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Proposed Residential Development
Florida Farm
St Helens

Ground Investigation Report
Revision 05 (July 2025)

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WA11 0UZ

GROUND INVESTIGATION REPORT
(Revision 05 – July 2025)

Soiltechnics Ltd. Unit 9, Clarence Avenue, Westpoint Enterprise Park, Trafford Park, Manchester, M17 1QS
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Any updates to the report as revision 03 to 05 are denoted by a triple black line within the left-hand margin.

Aerial photograph of site



Approximate site boundaries edged in **magenta**

Report status and format

Report section	Principal coverage	Report status
1	Executive summary	(Rev_1) Updated following completion of further investigations
2	Introduction	
3	Desk study information and site observations	
4	Fieldwork	(Rev_02) Updated following receipt of consultee comments and revised development plan
5	Laboratory testing	
6	Ground conditions encountered	
7	Coal Mining Risk Assessment	(Rev_03) Updated following completion of additional investigations in March 2024
8	Engineering assessment	
9	Chemical contamination	
10	Gaseous contamination	(Rev_04) Updated following review of coal mine gas risk, radon risk and sulphate attack on concrete
11	Effects of ground conditions on building materials	
12	Landfill issues	
13	Further investigations	(Rev_05) Updated to reference correct number of units being constructed

List of drawings

Drawing	Principal coverage
01	Site location plan
02 (a-c)	Exploratory hole plan (current layout)
03 (a-e)	Aerial imagery showing location of trial pits to delineate areas of historic pond/infilled land/soft ground local to RBH05, RBH13, RBH14, RBH15 and RBH16
04 (a-c)	Plan showing areas of coal mining features
05 (a-d)	Soil desiccation plots
07	Radon Protection Zone Plan
08	Gas Protection Zoning Plan
09	Coal Mine Gas Risk Plan

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C	Investigation data sheets
D1	2017 Borehole records (driven tube sampling techniques) including infiltration test results
D2	2022 Borehole records (driven tube sampling techniques) in Jaundrill Plot
D3	2022 Borehole records (rotary)
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D5	2024 Hand pit records in Jaundrill Plot
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D7	2024 Borehole records (rotary)
E	Copies of laboratory test result certificates – classification and physical testing
F	Copies of laboratory test result certificates – concentrations of chemical contaminants
G	Analysis and summary of test data in relation to concentrations of chemical contaminants
H	Conceptual models for chemical contamination
I	Copies of statutory undertakers' replies
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K	Preliminary Unexploded Ordnance Risk Review
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N	Proposed Development Layout (2024)
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P	BGS Radon Report (2023)

1 Executive summary

General

We recommend the following executive summary is not read in isolation to the main report which follows. We also recommend that this report is read in conjunction with our desk study (ref R-STN3680NM-DS01) and coal mining risk assessment reports (ref R-STN3680NM-CMRA01-Rev03).

Site description, history and development proposals

The site comprises agricultural land with a small area in the centre of the site occupied by farm buildings. A small section of the site in the south west is occupied by private gardens and overgrown vegetation (Jaundrill plot). Topographical levels generally fall by approximately 10m from north to south across the site.

Majority of the site has been recorded as arable land, with the current farm buildings recorded in some form from the earliest historical maps and the south-western part of the site recorded as vegetated land, possibly even a quarry, with small buildings recorded during recent years. A number of relatively small coal pits, and later shafts, have been recorded locally across the site, in addition to a mineral railway in the western most field. In more recent times a tennis court was recorded in the north-eastern corner of the site, with a small pond likely to have been backfilled adjacent to the south-west of Florida Farm.

We understand that proposals are for the construction of 445No. residential units together with gardens, landscaped areas and access roads constructed to standards allowing adoption by the local highway authority.

A potential risk relating to Unexploded Ordnance (UXO) was identified. Consequently a detailed unexploded ordnance desk study was obtained. The report generally concluded that the risk of a UXO encounter was considered low. The report also makes additional recommendations relating to the construction phase.

