8/9,8,8,9)				White structureless CHALK recovered as coarse chalk gravel (breakable by hand). (40% matrix) (LPCK)	16
		16.00	D						
		17.00	D						17
		17.00	SPT	N=35 (8,9/9,8,10,8)					
		18.00	D						18
		18.50	SPT	N=36 (10,10/9,8,9,10)					19
		19.00	D						
		20.00	D		20.00			End of Borehole at 20.000m	20
		20.00	SPT	N=41 (9,10/10,10,11,10)					21
									22

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 5.9m.





Borehole Log

Borehole No.

BH05

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.20	D	N=6 (1,0/1,2,1,2)	0.30		TOPSOIL: Dark brown silty CLAY with frequent recently active roots.	1	
		0.50	D				Soft to firm light orangey brown sandy gravelly CLAY. (RTD)		
		1.00	D						
		1.20	SPT						
		2.00	B	Pl: 7 MC: 16.8	2.10		Firm grey with brown mottling gravelly sandy CLAY with chalk and flint gravel. (RTD)	2	
		2.00	D						
		2.00 - 2.45	U						
		2.50	D						
		3.00	D	N=7 (2,1/2,2,1,2)				3	
		3.00	SPT						
		4.00	D						
		4.00 - 4.45	U						
		4.50	D	Pl: 15 MC: 16.8	4.30		White structureless CHALK with a clay matrix (80%) with rare intact chalk gravel, becoming harder with depth and chalk gravel more frequent. (LPCK)	4	
		5.00	D						
		5.00	SPT						N=9 (2,3/2,2,3,2)
		6.00	D						
		6.50	SPT					N=12 (3,2/3,2,4,3)	
		7.00	D						
		8.00	B						
		8.00	D						
		8.00	SPT					N=12 (3,2/4,3,2,3)	
		9.00	D						
		9.50	SPT						N=15 (3,3/4,3,4,4)
		10.00	D						

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 5.0m.





Borehole Log

Borehole No.

BH05

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

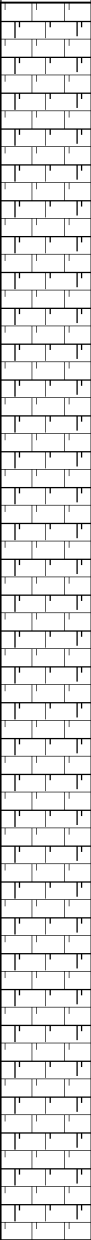
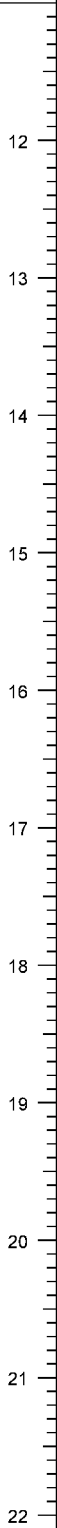
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		11.00	SPT	N=17 (3,4/4,5,4,4)				White structureless CHALK with a clay matrix (80%) with rare intact chalk gravel, becoming harder with depth and chalk gravel more frequent. (LPCK)	
		12.00	D						
		12.50	SPT	N=24 (4,5/5,6,7,6)					
		13.00	D						
		14.00 - 14.45	D						
		14.00	SPT	N=27 (5,6/7,7,6,7)					
		15.00 - 15.95	D						
		15.50	D						
		15.50	SPT	N=29 (7,8/8,7,7,7)					
		17.00	D						
		17.00	SPT	N=30 (8,9/7,8,8,7)					
		18.00	D						
		18.50	SPT	N=33 (9,8/8,8,9,8)					
		19.00	D						
		20.00	D		20.00			End of Borehole at 20.000m	
		20.00	SPT	N=37 (9,8/9,8,10,10)					

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 5.0m.





Borehole Log

Borehole No.

BH06

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	In Situ Results							
		0.20	D	PI: 8 MC: 17.6 UU: 18.0 UU: 35.0 UU: 40.0	0.50			TOPSOIL: Dark brown silty gravelly CLAY with recently active roots and flint gravel.	1		
		0.50	D					Soft to firm orangey brown sandy gravelly CLAY with rare flint gravel. (RTD)			
		1.00	B		1.20			Soft to firm grey with brown mottling sandy gravelly CLAY with chalk and flint gravel. (RTD)	2		
		1.00	D								
		1.20 - 1.65	U								
		1.70	D		2.00				3		
		2.00	D								
		2.00	SPT		N=6 (1,2/2,2,1,1)						
		3.00	D		3.00 - 3.45					U	
		3.50	D		4.00			White structureless CHALK with a clay matrix (85%) with rare intact chalk gravel becoming more common at 11.0m becoming harder with depth with 50% matrix from 15.0m. (LPCK)	4		
		4.00	D								
		4.00	SPT	N=8 (2,1/2,2,2,2)	5.00				5		
		5.00	D								
		5.00	SPT	N=5 (1,0/1,1,1,2)	6.00				6		
		6.00	D								
		6.50	SPT	N=6 (2,1/1,2,1,2)	7.00				7		
		7.00	D								
8.00	D	N=9 (3,2/3,2,2,2)	8.00				8				
8.00	SPT										
9.00	D	N=11 (2,3/3,2,3,3)	9.00				9				
9.50	SPT										
10.00	D	10.00				10					
	D										
11.00	D			11.00			11				

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Borehole Log

Borehole No.

BH06

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

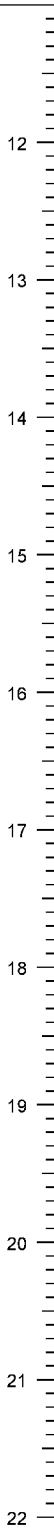
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	In Situ Results									
		11.00	SPT	N=12 (2,3/3,2,3,4)				White structureless CHALK with a clay matrix (85%) with rare intact chalk gravel becoming more common at 11.0m becoming harder with depth with 50% matrix from 15.0m. (LPCK)					
		12.00	D	N=14 (2,4/4,3,3,4)									
		12.50	SPT										
		13.00	D										
		14.00	D	N=18 (3,3/4,4,5,5)									
		14.00	SPT										
		15.00	B	N=24 (4,5/5,6,6,7)									
		15.50	SPT										
		16.00	D										
		17.00	D	N=29 (5,6/7,7,8,7)									
		17.00	SPT										
		18.00	D	N=34 (7,8/9,9,8,8)									
		18.50	SPT										
		19.00	B										
		19.00	D										
		20.00	D	N=37 (8,9/8,10,9,10)						20.00		End of Borehole at 20.000m	
		20.00	SPT										

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Borehole Log

Borehole No.

BH07

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.20	D	N=8 (1,2/2,2,2,2)	0.50			TOPSOIL: Brown silty gravelly CLAY with frequent roots.	1
		0.50	D					Firm orangey brown sandy gravelly CLAY with frequent chalk gravel. (RTD)	
		1.00	D					<u>Becoming dark grey...</u>	
		1.20	SPT						
		2.00	D	Pl: 12 MC: 16.2 UU: 174.0 UU: 188.0 UU: 198.0					2
		2.00 - 2.45	U						
		2.50	D						
		3.00	D						
		3.00	D	N=7 (2,1/2,2,1,2) Pl: 12 MC: 16.1					3
		3.00	SPT						
		4.00	B						
		4.00	D						
		4.00 - 4.45	U						
				Pl: 8 MC: 19.5 UU: 26.0 UU: 27.0 UU: 31.0	5.00				4
		4.50	D	N=11 (2,3/3,3,2,3)				White structureless CHALK with a clay matrix (70%) with rare weak intact chalk gravel. (LPCK)	5
		5.00	D						
		5.00	SPT						
		6.00	D						
		6.50	SPT	N=15 (3,4/3,4,4,4)					6
		7.00	D						
		8.00	D	N=17 (3,3/4,5,4,4)					7
		8.00	SPT						
		9.00	D	N=12 (4,3/3,3,3,3)					8
		9.50	D						
		9.50	SPT						
		10.00	D		10.00			White structureless CHALK with 30-40% matrix and medium to coarse moderately strong chalk gravel with rare flints. (LPCK)	9
		11.00	B						10

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 5.0m.





Borehole Log

Borehole No.

BH07

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		11.00	D	N=21 (4, 4/4, 6, 5, 6)	20.00		White structureless CHALK with 30-40% matrix and medium to coarse moderately strong chalk gravel with rare flints. (LPCK)		
		11.00	SPT						
		12.50	D	N=26 (5, 7/6, 6, 7, 7)					
		12.50	SPT						
		13.00	D	N=31 (7, 6/7, 8, 7, 9)					
		14.00	D						
		14.00	SPT						
		15.50	D						
		15.50	SPT						
		16.00	D	N=30 (8, 7/7, 7, 8, 8)					
		17.00	D						
		17.00	SPT	N=33 (8, 8/9, 8, 7, 9)					
		18.50	D						
		18.50	SPT	N=35 (9, 8/9, 10, 8, 8)					
		19.00	D						
		20.00	SPT	N=39 (9, 9/10, 10, 9, 10)					
						End of Borehole at 20.000m			

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 5.0m.





Borehole Log

Borehole No.

BH08

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

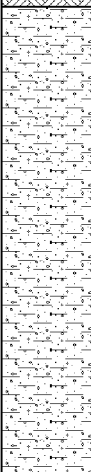
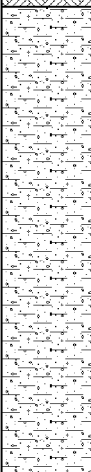
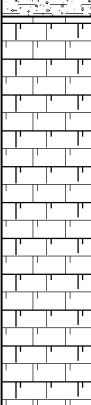
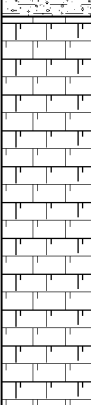
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	In Situ Results										
		0.20	D	N=5 (1,1/2,1,1,1) Pl: 17 MC: 30.8	0.50			TOPSOIL: Light brown sandy silty CLAY.	1					
		0.50	D					Soft orangey brown sandy gravelly CLAY with flint and chalk gravel. (RTD)						
		1.00	D											
		1.20 - 1.65	D											
		1.20	SPT	N=7 (2,2/1,2,2,2)	4.00			<u>Increasing chalk gravel with depth...</u>	2					
		2.00	D											
		2.00	SPT											
		3.00	D					White structureless CHALK predominantly comprised of clay matrix with rare bands of harder chalk gravel. (LPCK)	3					
		3.00 - 3.45	U	Pl: 5 MC: 16.1										
		3.50	D											
		4.00	B	N=4 (1,1/1,2,1,0)	7.00			White structureless CHALK with medium to coarse chalk gravel and rare flint with 50% matrix.	4					
		4.00	D											
		4.00	SPT											
		5.00	D	N=9 (2,3/2,2,3,2)					5					
		5.00	SPT											
		6.00	D											
		6.50	SPT	N=13 (3,2/3,3,3,4)					6					
7.00	D													
8.00	B	N=20 (4,5/4,5,5,6)						7						
8.00	D													
8.00	SPT													
9.00	D		8											
9.50	SPT													
10.00	D		9											
11.00	D													
								10						
								11						

Remarks

RTD= River Terrace Deposits

LPCK= Undifferentiated Chalk (Lewes and Sleaford etc.)

Groundwater was struck at a depth of 7.0m.





Borehole Log

Borehole No.

BH08

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		11.00	SPT	N=19 (4,5/4,5,5,5)				White structureless CHALK with medium to coarse chalk gravel and rare flint with 50% matrix.	
		12.00	D					<u>Approximately 40% matrix from 12m...</u>	12
		12.50	SPT	N=21 (5,5/4,6,6,5)					
		13.00	D						13
		14.00	D						14
		14.00	SPT	N=22 (6,7/6,5,5,6)					
		15.00	D						15
		15.50	SPT	N=28 (6,7/8,7,6,7)					
		16.00	D						16
		17.00	D						17
		17.00	SPT	N=28 (7,7/6,7,8,7)					
		18.00	D						18
		18.50	SPT	N=33 (8,9/8,9,8,8)					
		19.00	D						19
		20.00	D						20
		20.00	SPT	N=37 (8,9/10,10,9,8)	20.00			End of Borehole at 20.000m	
									21
									22

Remarks

RTD= River Terrace Deposits
LPCK= Undifferentiated Chalk (Lewes and Sleaford etc.)

Groundwater was struck at a depth of 7.0m.





Borehole Log

Borehole No.

BH09

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	In Situ Results							
		0.20	D	Pl: 21 MC: 15.6 N=3 (0,1/0,0,1,2)	0.50			TOPSOIL: Brown silty sandy CLAY.	1		
		0.50	B					Soft orangey brown CLAY. (RTD)			
		0.50	D								
		1.00	D								
		1.20	SPT								
		2.00	D	N=5 (0,2/1,1,2,1)			White structureless CHALK with a clay matrix (80%) with weak fine chalk gravel. (LPCK)	2			
		2.00 - 2.45	U								
		2.50	D								
		3.00	SPT								
		4.00	D	N=9 (2,3/2,3,2,2)				3			
		4.00	SPT								
		5.00	B								
		5.00	D								
		5.00	SPT	N=11 (2,3/2,3,3,3)				4			
		6.00	D								
		6.50	SPT								
		7.00	D								
		8.00	D	N=14 (2,2/3,4,3,4)						5	
		8.00	SPT								
		9.00	D								
		9.50	SPT								
		10.00	B	N=18 (3,4/5,4,5,4)						6	
		11.00	D								

Remarks

RTD= River Terrace Deposits
LPCK= Undifferentiated Chalk (Lewes and Sleaford etc.)

Groundwater was struck at a depth of 2.0m.





Borehole Log

Borehole No.

BH10

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	In Situ Results								
		0.20	D	N=2 (0,1/0,0,1,1)	0.50			TOPSOIL: Dark brown sandy CLAY with recently active roots.	1			
		0.50	D					Soft orangey brown CLAY.				
		1.00	D									
		1.20	SPT									
		2.00	B	N=5 (1,1/1,2,1,1)	2.00			White structureless CHALK with a clay matrix (80%) with weak fine chalk gravel. (LPCK)	2			
		2.00	D									
		2.00	SPT									
		3.00	D									
		3.00	SPT	N=6 (2,2/2,1,2,1)					3			
		4.00	D									
		4.00	SPT									
		5.00	D									
		5.00	SPT	N=7 (2,1/2,1,2,2)					5			
		6.50	D									
		6.50	SPT									
		7.00	D									
		8.00	D	N=11 (3,2/3,3,2,3)					7			
8.00	SPT											
9.50	D											
9.50	SPT											
10.00	D	N=10 (3,3/2,3,2,3)							8			
11.00	D											

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 1.9m.





Borehole Log

Borehole No.

BH10

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

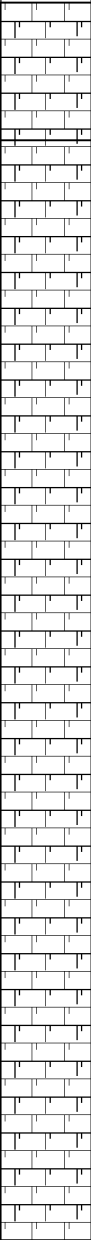
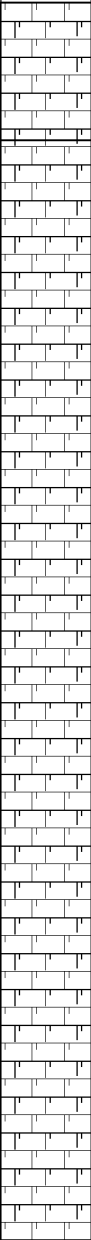
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		11.00	SPT	N=17 (4,3/3,4,5,5)	12.00			White structureless CHALK with a clay matrix (80%) with weak fine chalk gravel. (LPCK)	
		12.50 12.50	D SPT	N=16 (4,3/3,4,5,4)				White structureless chalk with chalk gravel of varying sizes in a fine matrix (50%). (LPCK)	
		13.00	D						
		14.00 14.00	D SPT	N=21 (3,5/5,5,6,5)					
		15.50 15.50	D SPT	N=23 (5,6/5,7,6,5)					
		16.00	D						
		17.00 17.00	D SPT	N=29 (7,6/7,8,7,7)					
		18.50 18.50	D SPT	N=31 (8,8/8,7,7,9)					
		19.00	D						
		20.00 20.00	B SPT	N=39 (9,8/9,10,11,9)					
					20.00			End of Borehole at 20.000m	

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 1.9m.





Borehole Log

Borehole No.

BH11

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

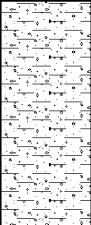
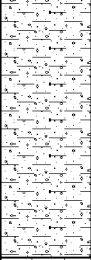
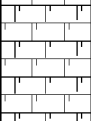
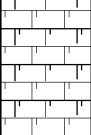
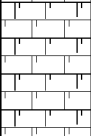
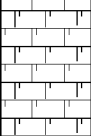
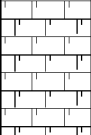
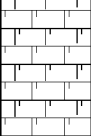
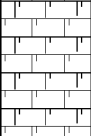
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.20	D		0.50			TOPSOIL: Brown sandy CLAY with frequent recently active roots.	1
		0.50	D					Soft light brown sandy gravelly CLAY with flint gravel. (RTD)	
		1.00	D						
		1.20	U						
		1.20 - 1.65	U	Pl: 9 MC: 27.0 UU: 13.0 UU: 14.0 UU: 16.0					2
		1.70	D						
		2.00	D						
		2.00	SPT						
				N=5 (1,2/1,1,1,2) Pl: 13 MC: 20.1					
		3.00	D	N=6 (2,1/2,2,1,1) Pl: 11 MC: 20.7					3
		3.00 - 3.50	B						
		3.00	SPT						
		4.00	D	N=4 (2,0/1,0,1,2)	4.00			Very soft structureless white CHALK with absent or very rare chalk gravel. (LPCK)	4
		4.00 - 4.45	U						
		4.50	D						
		5.00	D	N=7 (2,2/1,1,2,3)					5
		5.00	SPT						
		6.00	D	N=13 (3,2/3,4,3,3)					6
		6.50	SPT						
		7.00	D	N=14 (4,3/4,3,4,3)					7
		8.00	D	N=13 (3,2/3,4,3,3)					8
		8.00	SPT						
		9.00	D	N=14 (4,3/4,3,4,3)					9
		9.50	SPT						
		10.00	D						10
		11.00	D						11

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Borehole Log

Borehole No.

BH11

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

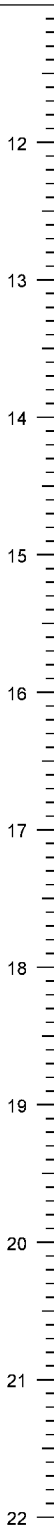
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	In Situ Results								
		11.00	SPT	N=15 (3,3/4,3,4,4)	11.60			Very soft structureless white CHALK with absent or very rare chalk gravel. (LPCK)				
		12.00	D					White structureless CHALK with 50 to 60% fine matrix and medium chalk gravel with gravelly bands. (LPCK)				
		12.50	SPT	N=19 (4,5/5,4,5,5)								
		13.00	D									
		14.00	D									
		14.00	SPT	N=21 (5,5/6,5,5,5)								
		15.00	D									
		15.50	SPT	N=25 (6,7/6,5,7,7)								
		16.00	D									
		17.00	D									
		17.00	SPT	N=23 (6,7/6,5,5,7)								
		18.00	D									
		18.50	SPT	N=30 (7,8/7,7,8,8)								
		19.00	D									
		20.00	B		20.00			End of Borehole at 20.000m				
		20.00	D									
		20.00	SPT	N=38 (9,8/9,10,9,10)								

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Borehole Log

Borehole No.

BH12

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

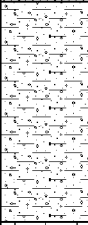
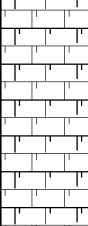
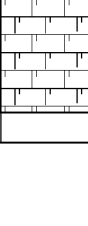
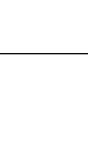
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		0.20	D	N=8 (1,2/1,2,2,3)	0.40			TOPSOIL: Brown sandy CLAY.	1
		0.50	D					Firm brown sandy gravelly CLAY with chalk and flint gravel. (RTD)	
		1.00	B						
		1.00	D						
		1.20	SPT	Pl: 14 MC: 21.6	2.00				2
		2.00	D					White structureless CHALK with fine chalk gravel with a fine matrix (80%). (LPCK)	
		2.00 - 2.45	U						
		2.50	D						
		3.00	D	N=7 (2,3/2,2,1,2)					3
		3.00	SPT						
		4.00	D	N=9 (2,3/2,2,2,3)					4
		4.00	SPT						
		5.00	D	N=11 (2,3/3,2,3,3)					5
		5.00	SPT						
		6.00	D	N=13 (3,2/3,3,3,4)					6
		6.50	SPT						
		7.00	D	N=12 (3,4/3,3,2,4)					7
		8.00	D	N=18 (3,4/5,4,4,5)	9.00				8
		8.00	SPT						
		9.00	D	N=18 (3,4/5,4,4,5)					9
		9.50	SPT	N=18 (3,4/5,4,4,5)					10
		10.00	D	N=18 (3,4/5,4,4,5)					11
		11.00	D	N=18 (3,4/5,4,4,5)					

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Borehole Log

Borehole No.

BH12

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	In Situ Results					
		11.00	SPT	N=17 (3,4/4,4,5,4)				White structureless CHALK with fine and medium chalk gravel. (60% matrix) (LPCK)	
		12.00	D						12
		12.50	SPT	N=20 (4,5/4,6,5,5)					
		13.00	D						13
		14.00	D						
		14.00	SPT	N=28 (5,6/7,6,7,8)					14
		15.00	D						15
		15.50	SPT	N=26 (5,4/6,6,7,7)					
		16.00	D						16
		17.00	D						
		17.00	SPT	N=28 (5,6/6,7,7,8)					17
		18.00	B						18
		18.50	SPT	N=33 (6,7/7,8,9,9)					
		19.00	D						19
		20.00	D						
		20.00	SPT	N=40 (8,7/9,9,10,12)	20.00			End of Borehole at 20.000m	20
									21
									22

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Borehole Log

Borehole No.

BH13

Sheet 1 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

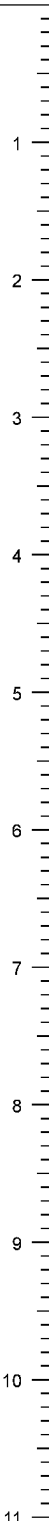
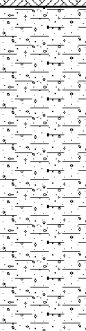
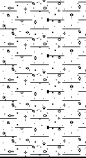
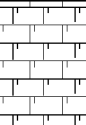
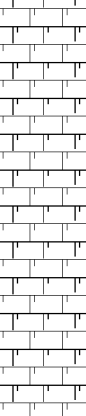
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description												
		Depth (m)	Type	In Situ Results																
		0.20	D		0.50			TOPSOIL: Brown sandy gravelly CLAY with numerous recently active roots.												
		0.50	D					Soft orangey brown sandy gravelly CLAY with chalk and flint gravel. (RTD)												
		1.00	D																	
		1.20 - 1.65	U																	
		1.70	D	PI: 32 MC: 23.9 N=4 (0,1/0,1,2,1)					1											
		2.00	D																	
		2.00	SPT																	
		3.00	B																	
		3.00 - 3.45	U	PI: 28 MC: 25.7 UU: 110.0 UU: 114.0 UU: 120.0					2											
		3.50	D																	
		4.00	B																	
		4.00	D																	
		4.00	SPT	N=3 (0,1/1,1,0,1)	4.00		Off white structureless CHALK consisting of approximately 80% clay matrix and rare chalk and flint gravel. (LPCK)	3												
		5.00	D	N=7 (2,1/1,2,2,2)																
		5.00	SPT																	
		6.00	D																	
		6.50	SPT	N=7 (2,2/0,2,3,2)				Flint gravel band...	4											
		7.00	D																	
		8.00	D	N=11 (3,2/3,3,2,3)																
		8.00	SPT	White with brown mottling structureless chalk, harder than previous with white chalk gravel. (60% matrix) (LPCK)																
		9.00	D					8.00												
		9.50	SPT																	
		10.00	D										N=14 (4,3/4,4,3,3)							
		11.00	D																	

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Borehole Log

Borehole No.

BH13

Sheet 2 of 2

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords:

Hole Type
CP

Location: Shripney Road, Bognor Regis, PO22 9NW

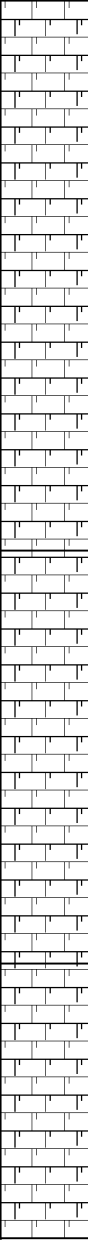
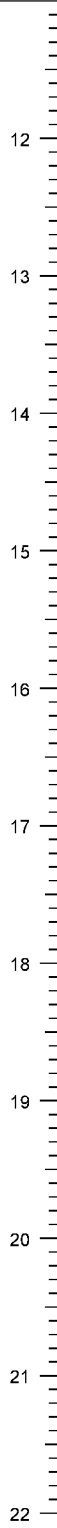
Level:

Scale
1:56

Client: Kirk Saunders

Dates:

Logged By
Daryl Bowell

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	In Situ Results										
		11.00	SPT	N=22 (4,4/5,6,6,5)				White with brown mottling structureless chalk, harder than previous with white chalk gravel. (60% matrix) (LPCK)						
		12.00	D	N=20 (4,5/5,5,4,6)										
		12.50	SPT											
		13.00	D											
		14.00 14.00	D SPT					N=26 (5,5/6,7,7,6)						
		15.00	D											
		15.50	SPT	White structureless CHALK with 50% matrix and medium chalk gravel (LPCK)										
		16.00	D											
		17.00 17.00	D SPT					N=33 (7,7/8,9,8,8)						
		18.00	D											
		18.50	SPT	White structureless CHALK recovered as a medium chalk gravel and a fine matrix (30%). (LPCK)										
		19.00	D											
		20.00 20.00	D SPT					N=37 (9,9/8,10,10,9)						
		End of Borehole at 20.000m								20				
										21				
								22						

Remarks

RTD= River Terrace Deposits

LPCK= Lewes Nodular Chalk Formation

Groundwater was struck at a depth of 4.0m.





Trial Pit Log

Trialpit No

TP01

Sheet 1 of 1

Project Name: Saltbox Site	Project No. UK17.2707d	Co-ords: - Level:	Date
Location: Shripney Road, Bognor Regis, PO22 9NW		Dimensions (m): Depth 1.60	Scale 1:15 Logged Daryl Bowell
Client: Kirk Saunders		2.4 0.6	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
				0.70			Firm orangey brown sandy gravelly CLAY with rare black flint cobbles. (RTD)
				1.60			Firm brown with grey mottling gravelly CLAY with frequent intact medium to coarse chalk gravel and rare flint cobbles. (RTD)
							End of pit at 1.60 m

Remarks: RTD= River Terrace Deposits LPCK= Lewes Nodular Chalk Formation	
Stability: Good	



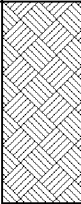
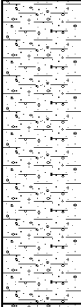
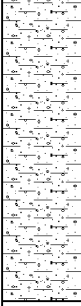
Trial Pit Log

Trialpit No

TP02

Sheet 1 of 1

Project Name: Saltbox Site	Project No. UK17.2707d	Co-ords: - Level:	Date
Location: Shripney Road, Bognor Regis, PO22 9NW		Dimensions (m): Depth 1.60	Scale 1:15 Logged Daryl Bowell
Client: Kirk Saunders		2.5 0.6	

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.40			TOPSOIL: Medium brown sandy gravelly CLAY with coarse flint and frequent roots.	
				1.00			Firm orangey brown with grey mottling sandy gravelly CLAY. (RTD)	
				1.60			Firm grey with brown mottling gravelly CLAY with medium to coarse hard intact chalk gravel and coarse flint. (RTD)	1
							End of pit at 1.60 m	2
								3

Remarks: RTD= River Terrace Deposits LPCK= Lewes Nodular Chalk Formation	
Stability: Good	



Trial Pit Log

Trialpit No

TP03

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.5

Depth
2.10

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B		0.40			TOPSOIL: Medium brown sandy gravelly CLAY with coarse flint and frequent roots.
				0.80			Firm orangey brown with grey mottling sandy gravelly CLAY. (RTD)
				2.10			Off white with brown mottling structureless CHALK with coarse rounded chalk and flint in a clay matrix (approximately 70%). (LPCK)
▼							1
							2
							3

End of pit at 2.10 m

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP04

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.6

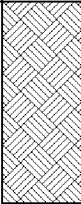
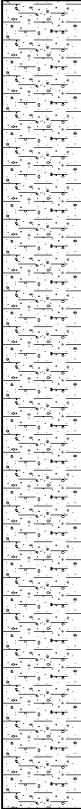
Depth
2.30

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B		0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
			HVP=40 HVP=22				Soft to firm orangey brown with grey mottling sandy gravelly CLAY with occasional flint cobbles. (RTD)
				2.00			Light grey in top 0.1m then off white structureless marly chalk with medium to coarse intact chalk fragments and rare flints in a clay matrix with fine sand. (LPCK)
				2.30			End of pit at 2.30 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP05

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions
(m):

2.4

Scale

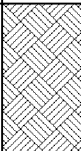
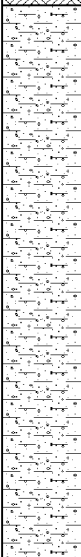
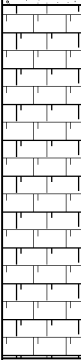
1:15

Client: Kirk Saunders

Depth
2.10

0.6

Logged

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30 - 0.60	B	HVP=34	0.30			TOPSOIL: Medium brown silty CLAY with frequent roots.	
							Soft orangey brown sandy gravelly CLAY with flint gravel and rare cobbles. (RTD)	1
			HVP=28	1.40			Grey structureless CHALK with approximately 50% matrix with medium white chalk gravel in a grey clay matrix. (LPCK)	2
	2.00 - 2.10	B		2.10			End of pit at 2.10 m	3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP06

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.4

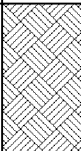
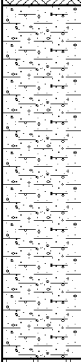
Depth
2.30

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
▼	0.30 - 0.60	B		0.30			TOPSOIL: Medium brown silty CLAY with frequent roots.	
							Firm orangey brown sandy gravelly CLAY with flint gravel and rare cobbles. (RTD)	
				1.00			Grey with brown mottling CLAY/ clayey CHALK with medium to coarse intact chalk fragments. (LPCK)	1
	2.00 - 2.30	B		2.00			Saturated off white structureless CHALK with 60% clay matrix and medium to coarse angular hard intact chalk gravel. (LPCK)	2
				2.30			End of pit at 2.30 m	3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP07

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.6

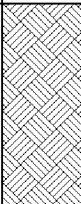
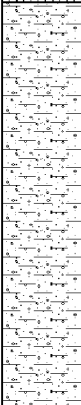
Depth
2.40

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40 - 0.60	B	HVP=44	0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.	
				1.20			Firm brown with grey mottling slightly gravelly sandy CLAY with rare medium chalk. (RTD)	1
				2.40			Soft to firm grey with light brown sandy gravelly cobbly CLAY with black flint cobbles and fine to medium chalk saturated. (RTD)	2
							End of pit at 2.40 m	3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP08

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.5

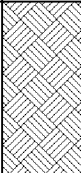
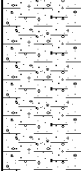
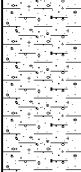
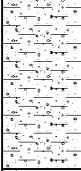
Depth
2.00

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.35 - 0.60	B		0.35			TOPSOIL: Medium brown silty CLAY with frequent roots.	
				0.70			Soft to firm orangey brown sandy gravelly CLAY with frequent black material, medium sand and fine chalk and flint gravel. (RTD)	
				1.40			Soft to firm light brown to grey sandy gravelly CLAY with rare decayed roots and frequent coarse chalk and flint gravel with rare flint cobbles. (RTD)	1
				2.00			Soft to firm light yellowish brown to off white very sandy gravelly CLAY with frequent medium to coarse sand and chalk and flint gravel. Recovered as granular material but compresses easily in hand. (RTD)	
							End of pit at 2.00 m	2
								3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP09

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.6

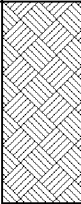
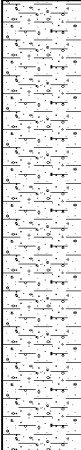
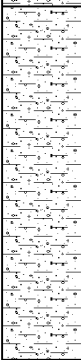
Depth
2.00

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B	HVP=32	0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
				1.30			Soft orangey brown sandy slightly sandy slightly gravelly CLAY with flint gravel and a medium sand. (RTD)
				2.00			Soft grey with brown mottling gravelly sandy CLAY with cobbles of flint and decayed roots. (RTD)
							End of pit at 2.00 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP10

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.8

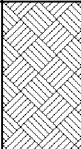
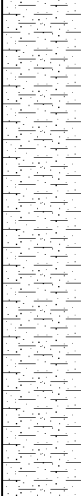
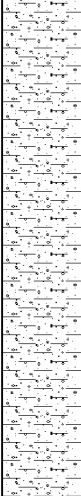
Depth
2.30

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.30 - 0.60	B		0.30			TOPSOIL: Medium brown silty CLAY with frequent roots.
							Soft to firm orangey brown sandy CLAY with a fine to medium sand. (RTD)
				1.30			Soft to firm grey with light brown mottling very sandy gravelly CLAY with rare flint cobbles and coarse chalk gravel and coarse black flints. (RTD)
				2.30			End of pit at 2.30 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP11

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions
(m):

2.4

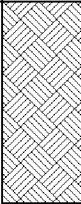
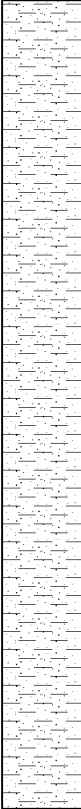
Depth
2.00

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B	HVP=42 HVP=56	0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
							Firm brown sandy CLAY with rare flint cobbles and decayed roots. (RTD)
				2.00			Grey mottling and slightly fissured CLAY at 1.5m...
							End of pit at 2.00 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP12

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.8

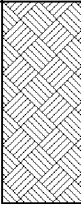
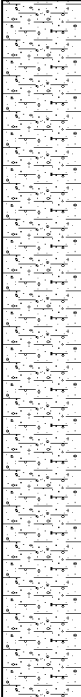
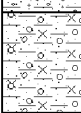
Depth
2.00

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40 - 0.60	B		0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.	
							Soft to firm orangey brown very sandy slightly gravelly CLAY with fine flint gravel. (RTD)	1
				1.80			Firm light brown mottled grey fissile sandy CLAY with occasional flint cobbles. (RTD)	
				2.00			End of pit at 2.00 m	2
								3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP13

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.8

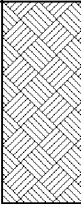
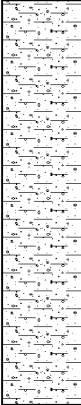
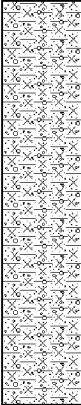
Depth
2.00

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B	HVP=42	0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
				1.20			Firm sandy slightly gravelly CLAY with fine flint gravel. (RTD)
				2.00			Firm grey with light brown mottling very sandy gravelly cobbly CLAY with medium to coarse flint and chalk gravel. Too sandy to shear vane and recovered as small compressible lumps. (RTD)
							End of pit at 2.00 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP14

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.7

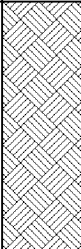
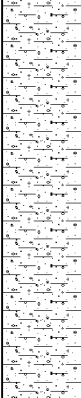
Depth
2.50

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.50 - 0.70	B		0.50			TOPSOIL: Medium brown silty CLAY with frequent roots.	
				1.30			Soft to firm orangey brown with rare grey mottling sandy slightly gravelly CLAY with medium sand and flint gravel. (RTD)	1
			HVP=42	2.00			Soft to firm orangey brown with grey mottling sandy gravelly CLAY with rare flint cobbles. (RTD)	
			HVP=20	2.50			Soft saturated very sandy very gravelly CLAY with frequent medium to fine rounded chalk gravel and medium to cobble black flint. (RTD)	2
							End of pit at 2.50 m	3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP15

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.5

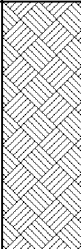
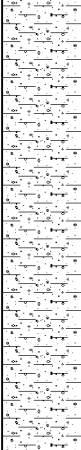
Depth
2.50

0.5

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50 - 0.70	B		0.50			TOPSOIL: Medium brown silty sandy CLAY with frequent roots and infrequent coarse flint.
			HVP=36 HVP=30	1.40			Soft orangey brown sandy gravelly CLAY with medium chalk and flint gravel. (RTD)
				2.50			Firm grey with brown mottling very sandy gravelly CLAY with numerous black flint cobbles and medium to fine chalk gravel. (RTD)
							Increasingly sandy and chalk gravel towards 2.5m depth...
							End of pit at 2.50 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP16

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.5

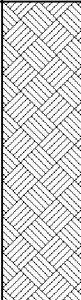
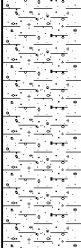
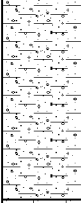
Depth
2.50

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.60 - 0.90	B		0.60			TOPSOIL: Medium brown silty CLAY with frequent roots.
				1.10			Firm orangey brown sandy gravelly CLAY. (RTD)
				1.50			Firm light brown to grey fissile very gravelly sandy CLAY with medium to coarse chalk gravel and coarse black flint. (RTD)
	2.00 - 2.50	B		2.50			White structureless chalk with light brown mottling with coarse hard chalk gravel in a clay matrix. (LPCK)
							End of pit at 2.50 m

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP17

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.4

Depth
2.50

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B	HVP=38	0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
							Soft to firm orangey brown sandy gravelly CLAY with frequent flint gravel. (RTD)
				1.20			Firm light grey with brown mottling gravelly CLAY with frequent coarse white chalk gravel. (RTD)
				1.80			White with brown mottling structureless CHALK with medium subrounded chalk gravel in a firm matrix (approximately 75%) and coarse flints. (LPCK)
				2.50			End of pit at 2.50 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP18

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.4

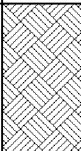
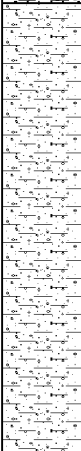
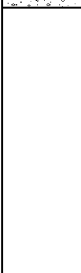
Depth
2.50

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30 - 0.60	B		0.30			TOPSOIL: Medium brown silty CLAY with frequent roots.	
			HVP=24				Soft orangey brown very sandy gravelly CLAY with infrequent cobbles. (RTD)	1
			HVP=26	1.60			Firm grey with light brown mottling sandy gravelly CLAY with infrequent fine to medium chalk gravel. (RTD)	2
			HVP=46	2.50			End of pit at 2.50 m	3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP19

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.3

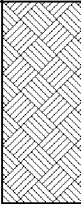
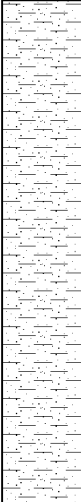
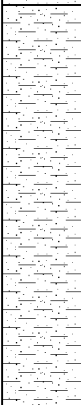
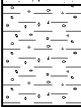
Depth
2.40

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B		0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
			HVP=44	1.40			Firm orangey brown sandy CLAY with rare flint cobbles. (RTD)
			HVP=32				Firm grey with brown mottling sandy CLAY with rare decayed roots. (RTD)
			HVP=60	2.20			Firm light brown with grey mottling gravelly CLAY with frequent medium chalk and medium flint. (RTD)
				2.40			End of pit at 2.40 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP20

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707dCo-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions
(m):

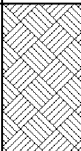
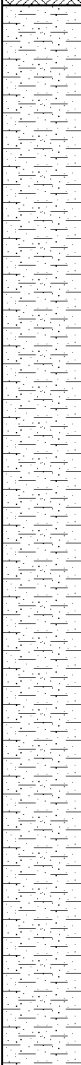
2.4

Depth
2.40

0.6

Scale
1:15Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.30 - 0.50	B		0.30			TOPSOIL: Medium brown silty CLAY with frequent roots.
							Firm brown sandy CLAY with rare flint cobbles and decayed roots. (RTD)
				2.40			End of pit at 2.40 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP21

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.5

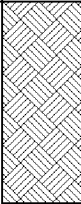
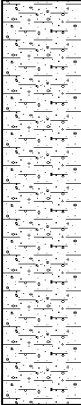
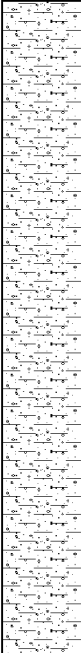
Depth
2.50

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40 - 0.60	B		0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.
				1.20			Firm orangey brown very sandy slightly gravelly CLAY with numerous decayed roots and rare gravel. (RTD)
				2.50			Firm grey with brown mottling friable very sandy gravelly CLAY with fine chalk gravel, rare flint cobbles and decayed roots. (RTD)
							End of pit at 2.50 m

1

2

3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





Trial Pit Log

Trialpit No

TP22

Sheet 1 of 1

Project Name: Saltbox Site

Project No.
UK17.2707d

Co-ords: -
Level:

Date

Location: Shripney Road, Bognor Regis, PO22 9NW

Dimensions (m):

2.3

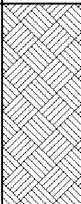
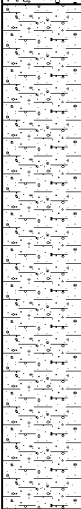
Depth
2.10

0.6

Scale
1:15

Logged
Daryl Bowell

Client: Kirk Saunders

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40 - 0.60	B		0.40			TOPSOIL: Medium brown silty CLAY with frequent roots.	
				1.10			Firm orangey brown gravelly sandy CLAY with frequent flint cobbles. Too sandy to shear vane. (RTD)	1
				2.10			Firm light grey with brown mottling gravelly sandy CLAY with frequent predominantly fine chalk gravel and flint cobbles. (RTD)	
							Gravelly lens...	2
							End of pit at 2.10 m	3