Ground conditions encountered

Topsoil was encountered overlying soft to stiff low to very high strength clay of the Devensian Till with localised sand lenses. More extensive granular soils were encountered within northern and south-eastern parts of the site. Made Ground deposits were also encountered locally, the deepest centred around the farmhouse (approx. 1.35m), areas of historical ponds (>4.45m), the area proximal to the capped mine shaft in the north centre of the site (up to 3.0m) and the Jaundrill Plot (up to 2.4m but known to be 6m on land adjacent to the north). Devensian Till is underlain by bedrock of the Pennine Middle Coal Measures Formation at depth, which was noted to be shallowest in the western/south-western part of the site (c.2m below existing levels). Groundwater is unlikely to be encountered in excavations extending to depths of up to 2.0m-3.0m. It is also noted that when encountered at such depths, groundwater is sub-artesian and rises to within 1m of surface level in most cases.

Foundation solution

Traditional strip/trench fill type foundations considered suitable for the site, located at a minimum depth of 0.9m. Foundations will require deepening locally due to the presence of reworked and low strength soils and Made Ground. Where the depth of such soils is significant (c.>2.5m), ground improvement measures, such as piling, may be required. In addition, preliminary moisture depletion surveys undertaken at the site (due to effects of crops) has proved inconclusive.

Ground bearing floor slabs can be adopted where buildings are remote from trees and crops, where Made Ground and Topsoil deposits are fully removed within the footprint of the building. This is subject to the outcome of further moisture depletion surveys. Suspended slabs will be required where Made Ground/fill depths exceed 0.6m.

A CBR value of 2.17% is considered representative of near surface soils. Buried concrete at the site would be generally be classified as DS-2 AC-2s.

Made Ground within the infilled pond local to RBH05 has been classified as DS-4 AC-3s, however, no plots are to be developed in this area. Made Ground elsewhere on site is classified as DS-2 AC-1s and natural soils and rock are classified as DS-1 AC-1s.

Infiltration testing indicates that the near surface Devensian Till deposits are impermeable, and due to the limited lateral extent of sand horizons, which are water bearing, disposal of surface water via soakaways is unlikely to be viable. The brook along the southern boundary of the site, and stream flowing through the central part of the site, could potentially be considered as options.

Coal mining

Based on the preliminary coal mining risk assessment report we have previously identified land instability risks associated with a large number of mine shafts and possible shallow unrecorded workings in western, central and eastern parts of the site. Further works were undertaken as part of our Coal Mining Risk Assessment Report (STN3680NM-CMRA01_Rev03) to quantify such risks. Further details are presented within that report.

In summary, the worked Lower Florida coal seam within RBH05 and RBH201 was recorded at depths of 22.9m and 23.9m respectively with a maximum worked thickness of 1.3m. In addition, the same seam is considered to have been worked at depths of 28.4m to 29.3m (0.9m thick). Any collapse would migrate to within 9.9m of the surface, therefore, the risk from ground instability to the proposed development from the Lower Florida seam is considered low. This is on the basis that foundation stresses are kept shallow and any piled foundations have a shallow socket into the top of the bedrock where required.

In the centre of the site surrounding RBH16 shallow voiding was recorded in RHB209 between depths of 6.4-8.3m and potential collapsed workings were noted in RBH210 between depths of 10.4-11.5m, likely relating to workings within the Bottom Yard/Higher Florida Coal seams. Collapse of such suspected workings could present a significant land instability risk to the development, and suitable treatment is necessary, such as grouting.

The shafts located to date also present a land instability risk to the proposed development. The Coal Authority, however, strongly advises against construction over abandoned shafts, even following remediation. The minimum distance for structures from open or poorly filled shafts depends on the nature and thickness of the superficial deposits. Further details with respects to the exclusions zone of the recorded shafts are provided within Section 6 of our Coal Mining Risk Assessment Report (STN3680NM-CMRA01_Rev03).

Chemical and gaseous contamination

We have not identified any significant chemical contamination at the subject site. Removal of shallow soils to depths of 0.3m where soft landscaping is proposed may be required in areas adjacent to the existing farm buildings (DTS61 and DTS74). Presence of ACM in soils on site (albeit very localised to WS206) will require consideration in the construction phase health and safety plan. Special precautions are considered to be required in these areas, including the adoption of disposable FFP3 masks, basic personal decontamination facilities, in combination with manual/localised dust suppression.

TPH testing undertaken from boreholes local to the areas of RBH05-TP09 and RBH13-TP07 where hydrocarbon odours were previously identified have not identified any exceedances when compared to GAC screening values, with no onsite risk to end users.

Measured concentrations of contaminants are unlikely to exhibit significant contamination with respect to vegetation, however, we recommend that the test results presented in this report are passed to a landscape architect for the selection of suitable planting.

It is unlikely that protected water supply pipes will be required at the site, however, we have identified some concentrations of PAHs in the area of the farm house which may warrant the use of barrier pipe in that area. We recommend Untied Utilities are consulted to gain their requirements.

Organic Made Ground soils were identified in areas of backfilled historic ponds. Gas monitoring was undertaken within the extent of infilled ponds and within natural ground beyond the edges of the ponds, as well as along the south-western boundary of the site where off-site deep Made Ground previously identified.

The southwest of the site is located in a higher probability radon area where 10-30% of properties are affected and therefore plots B107 to B115 require full radon protection measures.

Although no significant risks from ongoing mine gas migration into new housing are anticipated, the residual risk from the ungrouted mine workings, unrecorded shafts/boreholes and unflooded deeper workings (20-30m bgl) cannot be entirely ruled out. Therefore, gas protection measures should be incorporated into structures within the following plots to mitigate against the residual risk posed by mine gases.

- All plots west of the central watercourse
- The following plots east of the central watercourse:
    - B1-B3, B36-B44, B45-B49, B82-B86

All plots requiring gas protection measures must include a suspended floor slabs with a passively ventilated sub-floor void, it is recommended that this is supplemented with a suitable gas membrane (equivalent to CS-2 ground gas protection measures) in order to provide a differential pressure barrier

to migration of mine gases into new buildings. Such measures should also serve to address the radon mitigation measures required.

Further Investigations

A Remediation Strategy and Gas Design Report should be completed to provide the necessary detail on how to mitigation the risk from land contamination and ground gases.

Recommendations for further investigations relating to geotechnical and engineering considerations are presented in Section 13.

2 Introduction

2.1	Objectives
2.2	Client instructions and confidentiality
2.3	Site location and scheme proposals
2.4	Report format and investigation standards
2.5	Status of this report
2.6	Report distribution
2.7	Soiltechnics liability

2.1 Objectives

2.1.1 This report describes a ground investigation carried out for a proposed housing development located at Florida Farm, Slag Lane, Haydock, St Helens, WA11 0UZ.

2.1.2 The objective of the original ground investigation was to establish ground conditions at the site, sufficient to identify possible foundation solutions for the development and provide parameters necessary for the design and construction of foundations.

2.1.3 The investigation included an evaluation of potential chemical contamination of the site leading to the production of a risk assessment in relation to contamination.

2.1.4 The original investigation has also been produced to support a planning application for the site by satisfying National Planning Policy Framework sections 120 and 121.

2.1.5 The following reports have previously been completed by Soiltechnics for the site;

- Phase 1 Desk Study Report (ref: R-STN3680NM-DS01) dated August 2016.
- Preliminary Coal Mining Risk Assessment Report (ref: R-STN3680NM-PCMA-01) dated August 2016.
- Coal Mining Risk Assessment Report (R-STN3680NM-CMRA-01 Rev_03) dated July 2025.

2.1.6 Revision 03 was an update to the February 2024 R-STN3680NM-G01_Rev02. Further investigations completed as part of this report included the following;

1. Further rotary investigations to confirm or otherwise the presence of shallow coal mine workings within the areas of boreholes RBH16 and RBH16A.
2. Further rotary investigations local to RBH05 to determine the potential for vertical variation in the depth of the worked coal seam identified, and thus the potential for any voiding being present at much shallower depths.
3. Completion of shallow boreholes within the areas of RBH05, RBH13, RBH15 and RBH16 and installation of ground gas monitoring standpipes to determine the onsite risk associated with gases potentially being generated by organic clay soils.
4. Further shallow boreholes to delineate the extent of hydrocarbon contamination local to exploratory locations RBH05-TP09 and RBH13-TP07 and collection of samples for subsequent laboratory testing and analysis.

5. Further samples of Made Ground are tested local to borehole RBH05 to determine the prevalence of such high concentrations of water-soluble sulphate.
6. Further boreholes in the western part of the stie to determine potential for deep infilled land previously identified at DTS01 to encroach into the subject site.
7. Updated site reconnaissance based on time lapsed since last review.
8. Reference to current development proposals.
9. Completion of a detailed Mine Gas Risk Assessment.