Remarks: RTD= River Terrace Deposits
LPCK= Lewes Nodular Chalk Formation

Stability: Good





KEY:

-  Approximate Site Boundary
-  Approximate Cable Percussive Borehole Location
-  Section line A-B
-  Section line X-Y

Fig No: C

Title: Cross Section Schematic

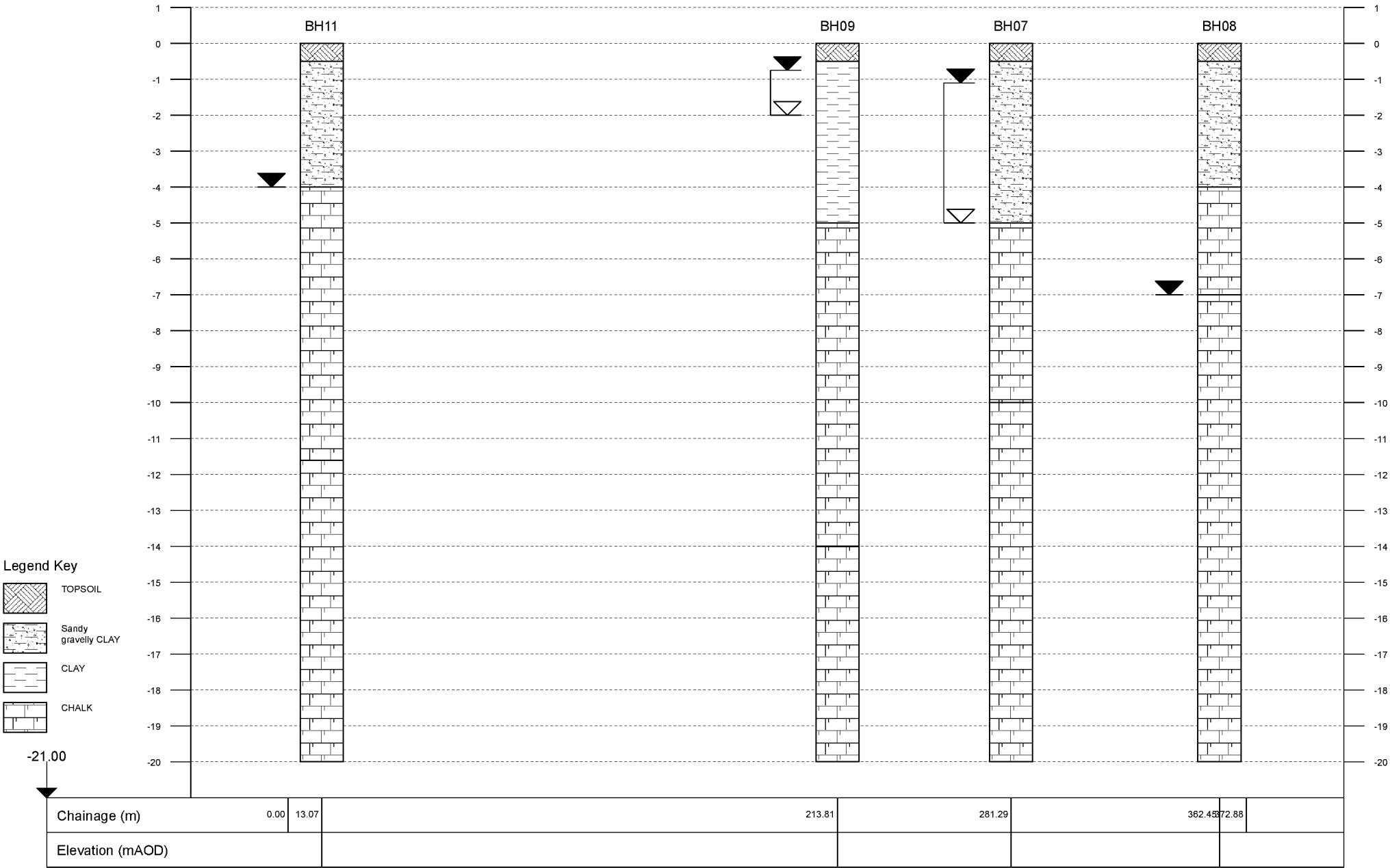
Project: Saltbox, Bognor Regis

Scale: NTS - For illustration purposes only
Drawn By: DB
Job No: UK17.2707D
Dwg No: Saltbox/119/C
Date: January 2019



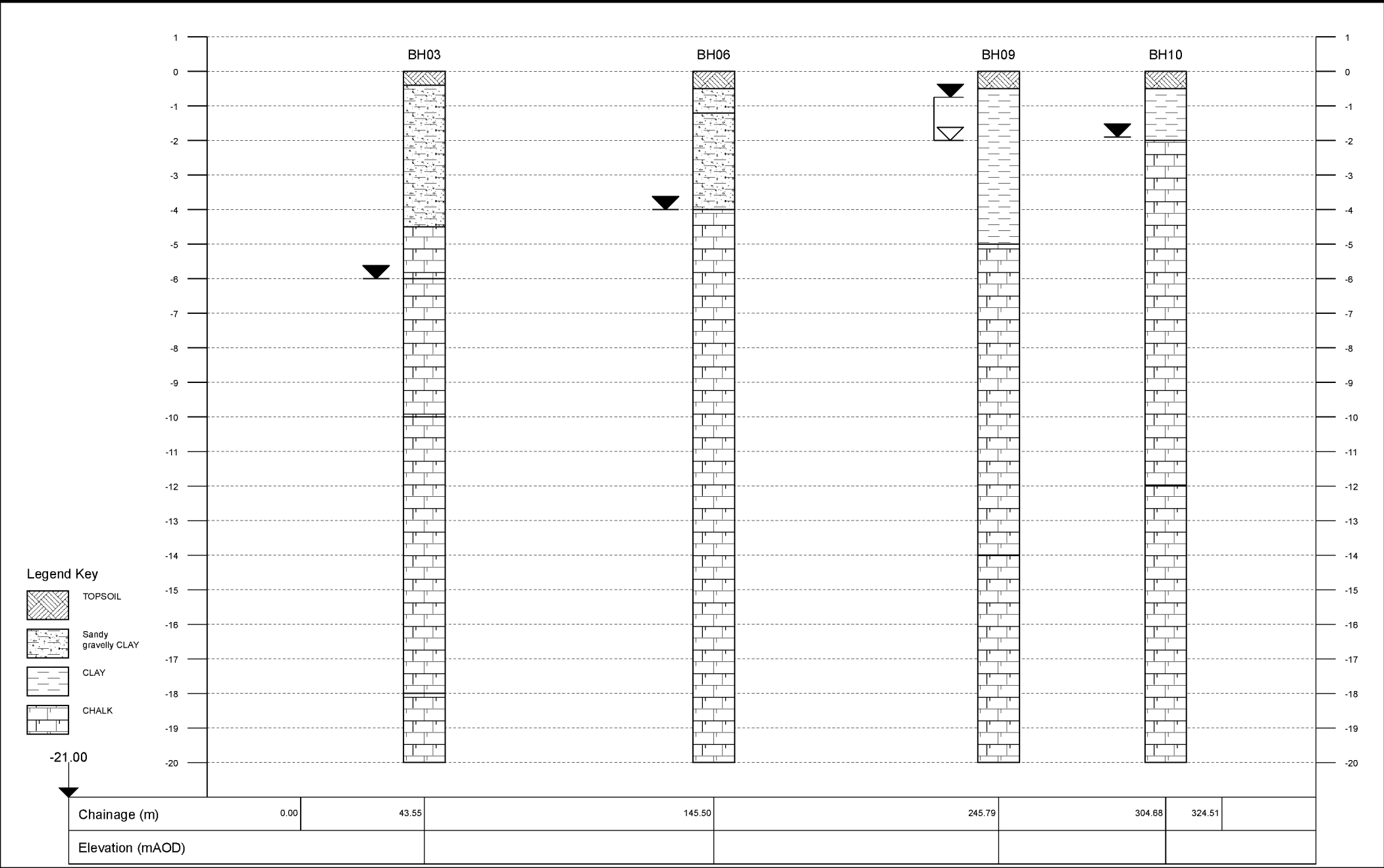
Project Id: UK17.2707d
Project Title: Saltbox Site
Location: Shripney Road, Bognor Regis, PO22 9NW
Client: Kirk Saunders

Title: A-B
Vertical Scale: 1:144
Horizontal Scale: 1:2014
Engineer: Daryl Bowell



Project Id: UK17.2707d
Project Title: Saltbox Site
Location: Shripney Road, Bognor Regis, PO22 9NW
Client: Kirk Saunders

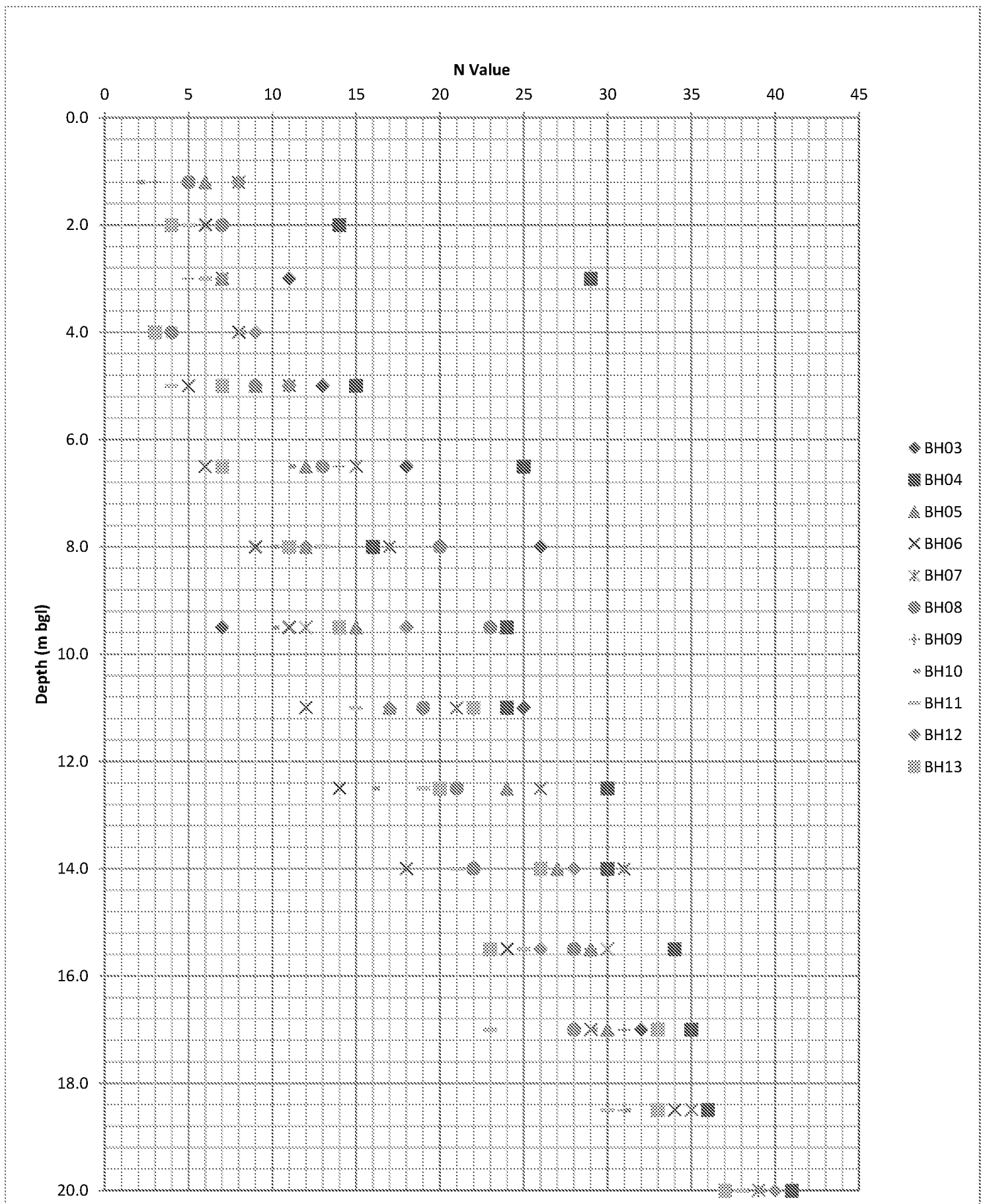
Title: X-Y
Vertical Scale: 1:144
Horizontal Scale: 1:1753
Engineer: Daryl Bowell





APPENDIX D

In-Situ Testing Data





APPENDIX E

Geotechnical Laboratory Data



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 03/12/2018



0998

Contract	UK17.2707D - Saltbox, Bognor Regis		
Serial No.	34094-1		
Client: Environmental Protection Strategies Ltd Unit 7 Caxton House Broad Street Great Cambourne Cambridge CB23 6JN		Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: [REDACTED] Email: [REDACTED] Website: www.soilpropertytesting.com	
Samples Submitted By: Environmental Protection Strategies Ltd Samples Labelled: UK17.2707D - Saltbox, Bognor Regis		Approved Signatories: ☒ J.C. Garner B.Eng (Hons) FGS Technical Director ☐ S.P. Townend FGS Quality Manager ☐ W. Johnstone Materials Lab Manager ☐ D. Sabnis Operations Manager [REDACTED]	
Date Received: 02/11/2018		Samples Tested Between: 02/11/2018 and 30/11/2018	
Remarks: For the attention of Daryl Bowell Your Reference No: UK17.2707D Your Order No: 20720			
Notes: 1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary. 2 (a) UKAS - United Kingdom Accreditation Service (b) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation 3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory. 4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.			



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 03/12/2018



0998

Contract		UK17.2707D - Saltbox, Bognor Regis																		
Serial No.		34094-1										Target Date		23/11/2018						
Scheduled By		Environmental Protection Strategies Ltd																		
SCHEDULE OF LABORATORY TESTS																				
Schedule Remarks																				
Bore Hole No.	Type	Sample Ref.	Top Depth	Water Content (BS5N)				Liquid/Plastic Limits				Wet Sieve Preparation				California Bearing Ratio Test				Sample Remarks
TP03	B	1	0.40	1	1	1	1													
TP04	B	1	0.40	1	1		1													
TP05	B	1	0.30	1	1		1													
TP06	B	1	0.30	1	1	1	1													
TP07	B	1	0.40	1	1	1	1													
TP08	B	1	0.35	1	1	1	1													
TP09	B	1	0.40	1	1	1	1													
TP10	B	1	0.30	1	1		1													
TP11	B	1	0.40	1	1		1													
TP12	B	1	0.40	1	1		1													
TP13	B	1	0.40	1	1		1													
TP14	B	1	0.50	1	1		1													
TP15	B	1	0.50	1	1	1	1													
TP16	B	1	0.60	1	1	1	1													
TP17	B	1	0.40	1	1		1													
TP18	B	1	0.30	1	1	1	1													
TP19	B	1	0.40	1	1		1													
TP20	B	1	0.30	1	1		1													
TP21	B	1	0.40	1	1		1													
TP22	B	1	0.40	1	1		1													
Totals				20	20	8	20												End of Schedule	



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Contract		UK17.2707D - Saltbox, Bognor Regis												
Serial No.		34094-1												
SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX														
Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti- city Index (%)	Liquid- ity Index (%)	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
TP03	0.40 - 0.60	B	1	21.6	40	18	22	0.16	Wet Sieved	7 (M)	23.2*	24	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse flint	CI
TP04	0.40 - 0.60	B	1	19.2	31	18	13	0.09	From Natural	<1% (A)		24	Soft brown sandy silty CLAY with rare fine and medium flint	CL
TP05	0.30 - 0.60	B	1	23.1	46	18	28	0.18	From Natural	0 (A)		24	Stiff yellowish brown slightly sandy silty CLAY with rare fine and medium flint gravel	CI
TP06	0.30 - 0.60	B	1	20.2	36	18	18	0.12	Wet Sieved	6 (M)	21.5*	24	Firm yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	CI
TP07	0.40 - 0.60	B	1	21.2	39	18	21	0.15	Wet Sieved	8 (M)	23.1*	24	Firm locally stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	CI
TP08	0.35 - 0.60	B	1	22.5	43	19	24	0.15	Wet Sieved	9 (M)	24.7*	24	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse chalk and flint	CI
TP09	0.40 - 0.60	B	1	20.7	42	20	22	0.03	Wet Sieved	7 (M)	22.2*	24	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	CI
TP10	0.30 - 0.60	B	1	22.0	44	18	26	0.15	From Natural	0 (A)		24	Firm yellowish brown slightly sandy silty CLAY	CI
Method Of Preparation:				BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2										
Method of Test:				BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4										
Type of Sample Key:				U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter										
Comments:				*Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.										
Remarks to Include:				Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C										



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
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Contract		UK17.2707D - Saltbox, Bognor Regis												
Serial No.		34094-1												
SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX														
Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti- city Index (%)	Liquid- ity Index (%)	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
TP11	0.40 - 0.60	B	1	19.2	38	18	20	0.06	From Natural	0 (A)		73	Stiff yellowish brown silty CLAY	CI
TP12	0.40 - 0.60	B	1	20.4	39	20	19	0.02	From Natural	0 (A)		24	Stiff yellowish brown slightly sandy silty CLAY	CI
TP13	0.40 - 0.60	B	1	20.5	43	19	24	0.06	From Natural	0 (A)		73	Stiff yellowish brown silty CLAY with rare recently active roots	CI
TP14	0.50 - 0.70	B	1	19.5	37	18	19	0.08	From Natural	0 (A)		71	Stiff yellowish brown silty CLAY	CI
TP15	0.50 - 0.70	B	1	21.2	38	17	21	0.20	Wet Sieved	5 (M)	22.3*	25	Firm yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	CI
TP16	0.60 - 0.90	B	1	20.2	35	19	16	0.08	Wet Sieved	7 (M)	21.8*	24	Firm locally stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium flint	CL/CI
TP17	0.40 - 0.60	B	1	20.5	35	18	17	0.14	From Natural	<1% (A)		24	Soft yellowish brown silty CLAY with rare fine flint gravel	CL/CI
TP18	0.30 - 0.60	B	1	20.7	35	18	17	0.16	Wet Sieved	4 (M)	21.6*	26	Firm yellowish brown slightly gravelly slightly sandy silty CLAY	CL/CI
Method Of Preparation:				BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2										
Method of Test:				BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4										
Type of Sample Key:				U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter										
Comments:				*Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.										
Remarks to Include:				Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C										



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DATE ISSUED: 03/12/2018



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Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index (%)	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
TP19	0.40 - 0.60	B	1	20.5	38	19	19	0.08	From Natural	0 (A)		71	Stiff yellowish brown silty CLAY	CI
TP20	0.30 - 0.50	B	1	12.4	30	17	13	-0.36	From Natural	<1% (A)		72	Hard brown sandy silty CLAY with occasional recently active roots and rare fine and medium flint	CL
TP21	0.40 - 0.60	B	1	11.6	33	18	15	-0.43	From Natural	<1% (A)		72	Hard brown sandy silty CLAY with occasional recently active roots and rare fine and medium flint	CL
TP22	0.40 - 0.60	B	1	20.5	44	19	25	0.06	From Natural	<1% (A)		73	Firm yellowish brown silty CLAY with rare fine and medium flint gravel	CI

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:

Remarks to Include: Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C



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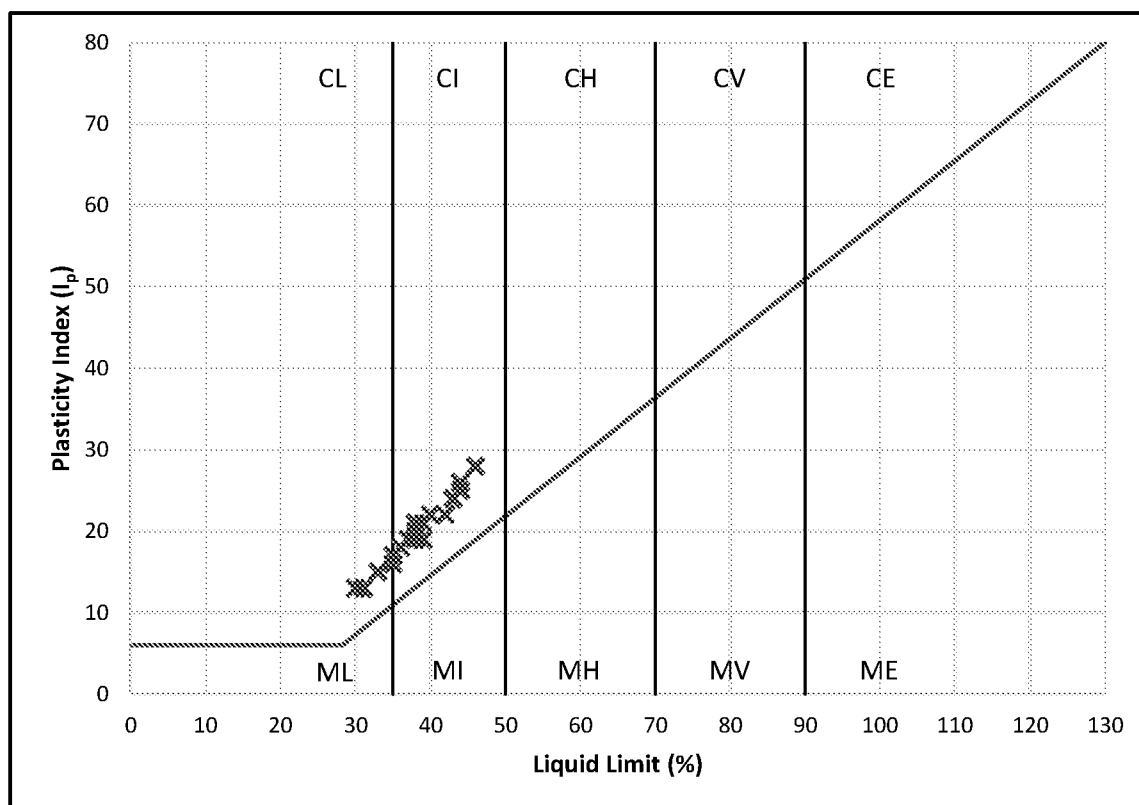


0998

Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

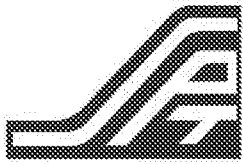
Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

High	NHBC Volume Change Potential
Medium	
Low	

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index



TEST REPORT

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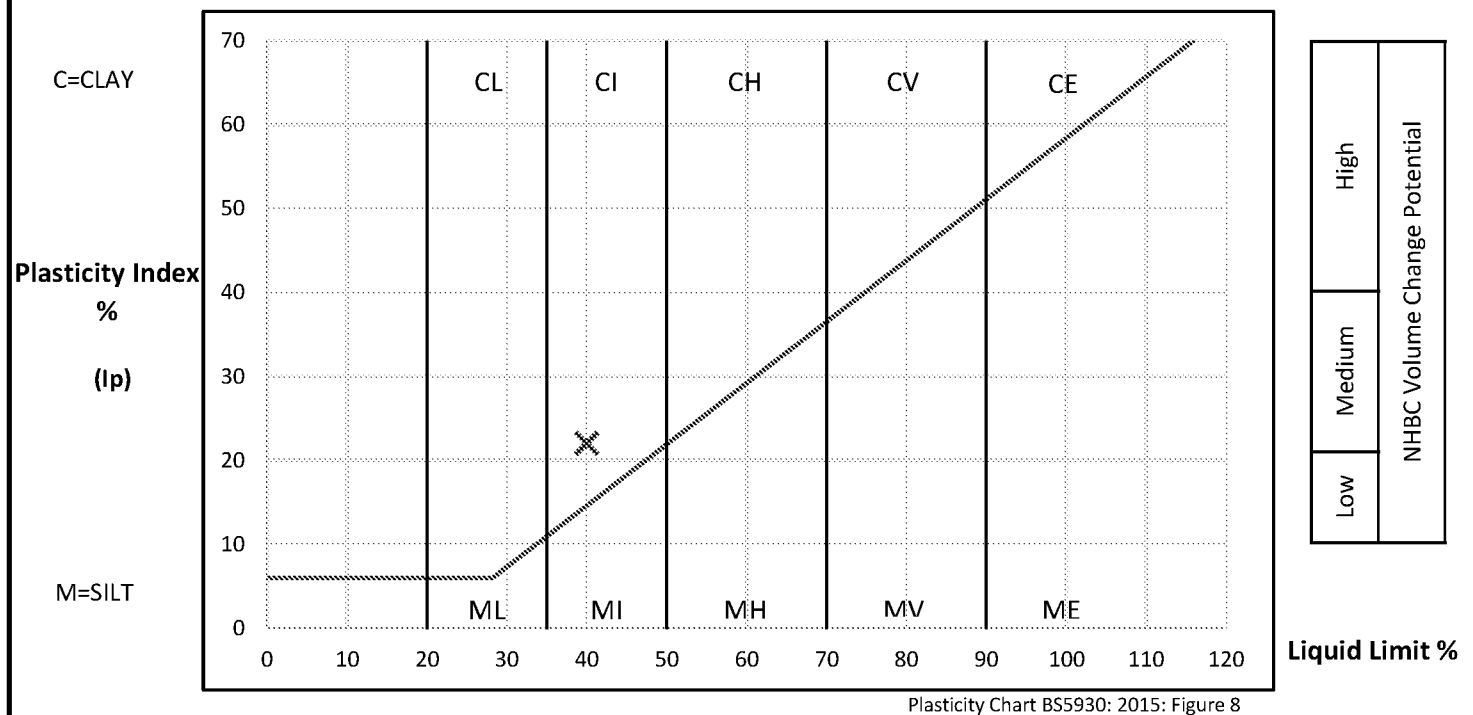
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Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP03	0.40 - 0.60	B	1	21.6	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse flint	

PREPARATION				Liquid Limit	40 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Measured)	7 %	Plasticity Index	22 %	
Corrected water content for material passing 0.425mm			23.2 %	Liquidity Index	0.16	
Sample retained 2mm sieve		(Measured)	6 %	NHBC Modified (I'p)	20 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

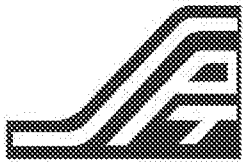


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



TEST REPORT

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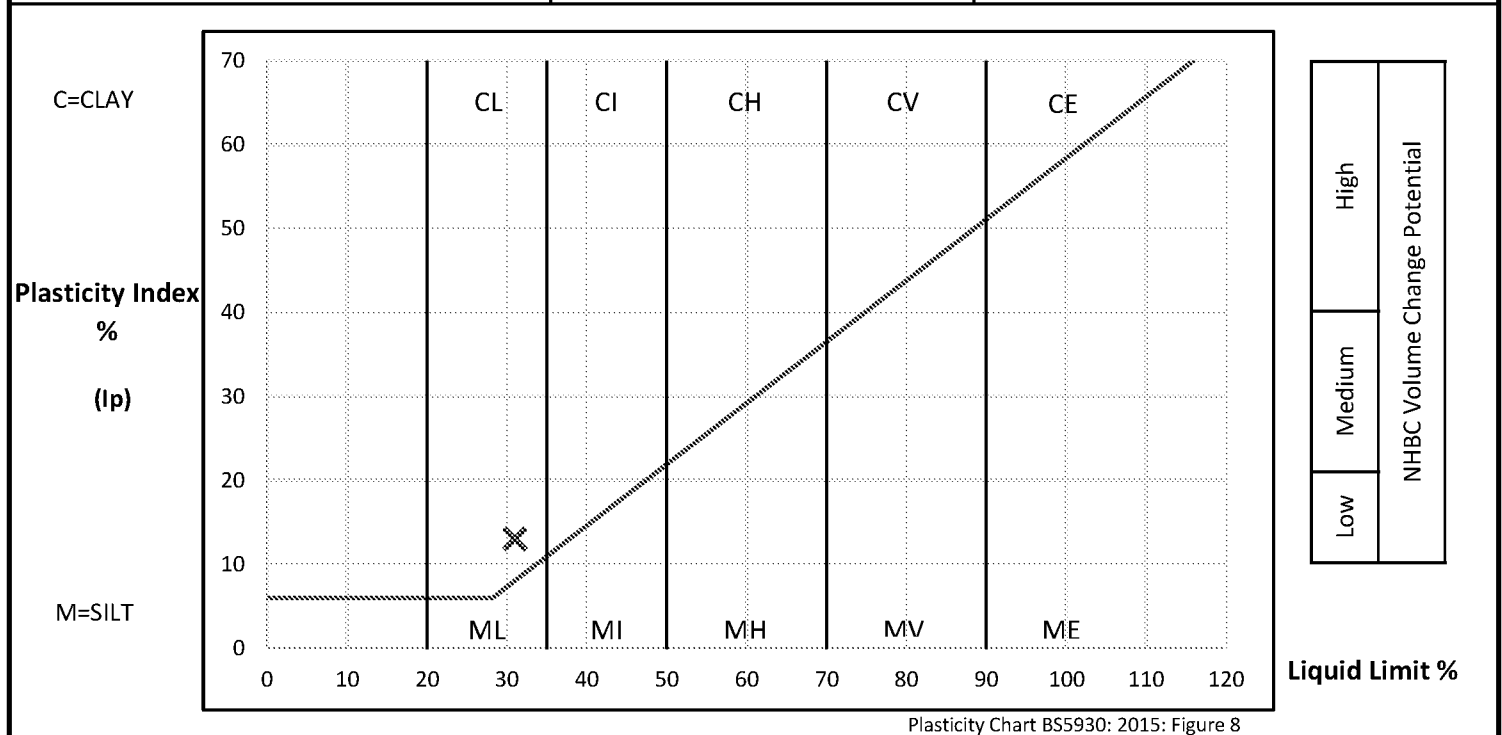
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Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

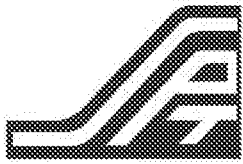
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP04	0.40 - 0.60	B	1	19.2	Soft brown sandy silty CLAY with rare fine and medium flint	

PREPARATION				Liquid Limit	31 %	
Method of preparation		From natural/gravel picked out by hand		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Assumed)	0 %	Plasticity Index	13 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.09	
Sample retained 2mm sieve		(Assumed)	<1 %	NHBC Modified (I'p)	n/a	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
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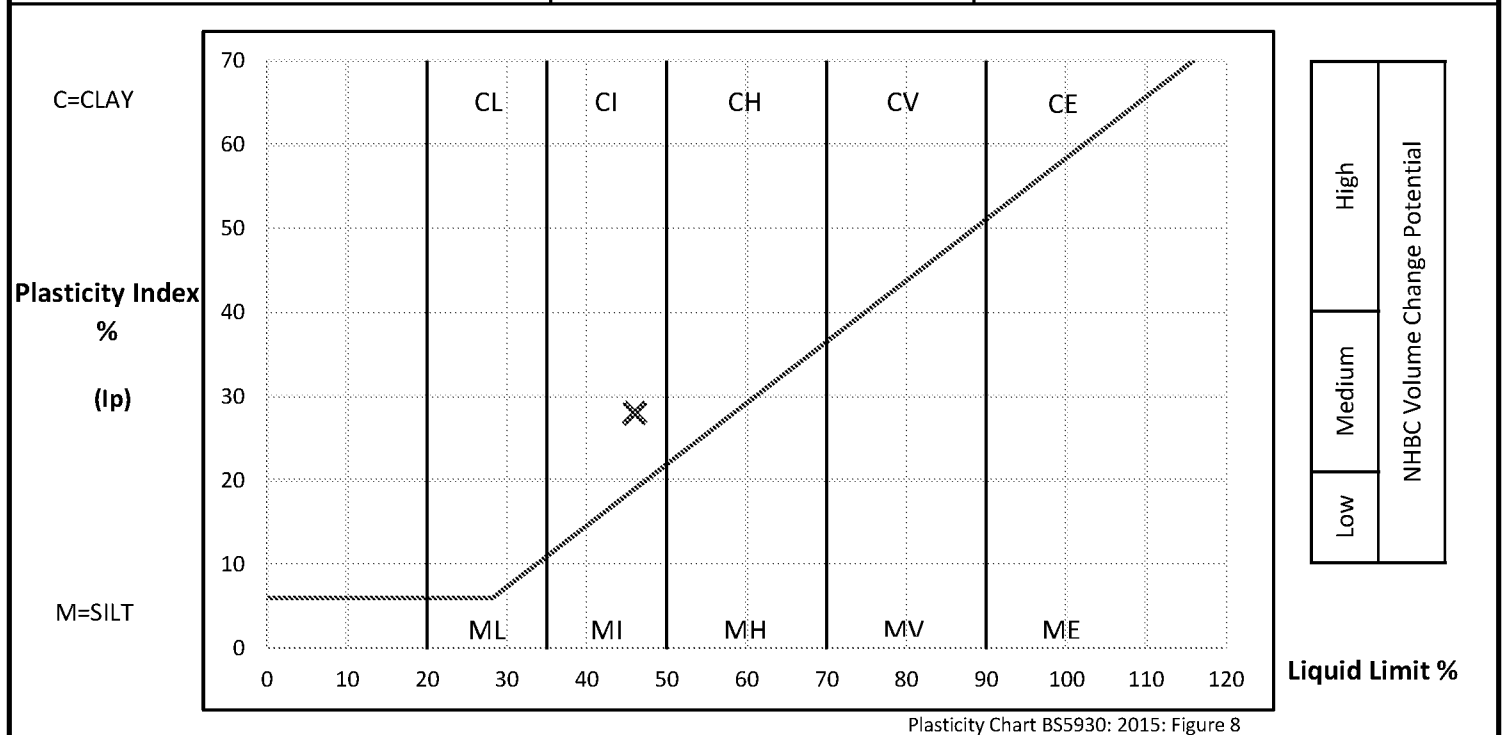
0998

Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

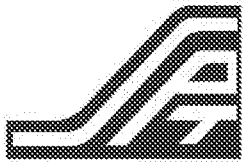
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP05	0.30 - 0.60	B	1	23.1	Stiff yellowish brown slightly sandy silty CLAY with rare fine and medium flint gravel	

PREPARATION				Liquid Limit	46 %	
Method of preparation		From natural		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	28 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.18	
Sample retained 2mm sieve		(Assumed)		0 %	NHBC Modified (I'p)	n/a
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

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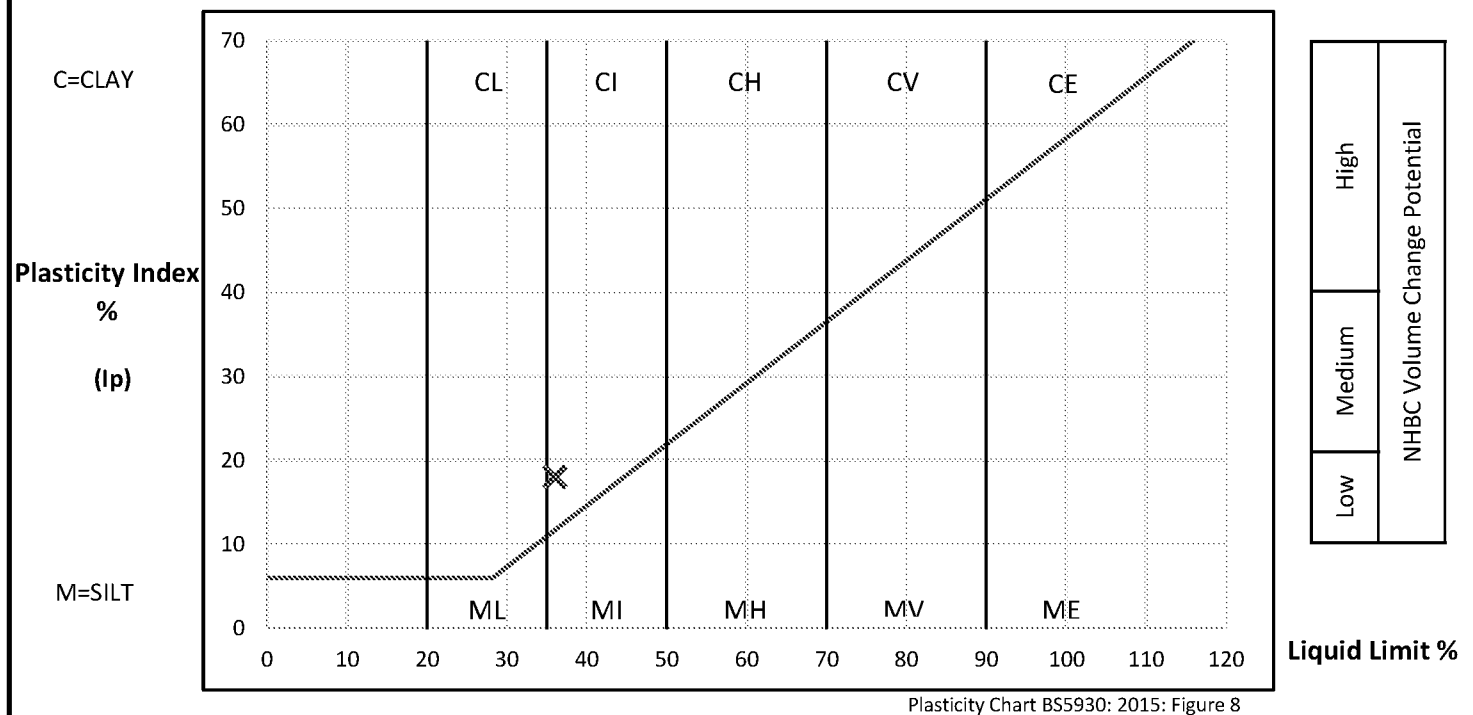
0998

Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP06	0.30 - 0.60	B	1	20.2	Firm yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

PREPARATION				Liquid Limit	36 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Measured)	6 %	Plasticity Index	18 %	
Corrected water content for material passing 0.425mm			21.5 %	Liquidity Index	0.12	
Sample retained 2mm sieve		(Measured)		5 %	NHBC Modified (I'p)	17 %
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

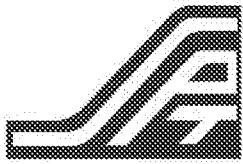


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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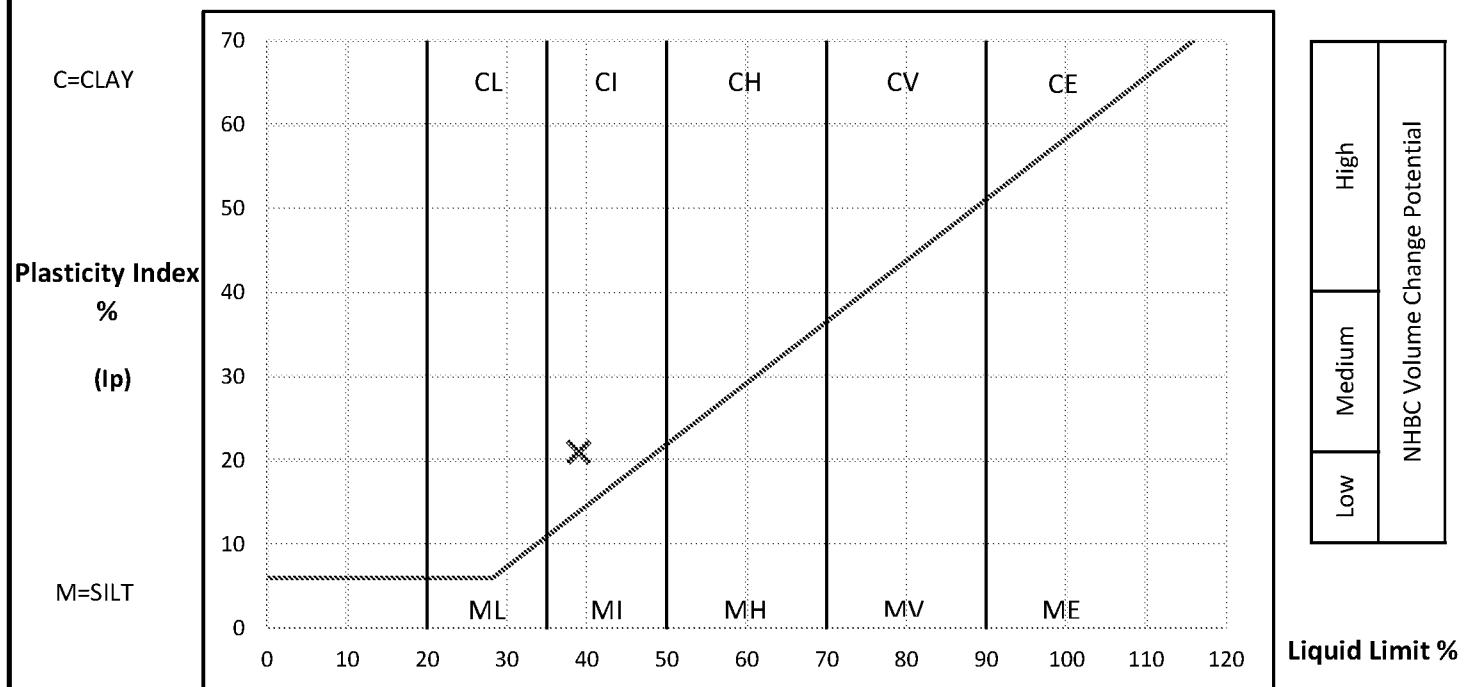
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Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP07	0.40 - 0.60	B	1	21.2	Firm locally stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

PREPARATION				Liquid Limit	39 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Measured)	8 %	Plasticity Index	21 %	
Corrected water content for material passing 0.425mm			23.1 %	Liquidity Index	0.15	
Sample retained 2mm sieve		(Measured)	7 %	NHBC Modified (I'p)	19 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