2.1.7 Points 1, 2 and 8 are discussed in detail in our updated Coal Mining Risk Assessment Report (R-STN3680NM-CMRA-01 Rev03) dated July 20252024, and are summarised in relevant sections of this report.

2.1.8 Revision 04 of this report includes an update to the coal mine gas risk assessment, radon assessment and update to aggressive ground conditions for concrete design.

2.2 Client instructions and confidentiality

2.2.1 The original investigation was carried out in August and September 2017 and reported in December 2017 acting on instructions received through Barratt Homes Manchester.

2.2.2 Further investigations were completed in August and September 2022 and reported in October 2022 acting on further instructions received through Barratt Homes Manchester.

2.2.3 Further intrusive investigations have been completed in March 2024 to address remaining consultee comments and outstanding recommendations of the 2022 ground investigation report. Scope of these works was provided by Soiltechnics in September 2023.

2.2.4 This report has been prepared for the sole benefit of our above-named instructing client, but this report, and its contents, remains the property of Soiltechnics Limited until payment in full of our invoices in connection with production of this report.

2.3 Site location and scheme proposals

2.3.1 The National Grid reference for the site is 354832, 397393. A plan showing the location of the site is presented on Drawing 01.

2.3.2 We understand that proposals are for the construction of 445No. residential units together with gardens, landscaped areas and access roads constructed to standards allowing adoption by the local highway authority. A proposed development plan is presented in Appendix N.

2.4 Report format and investigation standards

2.4.1 Sections 2 to 6 of this report describe the factual aspects of the investigation with Section 7 presenting a summary of the Coal Mining Risk Assessment previously undertaken. Section 8 presents an engineering assessment of the investigatory data. Section 9 provides a risk assessment of chemical contamination based on readily available historic records, inspection of the soils and laboratory testing. Section 10 provides a similar risk assessment in relation to gaseous contamination with Section 11, a risk assessment relating to construction materials likely to be in contact with the ground. Section 12 discusses issues relating to classification of waste soils for disposal and reuse.

2.4.2 This investigation integrates both contamination and geotechnical aspects. The investigation was carried out generally, and where practical following the recommendations of BS EN 1997:2 2007 '*Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and Testing*'. Sections 2 to 6 form a Ground Investigation Report as set out in BS EN 1997:2 2007 '*Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and Testing*'

2.4.3 The investigation process also followed the principles of BS10175: 2011+A2:2017 *'Investigation of potentially Contaminated Sites – Code of Practice'*. The following elements, defined in BS10175, have been completed and incorporated in this report.

a) Phase I — Preliminary investigation (desk study, site reconnaissance and coal mining risk assessment)

b) Phase II — Exploratory and main (intrusive) investigations

2.4.4 The extent and result of the preliminary investigation (desk study) is reported in Section 3. Fieldwork combined the exploratory investigation and main investigation stages into one phase with the extent of these works described in Sections 4 and 6 of this report. Any supplementary investigations deemed necessary are identified in Section 13.

2.5 Status of this report

2.5.1 This report is a final edition, based on our current instructions and understanding of the site.

2.5.2 This investigation has been carried out and reported based on our understanding of best practice. Improved practices, technology, new information and changes in legislation may necessitate an alteration to the report in whole or part after publication. Hence, should the development commence after expiry of one year from the publication date of this report then we would recommend the report be referred back to Soiltechnics for reassessment. Equally, if the nature of the development changes, Soiltechnics should be advised and a reassessment carried out if considered appropriate.

2.6 Report distribution

2.6.1 This report has been prepared to assist in the design and planning process of the development and normally will require distribution to the following parties, although this list may not be exhaustive:

Table summarising parties likely to require information contained in this report

Party	Reason
Client	For information / reference and cost planning
Developer / Contractor / project manager	To ensure procedures are implemented, programmed and costed
Planning department	Potentially to discharge planning conditions
Environment Agency	If ground controlled waters are affected and obtain approvals to any remediation strategies
Independent inspectors such as NHBC / Building Control	To ensure procedures are implemented and compliance with building regulations
Project design team	To progress the design
Principal Designer (PD)	To advise in construction risk identification and management under the Construction (design and management) regulations
The Coal Authority	To address land instability risks associated with coal mining legacy and where necessary, outline appropriate mitigation measures