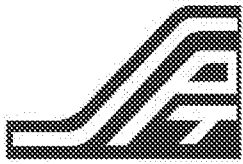


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



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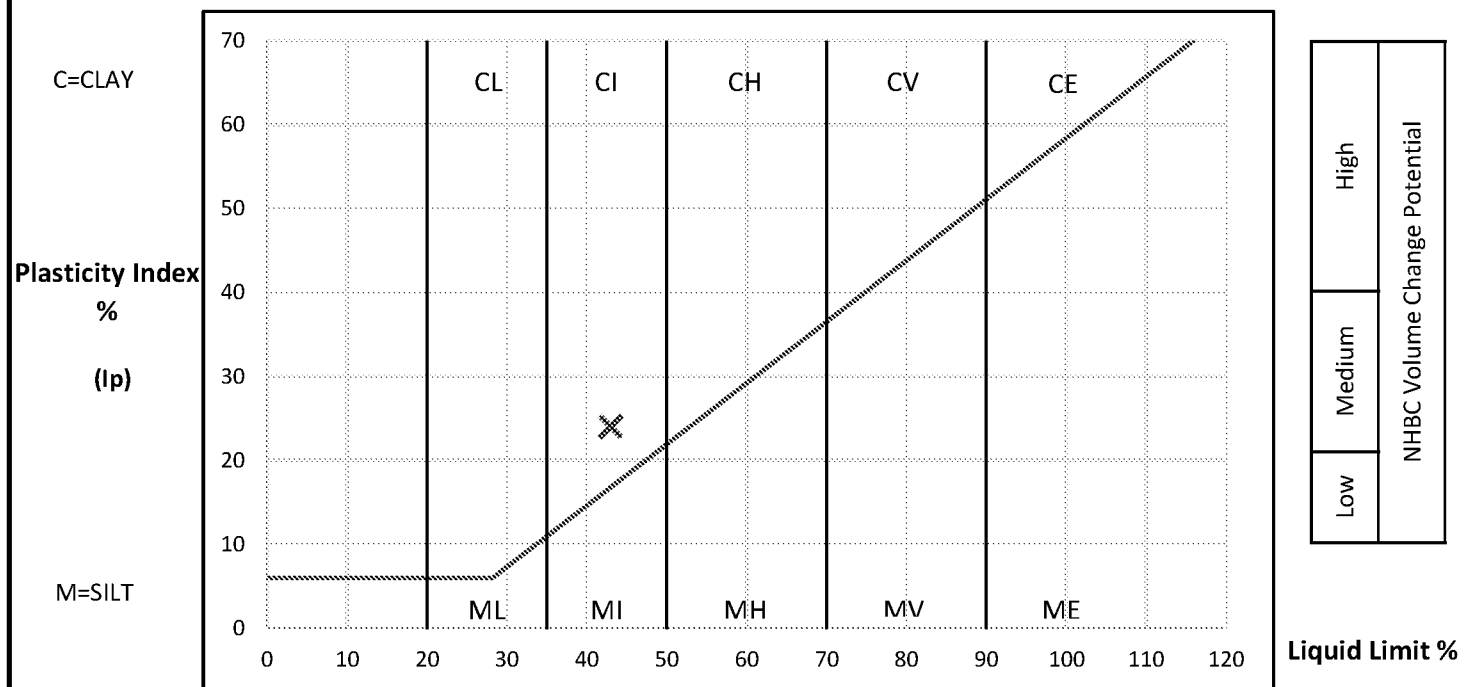
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Serial No.	34094-1

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP08	0.35 - 0.60	B	1	22.5	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse chalk and flint	

PREPARATION				Liquid Limit	43 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	19 %	
Sample retained 0.425mm sieve		(Measured)	9 %	Plasticity Index	24 %	
Corrected water content for material passing 0.425mm			24.7 %	Liquidity Index	0.15	
Sample retained 2mm sieve		(Measured)	8 %	NHBC Modified (I'p)	22 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



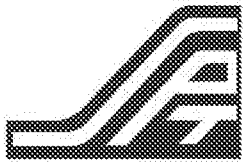
Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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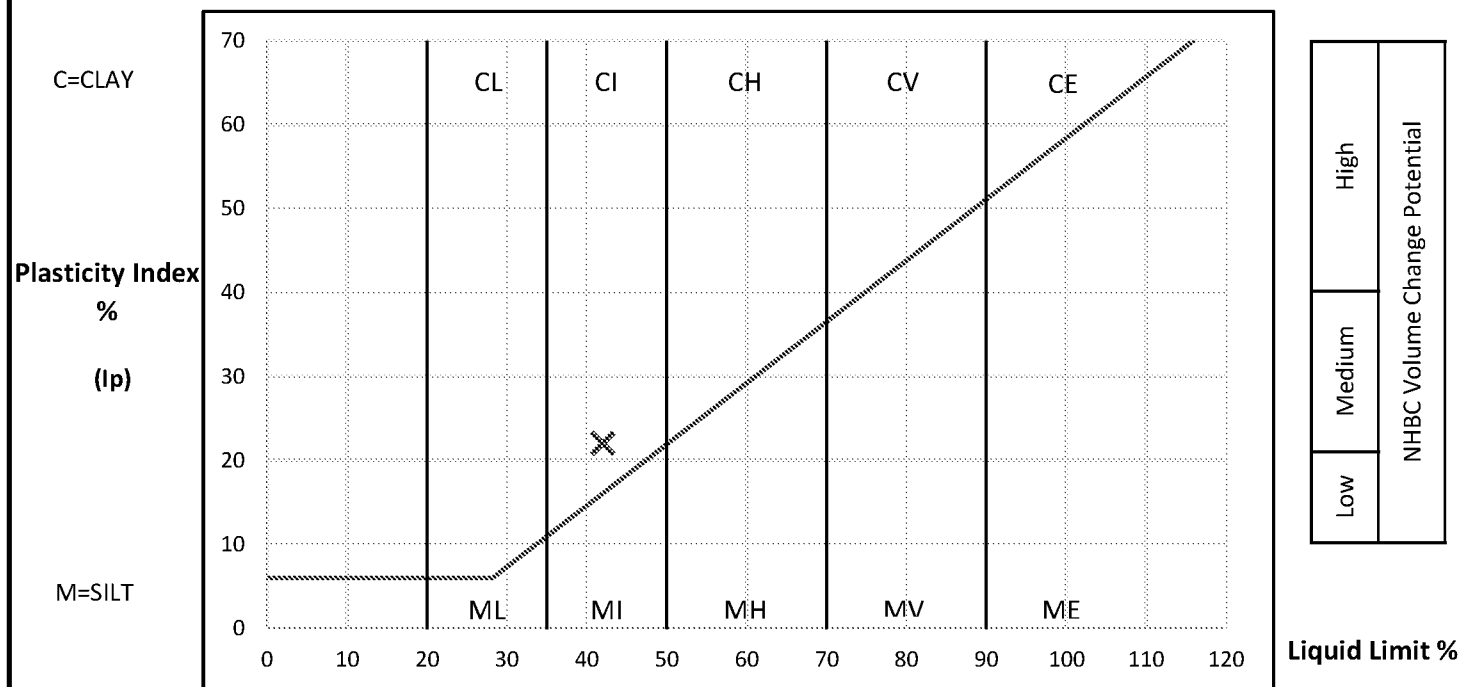
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP09	0.40 - 0.60	B	1	20.7	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

PREPARATION				Liquid Limit	42 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	20 %	
Sample retained 0.425mm sieve		(Measured)	7 %	Plasticity Index	22 %	
Corrected water content for material passing 0.425mm			22.2 %	Liquidity Index	0.03	
Sample retained 2mm sieve		(Measured)		7 %	NHBC Modified (I'p)	20 %
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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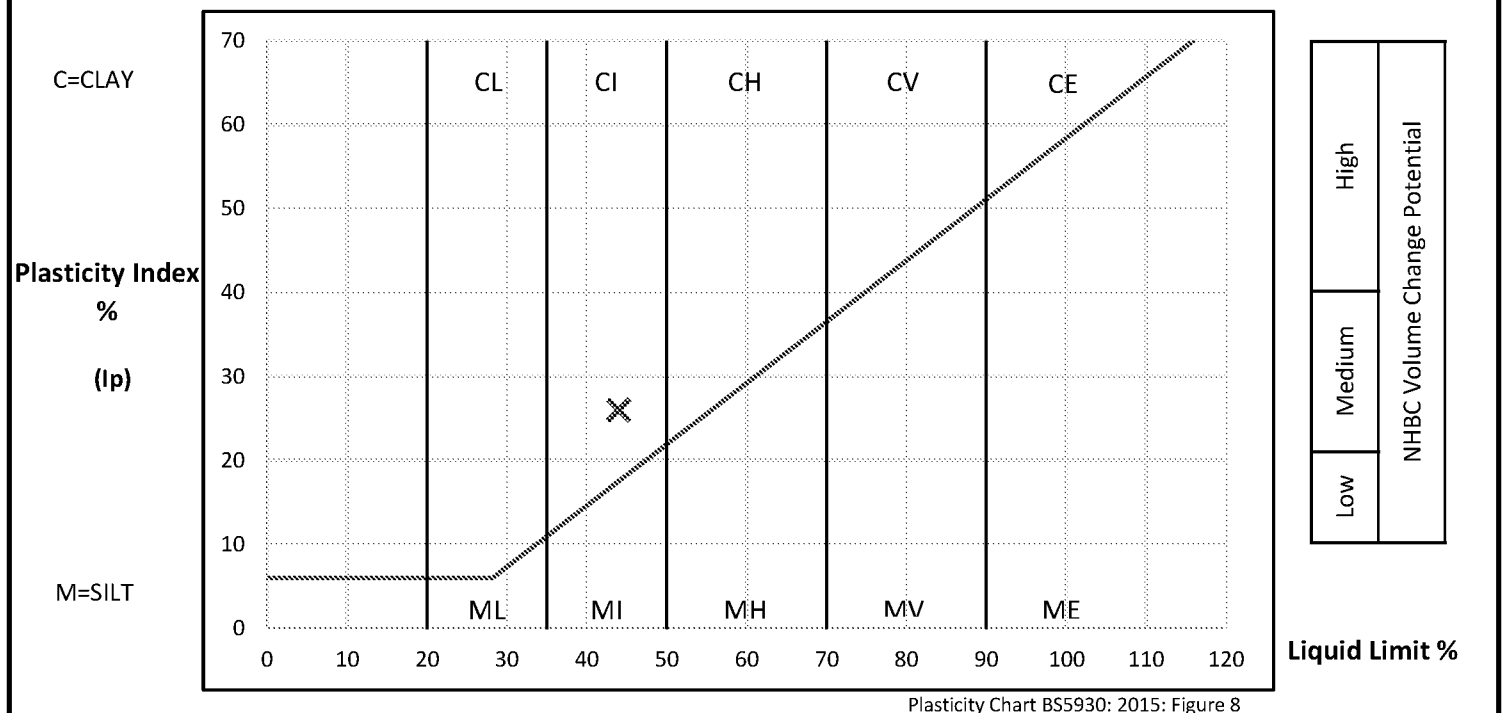
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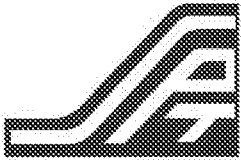
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP10	0.30 - 0.60	B	1	22.0	Firm yellowish brown slightly sandy silty CLAY	

PREPARATION				Liquid Limit	44 %		
Method of preparation		From natural		Plastic Limit	18 %		
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	26 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.15		
Sample retained 2mm sieve		(Assumed)		0 %	NHBC Modified (I'p)	n/a	
Curing time		24 hrs		Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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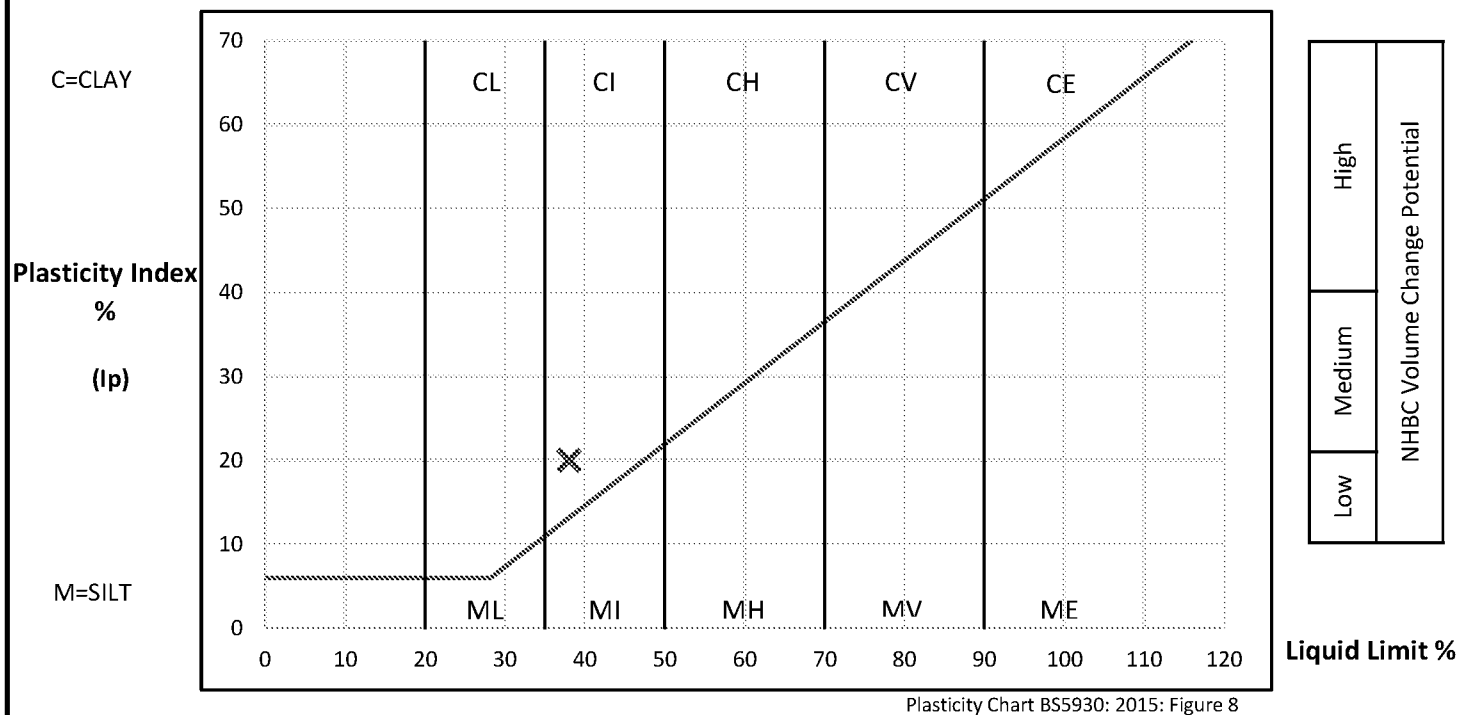
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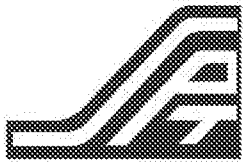
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP11	0.40 - 0.60	B	1	19.2	Stiff yellowish brown silty CLAY	

PREPARATION				Liquid Limit	38 %	
Method of preparation			From natural	Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Assumed)	0 %	Plasticity Index	20 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.06	
Sample retained 2mm sieve		(Assumed)	0 %	NHBC Modified (I'p)	n/a	
Curing time		73 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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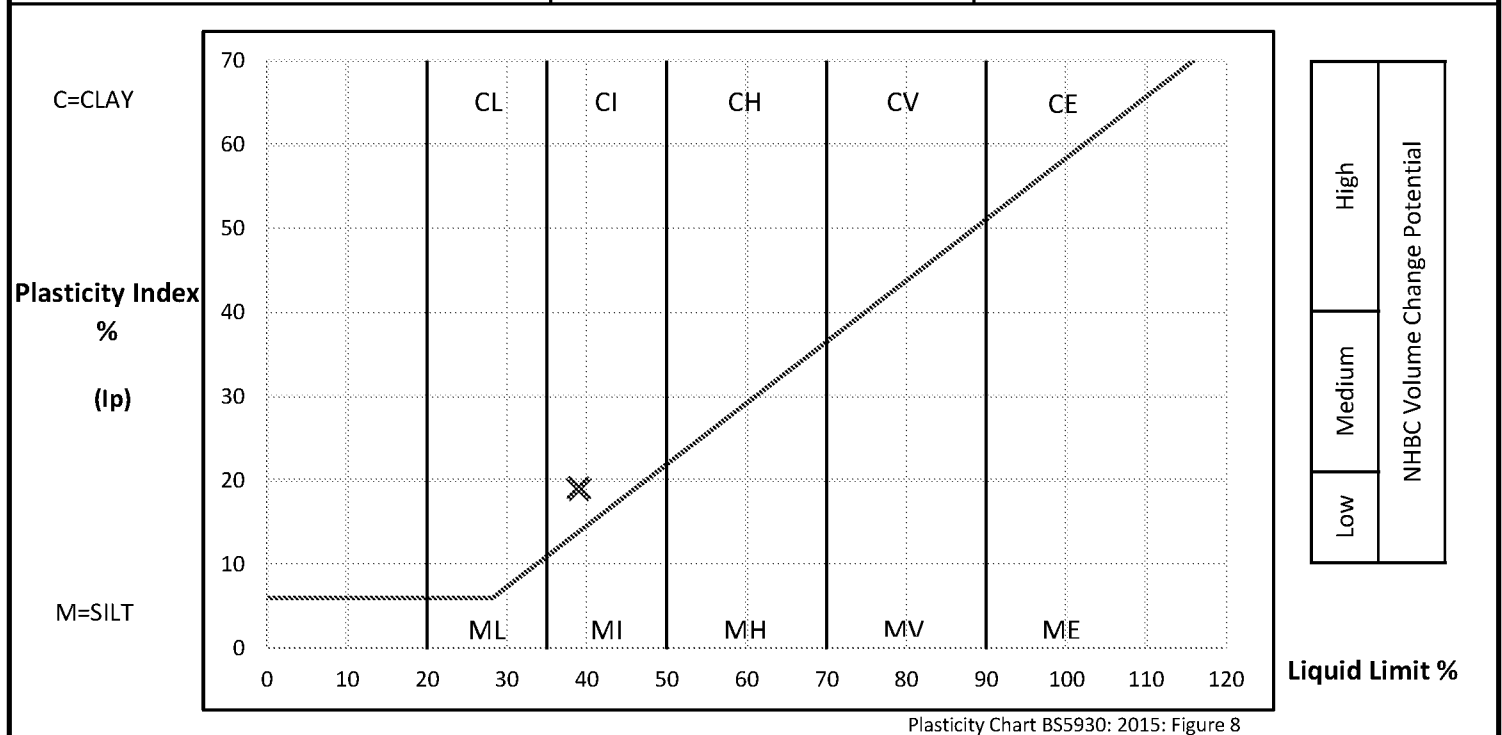
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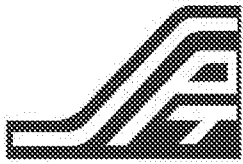
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP12	0.40 - 0.60	B	1	20.4	Stiff yellowish brown slightly sandy silty CLAY	

PREPARATION				Liquid Limit	39 %	
Method of preparation		From natural		Plastic Limit	20 %	
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	19 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.02	
Sample retained 2mm sieve		(Assumed)		0 %	NHBC Modified (I'p)	n/a
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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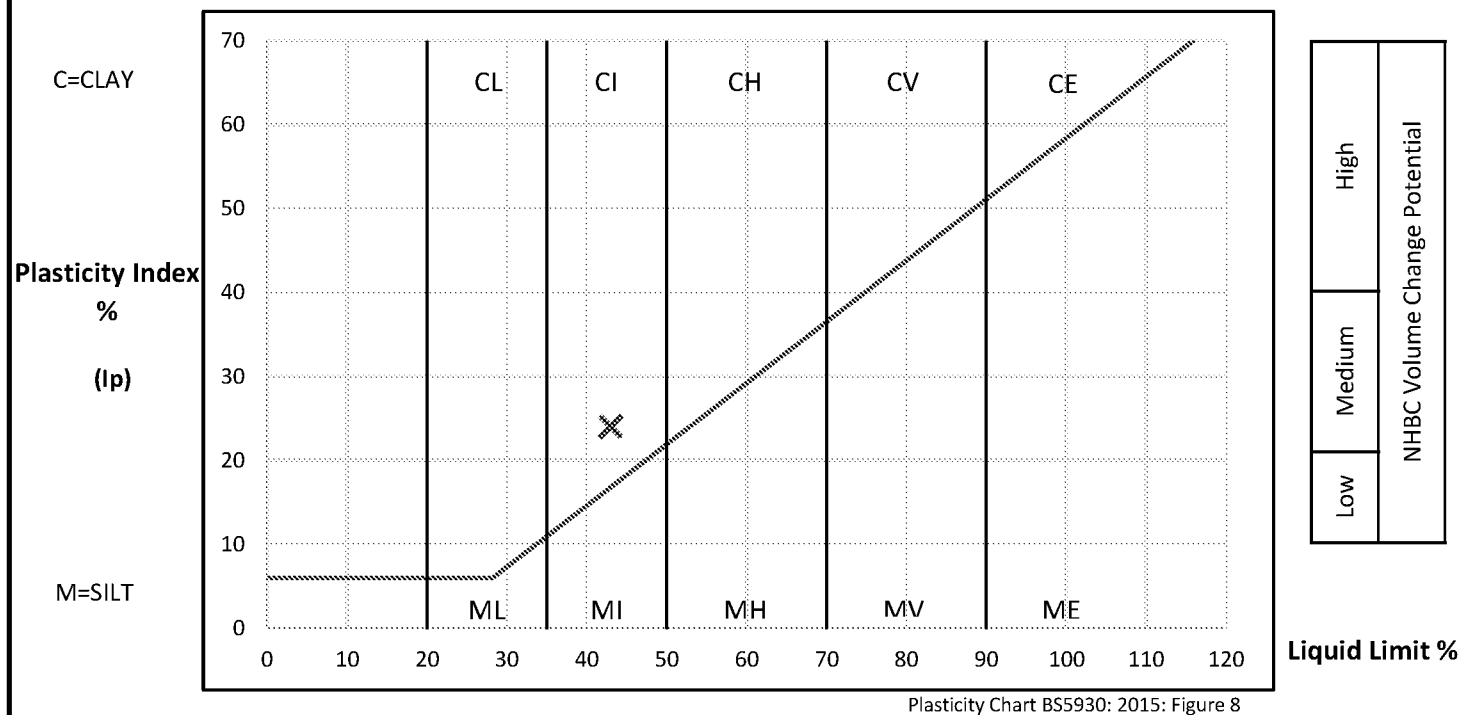
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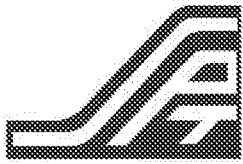
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP13	0.40 - 0.60	B	1	20.5	Stiff yellowish brown silty CLAY with rare recently active roots	

PREPARATION				Liquid Limit	43 %		
Method of preparation		From natural		Plastic Limit	19 %		
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	24 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.06		
Sample retained 2mm sieve		(Assumed)		0 %	NHBC Modified (I'p)	n/a	
Curing time		73 hrs		Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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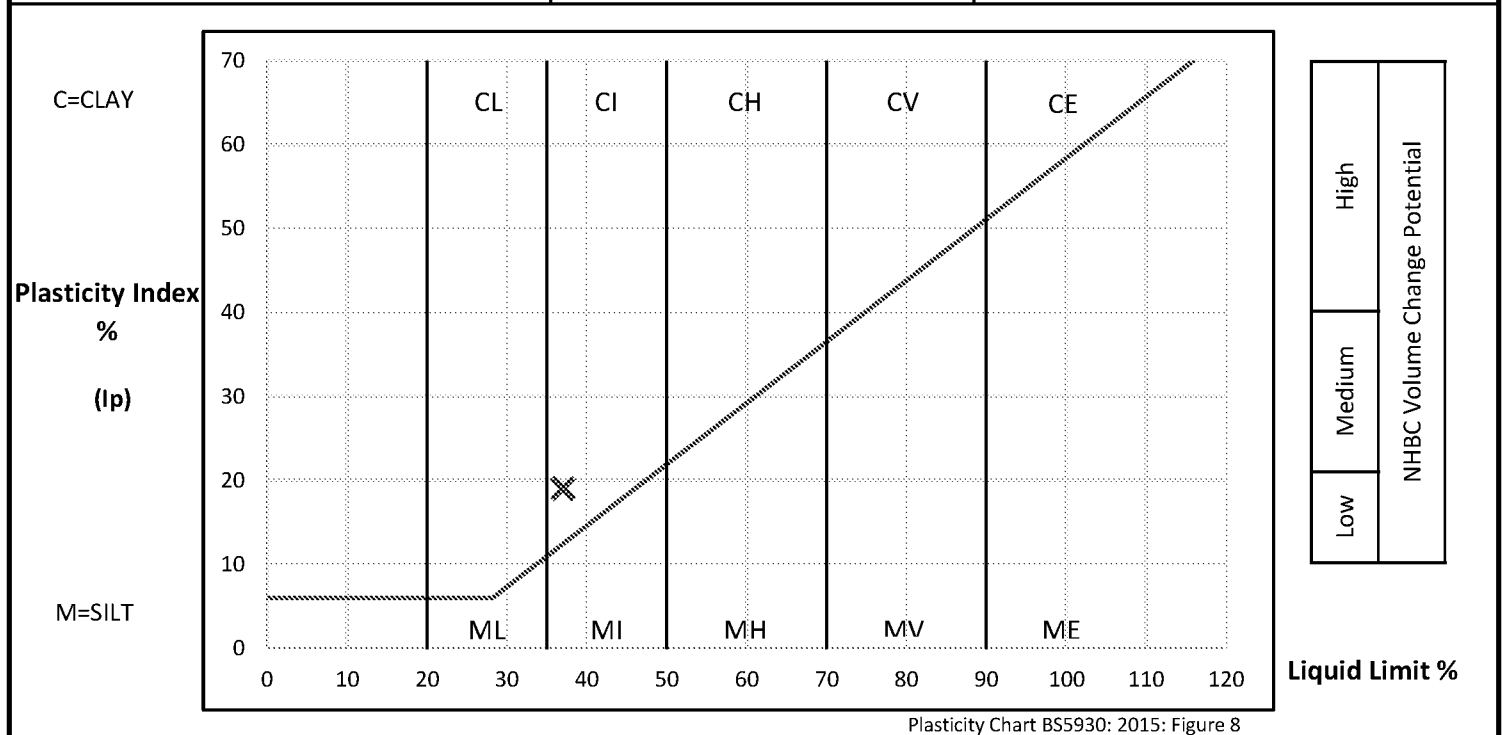
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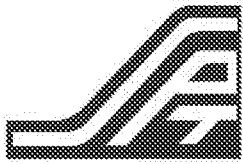
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP14	0.50 - 0.70	B	1	19.5	Stiff yellowish brown silty CLAY	

PREPARATION				Liquid Limit	37 %	
Method of preparation		From natural		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	19 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.08	
Sample retained 2mm sieve		(Assumed)		0 %	NHBC Modified (I'p)	n/a
Curing time		71 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
Comments:



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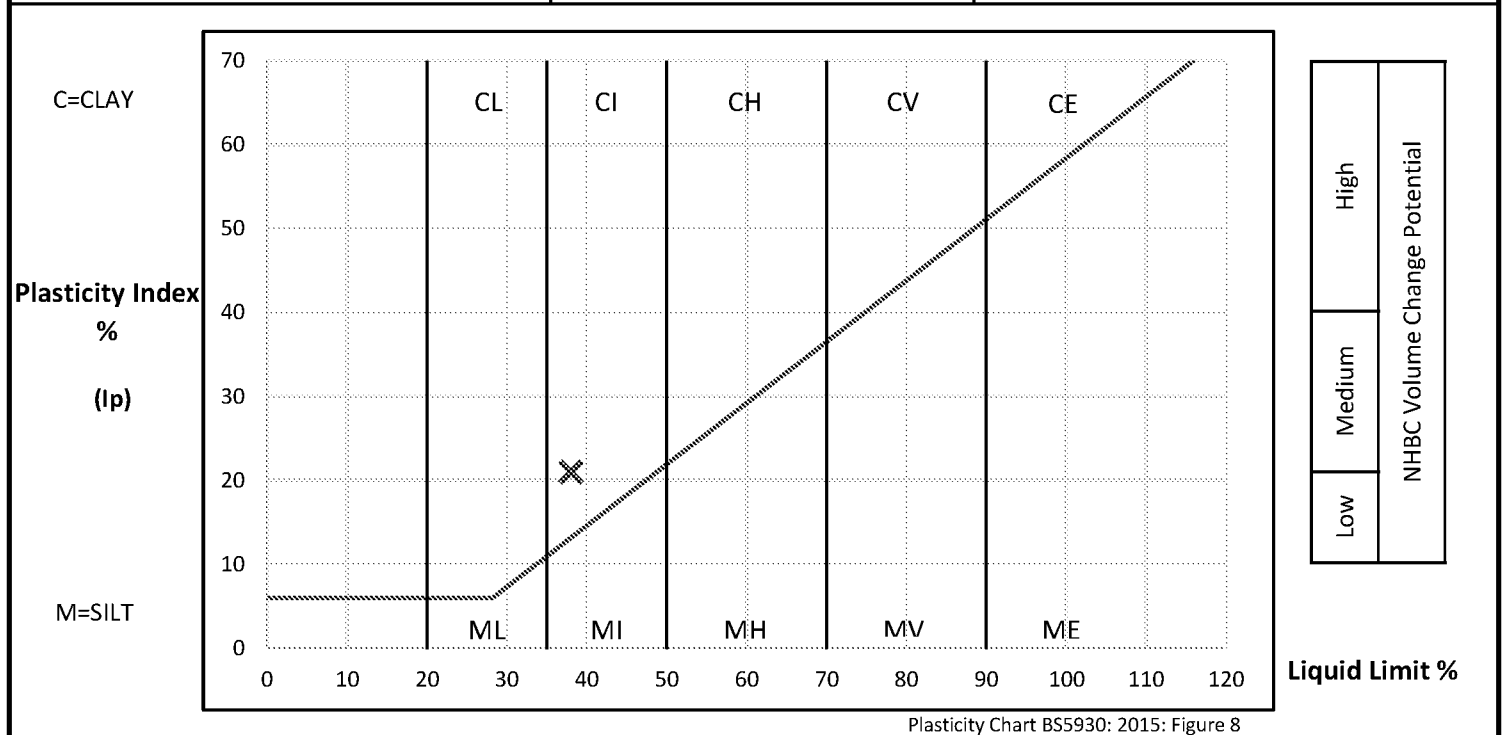
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP15	0.50 - 0.70	B	1	21.2	Firm yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

PREPARATION				Liquid Limit	38 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	17 %	
Sample retained 0.425mm sieve		(Measured)	5 %	Plasticity Index	21 %	
Corrected water content for material passing 0.425mm			22.3 %	Liquidity Index	0.20	
Sample retained 2mm sieve		(Measured)	4 %	NHBC Modified (I'p)	20 %	
Curing time		25 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

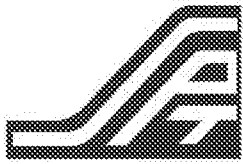


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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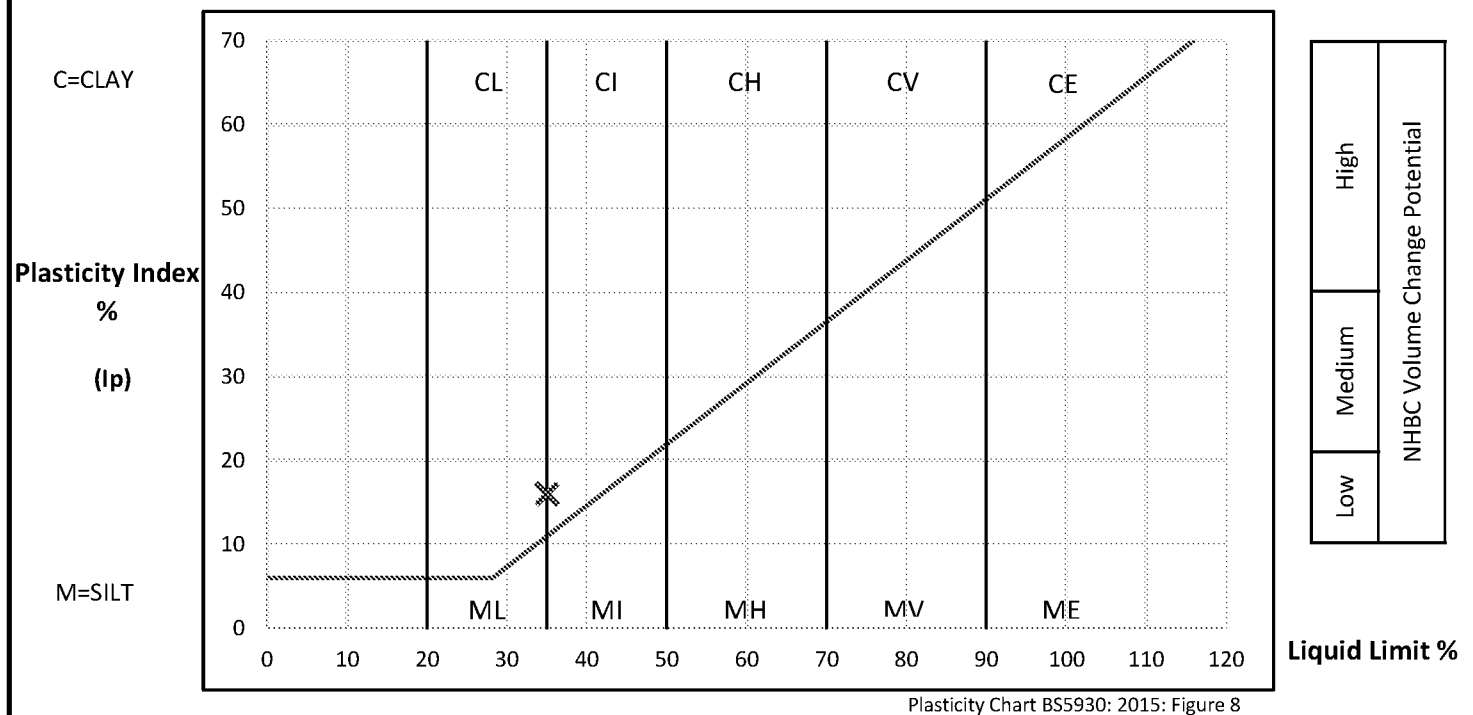
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP16	0.60 - 0.90	B	1	20.2	Firm locally stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium flint	

PREPARATION				Liquid Limit	35 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	19 %	
Sample retained 0.425mm sieve		(Measured)	7 %	Plasticity Index	16 %	
Corrected water content for material passing 0.425mm			21.8 %	Liquidity Index	0.08	
Sample retained 2mm sieve		(Measured)		5 %	NHBC Modified (I'p)	15 %
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

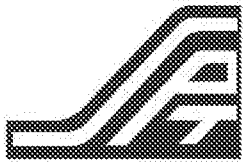


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



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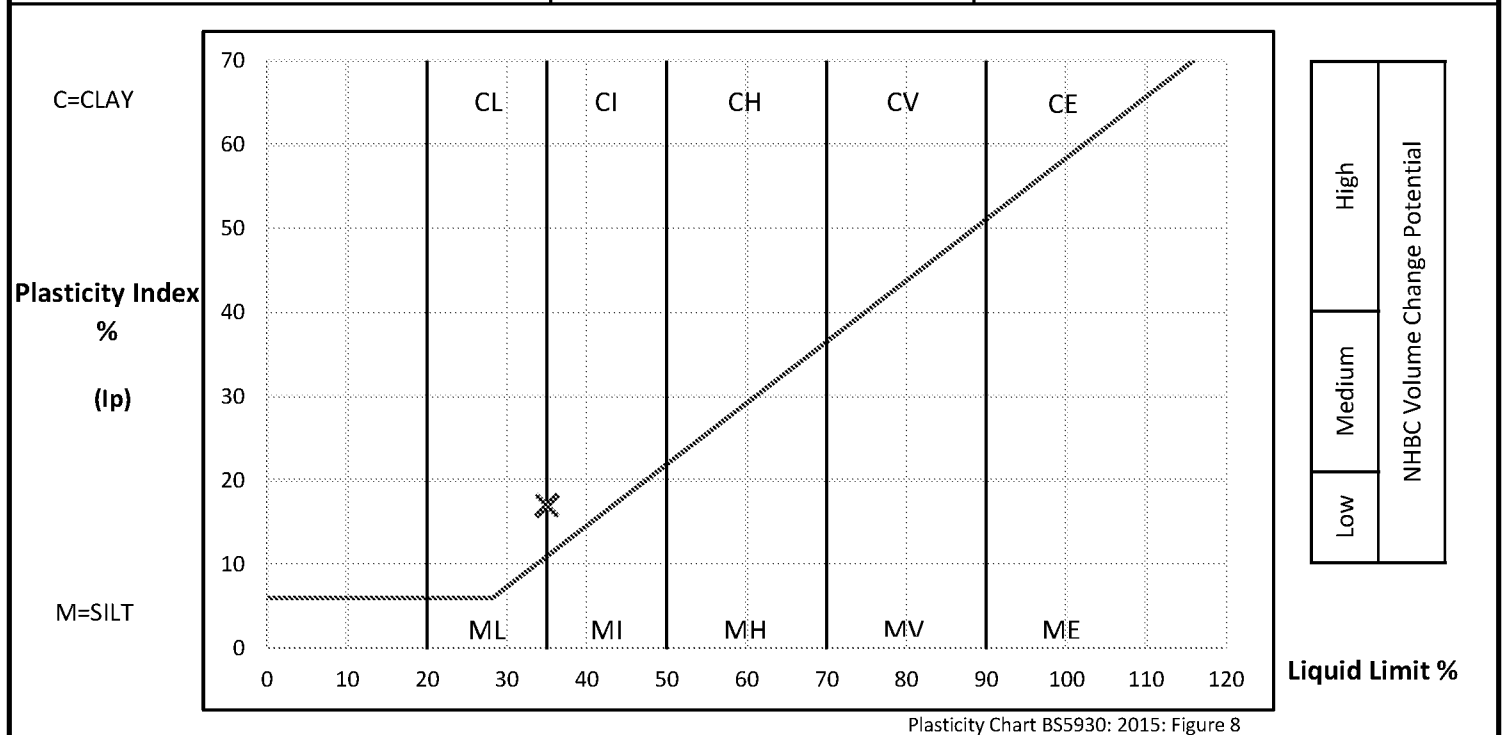
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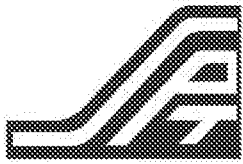
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP17	0.40 - 0.60	B	1	20.5	Soft yellowish brown silty CLAY with rare fine flint gravel	

PREPARATION				Liquid Limit	35 %	
Method of preparation		From natural/gravel picked out by hand		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Assumed)	0 %	Plasticity Index	17 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.14	
Sample retained 2mm sieve		(Assumed)	<1 %	NHBC Modified (I'p)	n/a	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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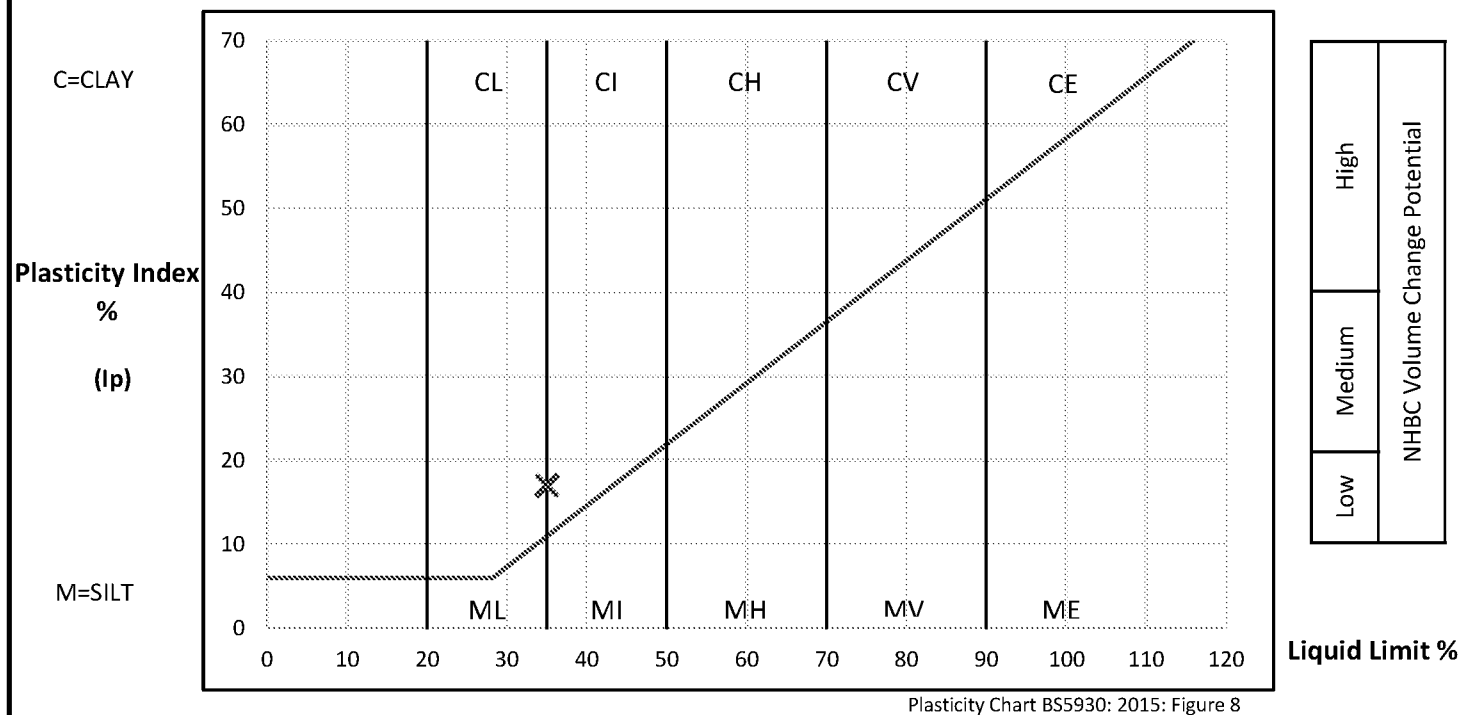
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP18	0.30 - 0.60	B	1	20.7	Firm yellowish brown slightly gravelly slightly sandy silty CLAY	

PREPARATION				Liquid Limit	35 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	18 %	
Sample retained 0.425mm sieve		(Measured)	4 %	Plasticity Index	17 %	
Corrected water content for material passing 0.425mm			21.6 %	Liquidity Index	0.16	
Sample retained 2mm sieve		(Measured)		4 %	NHBC Modified (I'p)	16 %
Curing time		26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

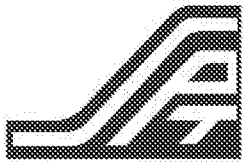


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



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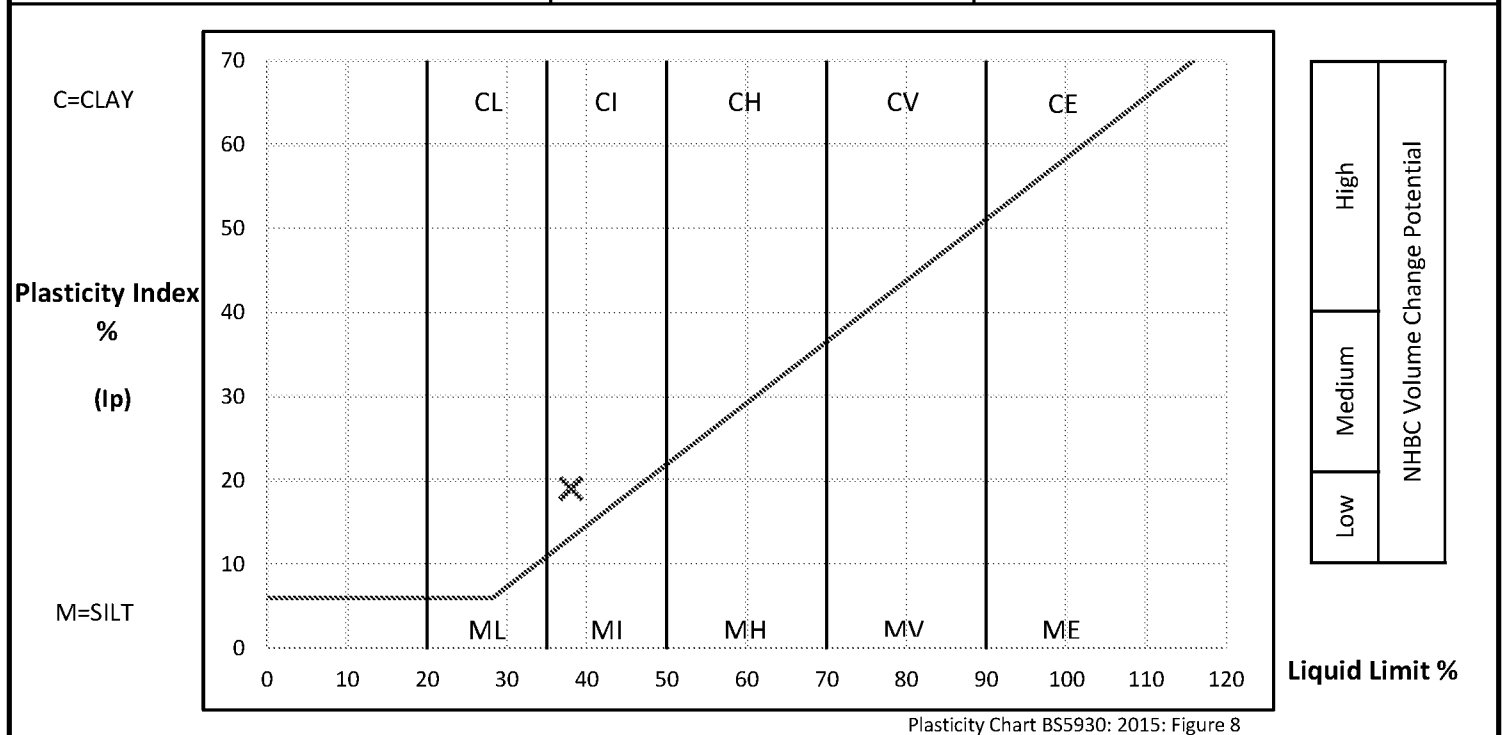
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Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

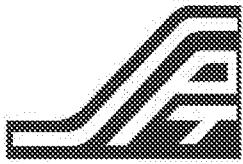
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP19	0.40 - 0.60	B	1	20.5	Stiff yellowish brown silty CLAY	

PREPARATION				Liquid Limit	38 %	
Method of preparation		From natural		Plastic Limit	19 %	
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	19 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.08	
Sample retained 2mm sieve		(Assumed)		0 %	NHBC Modified (I'p)	n/a
Curing time		71 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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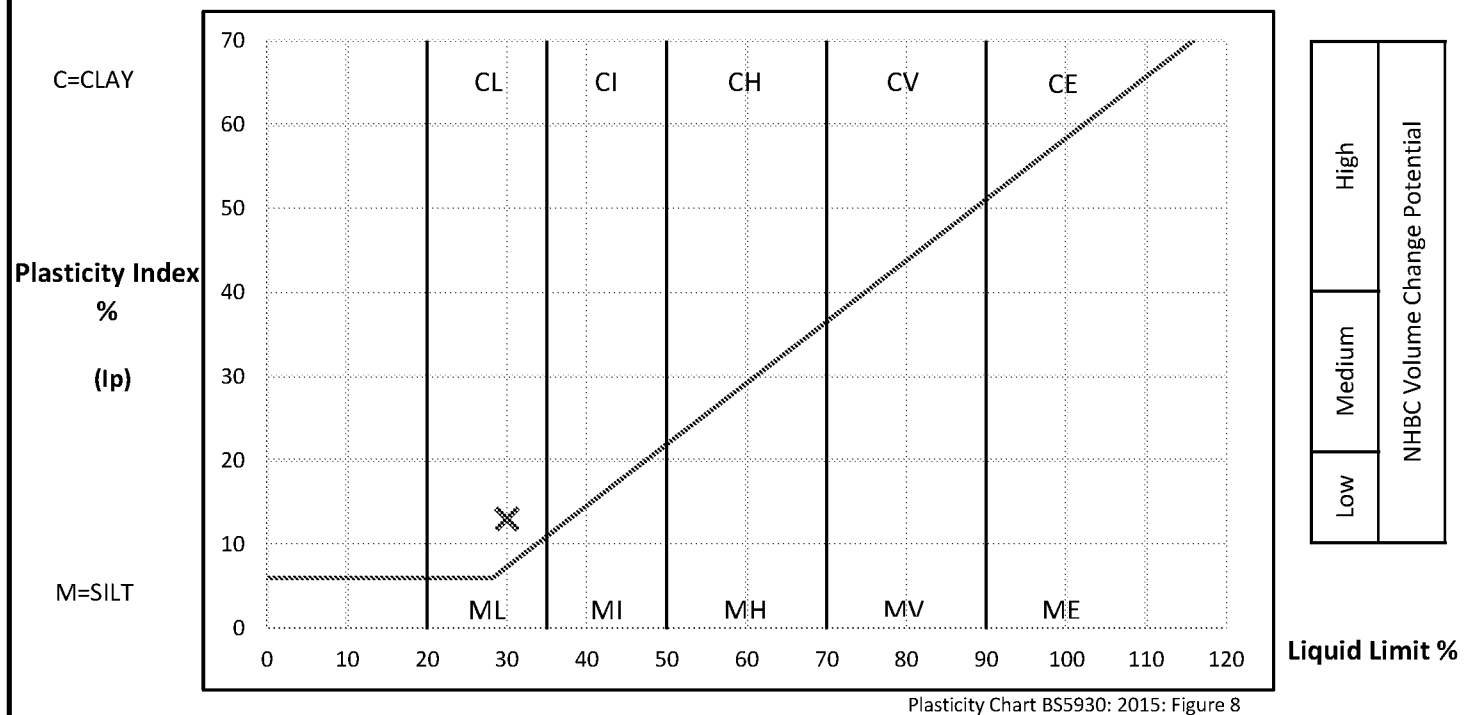
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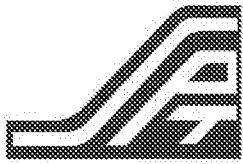
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP20	0.30 - 0.50	B	1	12.4	Hard brown sandy silty CLAY with occasional recently active roots and rare fine and medium flint	

PREPARATION				Liquid Limit	30 %	
Method of preparation		From natural/gravel picked out by hand		Plastic Limit	17 %	
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	13 %
Corrected water content for material passing 0.425mm				Liquidity Index	-0.36	
Sample retained 2mm sieve		(Assumed)		<1 %	NHBC Modified (I'p)	n/a
Curing time		72 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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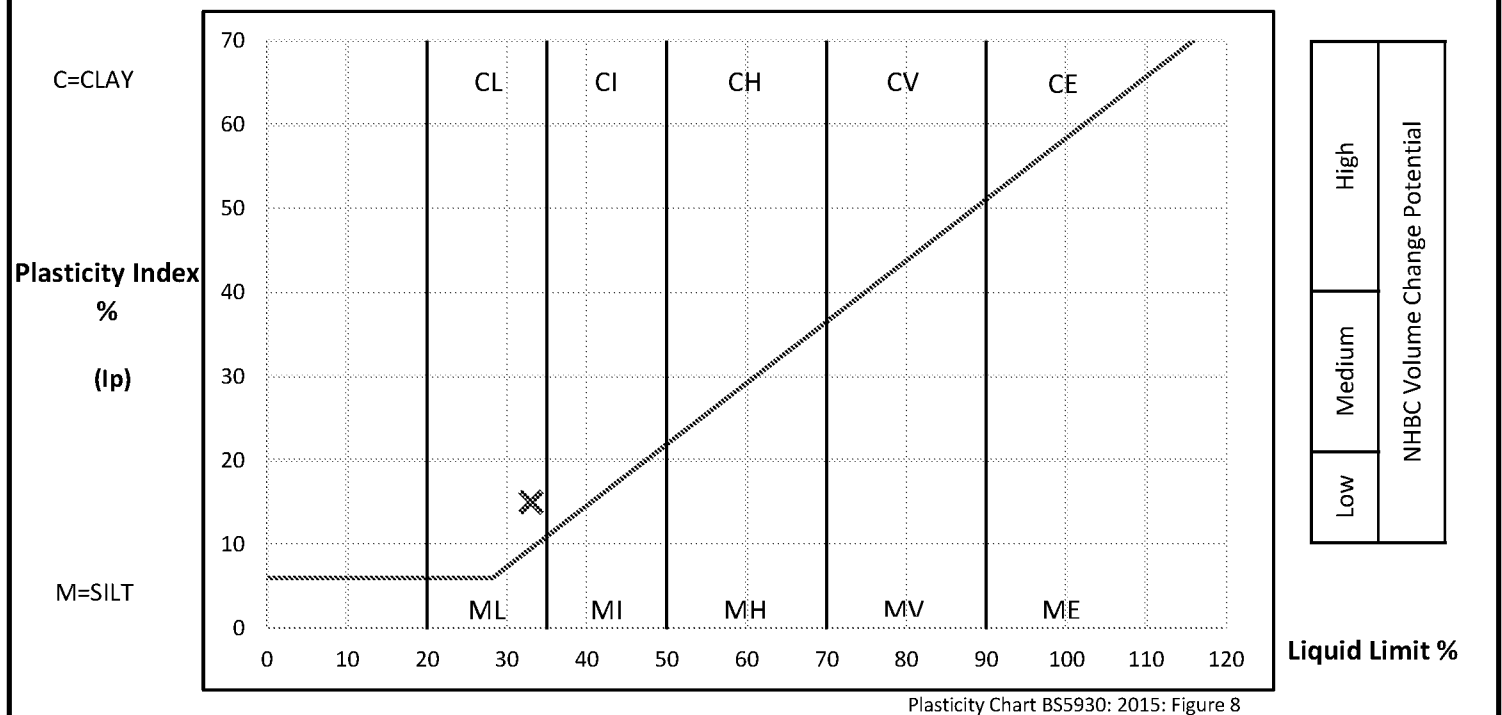
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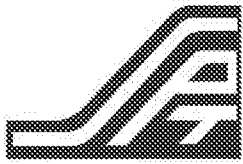
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP21	0.40 - 0.60	B	1	11.6	Hard brown sandy silty CLAY with occasional recently active roots and rare fine and medium flint	

PREPARATION				Liquid Limit	33 %
Method of preparation				From natural/gravel picked out by hand	Plastic Limit 18 %
Sample retained 0.425mm sieve				(Assumed) 0 %	Plasticity Index 15 %
Corrected water content for material passing 0.425mm					Liquidity Index -0.43
Sample retained 2mm sieve				(Assumed) <1 %	NHBC Modified (I'p) n/a
Curing time		72 hrs		Clay Content	Not analysed
				Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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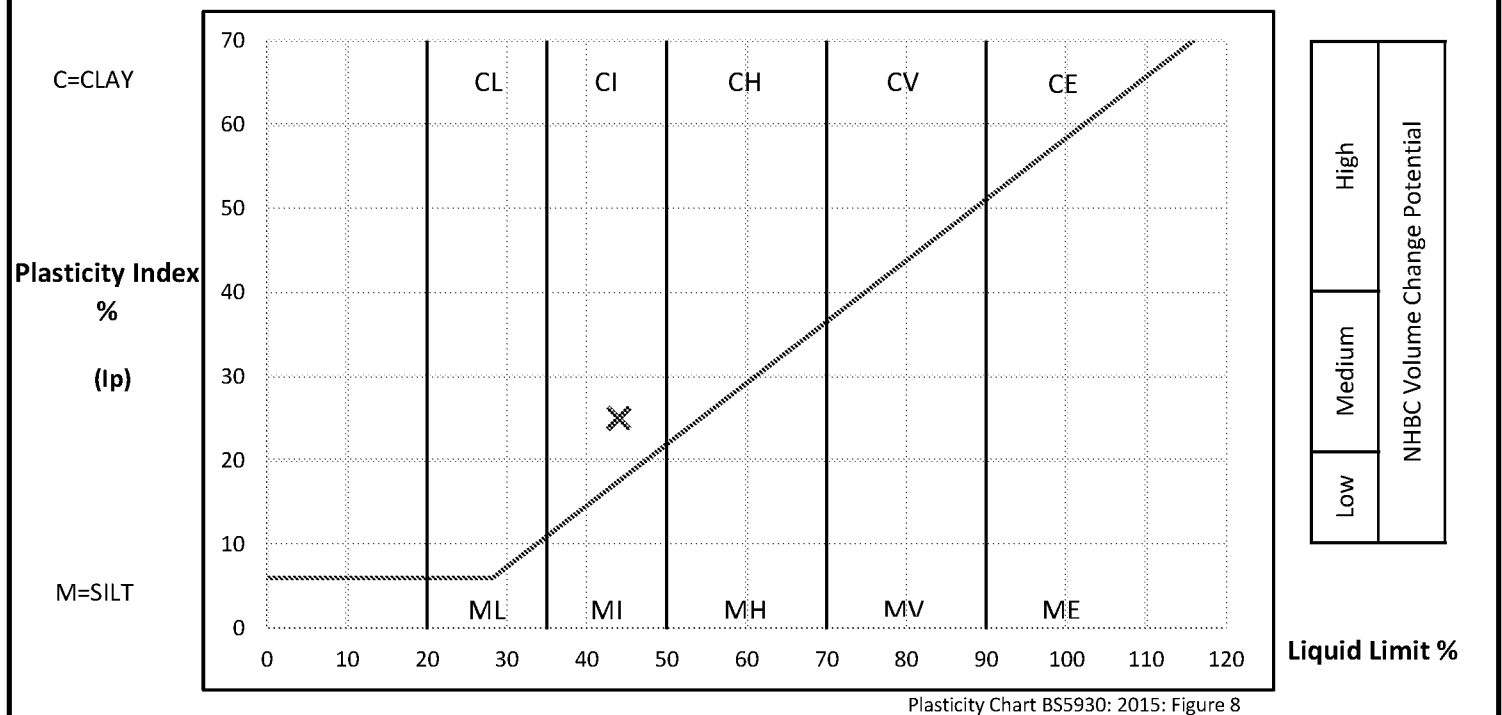
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
TP22	0.40 - 0.60	B	1	20.5	Firm yellowish brown silty CLAY with rare fine and medium flint gravel	

PREPARATION				Liquid Limit	44 %	
Method of preparation		From natural/gravel picked out by hand		Plastic Limit	19 %	
Sample retained 0.425mm sieve		(Assumed)	0 %	Plasticity Index	25 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.06	
Sample retained 2mm sieve		(Assumed)	<1 %	NHBC Modified (I'p)	n/a	
Curing time		73 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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LABORATORY CALIFORNIA BEARING RATIO TESTS ADJUSTED FOR SEASONAL WATER CONTENT CHANGES

Due to seasonal variations of water content in near surface soils, many clients require CBR test samples to be subjected to sample preparation in the laboratory before testing. With Clay soils, liquid and plastic limits and water contents are carried out to classify them on material passing 20mm. The plastic limit is then compared against the water content with due regard to the proportion of material then retained on a 0.425mm sieve. If the water content is already 2% or more above the plastic limit, compaction may take place immediately. If this is not the case a calculated amount of water is added to the sample and cured for 24 hours before compaction. The samples are then cured for a further 24 hours before CBR tests are carried out at both the top and bottom of the sample.

Calculation of Adjusted Water Content for CBR testing

When a significant proportion of a basically clay material is >0.425mm, the adjusted water content (WC) for test shall be derived as follows:

Obtain test specimens for CBR, Limits and Water Content from Material Passing 20mm. (If the sample is large enough a water content may also be carried out on a representative portion of the whole sample including material greater than 20mm, and reported for information)

The Plastic Limit (PL) for the fine fraction is obtained by testing material passing the 0.425mm sieve. A notional 5% Water Content is to be allowed for material passing 20mm, and retained on the 0.425mm sieve. The proportion passing the 0.425mm is obtained by the wet sieve preparation method.

If X% passes 0.425mm, (100-X) % is retained on 0.425mm and with the 5% WC required to be incorporated for the retained 0.425mm portion, the adjusted WC for test shall be at least:

$$\frac{X(PL+2) + (100-X)5}{100} \% \quad \text{for the sample passing 20mm}$$

BH/ TP No.	Depth (m)	Type	Reference	WC as received* (%)	Plastic Limit (%)	Passing 0.425mm (%)	>20mm excluded (%)	WC req. for CBR (%)	WC after CBR Test (%)	Remarks
TP03	0.40 - 0.60	B	1	21.6	18	93	7.0	19.0	21.7	WC not adjusted
TP04	0.40 - 0.60	B	1	19.2	18	100		20.0	19.2	WC not adjusted
TP05	0.30 - 0.60	B	1	23.1	18	100		20.0	23.1	WC not adjusted
TP06	0.30 - 0.60	B	1	20.2	18	94	2.6	19.1	20.2	WC not adjusted
TP07	0.40 - 0.60	B	1	21.2	18	92	7.3	18.8	21.3	WC not adjusted
TP08	0.35 - 0.60	B	1	22.5	19	91	4.3	19.6	22.5	WC not adjusted
TP09	0.40 - 0.60	B	1	20.7	20	93	1.8	20.8	20.7	WC not adjusted
TP10	0.30 - 0.60	B	1	22.0	18	100		20.0	22.0	WC not adjusted
TP11	0.40 - 0.60	B	1	19.2	18	100		20.0	20.7	WC adjusted
TP12	0.40 - 0.60	B	1	20.4	20	100		22.0	22.3	WC adjusted

* Water content excluding material +20mm



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LABORATORY CALIFORNIA BEARING RATIO TESTS ADJUSTED FOR SEASONAL WATER CONTENT CHANGES

Due to seasonal variations of water content in near surface soils, many clients require CBR test samples to be subjected to sample preparation in the laboratory before testing. With Clay soils, liquid and plastic limits and water contents are carried out to classify them on material passing 20mm. The plastic limit is then compared against the water content with due regard to the proportion of material then retained on a 0.425mm sieve. If the water content is already 2% or more above the plastic limit, compaction may take place immediately. If this is not the case a calculated amount of water is added to the sample and cured for 24 hours before compaction. The samples are then cured for a further 24 hours before CBR tests are carried out at both the top and bottom of the sample.

Calculation of Adjusted Water Content for CBR testing

When a significant proportion of a basically clay material is >0.425mm, the adjusted water content (WC) for test shall be derived as follows:

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The Plastic Limit (PL) for the fine fraction is obtained by testing material passing the 0.425mm sieve. A notional 5% Water Content is to be allowed for material passing 20mm, and retained on the 0.425mm sieve. The proportion passing the 0.425mm is obtained by the wet sieve preparation method.

If X% passes 0.425mm, (100-X) % is retained on 0.425mm and with the 5% WC required to be incorporated for the retained 0.425mm portion, the adjusted WC for test shall be at least:

$$\frac{X(PL+2) + (100-X)5}{100} \% \quad \text{for the sample passing 20mm}$$

BH/ TP No.	Depth (m)	Type	Reference	WC as received* (%)	Plastic Limit (%)	Passing 0.425mm (%)	>20mm excluded (%)	WC req. for CBR (%)	WC after CBR Test (%)	Remarks
TP13	0.40 - 0.60	B	1	20.5	19	100		21.0	20.4	WC adjusted
TP14	0.50 - 0.70	B	1	19.5	18	100	1.4	20.0	20.0	WC adjusted
TP15	0.50 - 0.70	B	1	21.2	17	95	1.4	18.3	21.2	WC not adjusted
TP16	0.60 - 0.90	B	1	20.2	19	93		19.9	19.9	WC not adjusted
TP17	0.40 - 0.60	B	1	20.5	18	100		20.0	20.5	WC not adjusted
TP18	0.30 - 0.60	B	1	20.7	18	96		19.4	20.7	WC not adjusted
TP19	0.40 - 0.60	B	1	20.5	19	100		21.0	20.5	WC adjusted
TP20	0.30 - 0.50	B	1	12.4	17	100		19.0	19.4	WC adjusted
TP21	0.40 - 0.60	B	1	11.6	18	100		20.0	19.7	WC adjusted
TP22	0.40 - 0.60	B	1	20.5	19	100		21.0	21.7	WC adjusted

* Water content excluding material +20mm



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP03	0.40 - 0.60	B	1	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY with rare recently active roots. Gravel is fine to coarse flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	7.0	%
Initial Specimen Details:	Bulk Density	2.03 Mg/m ³
	Dry Density	1.67 Mg/m ³

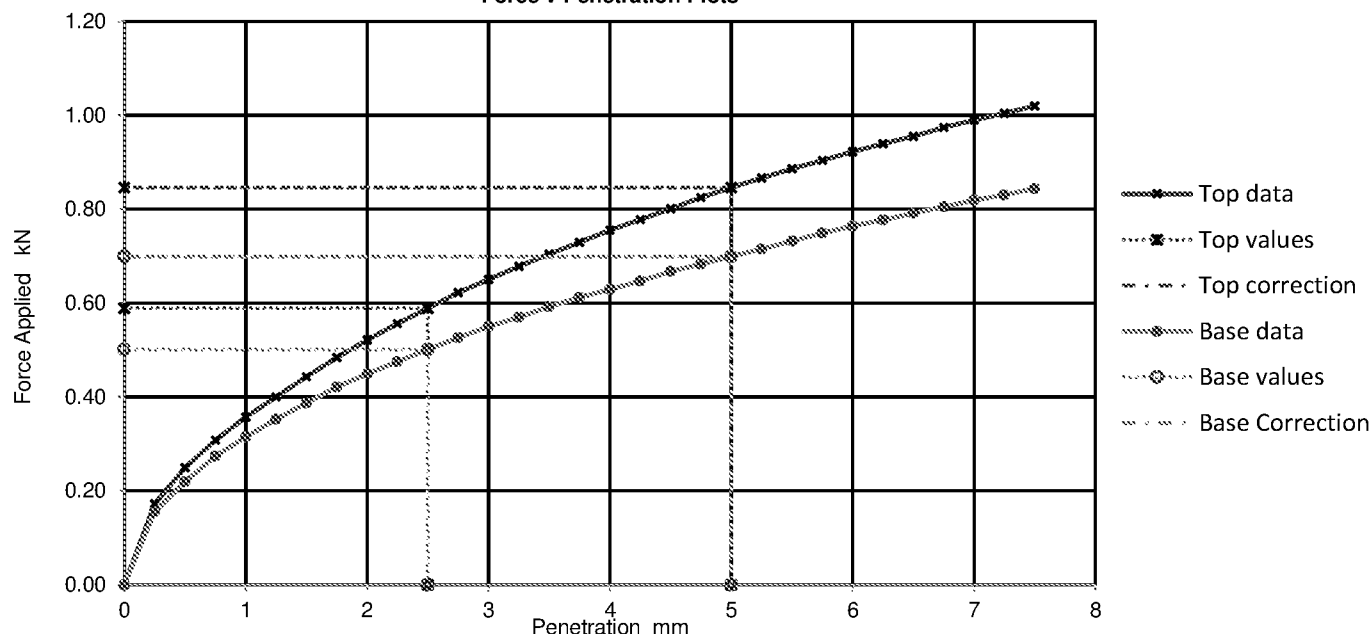
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	4.5	4.2	4.5	4.2
BASE	No	3.8	3.5	3.8	

Water Content (%)
21.5
21.8

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP04	0.40 - 0.60	B	1	Soft brown sandy silty CLAY with rare fine and medium flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.04 Mg/m ³
	Dry Density	1.71 Mg/m ³

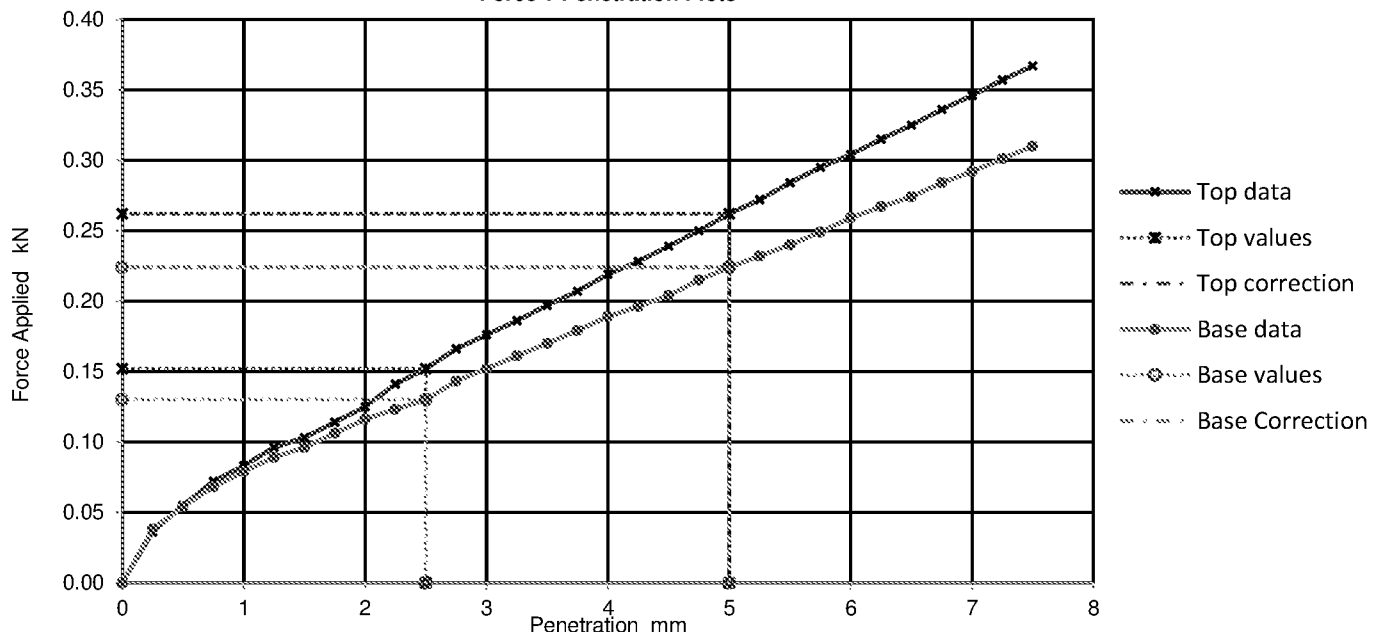
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.2	1.3	1.3	1.2
BASE	No	1.0	1.1	1.1	

Water Content (%)
19.2
19.1

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP05	0.30 - 0.60	B	1	Stiff yellowish brown slightly sandy silty CLAY with rare fine and medium flint gravel	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.01 Mg/m ³
	Dry Density	1.63 Mg/m ³

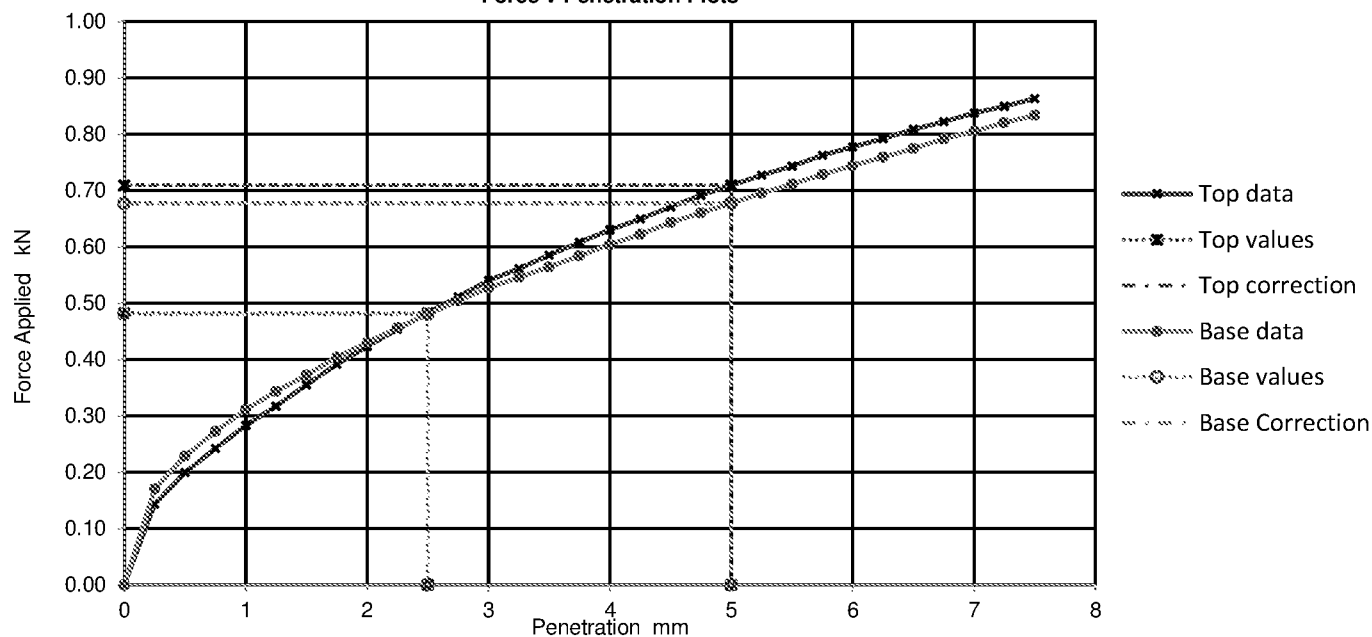
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.7	3.5	3.7	3.7
BASE	No	3.6	3.4	3.6	

Water Content (%)
23.3
22.8

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP06	0.30 - 0.60	B	1	Firm yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	2.6	%
Initial Specimen Details:	Bulk Density	2.02 Mg/m ³
	Dry Density	1.68 Mg/m ³

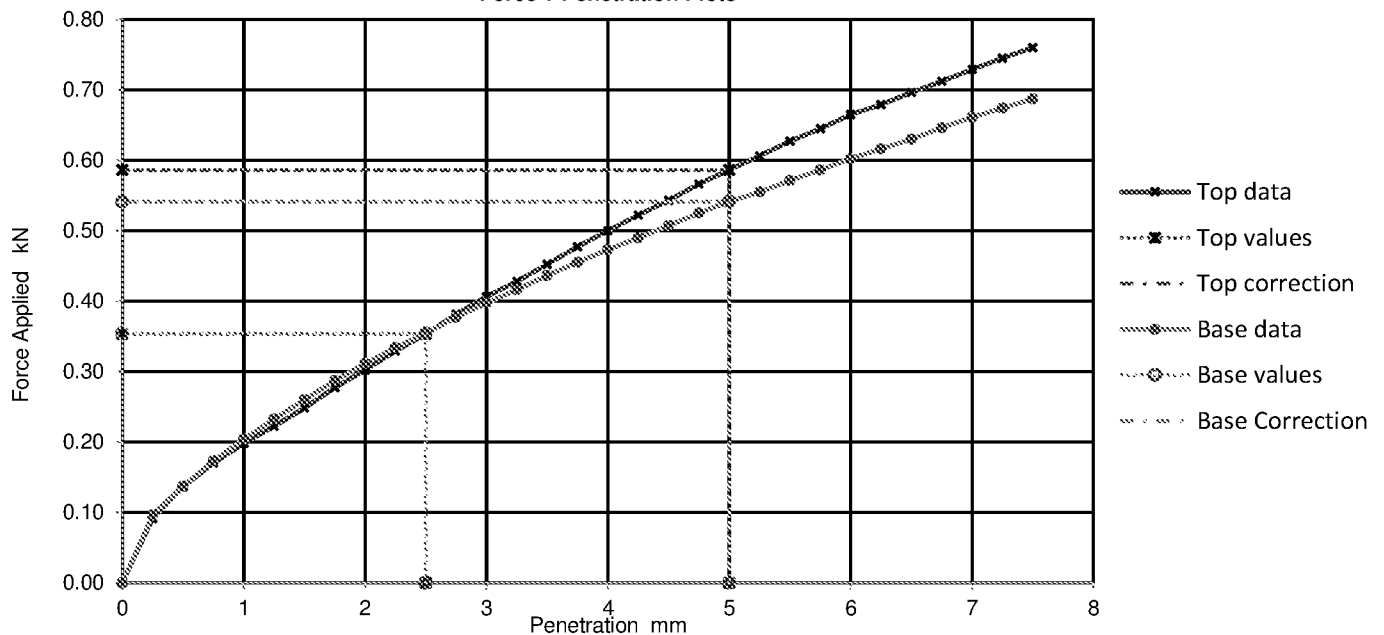
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	2.7	2.9	2.9	2.8
BASE	No	2.7	2.7	2.7	

Water Content (%)
20.3
20.1

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP07	0.40 - 0.60	B	1	Firm locally stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	7.3	%
Initial Specimen Details:	Bulk Density	2.02 Mg/m ³
	Dry Density	1.67 Mg/m ³

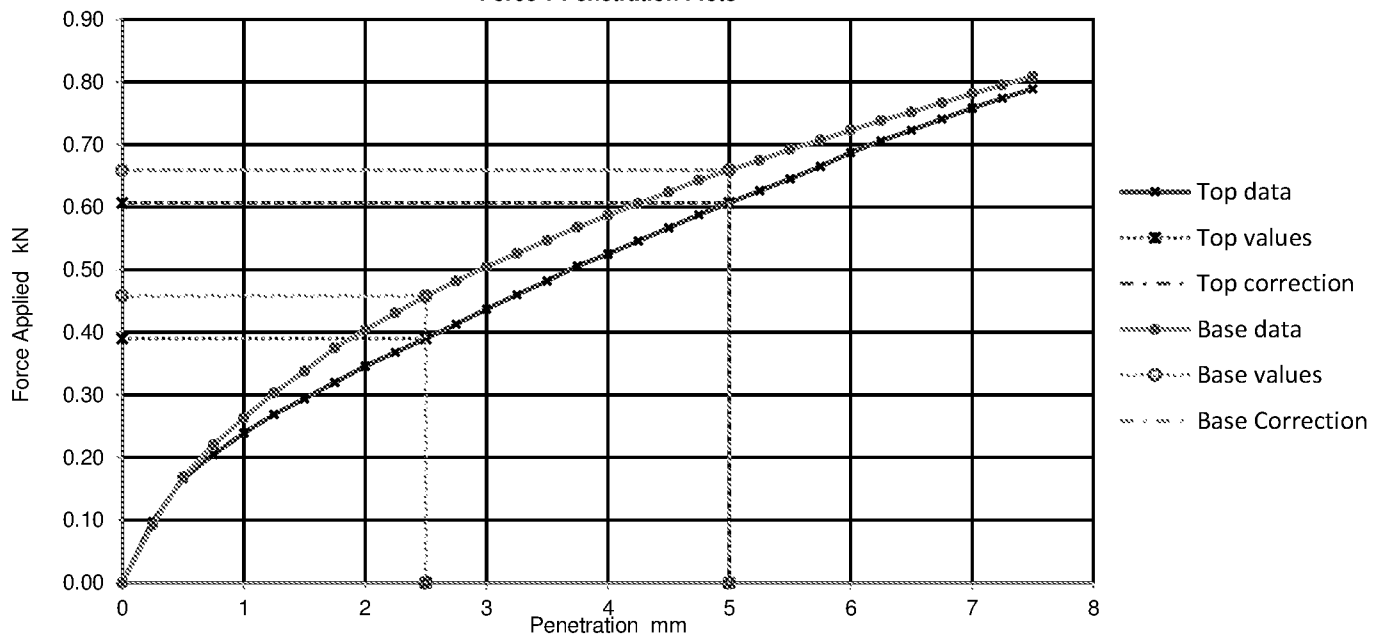
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.0	3.0	3.0	3.3
BASE	No	3.5	3.3	3.5	

Water Content (%)
21.3
21.2

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP08	0.35 - 0.60	B	1	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse chalk and flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	4.3	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.63 Mg/m ³

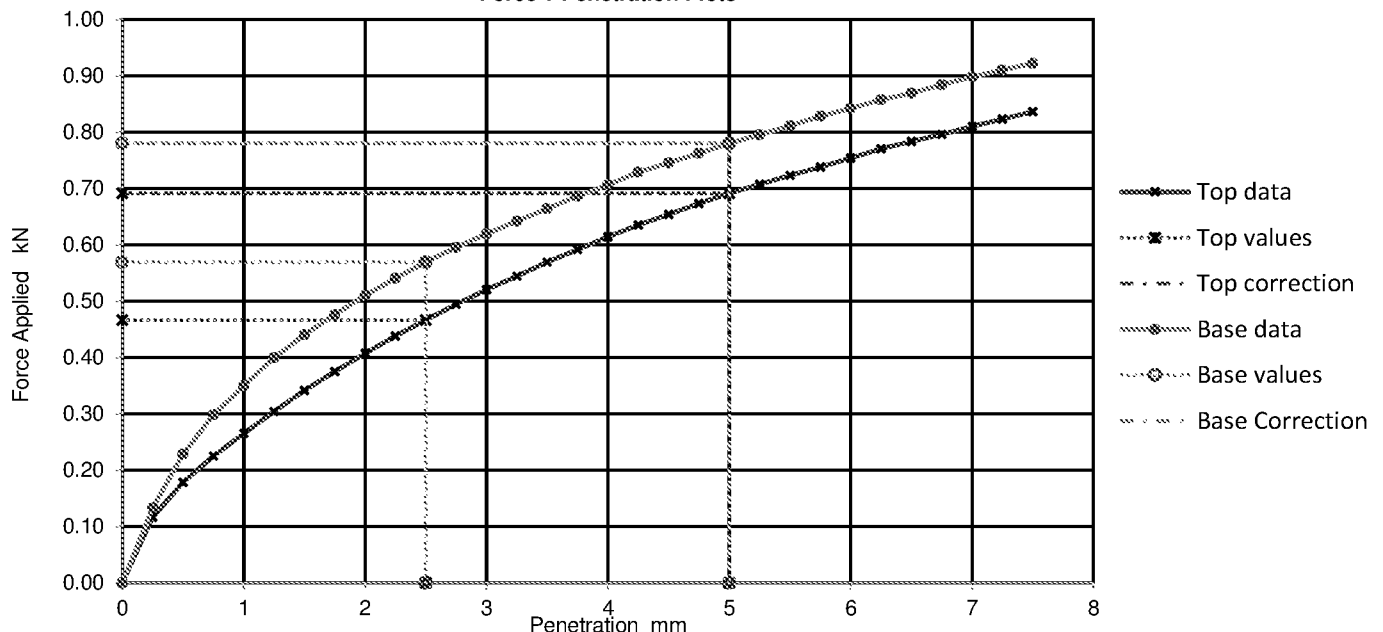
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.5	3.5	3.5	
BASE	No	4.3	3.9	4.3	

Water Content (%)
22.5
22.4

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 03/12/2018



0998

Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP09	0.40 - 0.60	B	1	Stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	1.8	%
Initial Specimen Details:	Bulk Density	2.02 Mg/m ³
	Dry Density	1.67 Mg/m ³

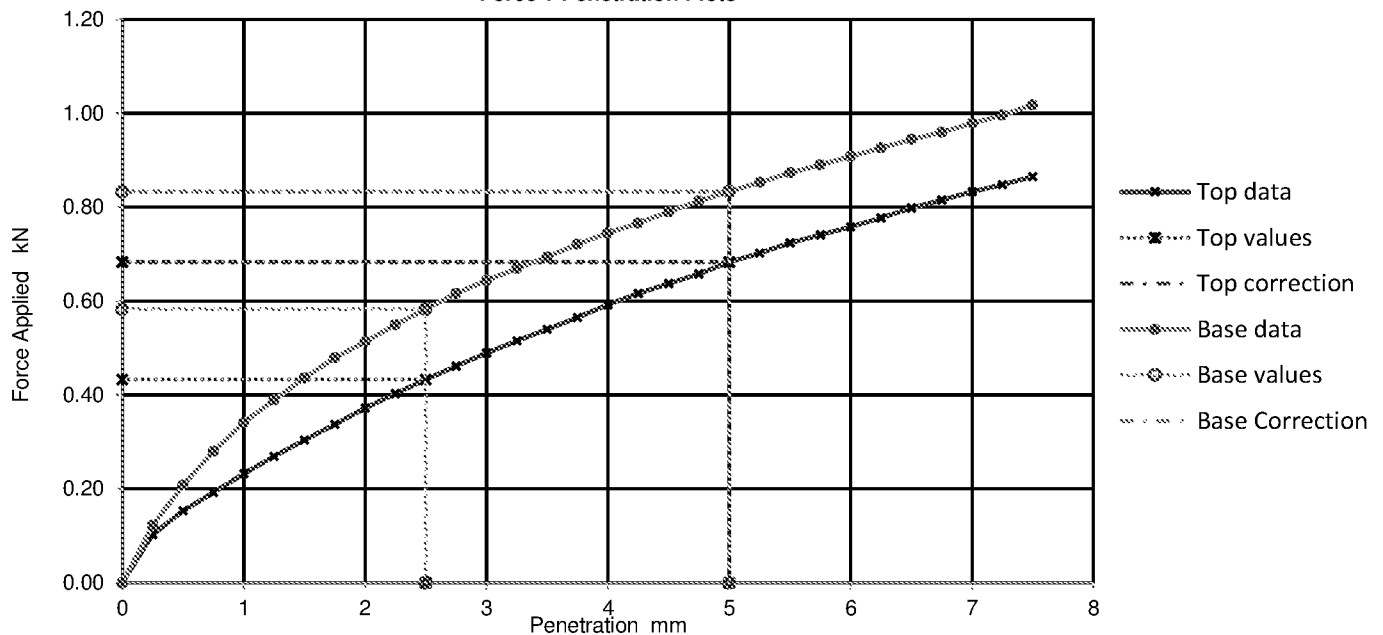
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	3.3	3.4	3.4	
BASE	No	4.4	4.2	4.4	