Table 2.6.1

2.7 Soiltechnics liability

2.7.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

3 Desk study information and site observations

3.1	General
3.2	Description of the site
3.3	Injurious and invasive weeds and asbestos
3.4	History of the site
3.5	Geology and geohydrology of the area
3.6	Landfill and infilled ground
3.7	Radon
3.8	Flood risk
3.9	Enquiries with statutory undertakers
3.10	Enquiries with Local Authority Building Control and Environmental Health Officers
3.11	Unexploded Ordnance (UXO) Risk

3.1 General

3.1.1 A Phase 1 desk study has previously been completed for the site (report ref R-STN3680NM-DS01 dated August 2016). For ease we have copied desk based information into this report section, however, reference should be made to the previous desk study for a copy of the full Envirocheck.

3.1.2 We have carried out a desk study which was limited to a review of readily available information including:

a) Review of published Ordnance Survey maps dating back to 1849 at various published scales

b) Inspection of geological maps produced by the British Geological Survey together with relevant geological memoirs

c) Consultation with Statutory Undertakers

d) Site reconnaissance

e) Other relevant published documents

3.1.3 We have obtained old Ordnance Survey maps using the Envirocheck database system. In addition to retrieval of historical and current Ordnance Survey data, Envirocheck provide information compiled from outside agencies including: -

- Ordnance Survey
- Environment Agency
- Scottish Environment Protection Agency
- The Coal Authority
- British Geological Survey
- Centre for Ecology and Hydrology
- Countryside Council for Wales
- Scottish Natural Heritage
- Natural England
- Health Protection Agency

3.1.4 The study did not extend to research of meteorological information or consultation with other interested parties such as English Heritage (ancient monuments), Ordnance Survey (survey control points), Planning Authorities or Archaeological Units.

3.1.5 Envirocheck produce a wealth of factual database information. Although we can provide a discussion on each of the database topics, this would produce a very lengthy document, but some of these discussions would not be relevant to the aims of this report. As a consequence, we have extracted some of the relevant topics and discussed them in this section of the report.

3.1.6 The data presented in the following report sections has primarily been extracted from the Envirocheck report.

3.2 Description of the site

3.2.1 The site is located on the northern periphery of Haydock, approximately 3.5km to the north-east of St Helens town centre, approximately 21.5 hectares in area and irregular in shape. The majority of the site, at the time of our reconnaissance, was presently in use as arable farm land with a small area in the centre of the site occupied by a farm house, farm buildings and gardens, known as Florida Farm. In addition, an area of disused land covered in dense vegetation formed the south-western corner of the site.

3.2.2 The site reconnaissance was undertaken in fine weather on the 13th of July 2016. Further site reconnaissance was undertaken in the south-western part of the site when access was made available on Friday 12th August 2016, undertaken in fine weather. A further site walkover of the agricultural fields was undertaken in February 2024, during overcast weather conditions.

3.2.3 The majority of the site was surfaced with a mixture of grass and hay, while the western field and field to the south east of the farm were under crop. Such areas were typically firm under foot. The area around the farm buildings was covered with a combination of gravel, cobble stones and bituminous material, the latter observed to be in a state of disrepair. Slag Lane crossed the site from the north, where it joins with East Lancashire Road (A580), to the south east and was surfaced with bituminous material.

3.2.4 Topographical levels generally fell by approximately 10m from north to south across the site (~1 in 29). At the eastern boundary to the western most field, there was a localised heavily vegetated ‘ravine’ feature, with levels falling steeply by approximately 5m, carrying a small stream at its base flowing to the south-west into Clipsley Brook. The highest part of the western most field was located approximately 5m above the majority of the site.

3.2.5 Buildings associated with Florida Farm were located centrally on the site. The farmhouse was present at the eastern end of the area of buildings, with a small grassed area of gardens located immediately adjacent to the east. The farmhouse was of two story brick construction, while the farm buildings themselves were a combination of brick and steel framed construction up to two stories in height. No significant chemical storage was evident on site at the time of the reconnaissance. A small amount of farming machinery and a number of caravans were present on external hardstanding.

3.2.6 No evidence of historic mine shafts was noted at the time of the reconnaissance, with the exception of a shaft in the western field located close to the northern site

boundary and adjacent to the A580, which has been capped with a square concrete slab approximately 8m in width.