Water Content (%)
20.5
20.9

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP10	0.30 - 0.60	B	1	Firm yellowish brown slightly sandy silty CLAY	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.64 Mg/m ³

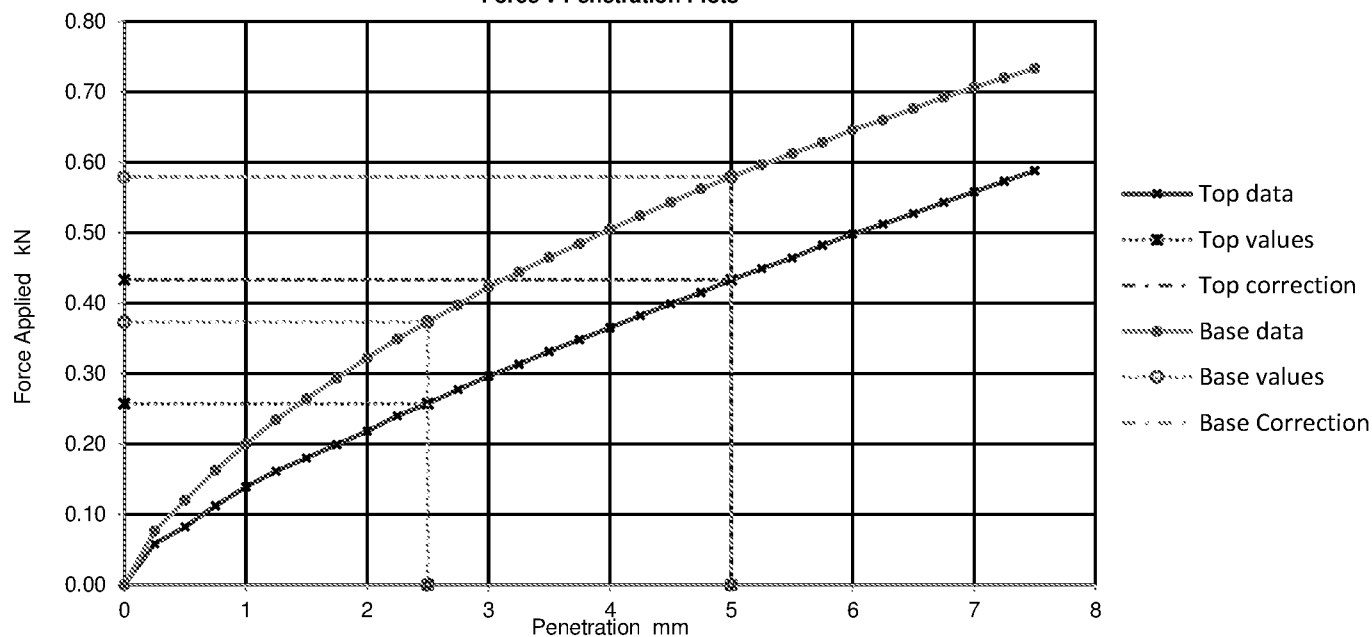
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.9	2.2	2.2	
BASE	No	2.8	2.9	2.9	

Water Content (%)
21.9
22.1

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP11	0.40 - 0.60	B	1	Stiff yellowish brown silty CLAY	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

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

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.01 Mg/m ³
	Dry Density	1.67 Mg/m ³

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

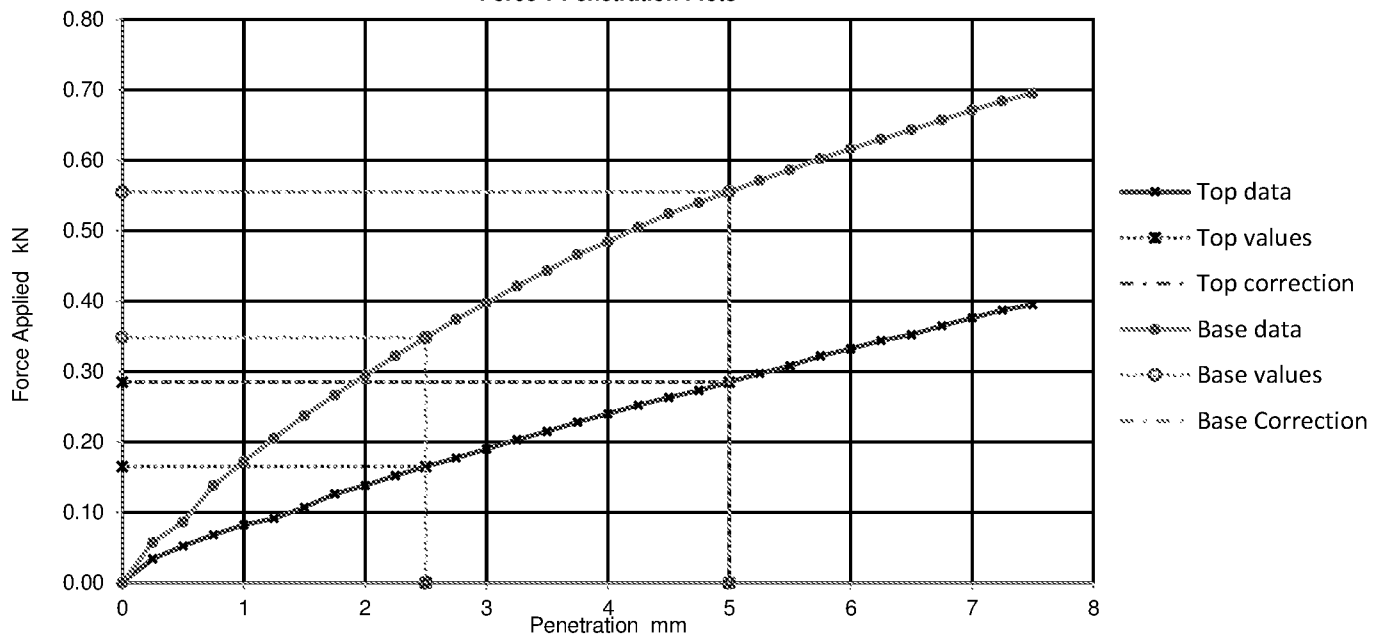
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.3	1.4	1.4	
BASE	No	2.6	2.8	2.8	

Water Content (%)
21.0
20.3

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Serial No.	34094-1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP12	0.40 - 0.60	B	1	Stiff yellowish brown slightly sandy silty CLAY	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

Condition	
Details	

Soaking Details	Not Soaked
Period of Soaking	days
Time to Surface	days
Amount of Swell Recorded	mm
Initial Water Content	%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.64 Mg/m ³

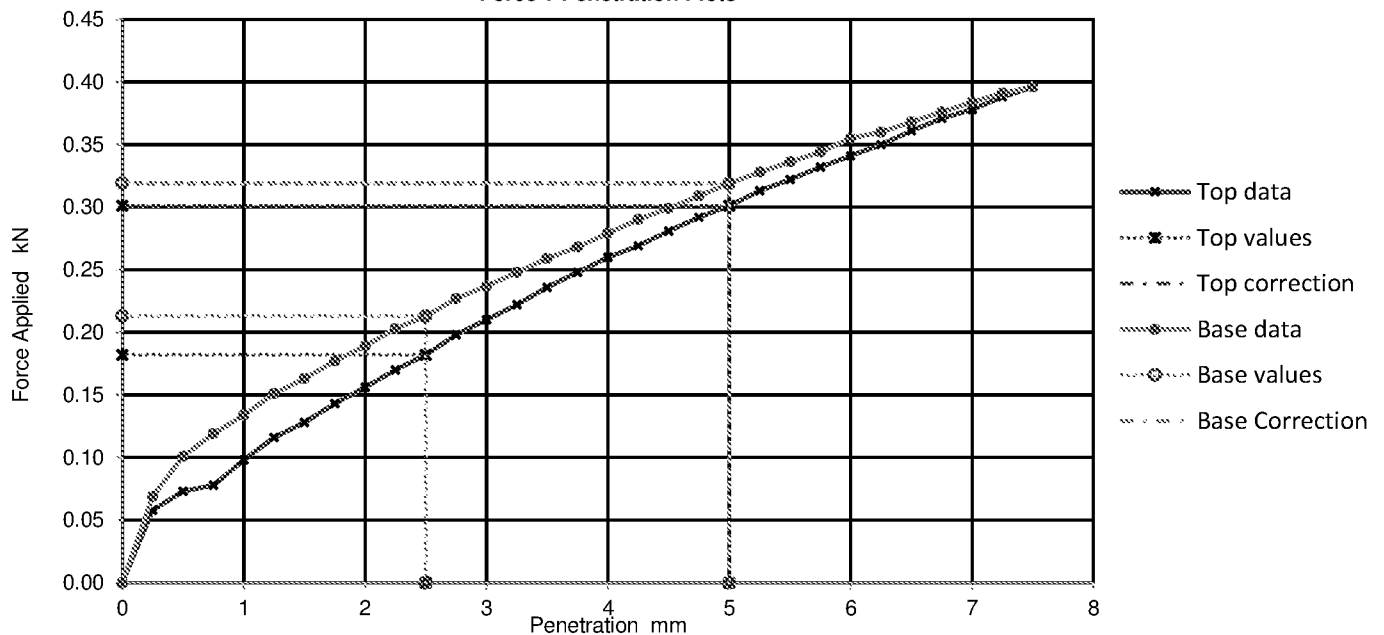
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.4	1.5	1.5	1.6
BASE	No	1.6	1.6	1.6	

Water Content (%)
22.3
22.3

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 &
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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Serial No.	34094-1

CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP13	0.40 - 0.60	B	1	Stiff yellowish brown silty CLAY with rare recently active roots	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

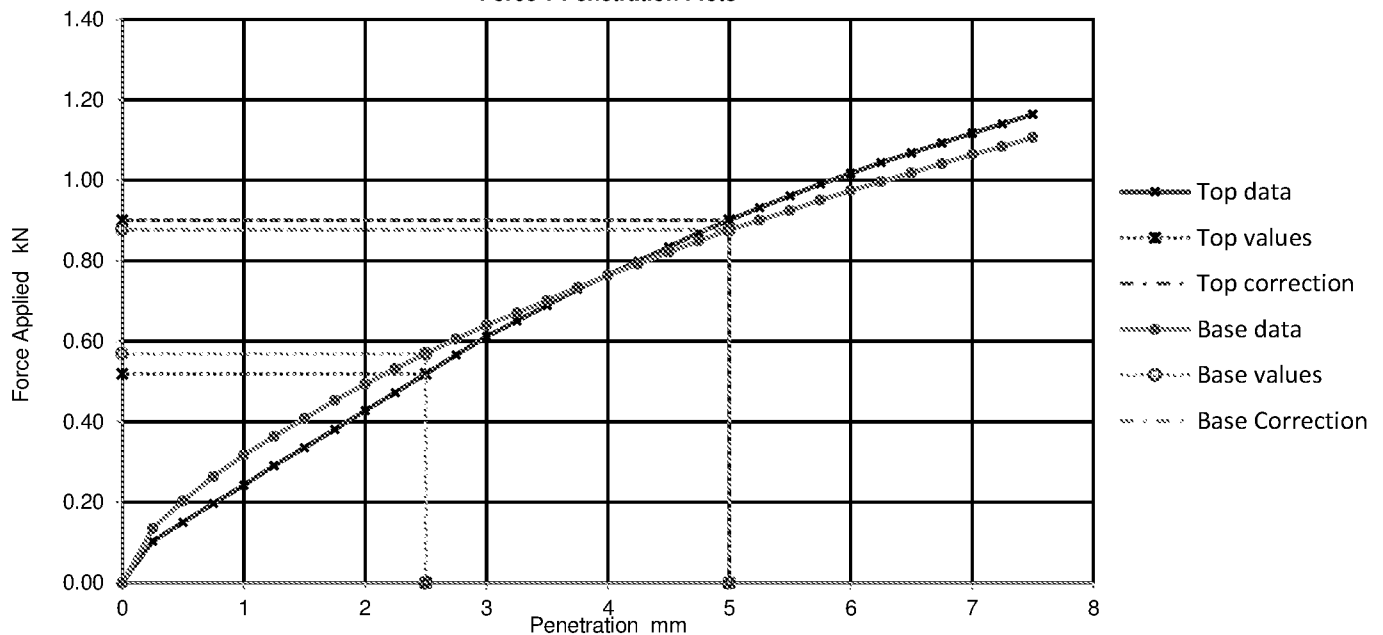
Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.02 Mg/m ³
	Dry Density	1.68 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	3.9	4.5	4.5	4.5	20.4
BASE	No	4.3	4.4	4.4		20.4

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP14	0.50 - 0.70	B	1	Stiff yellowish brown silty CLAY	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

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

Material Retained on 20mm Sieve Removed	1.4	%
Initial Specimen Details:	Bulk Density	2.04 Mg/m ³
	Dry Density	1.70 Mg/m ³

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

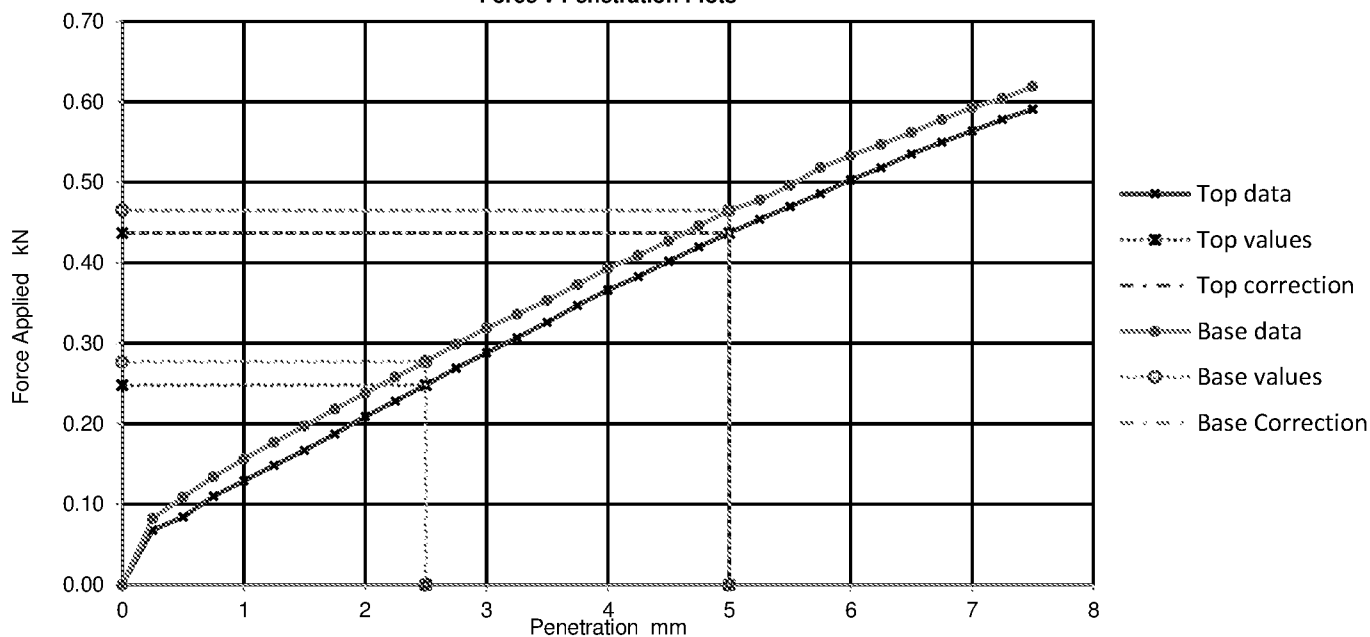
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.9	2.2	2.2	2.3
BASE	No	2.1	2.3	2.3	

Water Content (%)
20.1
19.9

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP15	0.50 - 0.70	B	1	Firm yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to coarse flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	1.4	%
Initial Specimen Details:	Bulk Density	2.00 Mg/m ³
	Dry Density	1.65 Mg/m ³

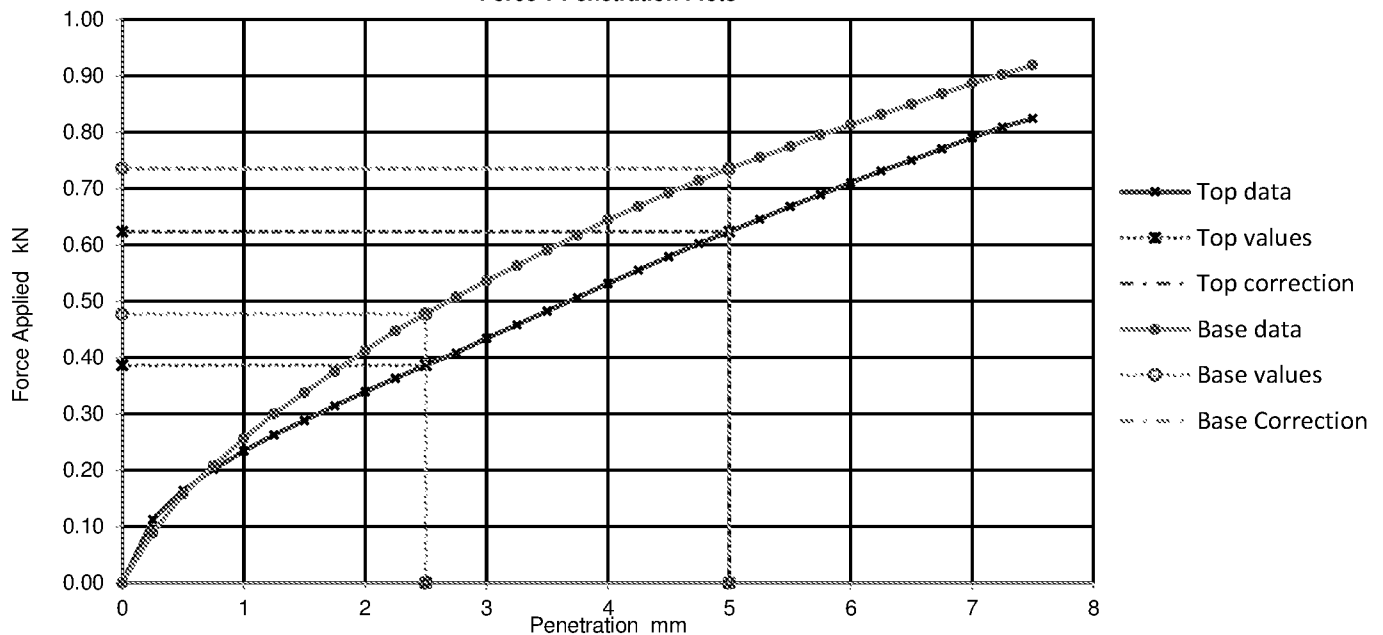
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	2.9	3.1	3.1	3.4
BASE	No	3.6	3.7	3.7	

Water Content (%)
21.4
21.0

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP16	0.60 - 0.90	B	1	Firm locally stiff yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium flint	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.04 Mg/m ³
	Dry Density	1.70 Mg/m ³

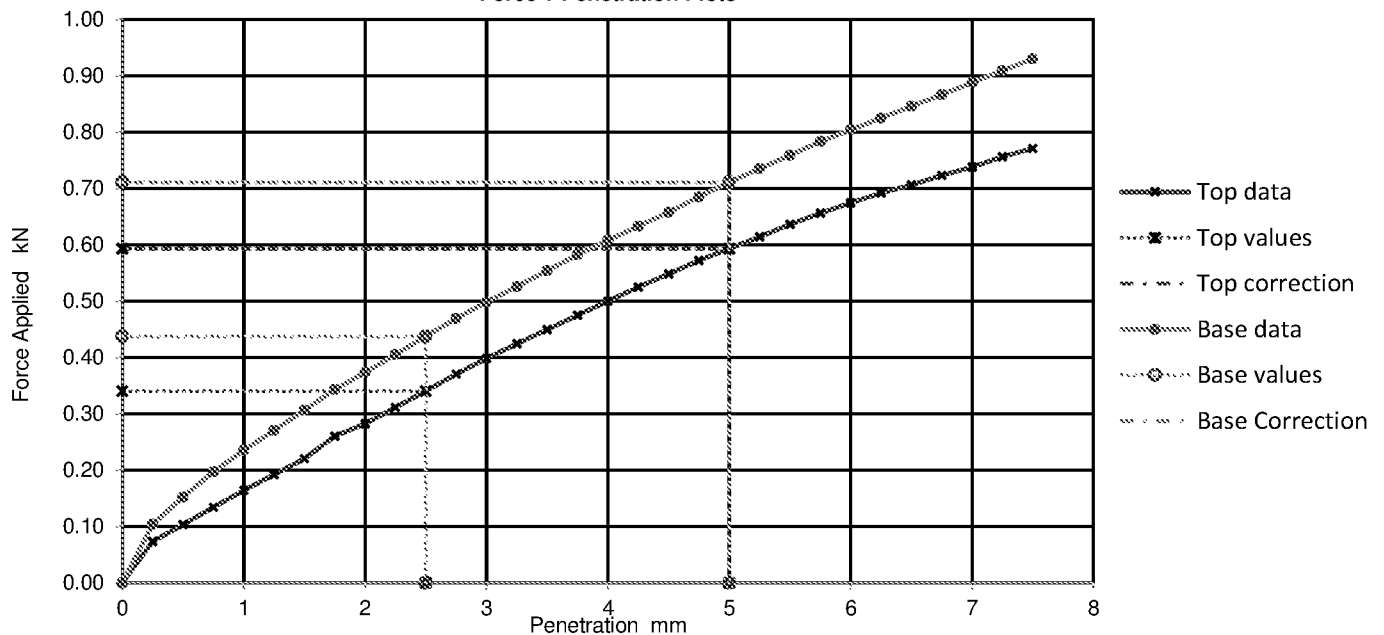
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	2.6	3.0	3.0	3.3
BASE	No	3.3	3.6	3.6	

Water Content (%)
19.8
20.0

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP17	0.40 - 0.60	B	1	Soft yellowish brown silty CLAY with rare fine flint gravel	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.02 Mg/m ³
	Dry Density	1.68 Mg/m ³

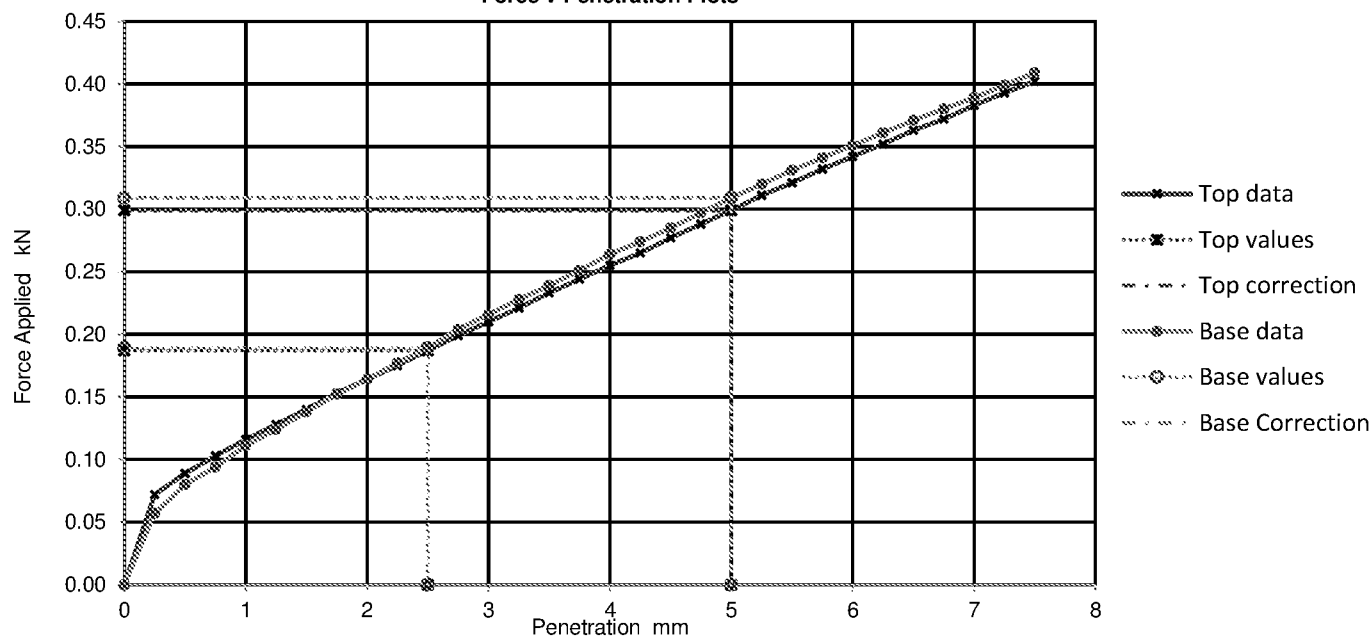
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.4	1.5	1.5	1.5
BASE	No	1.4	1.5	1.5	

Water Content (%)
20.4
20.5

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP18	0.30 - 0.60	B	1	Firm yellowish brown slightly gravelly slightly sandy silty CLAY	

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.02 Mg/m ³
	Dry Density	1.67 Mg/m ³

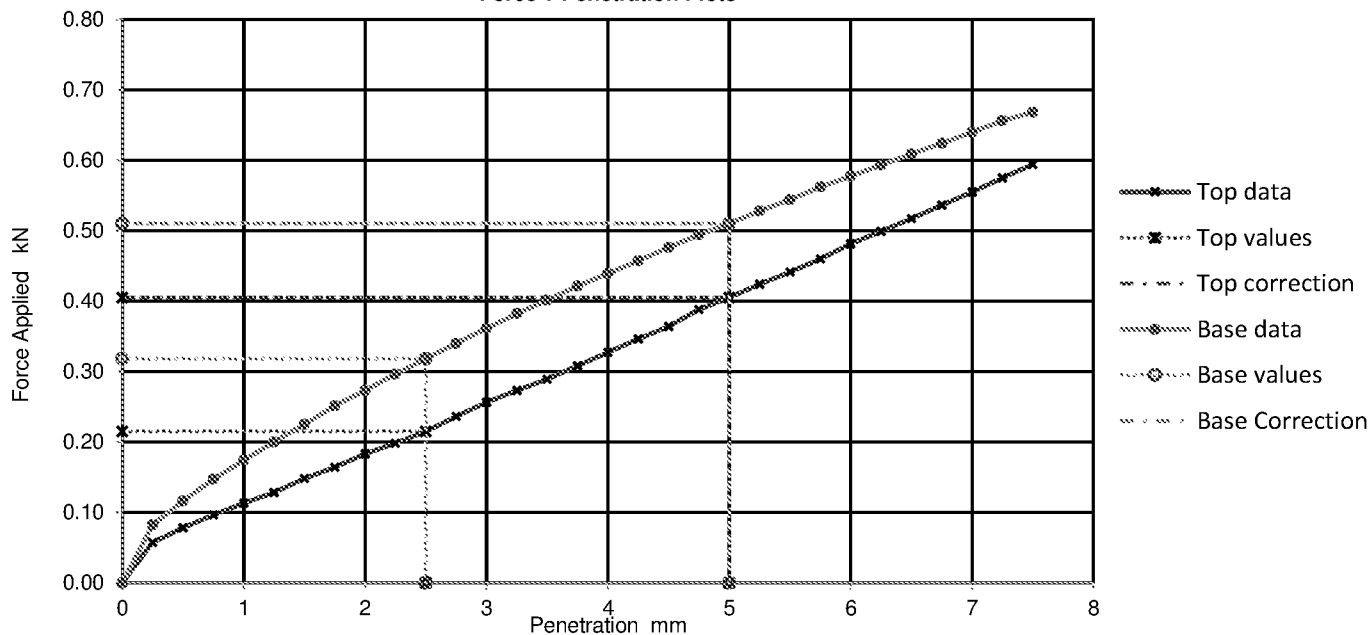
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.6	2.0	2.0	
BASE	No	2.4	2.6	2.6	

Water Content (%)
20.7
20.7

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP19	0.40 - 0.60	B	1	Stiff yellowish brown silty CLAY	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

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

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.03 Mg/m ³
	Dry Density	1.69 Mg/m ³

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

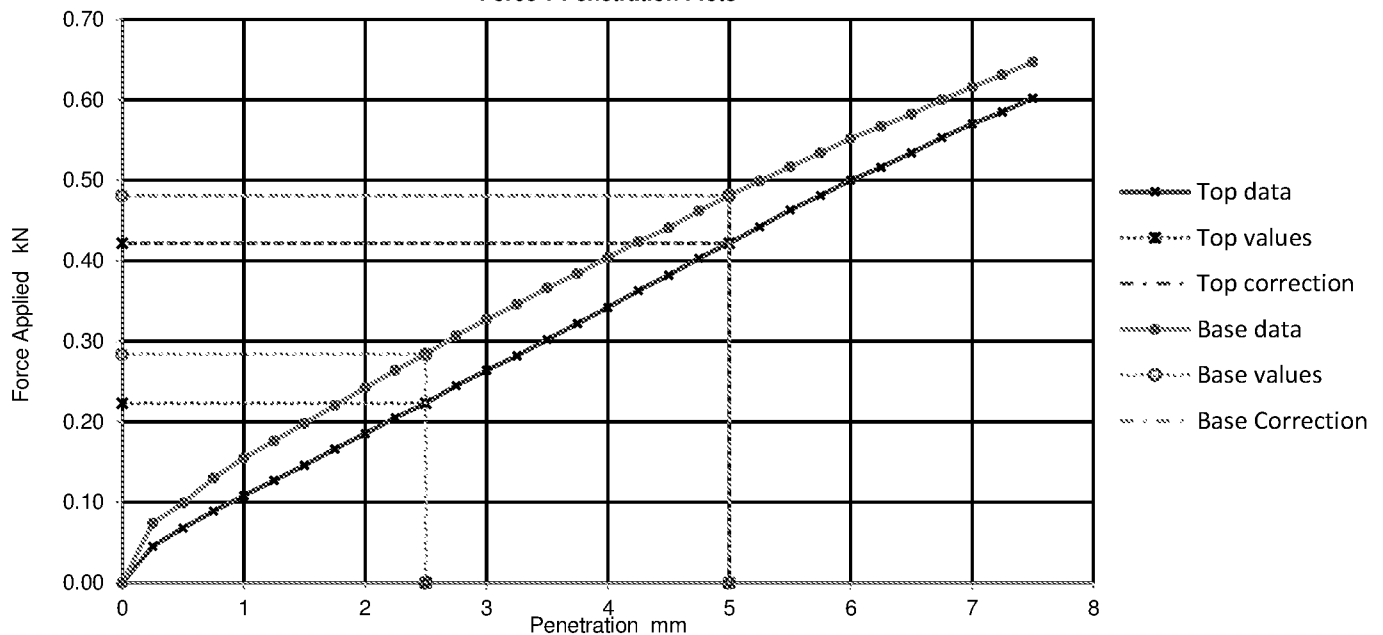
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.7	2.1	2.1	2.3
BASE	No	2.2	2.4	2.4	

Water Content (%)
20.7
20.2

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP20	0.30 - 0.50	B	1	Hard brown sandy silty CLAY with occasional recently active roots and rare fine and medium flint	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.94 Mg/m ³
	Dry Density	1.63 Mg/m ³

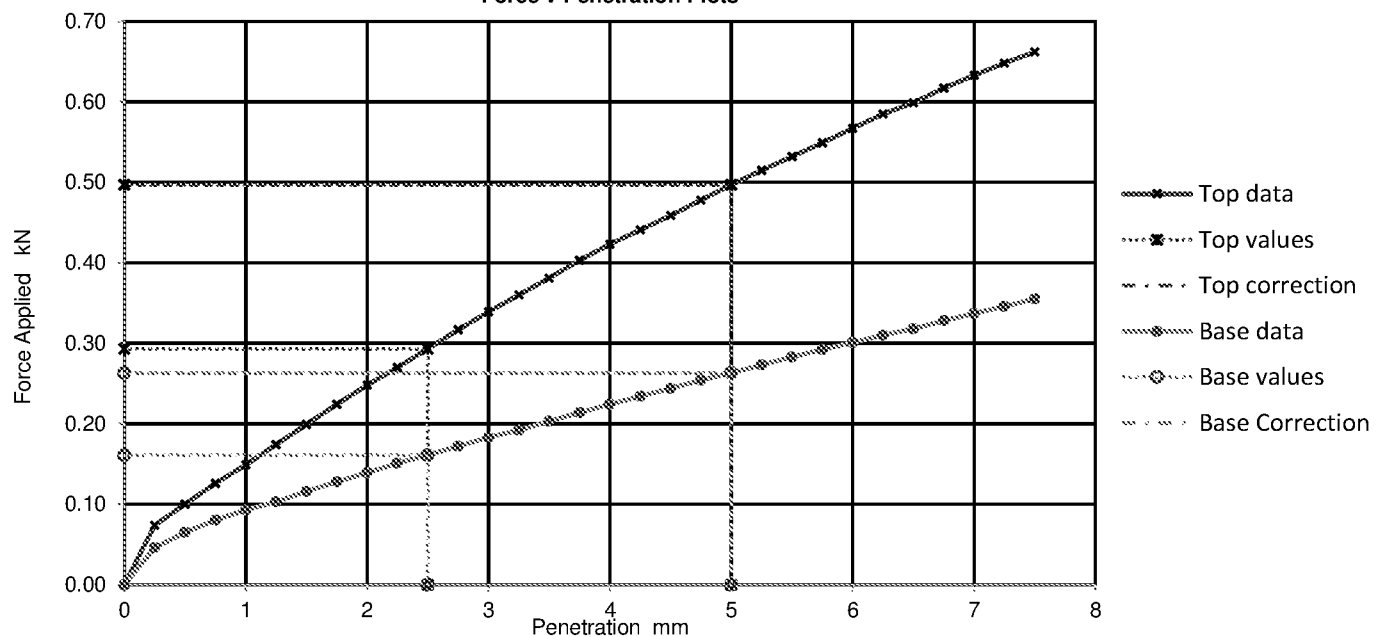
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	2.2	2.5	2.5	
BASE	No	1.2	1.3	1.3	

Water Content (%)
20.5
18.2

Force v Penetration Plots



Method of Preparation: BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
 Method of Test: BS1377: Part 4: 1990: 7
 Type of Sample Key U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
 Comments: *Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value.
 Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.

Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



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CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP21	0.40 - 0.60	B	1	Hard brown sandy silty CLAY with occasional recently active roots and rare fine and medium flint	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

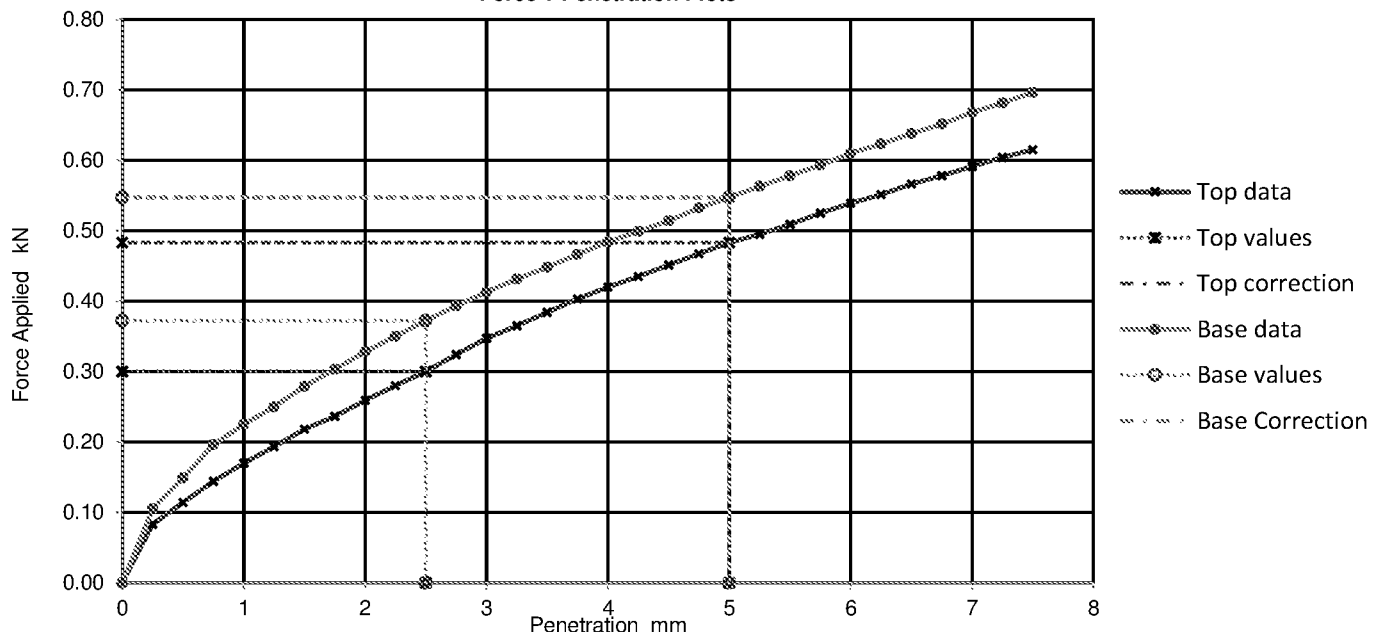
Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	1.93 Mg/m ³
	Dry Density	1.61 Mg/m ³

Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)				Water Content (%)
		2.5mm	5.0mm	Highest	Mean*	
TOP	No	2.3	2.4	2.4	2.6	19.4
BASE	No	2.8	2.7	2.8		19.9

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 03/12/2018



0998

Contract	UK17.2707D - Saltbox, Bognor Regis
Serial No.	34094-1

CALIFORNIA BEARING RATIO TEST

Borehole /Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP22	0.40 - 0.60	B	1	Firm yellowish brown silty CLAY with rare fine and medium flint gravel	Note:- Description is on the as received sample before the addition of water to the CBR specimen

Specimen Preparation

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

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	0.0	%
Initial Specimen Details:	Bulk Density	2.01 Mg/m ³
	Dry Density	1.65 Mg/m ³

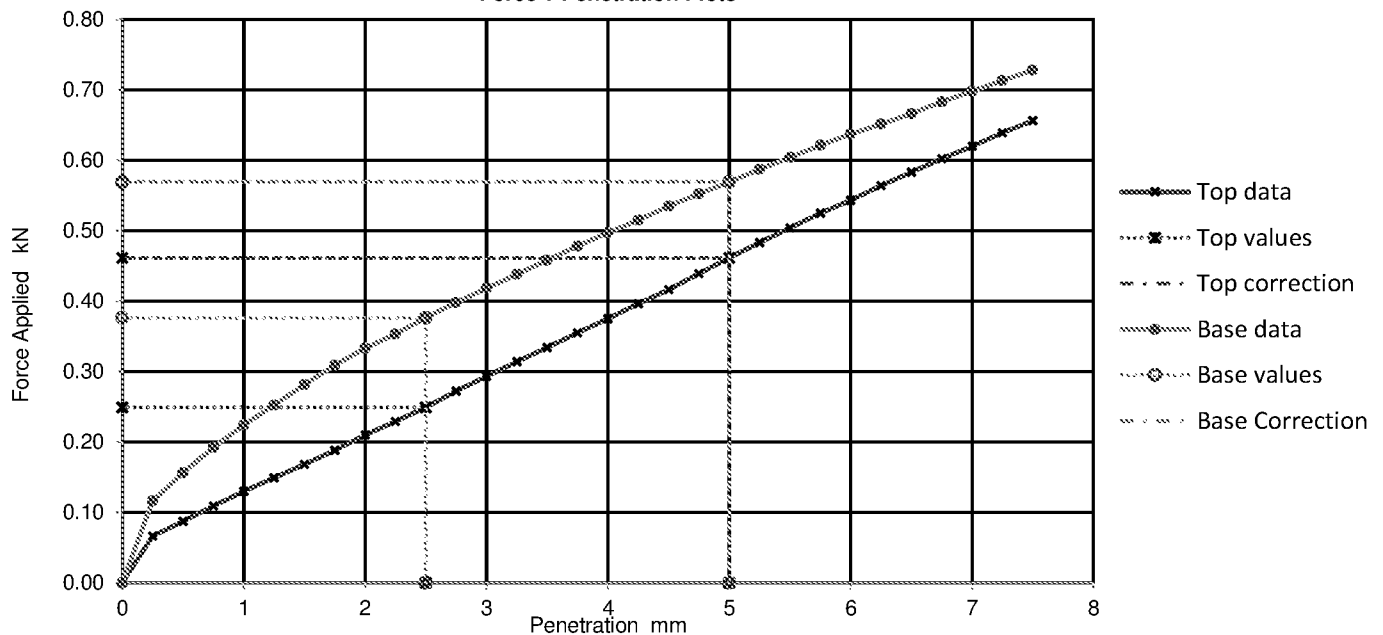
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	1.9	2.3	2.3	
BASE	No	2.8	2.8	2.8	

Water Content (%)
21.6
21.7

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value. Note:- CBR Results are water content dependent - an increase in water content will result in a decrease of CBR value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/12/2018



0998

Contract	UK17.2707D - Saltbox Site, Bognor Regis		
Serial No.	34094-2		
Client: Environmental Protection Strategies Ltd Unit 7 Caxton House Broad Street Great Cambourne Cambridge CB23 6JN		Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: [REDACTED] Email: [REDACTED] Website: www.soilpropertytesting.com	
Samples Submitted By: Environmental Protection Strategies Ltd Samples Labelled: UK17.2707D - Saltbox Site, Bognor Regis		Approved Signatories: ☒ J.C. Garner B.Eng (Hons) FGS Technical Director ☐ S.P. Townend FGS Quality Manager ☐ W. Johnstone Materials Lab Manager ☐ D. Sabnis Operations Manager [REDACTED]	
Date Received: 21/11/2018		Samples Tested Between: 21/11/2018 and 11/12/2018	
Remarks: For the attention of Daryl Bowell Your Reference No: UK17.2707D Your Order No: 20720			
Notes: 1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary. 2 (a) UKAS - United Kingdom Accreditation Service (b) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation 3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory. 4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.			