3.2.7 An area of thick vegetation was present in the south-western corner of the site, essentially segregated from the arable fields by the channel of Clipsley Brook, flowing east to west. Within this area the remains of disused building were noted. A series of mature trees and vegetation were present along the northern and southern boundaries of the site typically 15m to 20m in height, reaching heights of 30m in the small garden area adjacent to the farmhouse.

3.2.8 The site was bound to the north by the A580 East Lancashire Road, while immediately beyond the site to the east, west and south were areas of residential housing. A small stream, Clipsley Brook, separates the site from the housing to the south – the channel of which was relatively shallow and mostly concealed by vegetation at the time of the site reconnaissance. The houses beyond this were located on ground some 3-4m higher than the site. Localised areas of poor drainage were evident in the eastern part of the site, with a large pond of stagnant water present in the southern section of the eastern most field.

3.2.9 During the phase of further works in August and September 2022, the site was typically encountered in the same condition as during the original ground investigation.

3.2.10 During a further site walkover of the agricultural fields and farm buildings in February 2024 and fieldwork investigations March 2024, it was also noted that the site was typically encountered in a similar condition as previously observed.

3.2.10 Plans showing observed site features are presented on Drawings 02a-02c, and a series of site photographs taken during our various reconnaissance visits are presented below.



Photograph 1

View from Slag Lane looking south-west and showing farm buildings (2017)



Photograph 2

View from Slag Lane looking north over the eastern field and showing pond (2017).



Photograph 3

View of the field to the south of Florida Farm looking south (2017)



Photograph 4

View of the westernmost field looking east (2017)



Photograph 5

Concrete cap to mineshaft in the western most field, looking west (2017)



Photograph 6

View of western end of Jaundrills land (2024)



Photograph 7

View of eastern end of Jaundrills land (2024)



Photograph 8

Looking towards western elevation of farm buildings (2024)



Photograph 9

Looking east across the southern elevation of the farm buildings (2024)



Photograph 10

Looking south across the western field from the A580 access point (2024)



Photograph 11

Looking southwest across the western field from the A580 access point (2024)



Photograph 12

Area of dense vegetation and disused buildings to south/ southwest of Jaundrill plot (2022)



Photograph 13

Area of dense vegetation to south/ southwest of Jaundrill plot (2022)

3.3 Injurious and invasive weeds and asbestos

3.3.1 Injurious and invasive weeds

3.3.1.1 The following weeds are controlled under the Weeds Act 1959:

- Common Ragwort
- Spear Thistle
- Creeping or Field Thistle
- Broad leaved Dock
- Curled Dock

3.3.1.2 Whilst it is not an offence to have the above weeds growing on your land, you must:

- Stop them spreading to agricultural land, particularly grazing areas or land used for forage, like silage and hay
- Choose the most appropriate control method for your site
- Not plant them in the wild

Should you allow the spread of these weeds to another party's land, Natural England could serve you with an Enforcement Notice. You can also be prosecuted if you allow animals to suffer by eating these weeds.

3.3.1.3 In addition to the above, you must not plant in the wild or cause certain invasive and non-native plants to grow in the wild as outlined in the Wildlife and Countryside act 1981. It is an offence under section 14(2) of the act to *'plant or otherwise cause to grow in the wild*' any plants listed in schedule 9, part II. This can include moving contaminated soil or plant cuttings. The offence carries a fine or custodial sentence of up to 2 years. The most commonly found invasive, non-native plants include:

- Japanese knotweed
- Giant hogweed
- Himalayan balsam
- Rhododendron ponticum
- New Zealand pigmyweed

You are not legally obliged to remove these plants or to control them. However, if you allow Japanese knotweed to spread to another party's land, you could be prosecuted for causing a private nuisance.

3.3.1.4 The presence of such weeds on site may have considerable effects on the cost / timescale in developing the site. Japanese knotweed can cause significant damage to buildings, roads and pavements following development, if untreated prior to development.

3.3.1.5 Our investigations exclude surveys to identify the presence of injurious and invasive weeds. We did not observe any obvious evidence the above species, however, we recommend specialists in the identification and procedures to deal with injurious and

invasive weeds are appointed prior to commencement of any works on site or if appropriate purchase of the site.

3.3.2 Asbestos

3.3.2.1 Our investigations exclude surveys to identify the presence or indeed absence of asbestos in buildings onsite. It should be noted however, that where intrusive investigations were undertaken, we did not observe any obvious evidence of potential asbestos containing materials.