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/12/2018



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Contract		UK17.2707D - Saltbox Site, Bognor Regis																			
Serial No.		34094-2										Target Date		05/12/2018							
Scheduled By		Environmental Protection Strategies Ltd																			
SCHEDULE OF LABORATORY TESTS																					
Schedule Remarks																					
Bore Hole No.	Type	Sample Ref.	Top Depth	Water Content (BS5N) Liquid/Plastic Limits Wet Sieve Preparation Triaxial Test Multistage One Dimensional Consolidation Saturation Moisture Content																	Sample Remarks
BH03	U	4	1.20	1	1	1	1	1													
BH03	D	6	1.70	1	1	1															
BH03	D	9	3.00	1	1	1															
BH04	D	7	1.70	1	1	1															
BH05	U	7	2.00	1	1	1															
BH05	D	11	4.00	1	1	1															
BH06	U	5	1.20	1	1	1	1														
BH07	U	6	2.00	1	1	1	1														
BH07	D	9	3.00	1	1																
BH07	U	12	4.00	1	1	1	1														
BH07	B	25	11.00					1													
BH08	D	4	1.20	1	1	1															
BH08	U	8	3.00	1	1	1															
BH09	D	5	1.00	1	1	1															
BH09	D	28	14.00					1													
BH10	B	39	20.00					1													
BH11	U	4	1.20	1	1	1	1	1													
BH11	D	6	2.00	1	1																
BH11	B	10	3.00	1	1	1															
BH11	B	41	20.00					1													
BH12	D	5	2.00	1	1																
BH13	D	5	1.70	1	1																
BH13	U	9	3.00	1	1		1														
Totals				19	19	14	6	2	4										End of Schedule		



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/12/2018



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Contract		UK17.2707D - Saltbox Site, Bognor Regis												
Serial No.		34094-2												
SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX														
Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti- city Index (%)	Liquid- ity Index (%)	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
BH03	1.20 - 1.65	U	4	15.8	26	15	11	0.07	Wet Sieved	17 (M)	19.0*	24	Firm (Medium strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional pale brown mottling. Gravel is fine to medium chalk and rare flint.	CL
BH03	1.70	D	6	14.4	22	14	8	0.05	Wet Sieved	8 (M)	15.7*	24	Stiff pale yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk.	CL
BH03	3.00	D	9	12.7	22	14	8	-0.16	Wet Sieved	12 (M)	14.4*	24	Very stiff brownish yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk.	CL
BH04	1.70	D	7	19.9	22	15	7	0.70	Wet Sieved	12 (M)	22.6*	70	Very soft pale brown slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk and rare flint.	CL
BH05	2.00	U	7	15.8	21	14	7	0.40	Wet Sieved	29 (M)	23.7*	72	Very soft pale yellow slightly gravelly slightly sandy silty chalky CLAY. Gravel is black fine to coarse angular to subangular flint, and white chalk.	CL
BH05	4.00	D	11	16.8	30	15	15	0.12	Wet Sieved	13 (M)	19.3*	69	Very soft yellowish brown slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk and flint.	CL
BH06	1.20 - 1.65	U	5	17.6	22	14	8	0.45	Wet Sieved	17 (M)	21.2*	93	Very soft (Very low strength) yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk and rare flint.	CL
BH07	2.00 - 2.45	U	6	16.2	28	16	12	0.02	Wet Sieved	3 (M)	16.7*	93	Very stiff (Very high strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional yellow and pale brown mottling. Gravel is fine to medium chalk.	CL
Method Of Preparation:				BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2										
Method of Test:				BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4										
Type of Sample Key:				U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter										
Comments:				*Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.										
Remarks to Include:				Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C										



TEST REPORT

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DATE ISSUED: 11/12/2018



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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquidity Index (%)	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
BH07	3.00	D	9	16.1	29	17	12	-0.07	From Natural	<1% (A)		24	Very stiff pale yellow marly CHALK with occasional light grey mottling, and rare fine chalk gravel.	CL
BH07	4.00 - 4.45	U	12	19.5	24	16	8	0.44	Wet Sieved	18 (M)	23.8*	24	Soft (Low strength) yellow slightly gravelly slightly sandy silty chalky CLAY with occasional light grey and pale brown mottling. Gravel is white fine to coarse chalk.	CL
BH08	1.20 - 1.65	D	4	30.8	34	17	17	0.81	Wet Sieved	12 (M)	35.0*	24	Very soft dark yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to medium flint.	CL
BH08	3.00 - 3.45	U	8	16.1	19	14	5	0.42	Wet Sieved	32 (M)	23.7*	72	Stiff yellow slightly gravelly slightly sandy silty clayey CHALK. Gravel is black fine to coarse angular to subangular flint, and white chalk.	ML
BH09	1.00	D	5	15.6	38	17	21	-0.07	Wet Sieved	2 (M)	15.9*	24	Stiff friable yellowish brown slightly gravelly slightly sandy silty calcareous CLAY with rare recently active roots. Gravel is fine to medium chalk.	CI
BH11	1.20 - 1.65	U	4	27.0	31	22	9	0.56	Wet Sieved	4 (M)	28.1*	72	Very soft (Very low strength) mottled yellowish brown and greyish brown slightly gravelly slightly sandy silty calcareous CLAY with rare organic pockets. Gravel is white fine to medium subangular to rounded chalk, and mudstone.	CL
BH11	2.00	D	6	20.1	32	19	13	0.08	From Natural	<1% (A)		24	Soft pale yellow slightly sandy silty chalky CLAY with rare fine chalk gravel.	CL
BH11	3.00 - 3.50	B	10	20.7	26	15	11	0.52	Wet Sieved	15 (M)	24.4*	24	Very soft olive yellow slightly gravelly slightly sandy silty chalky CLAY. Gravel is white fine to coarse subangular to rounded chalk, and rare black angular flint.	CL

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4
 Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
 Comments: *Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.

Remarks to Include: Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C



TEST REPORT

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Contract	UK17.2707D - Saltbox Site, Bognor Regis													
Serial No.	34094-2													
SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX														
Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquid-ity Index (%)	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
BH12	2.00 - 1.65	D	5	21.6	33	19	14	0.19	From Natural	0 (A)		24	Firm pale yellow slightly gravelly slightly sandy silty chalky CLAY.	CL
BH13	1.70	D	5	23.9	54	22	32	0.06	From Natural	0 (A)		24	Stiff yellowish brown CLAY with occasional black speckling.	CH
BH13	3.00 - 3.65	U	9	25.7	50	22	28	0.13	From Natural	<1% (A)		24	Stiff (High strength) yellowish brown slightly sandy silty calcareous CLAY with occasional light yellowish brown mottling and rare fine to medium subangular to subrounded chalk gravel.	CI/CH
Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4 Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter Comments: Remarks to Include: Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C														



TEST REPORT

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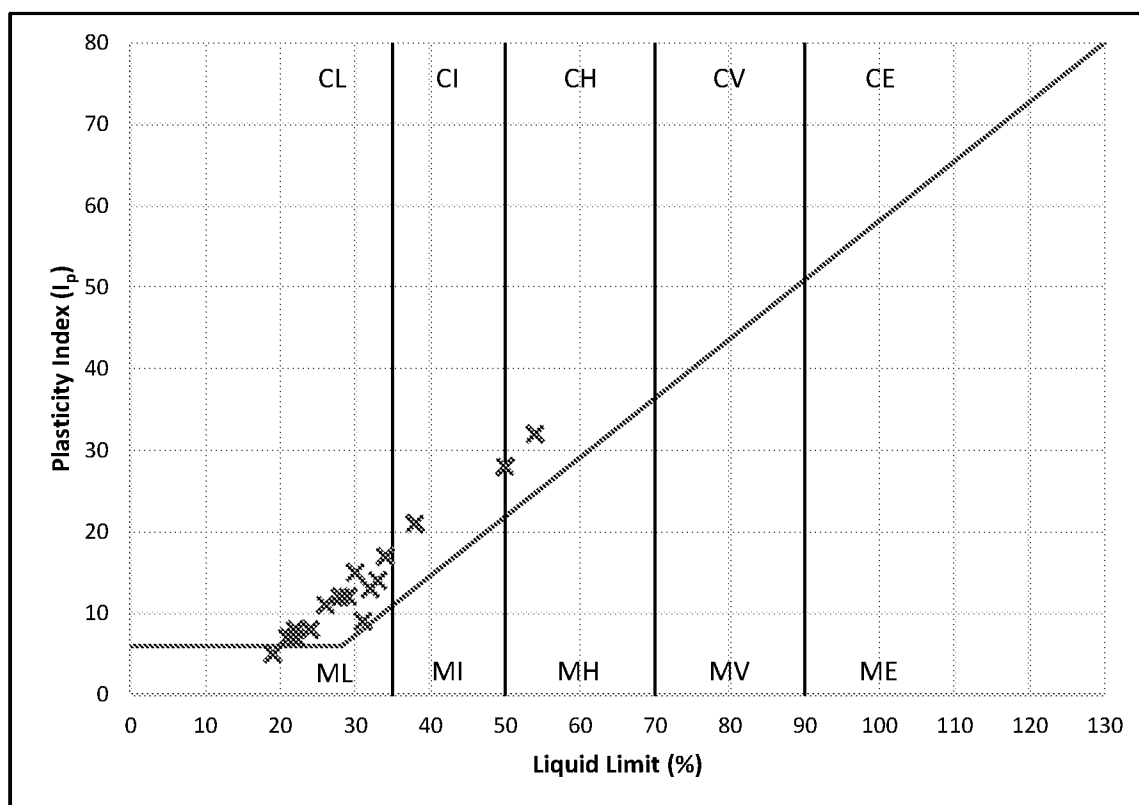


0998

Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High

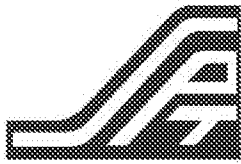


Plasticity Chart BS5930: 2015: Figure 8

High
Medium
Low

NHBC Volume Change Potential

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index



TEST REPORT

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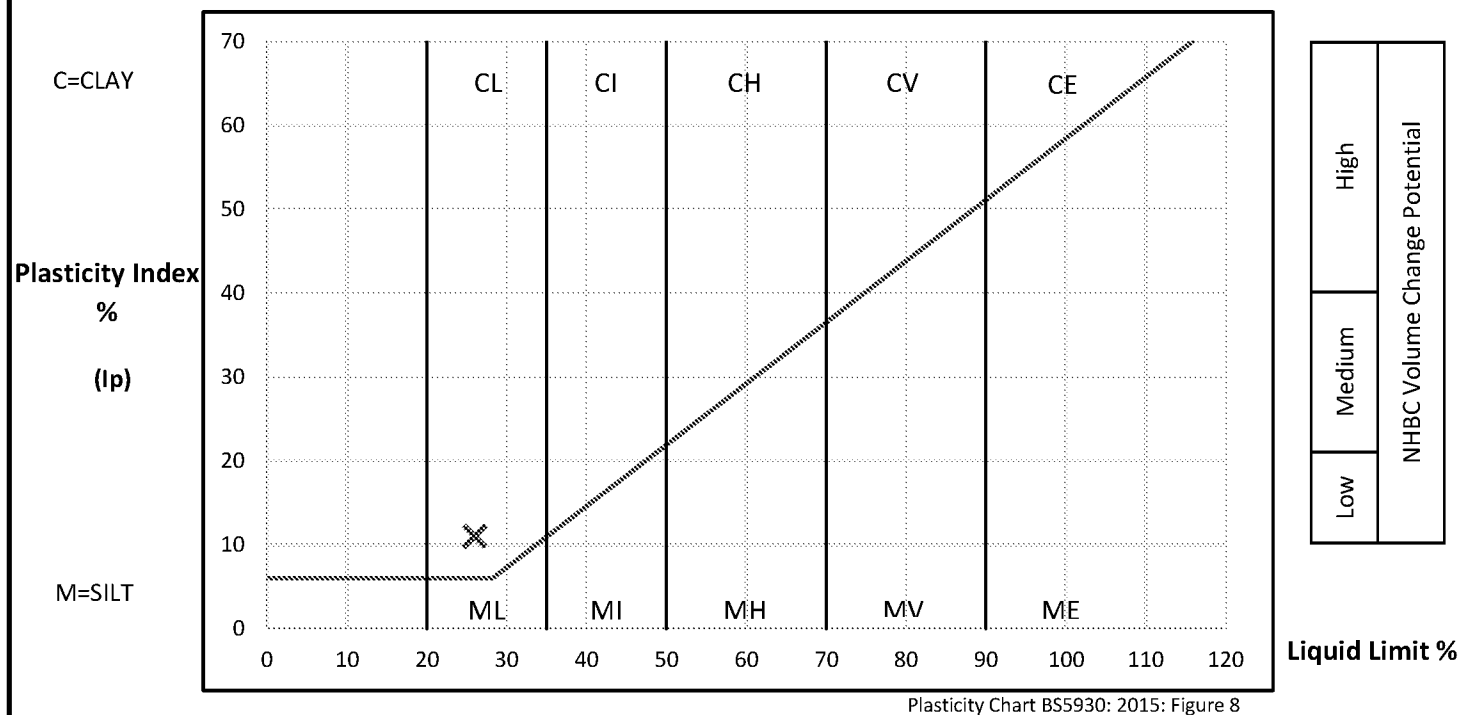
0998

Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH03	1.20 - 1.65	U	4	15.8	Firm (Medium strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional pale brown mottling. Gravel is fine to medium chalk and rare flint.	

PREPARATION				Liquid Limit	26 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	15 %	
Sample retained 0.425mm sieve		(Measured)	17 %	Plasticity Index	11 %	
Corrected water content for material passing 0.425mm			19.0 %	Liquidity Index	0.07	
Sample retained 2mm sieve		(Measured)	15 %	NHBC Modified (I'p)	9 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

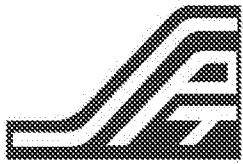


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



TEST REPORT

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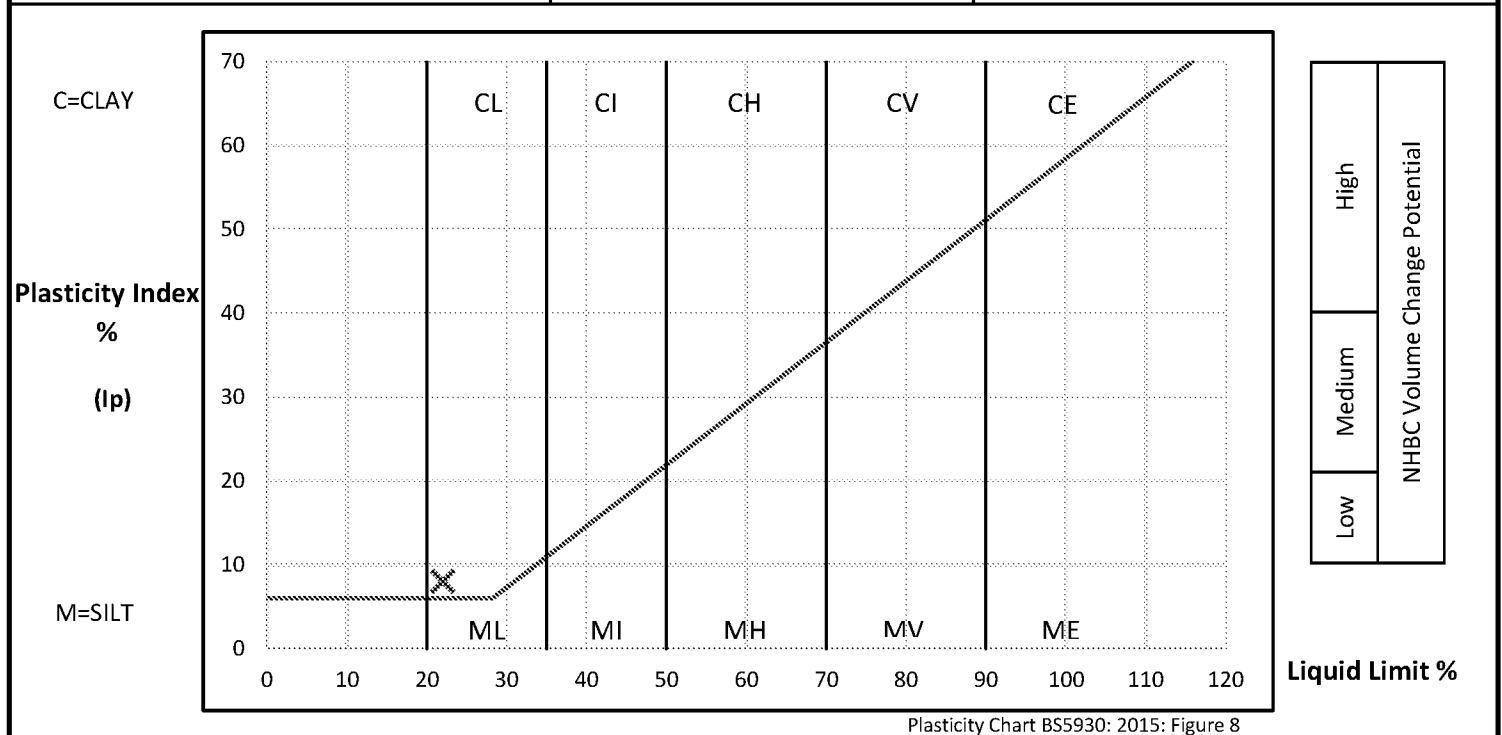
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH03	1.70	D	6	14.4	Stiff pale yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk.	

PREPARATION				Liquid Limit	22 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	14 %	
Sample retained 0.425mm sieve		(Measured)	8 %	Plasticity Index	8 %	
Corrected water content for material passing 0.425mm			15.7 %	Liquidity Index	0.05	
Sample retained 2mm sieve		(Measured)	5 %	NHBC Modified (I'p)	7 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

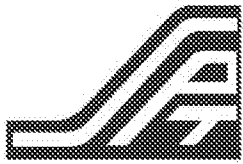


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



TEST REPORT

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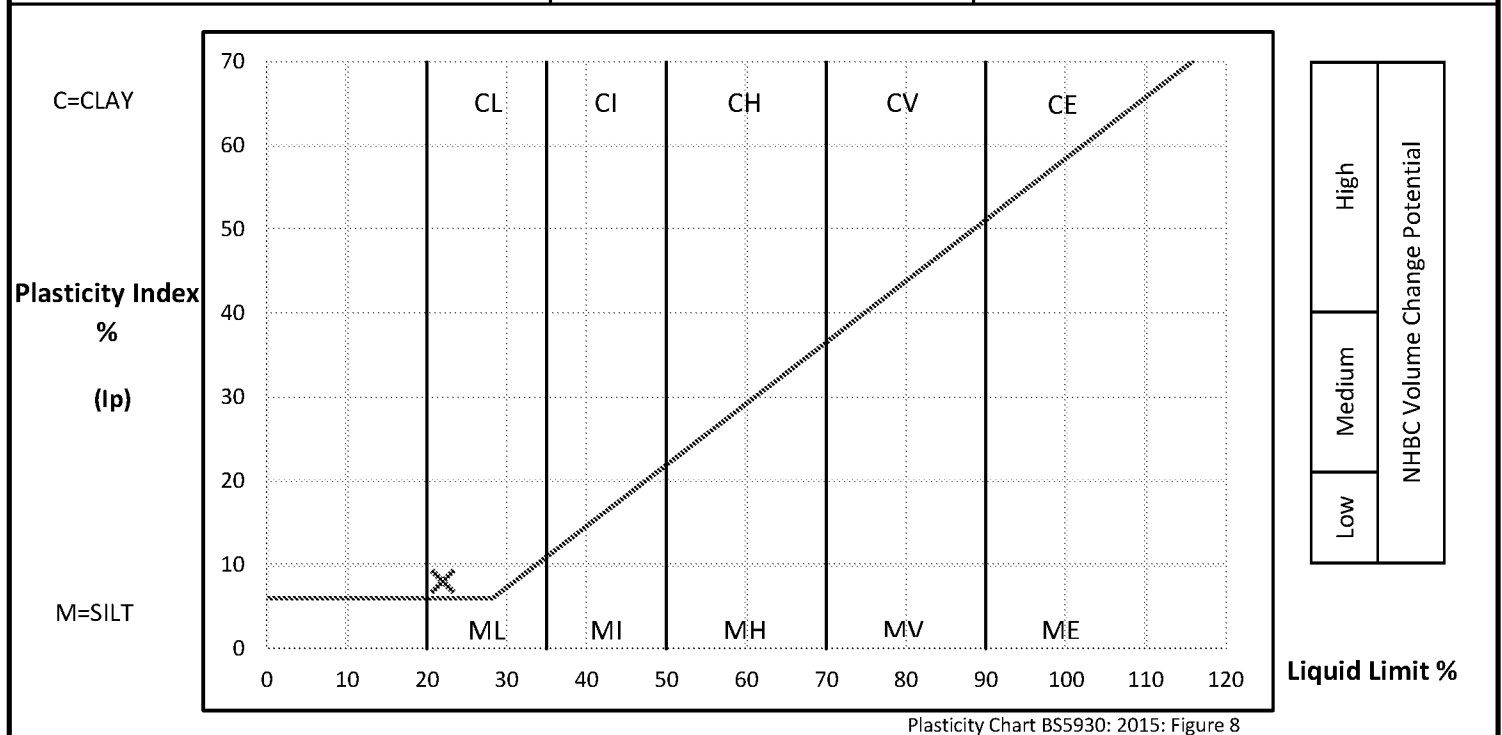
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH03	3.00	D	9	12.7	Very stiff brownish yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk.	

PREPARATION				Liquid Limit	22 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	14 %	
Sample retained 0.425mm sieve		(Measured)	12 %	Plasticity Index	8 %	
Corrected water content for material passing 0.425mm			14.4 %	Liquidity Index	-0.16	
Sample retained 2mm sieve		(Measured)	9 %	NHBC Modified (I'p)	7 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

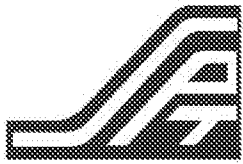


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



TEST REPORT

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DATE ISSUED: 11/12/2018



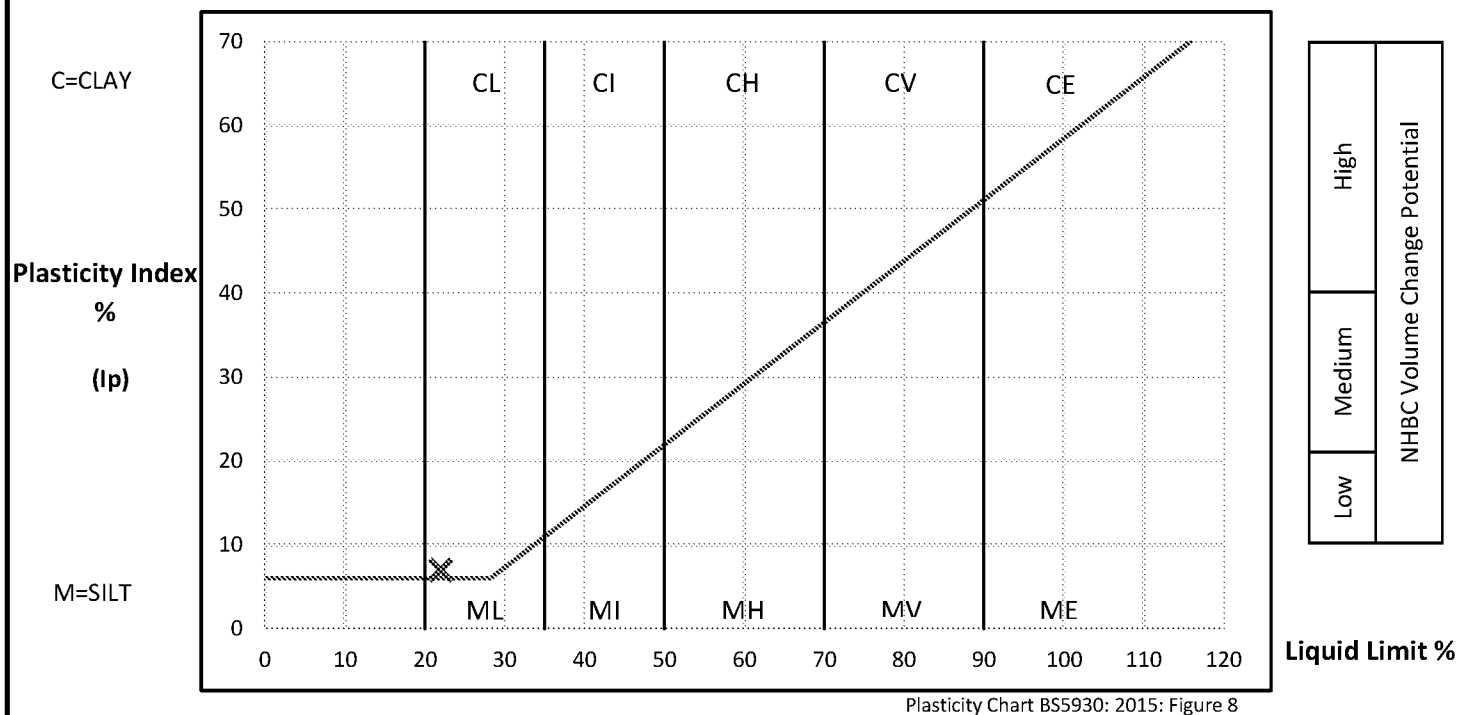
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH04	1.70	D	7	19.9	Very soft pale brown slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk and rare flint.	

PREPARATION				Liquid Limit	22 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	15 %	
Sample retained 0.425mm sieve		(Measured)	12 %	Plasticity Index	7 %	
Corrected water content for material passing 0.425mm			22.6 %	Liquidity Index	0.70	
Sample retained 2mm sieve		(Measured)	8 %	NHBC Modified (I'p)	6 %	
Curing time		70 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

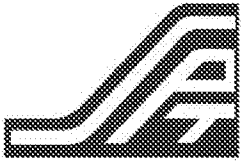


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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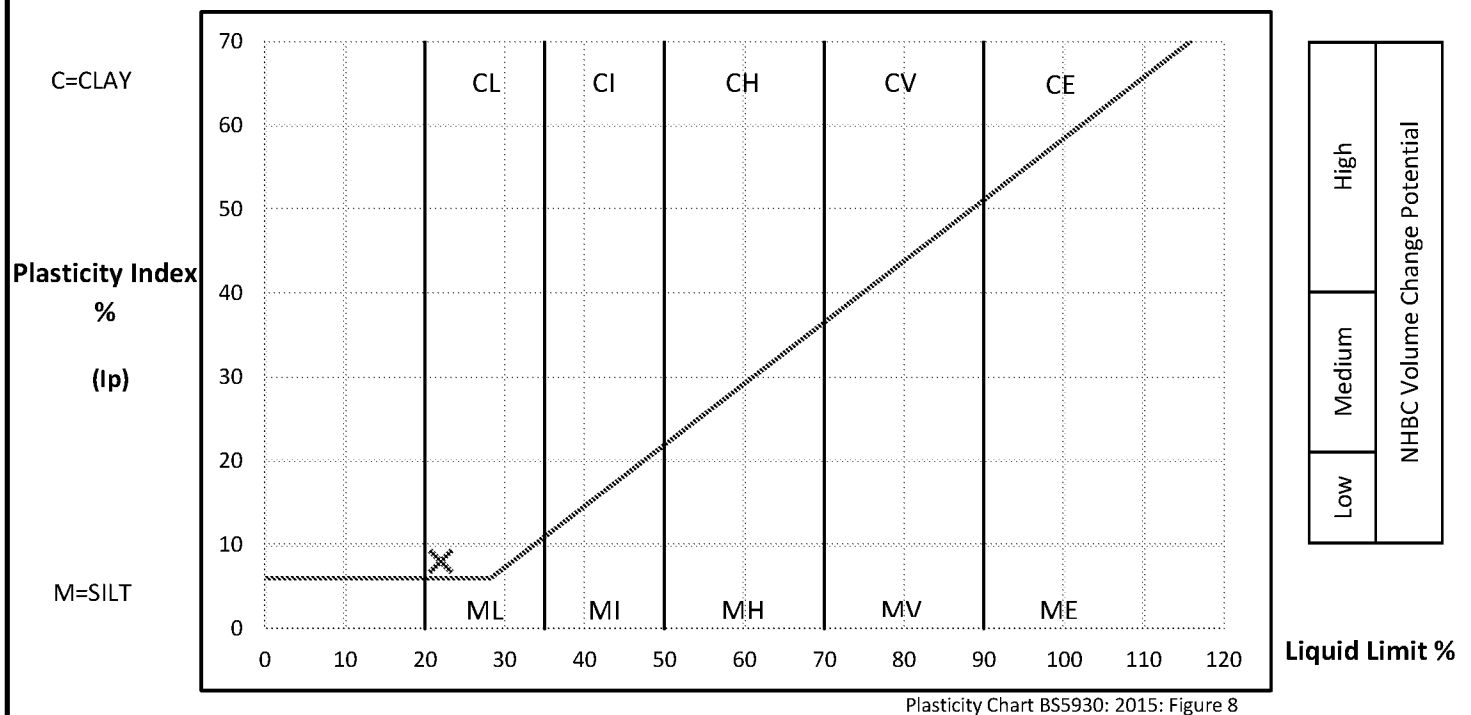
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH06	1.20 - 1.65	U	5	17.6	Very soft (Very low strength) yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk and rare flint.	

PREPARATION				Liquid Limit	22 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	14 %	
Sample retained 0.425mm sieve		(Measured)	17 %	Plasticity Index	8 %	
Corrected water content for material passing 0.425mm			21.2 %	Liquidity Index	0.45	
Sample retained 2mm sieve		(Measured)	13 %	NHBC Modified (I'p)	7 %	
Curing time		93 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

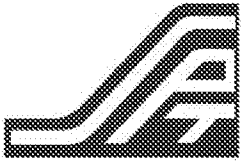


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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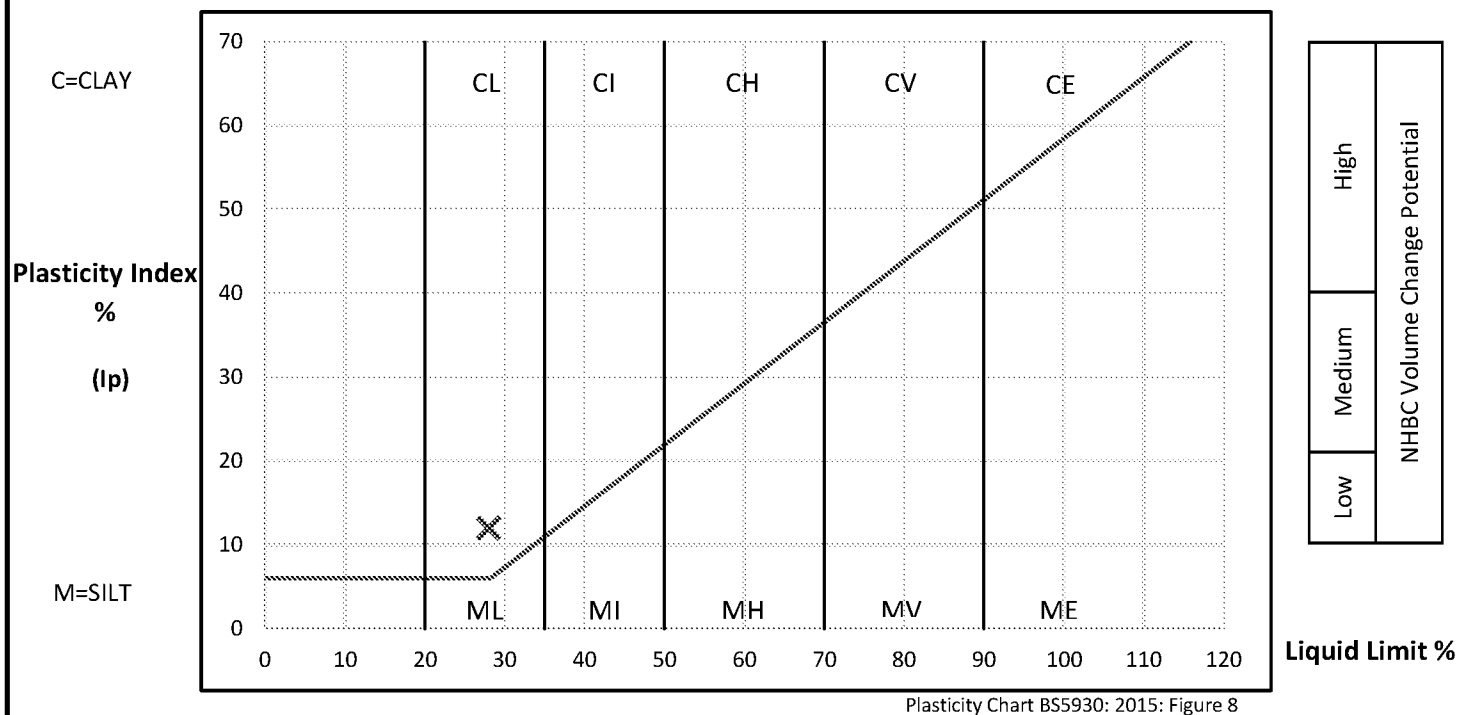
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH07	2.00 - 2.45	U	6	16.2	Very stiff (Very high strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional yellow and pale brown mottling. Gravel is fine to medium chalk.	

PREPARATION				Liquid Limit	28 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	16 %	
Sample retained 0.425mm sieve		(Measured)	3 %	Plasticity Index	12 %	
Corrected water content for material passing 0.425mm			16.7 %	Liquidity Index	0.02	
Sample retained 2mm sieve		(Measured)	2 %	NHBC Modified (I'p)	12 %	
Curing time		93 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

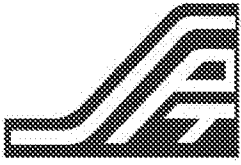


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



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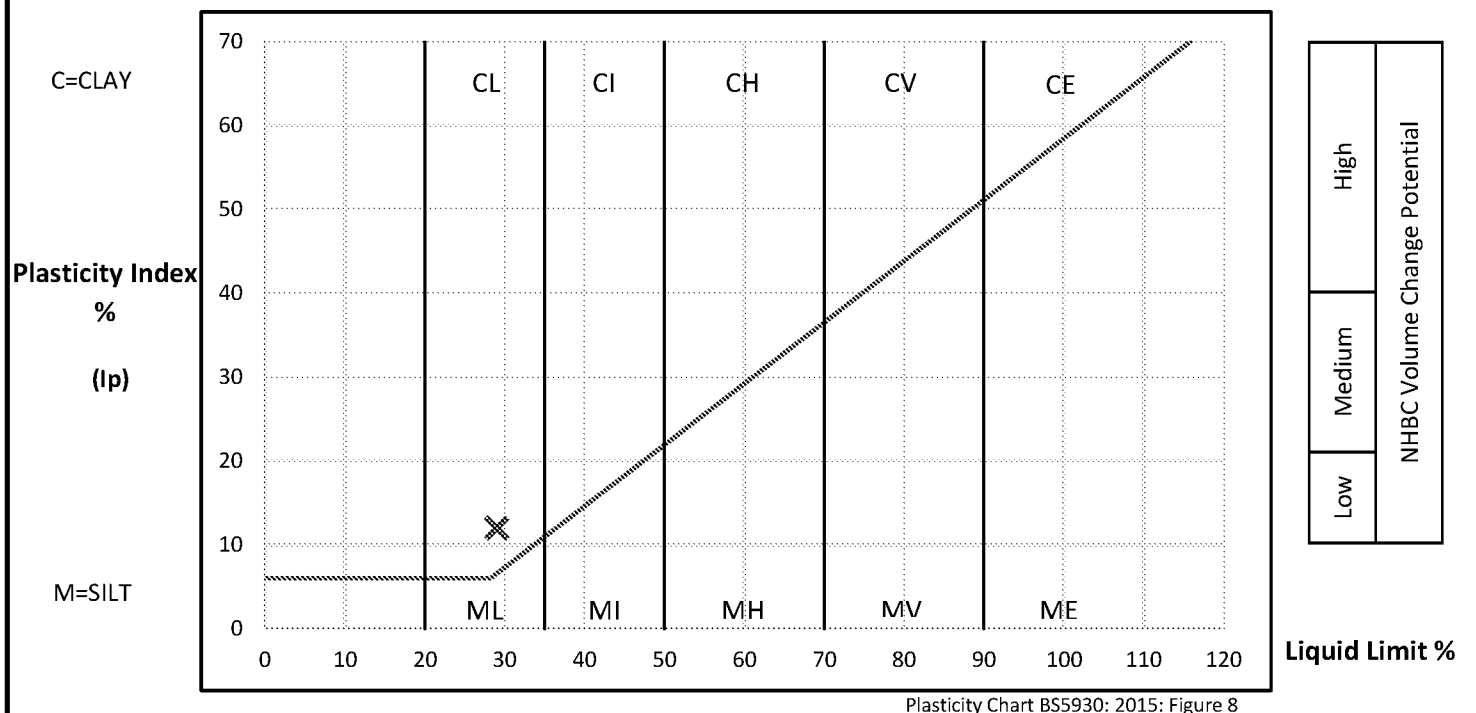
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

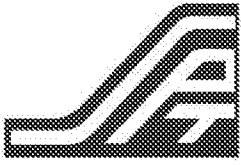
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH07	3.00	D	9	16.1	Very stiff pale yellow marly CHALK with occasional light grey mottling, and rare fine chalk gravel.	

PREPARATION				Liquid Limit	29 %
Method of preparation				From natural/gravel picked out by hand	Plastic Limit 17 %
Sample retained 0.425mm sieve				(Assumed) %	Plasticity Index 12 %
Corrected water content for material passing 0.425mm					Liquidity Index -0.07
Sample retained 2mm sieve				(Approximate) <1 %	NHBC Modified (I'p) n/a
Curing time		24 hrs		Clay Content	Not analysed
				Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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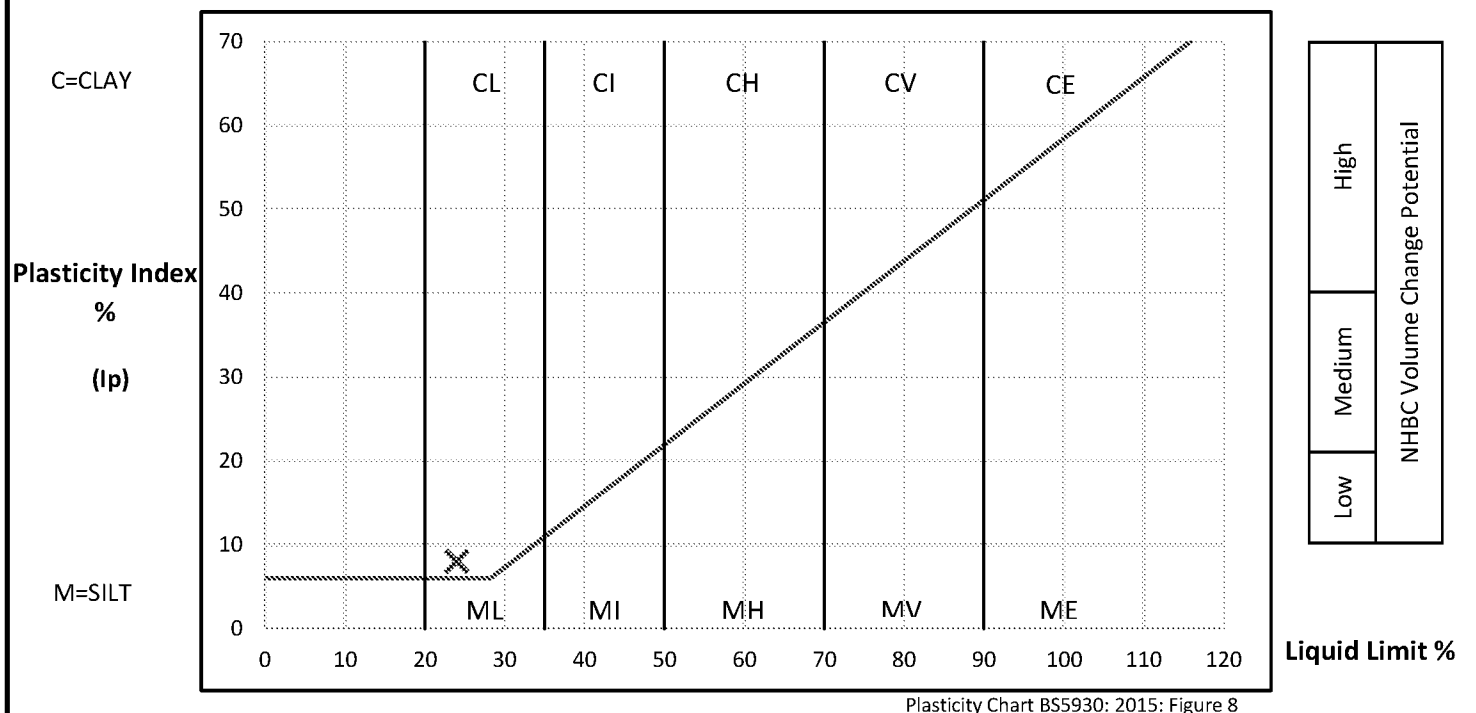
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH07	4.00 - 4.45	U	12	19.5	Soft (Low strength) yellow slightly gravelly slightly sandy silty chalky CLAY with occasional light grey and pale brown mottling. Gravel is white fine to coarse chalk.	

PREPARATION				Liquid Limit	24 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	16 %	
Sample retained 0.425mm sieve		(Measured)	18 %	Plasticity Index	8 %	
Corrected water content for material passing 0.425mm			23.8 %	Liquidity Index	0.44	
Sample retained 2mm sieve		(Measured)	15 %	NHBC Modified (I'p)	7 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

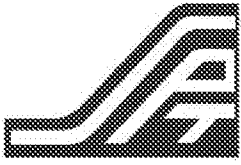


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



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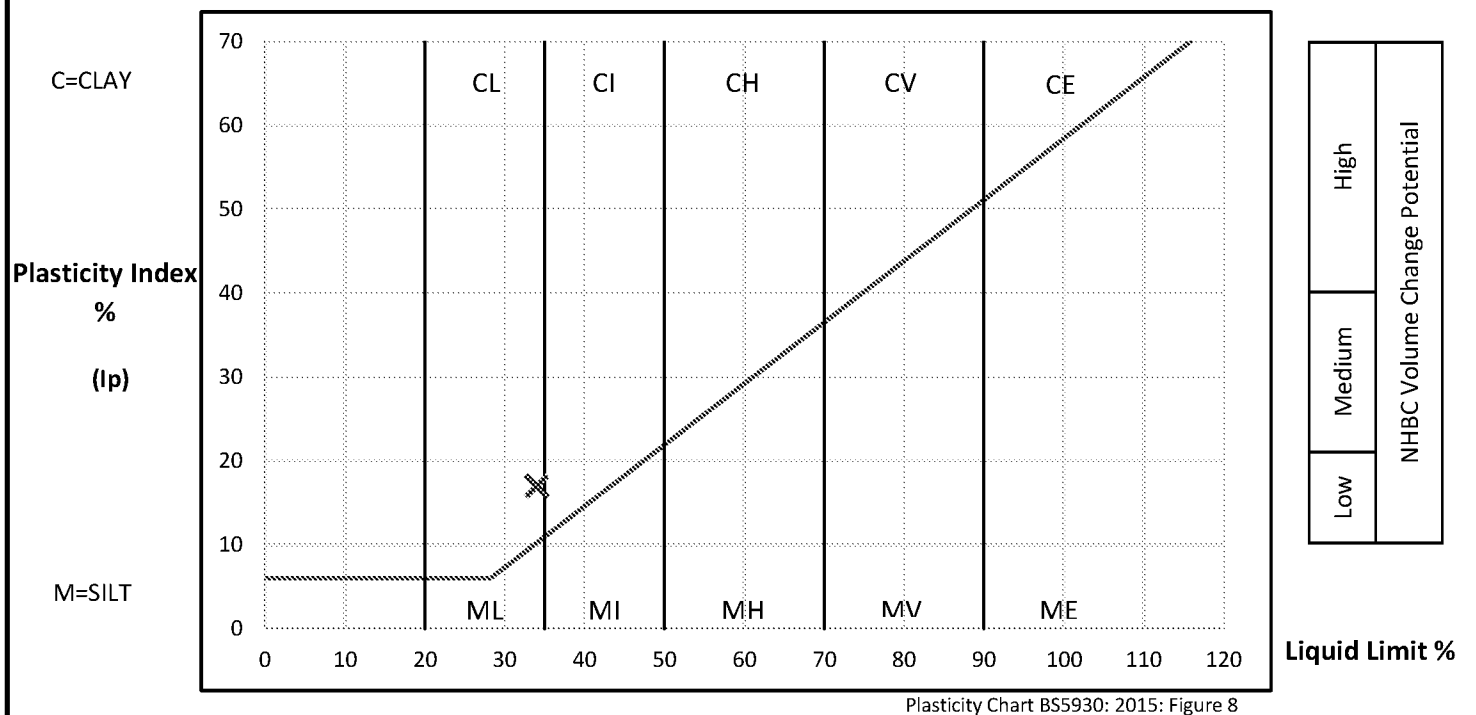
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH08	1.20 - 1.65	D	4	30.8	Very soft dark yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is fine to medium flint.	

PREPARATION				Liquid Limit	34 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	17 %	
Sample retained 0.425mm sieve		(Measured)	12 %	Plasticity Index	17 %	
Corrected water content for material passing 0.425mm			35.0 %	Liquidity Index	0.81	
Sample retained 2mm sieve		(Measured)	7 %	NHBC Modified (I'p)	15 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

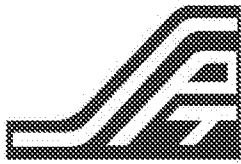


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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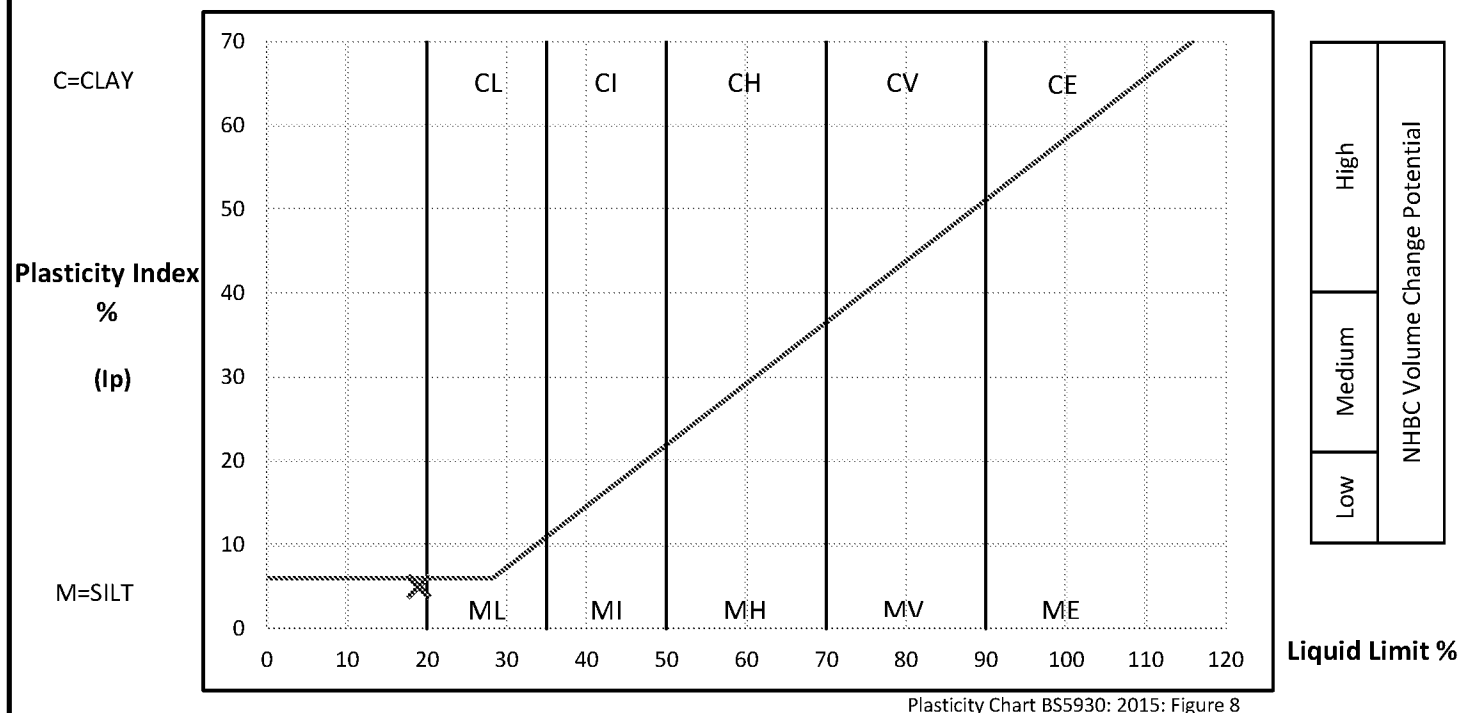
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH08	3.00 - 3.45	U	8	16.1	Stiff yellow slightly gravelly slightly sandy silty clayey CHALK. Gravel is black fine to coarse angular to subangular flint, and white chalk.	

PREPARATION				Liquid Limit	19 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	14 %	
Sample retained 0.425mm sieve		(Measured)	32 %	Plasticity Index	5 %	
Corrected water content for material passing 0.425mm			23.7 %	Liquidity Index	0.42	
Sample retained 2mm sieve		(Measured)	14 %	NHBC Modified (I'p)	3 %	
Curing time		72 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

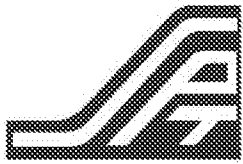


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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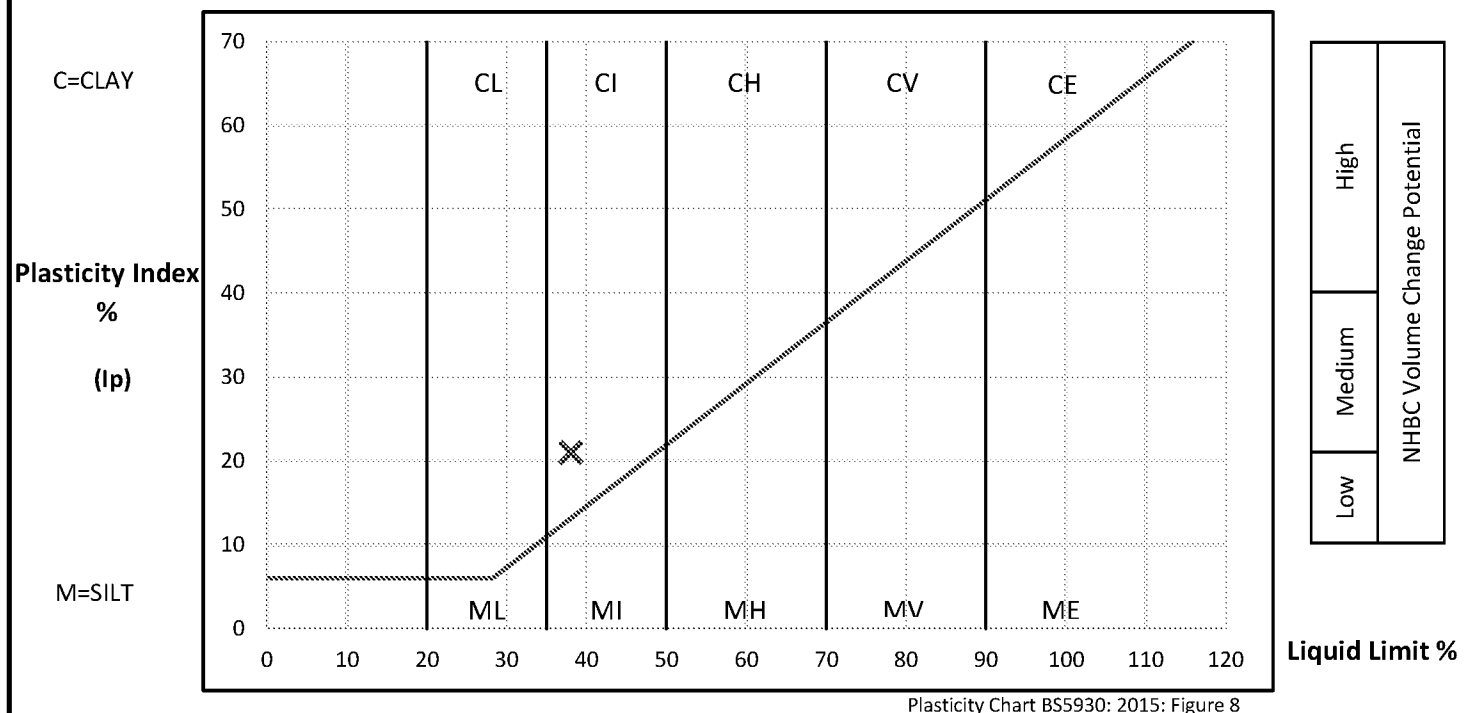
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH09	1.00	D	5	15.6	Stiff friable yellowish brown slightly gravelly slightly sandy silty calcareous CLAY with rare recently active roots. Gravel is fine to medium chalk.	

PREPARATION				Liquid Limit	38 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	17 %	
Sample retained 0.425mm sieve		(Measured)	2 %	Plasticity Index	21 %	
Corrected water content for material passing 0.425mm			15.9 %	Liquidity Index	-0.07	
Sample retained 2mm sieve		(Measured)	1 %	NHBC Modified (I'p)	21 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

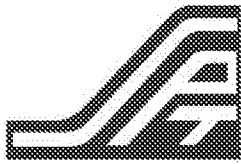


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



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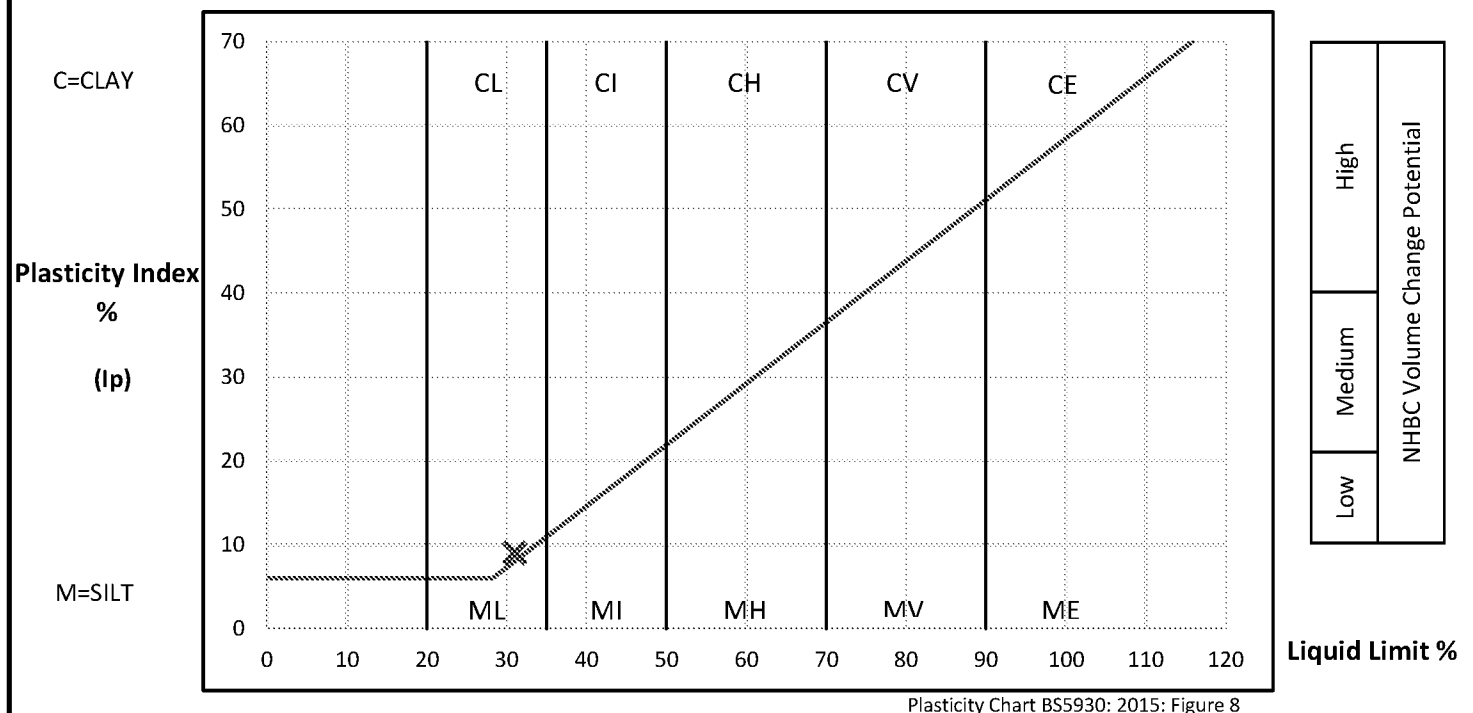
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH11	1.20 - 1.65	U	4	27.0	Very soft (Very low strength) mottled yellowish brown and greyish brown slightly gravelly slightly sandy silty calcareous CLAY with rare organic pockets. Gravel is white fine to medium subangular to rounded chalk, and mudstone.	

PREPARATION				Liquid Limit	31 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	22 %	
Sample retained 0.425mm sieve		(Measured)	4 %	Plasticity Index	9 %	
Corrected water content for material passing 0.425mm			28.1 %	Liquidity Index	0.56	
Sample retained 2mm sieve		(Measured)	3 %	NHBC Modified (I'p)	9 %	
Curing time		72 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

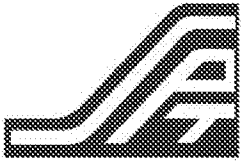


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



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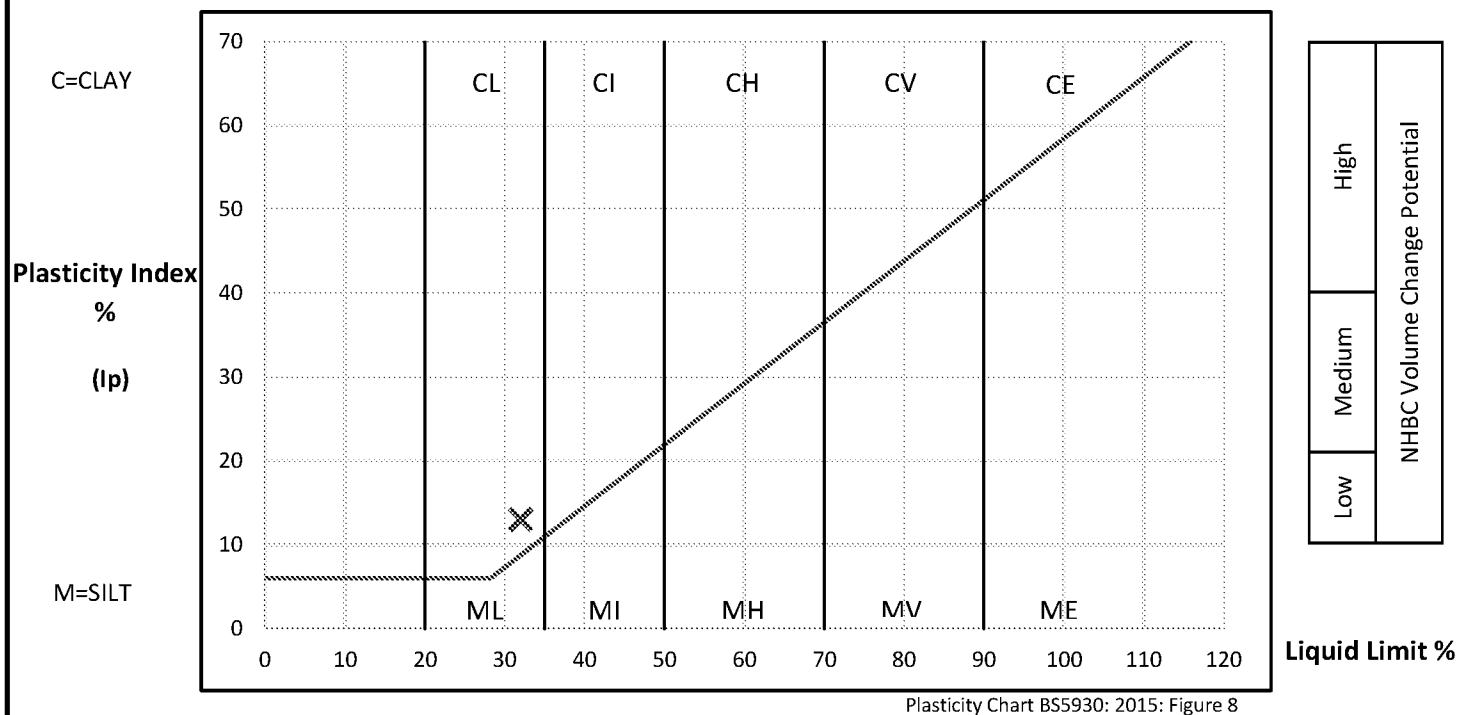
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
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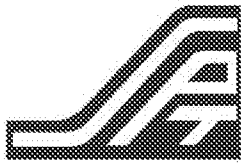
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH11	2.00	D	6	20.1	Soft pale yellow slightly sandy silty chalky CLAY with rare fine chalk gravel.	

PREPARATION				Liquid Limit	32 %	
Method of preparation		From natural/gravel picked out by hand		Plastic Limit	19 %	
Sample retained 0.425mm sieve		(Assumed) %		Plasticity Index	13 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.08	
Sample retained 2mm sieve		(Approximate) <1 %		NHBC Modified (I'p)	n/a	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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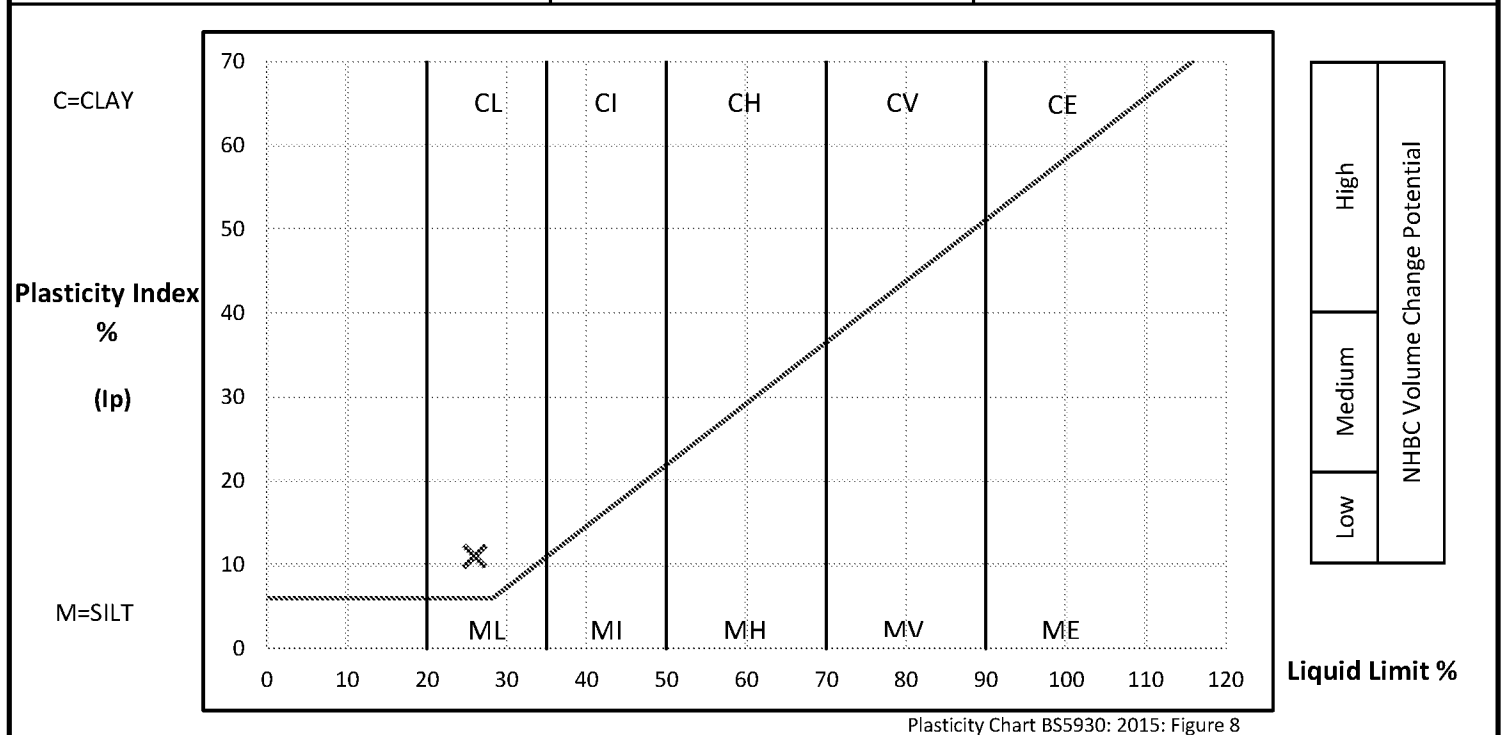
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
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DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH11	3.00 - 3.50	B	10	20.7	Very soft olive yellow slightly gravelly slightly sandy silty chalky CLAY. Gravel is white fine to coarse subangular to rounded chalk, and rare black angular flint.	

PREPARATION				Liquid Limit	26 %	
Method of preparation		Wet sieved over 0.425mm sieve		Plastic Limit	15 %	
Sample retained 0.425mm sieve		(Measured)	15 %	Plasticity Index	11 %	
Corrected water content for material passing 0.425mm			24.4 %	Liquidity Index	0.52	
Sample retained 2mm sieve		(Measured)	11 %	NHBC Modified (I'p)	9 %	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed

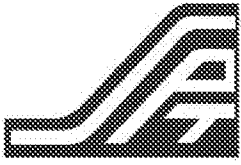


Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = I_p x (% less than 425microns/100)



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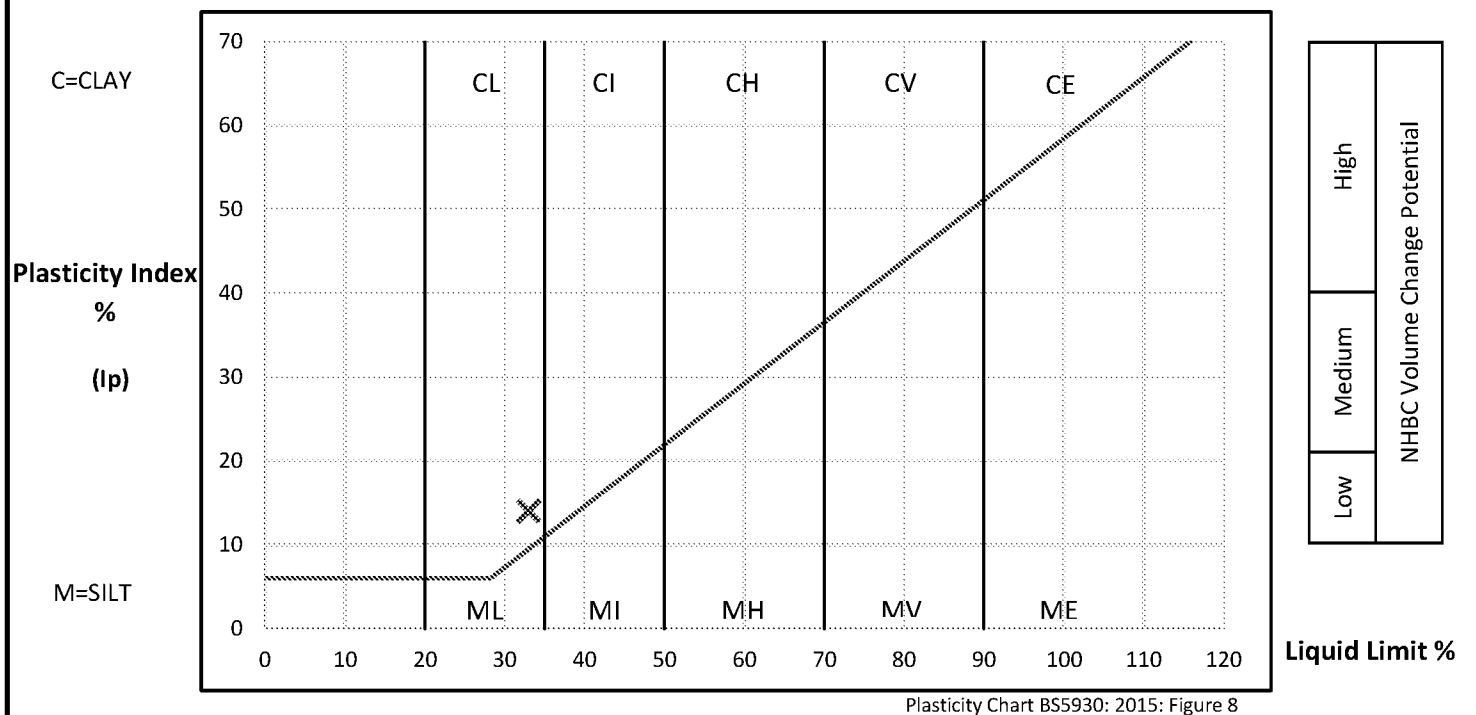
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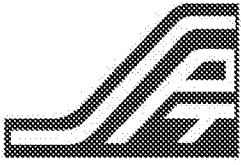
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH12	2.00 - 1.65	D	5	21.6	Firm pale yellow slightly gravelly slightly sandy silty chalky CLAY.	

PREPARATION				Liquid Limit	33 %	
Method of preparation			From natural	Plastic Limit	19 %	
Sample retained 0.425mm sieve		(Assumed)	0 %	Plasticity Index	14 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.19	
Sample retained 2mm sieve		(Assumed)	0 %	NHBC Modified (I'p)	n/a	
Curing time		24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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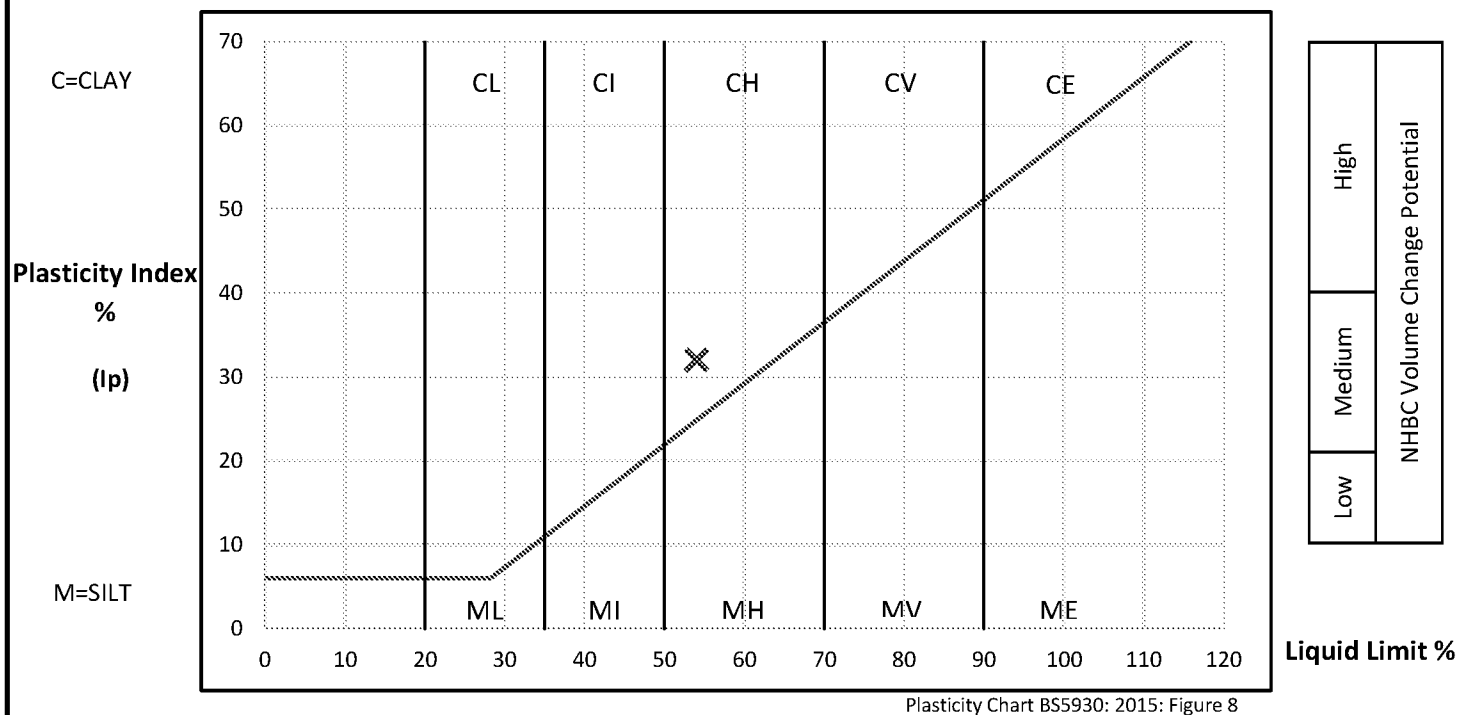
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

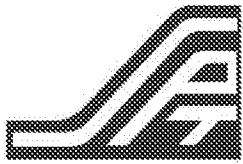
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH13	1.70	D	5	23.9	Stiff yellowish brown CLAY with occasional black speckling.	

PREPARATION				Liquid Limit	54 %		
Method of preparation		From natural		Plastic Limit	22 %		
Sample retained 0.425mm sieve		(Assumed)		0 %	Plasticity Index	32 %	
Corrected water content for material passing 0.425mm				Liquidity Index	0.06		
Sample retained 2mm sieve		(Assumed)		0 %	NHBC Modified (I'p)	n/a	
Curing time		24 hrs		Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 11/12/2018



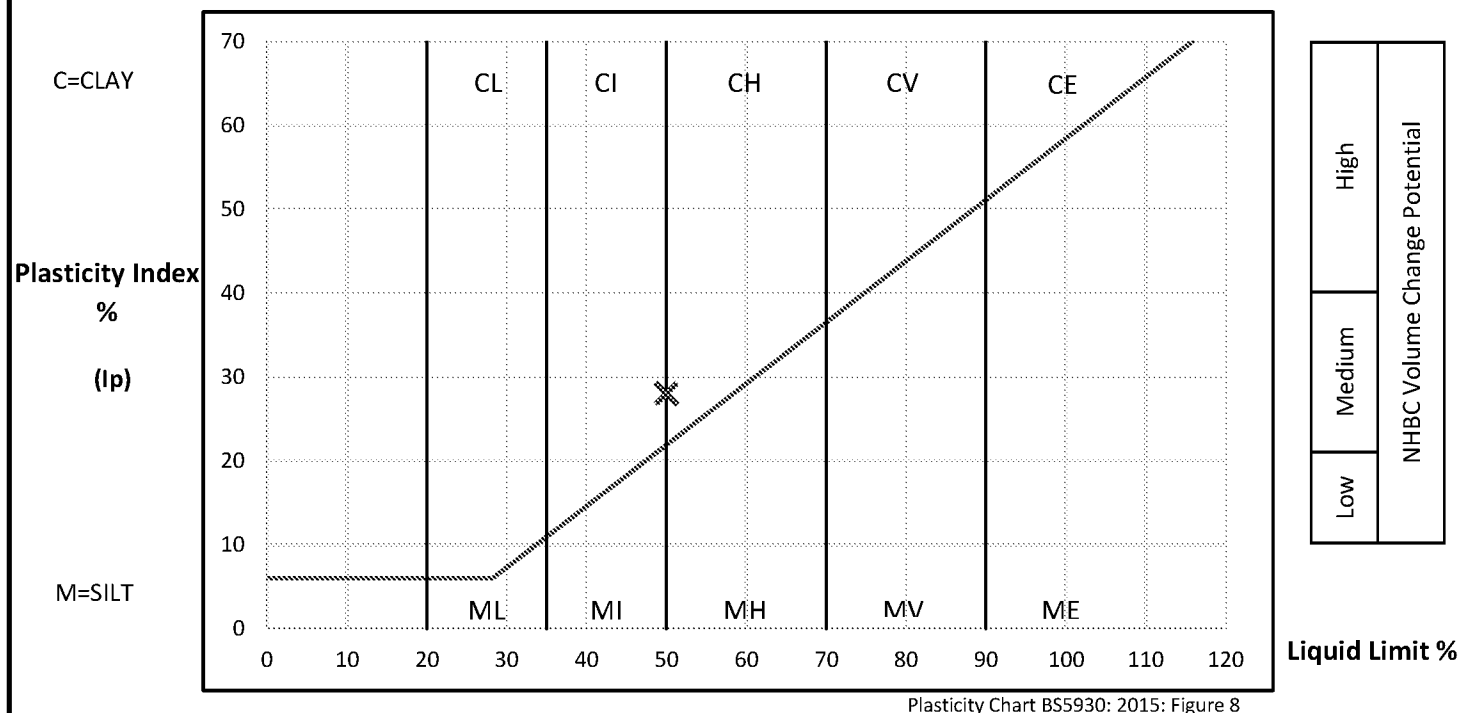
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
BH13	3.00 - 3.65	U	9	25.7	Stiff (High strength) yellowish brown slightly sandy silty calcareous CLAY with occasional light yellowish brown mottling and rare fine to medium subangular to subrounded chalk gravel.	

PREPARATION			Liquid Limit	50 %
Method of preparation		From natural/gravel picked out by hand	Plastic Limit	22 %
Sample retained 0.425mm sieve		(Assumed) %	Plasticity Index	28 %
Corrected water content for material passing 0.425mm			Liquidity Index	0.13
Sample retained 2mm sieve		(Approximate) <1 %	NHBC Modified (I'p)	n/a
Curing time		24 hrs	Clay Content	Not analysed
			Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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Contract		UK17.2707D - Saltbox Site, Bognor Regis										
Serial No.		34094-2										
DETERMINATION OF DENSITY, WATER CONTENT AND UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE												
Borehole /Pit No.	Depth (m)	Type	Reference	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)	Lateral Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	Mohrs Circle Analysis		Description
										Cu (kPa)	Ø degrees	
BH03	1.20 - 1.65	U	4	15.8	2.16	1.87	24	107	54	32	18.4	Firm (Medium strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional pale brown mottling. Gravel is fine to medium chalk and rare flint.
							53	139	70			
							80	159	80			
BH06	1.20 - 1.65	U	5	17.6	2.22	1.89	27	35	18	3	19.5	Very soft (Very low strength) yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk and rare flint.
							54	70	35			
							78	79	40			
BH07	2.00 - 2.45	U	6	16.2	2.20	1.89	40	347	174	125	14.1	Very stiff (Very high strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional yellow and pale brown mottling. Gravel is fine to medium chalk.
							81	375	188			
							121	395	198			
BH07	4.00 - 4.45	U	12	19.5	2.06	1.72	82	51	26	22	1.7	Soft (Low strength) yellow slightly gravelly slightly sandy silty chalky CLAY with occasional light grey and pale brown mottling. Gravel is white fine to coarse chalk.
							158	53	27			
							244	61	31			
BH11	1.20 - 1.65	U	4	27.0	1.94	1.53	23	26	13	11	3.1	Very soft (Very low strength) mottled yellowish brown and greyish brown slightly gravelly slightly sandy silty calcareous CLAY with rare organic pockets. Gravel is white fine to medium subangular to rounded chalk, and mudstone.
							49	28	14			
							76	32	16			
BH13	3.00 - 3.65	U	9	25.7	2.06	1.64	61	220	110	97	4.6	Stiff (High strength) yellowish brown slightly sandy silty calcareous CLAY with occasional light yellowish brown mottling and rare fine to medium subangular to subrounded chalk gravel.
							122	228	114			
							182	239	120			
Method of Preparation:			BS 1377: Part 1: 1990: 7.4.2 & 8, Part 2: 1990: 7.2, Part 7: 1990: 8.3									
Method of Test:			BS 1377: Part 2: 1990:3 Determination of Moisture Content, Part2: 1990:7 Determination of Density, Part 7: 1990: 8 Undrained Shear Strenth, 9 Multistage Loading									
Type of Sample Key:			U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter									
Comments:												
Remarks to Include:			Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C									



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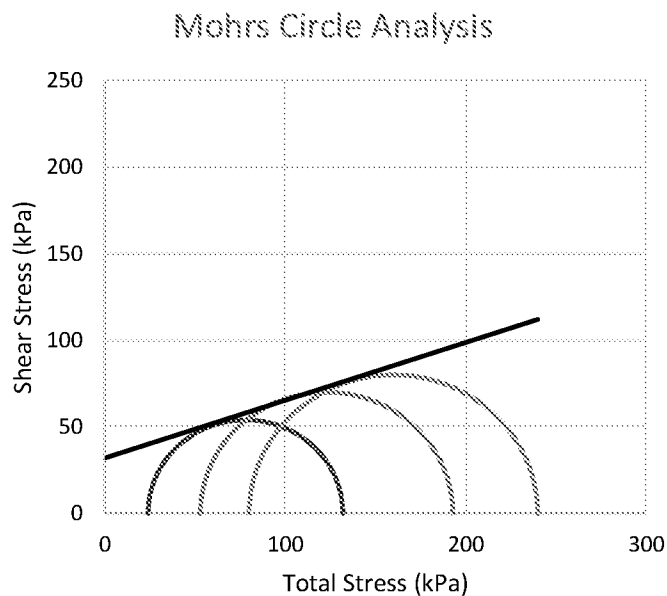
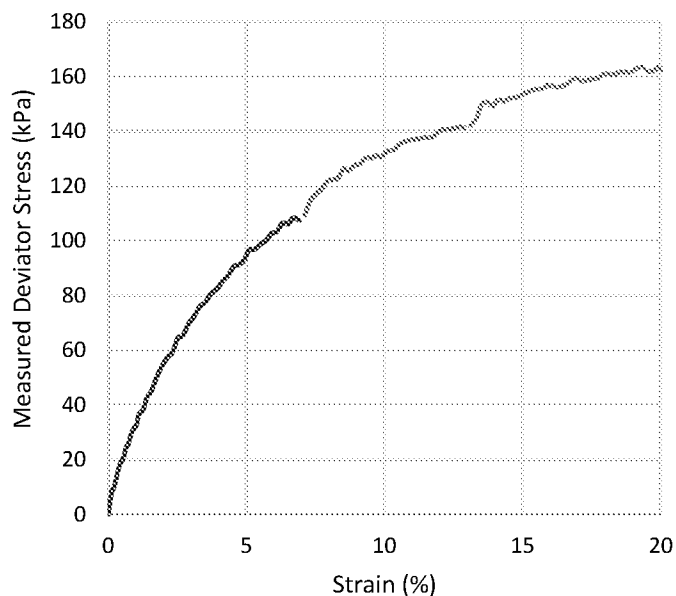
Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH03	1.20 - 1.65	U	4	Firm (Medium strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional pale brown mottling. Gravel is fine to medium chalk and rare flint.	

Initial Specimen		Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
	Depth of Top of Specimen (m)	198.9	101.7	3486	15.8	2.16	1.87
	1.26						

TEST INFORMATION Rate of Strain 2.0 % per Min Rubber Membrane Thickness 0.6 mm



Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	PHI (degrees)
	24	6.7	1.0	/	107	54	32	18.4
	53	12.7	1.6	1.6	139	70		
	80	19.3	2.2	1.8	159	80		

Method of Preparation: BS 1377: Part 1: 1990

Method of Test: BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments: Tested in Vertical Condition

UKAS Calibration - loads from 0.2 to 10kN

Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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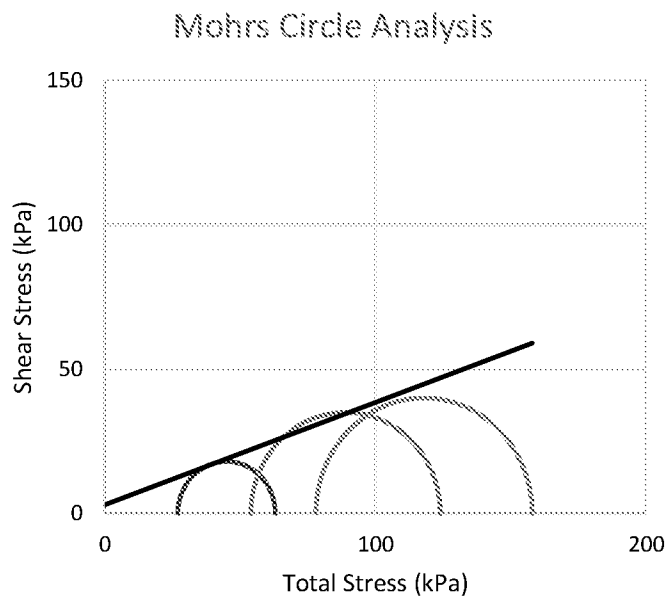
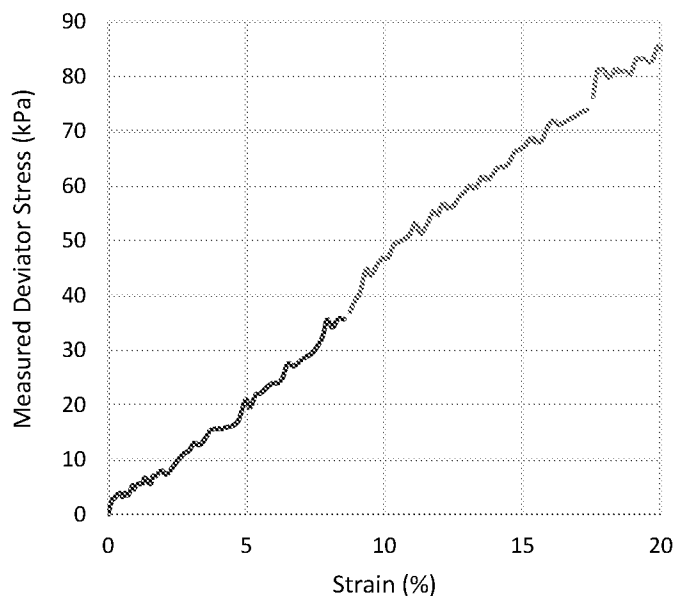
Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole / Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH06	1.20 - 1.65	U	5	Very soft (Very low strength) yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to medium chalk and rare flint.	

Initial Specimen		Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
	Depth of Top of Specimen (m)	179.2	103.2	3323	17.6	2.22	1.89
	1.23						

TEST INFORMATION Rate of Strain 2.0 % per Min Rubber Membrane Thickness 0.6 mm



Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)_f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)_f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	27	8.3	1.1	/	35	18	3	19.5
	54	17.3	2.0	1.8	70	35		
	78	19.9	2.2	3.4	79	40		

Method of Preparation: BS 1377: Part 1: 1990

Method of Test: BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments: Tested in Vertical Condition

UKAS Calibration - loads from 0.2 to 10kN

Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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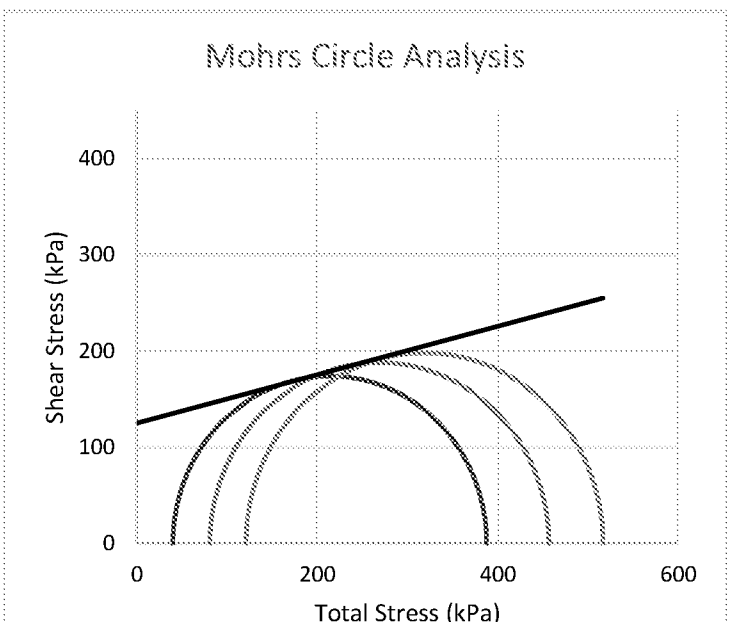
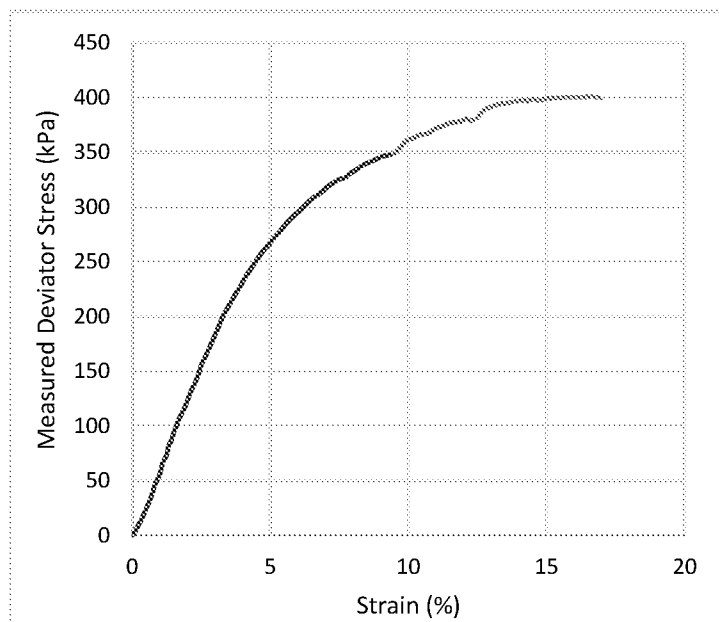
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Serial No.	34094-2

DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH07	2.00 - 2.45	U	6	Very stiff (Very high strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional yellow and pale brown mottling. Gravel is fine to medium chalk.	

Initial Specimen	Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
Depth of Top of Specimen (m) 2.09	184.0	101.4	3276	16.2	2.20	1.89

TEST INFORMATION	Rate of Strain	1.9 % per Min	Rubber Membrane Thickness	0.6 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	PHI (degrees)
	40	9.4	1.3	/	347	174	125	14.1
	81	12.1	1.5	3.5	375	188		
	121	16.5	1.9	3.7	395	198		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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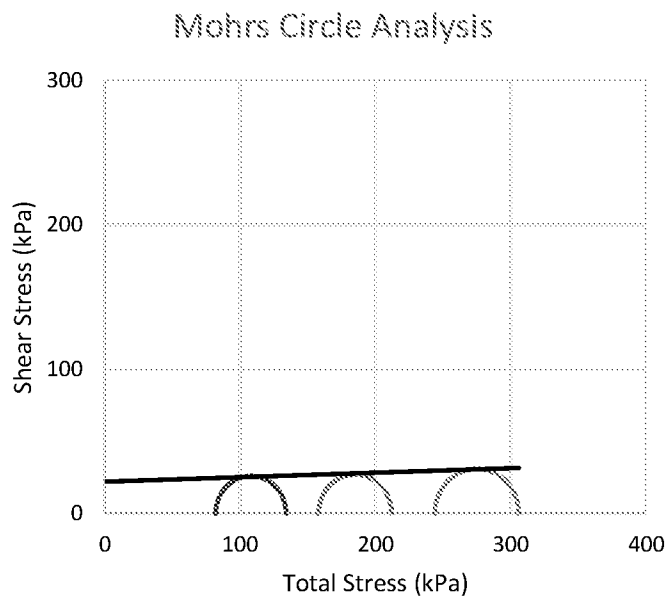
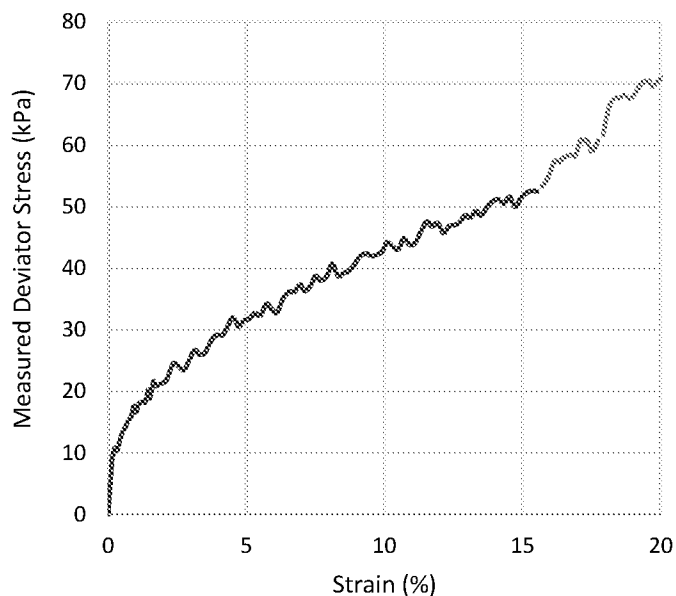
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Serial No.	34094-2

DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH07	4.00 - 4.45	U	12	Soft (Low strength) yellow slightly gravelly slightly sandy silty chalky CLAY with occasional light grey and pale brown mottling. Gravel is white fine to coarse chalk.	Coarse gravel noted in sample after test.

Initial Specimen		Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
	Depth of Top of Specimen (m)	195.0	104.1	3421	19.5	2.06	1.72
	4.02						

TEST INFORMATION Rate of Strain 2.1 % per Min Rubber Membrane Thickness 0.6 mm



Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	ϕ (degrees)
	82	15.3	1.8	/	51	26	22	1.7
	158	17.8	2.0	5.7	53	27		
	244	20.1	2.2	8.1	61	31		

Method of Preparation: BS 1377: Part 1: 1990

Method of Test: BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading

Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter

Comments: Tested in Vertical Condition

UKAS Calibration - loads from 0.2 to 10kN

Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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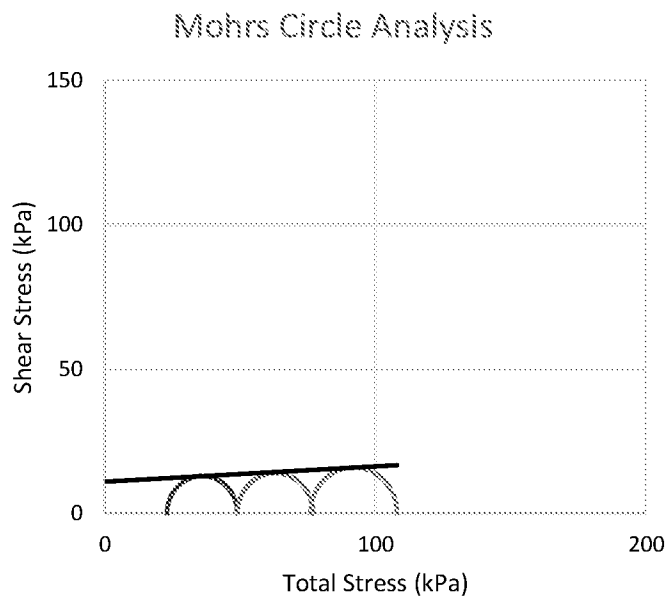
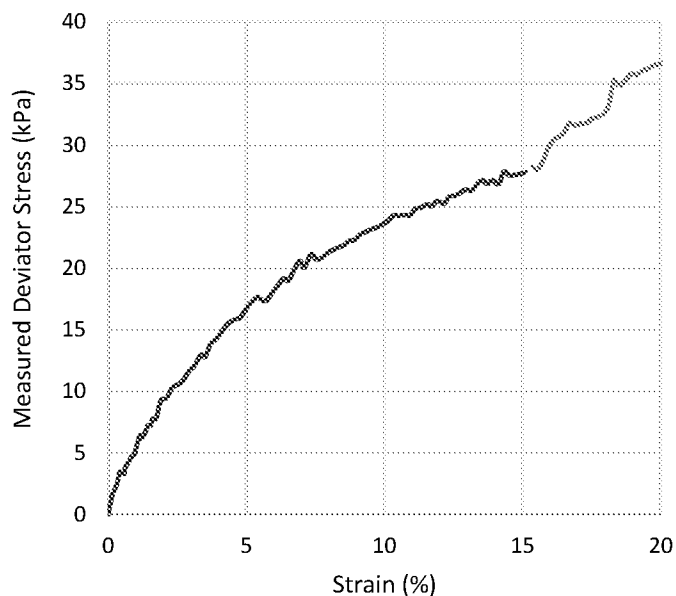
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Serial No.	34094-2

DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH11	1.20 - 1.65	U	4	Very soft (Very low strength) mottled yellowish brown and greyish brown slightly gravelly slightly sandy silty calcareous CLAY with rare organic pockets. Gravel is white fine to medium subangular to rounded chalk, and mudstone.	

Initial Specimen		Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
	Depth of Top of Specimen (m)	166.2	102.7	2669	27.0	1.94	1.53
	1.27						

TEST INFORMATION	Rate of Strain	2.0 % per Min	Rubber Membrane Thickness	0.6 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	PHI (degrees)
	23	14.3	1.7	/	26	13		
	49	17.8	2.0	1.5	28	14	11	3.1
	76	20.1	2.3	3.0	32	16		

Method of Preparation: BS 1377: Part 1: 1990
 Method of Test: BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
 Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
 Comments: Tested in Vertical Condition
 UKAS Calibration - loads from 0.2 to 10kN
 Remarks to Include: Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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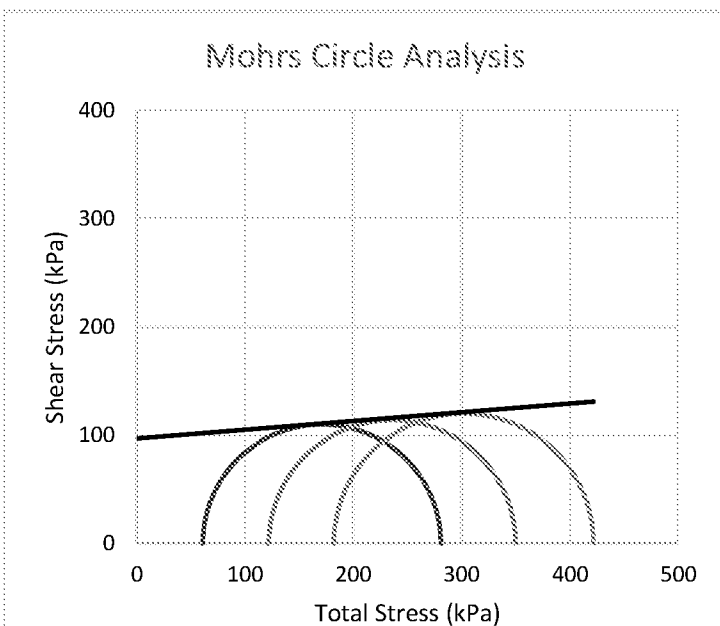
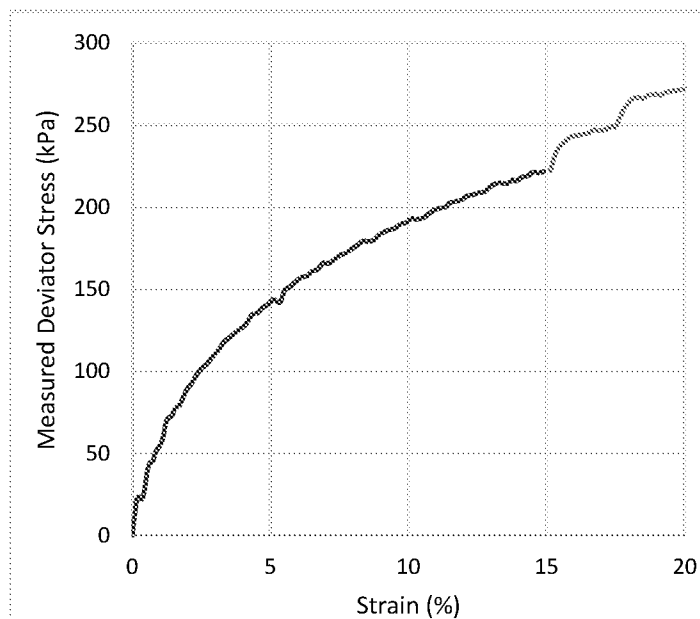
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Serial No.	34094-2

DETERMINATION OF UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

Borehole /Pit No.	Depth (m)	Type	Reference	Description	Remarks
BH13	3.00 - 3.65	U	9	Stiff (High strength) yellowish brown slightly sandy silty calcareous CLAY with occasional light yellowish brown mottling and rare fine to medium subangular to subrounded chalk gravel.	Short sample recovery - U38 specimen prepared and tested.

Initial Specimen		Height (mm)	Diameter (mm)	Weight (g)	Water Content (%)	Bulk Density (Mg/m³)	Dry Density (Mg/m³)
	Depth of Top of Specimen (m)	76.3	37.6	174	25.7	2.06	1.64
	3.03						

TEST INFORMATION	Rate of Strain	2.4 % per Min	Rubber Membrane Thickness	0.3 mm
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Specimen at failure	Measured Cell Pressure, σ_3 (kPa)	Strain at Failure (%)	Stress Corrections (kPa)		Corrected Max. Deviator Stress, $(\sigma_1 - \sigma_3)f$ (kPa)	Shear Stress C_u , $\frac{1}{2}(\sigma_1 - \sigma_3)f$ (kPa)	Mohr's Circle Analysis	
			Rubber Membrane	Piston Friction			C_u (kPa)	PHI (degrees)
	61	14.9	2.4	/	220	110	97	4.6
	122	17.3	2.7	18.3	228	114		
	182	20.1	3.1	30.3	239	120		

Method of Preparation:	BS 1377: Part 1: 1990
Method of Test:	BS 1377: Part 7: 1990: 8 Definitive Method, 1990: 9 Multi-stage loading
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Tested in Vertical Condition UKAS Calibration - loads from 0.2 to 10kN
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C



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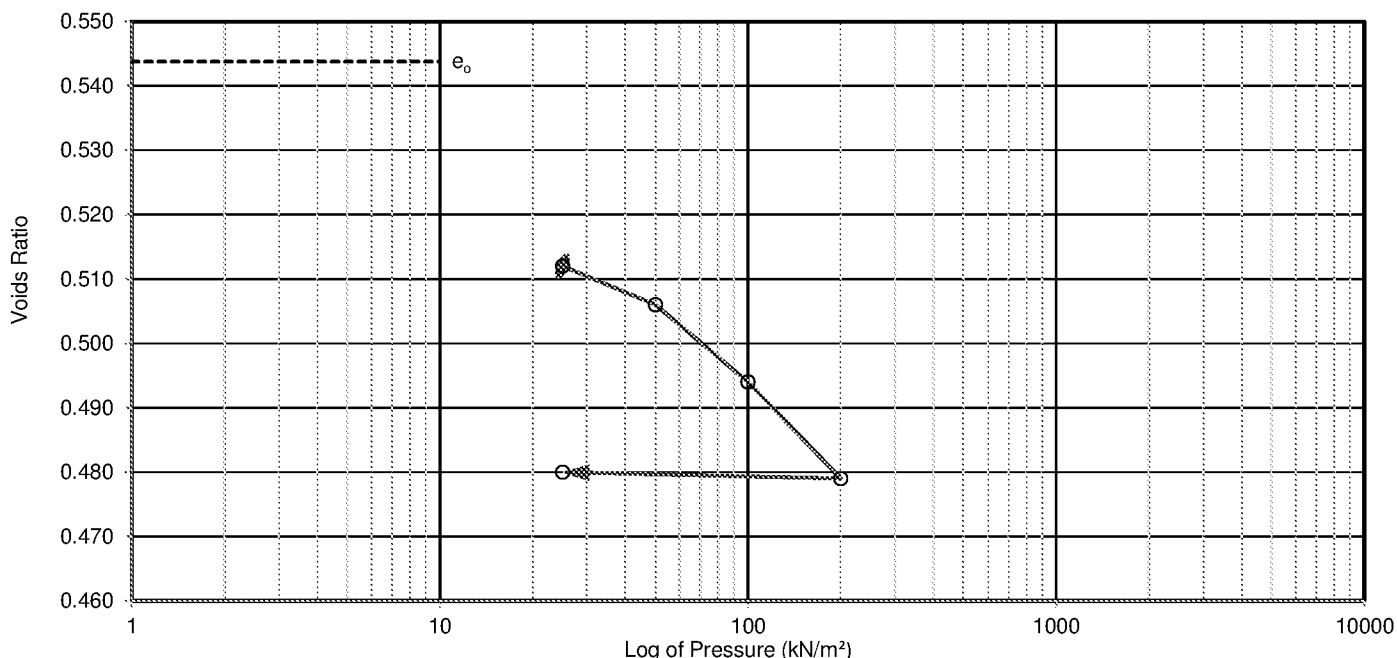
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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Borehole/ Pit No.	Depth (m)	Type	Ref.	Specimen Depth (m) and Orientation	Water Content (%)	Description	Remarks
BH03	1.20 - 1.65	U	4	1.23 Horizontal	20.1	Firm (Medium strength) brownish yellow slightly gravelly slightly sandy silty calcareous CLAY with occasional pale brown mottling. Gravel is fine to medium chalk and rare flint.	Visible gravel picked out and replaced with matrix material.

Initial Conditions			Increment No.	Load (kN/m ²)	Change in Height (mm)	Void Ratio	Cv (m ² /yr)	Mv (m ² /MN)	Temp (°C)	Corrected Cv
Height	mm	18.64	1	25	0.384	0.512	1.10	0.82	20	1.10
Diameter	mm	50.02	2	50	0.459	0.506	0.60	0.16	20	0.60
Wet Weight	g	77.16	3	100	0.595	0.494	0.94	0.15	20	0.94
Water Content	%	20.1	4	200	0.780	0.479	1.30	0.10	20	1.30
Bulk Density	Mg/m ³	2.11	5	25	0.766	0.480		0.00	19	
Particle Density		Assumed 2.71								
Voids Ratio		0.544								
Degree of Saturation	%	100								
Swelling Pressure	kN/m ²	<25								
Dry Density	Mg/m ³	1.76								



Method of Preparation: BS 1377: Part 5: 1990: 3.3 & 3.4
Method of Test: BS 1377: Part 5: 1990: 3.5
Method of Time Fitting Used: Square root
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:

Remarks to Include: Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110 °C.



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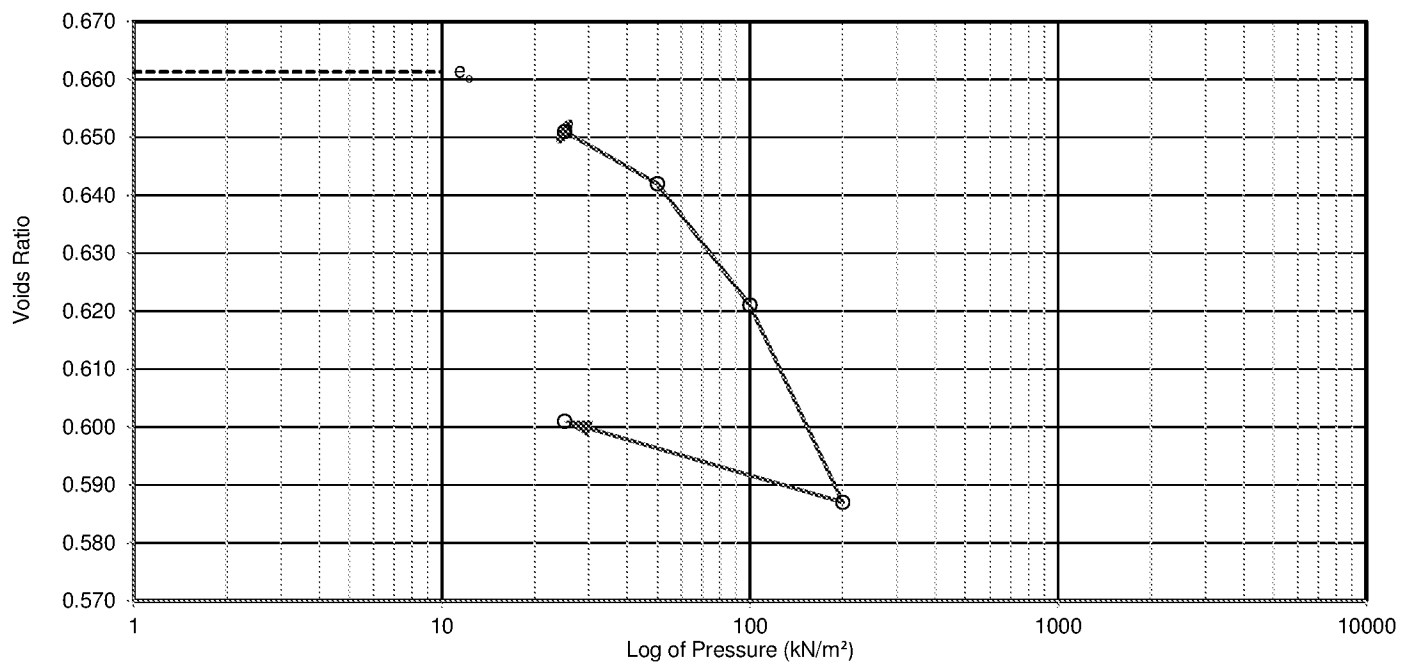


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Contract	UK17.2707D - Saltbox Site, Bognor Regis
Serial No.	34094-2

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Borehole/ Pit No.	Depth (m)	Type	Ref.	Specimen Depth (m) and Orientation	Water Content (%)	Description				Remarks		
BH11	1.20 - 1.65	U	4	1.23 Horizontal	24.8	Soft light orangish brown slightly sandy silty CLAY with rare grey mottling, and orange ironstaining. Sand is fine.				Rare backfilling with matrix material required during preparation.		
Initial Conditions					Increment No.	Load (kN/m ²)	Change in Height (mm)	Void Ratio	Cv (m ² /yr)	Mv (m ² /MN)	Temp (°C)	Corrected Cv
Height	mm	18.79			1	25	0.116	0.651	1.60	0.25	20	1.60
Diameter	mm	75.03			2	50	0.214	0.642	0.45	0.21	21	0.44
Wet Weight	g	165.45			3	100	0.451	0.621	0.39	0.26	20	0.39
Water Content	%	24.8			4	200	0.835	0.587	0.56	0.21	20	0.56
Bulk Density	Mg/m ³	1.99			5	25	0.677	0.601		0.05	20	
Particle Density		Assumed 2.65										
Voids Ratio		0.661										
Degree of Saturation	%	100										
Swelling Pressure	kN/m ²	<25										
Dry Density	Mg/m ³	1.60										



Method of Preparation:	BS 1377: Part 5: 1990: 3.3 & 3.4
Method of Test:	BS 1377: Part 5: 1990: 3.5
Method of Time Fitting Used:	Square root
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	
Remarks to Include:	Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110 °C.



Exova Jones Environmental

Registered Office: Exova Jones Environmental Ltd, Unit 3 Deeside Point, Deeside Industrial Park, Deeside, CH5 2UA

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

EPS Ltd
7B Caxton House
Broad Street
Cambourne
Cambridgeshire
CB23 6JN



Attention :	Daryl Bowell
Date :	27th November, 2018
Your reference :	UK17.2707D
Our reference :	Test Report 18/18849 Batch 1
Location :	Salt Box, Bognor Regis, PO22 9NP
Date samples received :	22nd November, 2018
Status :	Final report
Issue :	1

Nineteen samples were received for analysis on 22nd November, 2018 of which nineteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:



Bruce Leslie
Project Co-ordinator

Client Name: EPS Ltd
Reference: UK17.2707D
Location: Salt Box, Bognor Regis, PO22 9NP
Contact: Daryl Bowell

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/18849

SOILS

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

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

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

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

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

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

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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

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

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

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

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

WATERS

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

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

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

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

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

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

DILUTIONS

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

BLANKS

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

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

ABBREVIATIONS and ACRONYMS USED

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

JE Job No: 18/18849

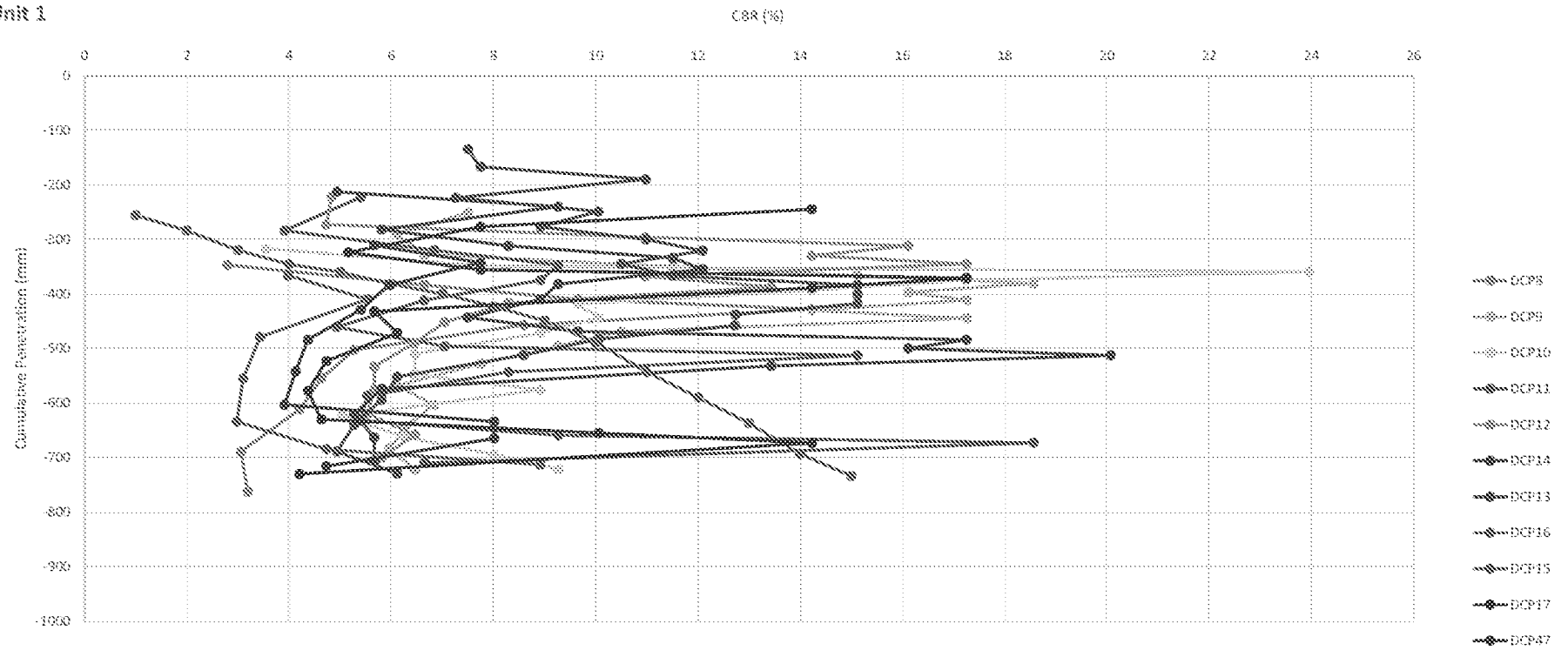
[illegible]



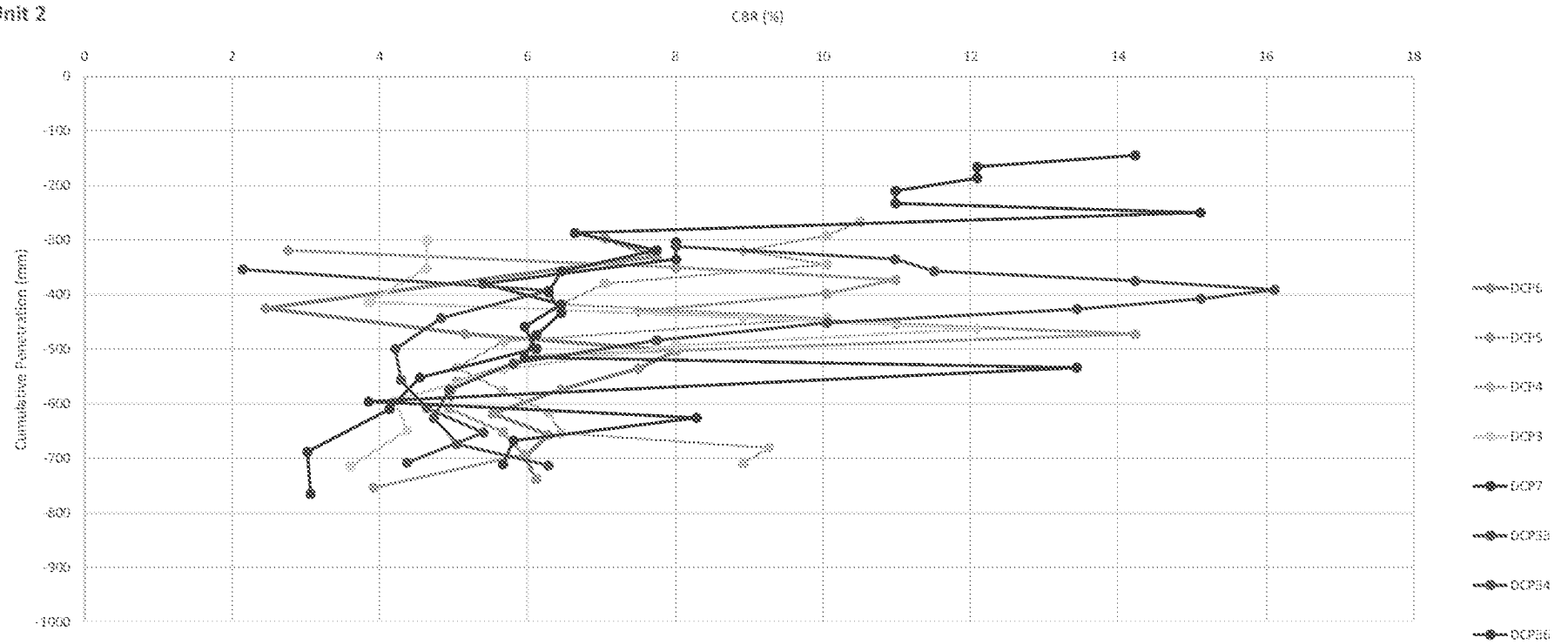
APPENDIX F

DCP Testing Results

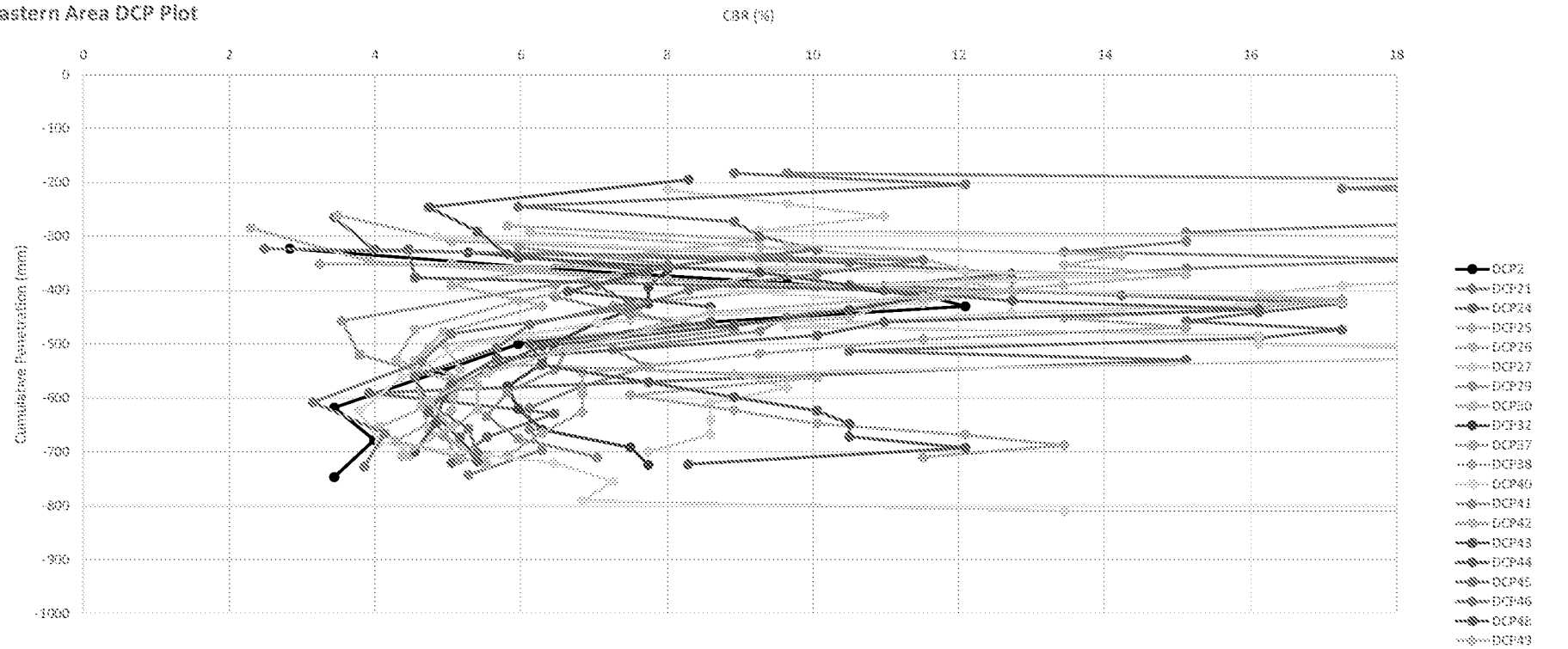
Unit 1



Unit 2



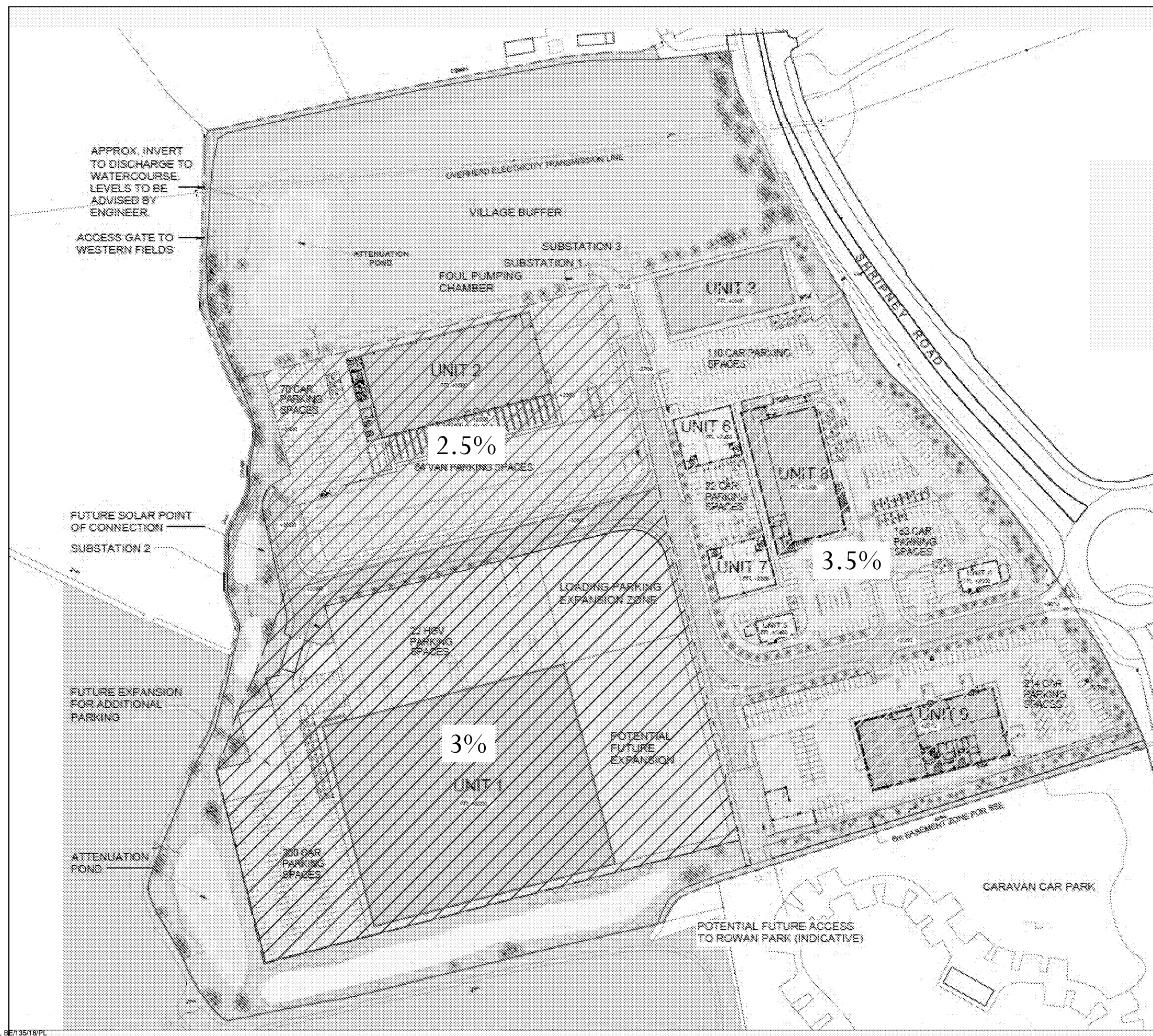
Eastern Area DCP Plot





APPENDIX G

CBR Recommendations



KEY:

- Approximate Site Boundary
- Unit 1
- Unit 2
- Eastern Area

Fig No: G

Title: CBR Recommendations

Project: Saltbox, Bognor Regis

Scale: NTS - For illustration purposes only
Drawn By: DB
Job No: UK17.2707D
Dwg No: Saltbox/1218/G
Date: December 2018