3.4 History of the site

3.4.1 An attempt to trace the history of the site has been carried out by obtaining copies of old Ordnance Survey maps provided by Envirocheck, and reviewing online resources. The recent history of the site based on published Ordnance Survey maps is summarised on the following table: -

Summary description of site history from Ordnance Survey maps

Date	Onsite	Offsite
1845-1849	Buildings and pond recorded on site in the area of present day Florida Farm, in addition to Slag Lane. Site recorded as arable land. Three old coal pits recorded in the western part of the site, in addition to two in the north-eastern and eastern parts of the site. Well in eastern part of the site. Track recorded across the southern part of the site, running in an east-west direction. Possible quarry or vegetated area in the south-western part of the site. Stream flowing through centre of the site from north-east to south-west concurrent to present day.	Offsite areas recorded as open undeveloped spaces and woodland areas. Small housing area recorded 100m south. Sandstone quarries recorded adjacent to the south-west and 100m to the north. Large number of 'old coal pits' and 'coal pits' recorded surrounding the site. Black Brook Colliery recorded 1km to the south-west with quarry nearby to the north. Haydock New Colliery recorded approx. 800m to the south. Haydock Colliery recorded 500m to the south-east and 800m to the east. Pewfall Colliery recorded 800m to the north.
1894	Two 'old shafts' recorded in the western part of the site, with one recorded adjacent to the northern site boundary (including a pond) concurrent to present day concrete cap. Old smithy cottages recorded on eastern site boundary. Possible mineral railway running across western field from south west to north east. Clipsley Brook recorded adjacent to southern boundary. Buildings to the centre of the site now called 'Florida Farm'.	Expansion of domestic housing development to the south. Leigh Pit colliery and mineral railway recorded 100m to the south-east. Sandstone quarries no longer recorded. Haydock, Haydock New, Black Brook Collieries no longer recorded. Expansion of Pewfall Colliery to the north. 'Old Garswood Pit' recorded 900m to the north-west. Unclassified colliery recorded 500m to the east. Old brick field recorded 120m to the west of the site.
1908-1909	No significant changes. Small building recorded in south-western part of the site.	Blackbrook Colliery (Garswood Park Pits) recorded in area of old brick field. Unclassified colliery now named Haydock Colliery. Associated engine and wagon shops recorded 1km to the south-east.
1928-1929	No significant changes. Minor expansion of Florida Farm buildings. One of the old shaft in western part of the site no longer recorded.	Leigh Pit, Pewfall and Haydock Collieries are no longer recorded/recorded as disused. Further domestic housing development to the south and east. Cemetery recorded some 400m to the south. Old smithy cottages on eastern site boundary no longer recorded. Hollin Hey Colliery now recorded in area of Old Garswood Pit to the north-west.

Summary description of site history from Ordnance Survey maps		
Date	**Onsite**	**Offsite**
1938-1939	No significant changes.	East Lancashire Road recorded immediately adjacent to the north. Housing and roads recorded adjacent to southern site boundary.
1951	No significant changes. Road/track no longer present.	No significant changes. Hollin Hey Colliery no recorded as disused. Area of open cast mining recorded 900m to the north-west and 700m to the north-east of the site.
1956	No significant changes.	No significant changes.
1960	No significant changes. Minor expansion of Florida Farm buildings. Further buildings recorded in the south-western part of the site.	Small domestic development immediately adjacent to the west. Residential and commercial buildings present to adjacent to the east. Possible car park associated with such buildings recorded in far eastern part of the site. Expansion of residential to the south. Unclassified works recorded 120m to the north-west and 250m to the south-east.
1965	No significant changes.	No significant changes.
1970-1971	No significant changes. Other disused shaft in the western part of the site no longer recorded. South-western part of the site now segregated into parcels of land. Tennis court recorded in the north-eastern corner of the site.	Further development of domestic housing to the south.
1972-1973	No significant changes.	No significant changes.
1975	No significant changes.	No significant changes. Large number of depots and works recorded 500m to the north-east.
1981-1983	No significant changes. Pond no longer recorded adjacent to Florida Farm. Tennis court no longer present.	No significant changes.
1990	No significant changes.	No significant changes. Expansion of residential development immediately adjacent to the south-east.
1992-1993	No significant changes. Removal of some buildings in the south-western part of the site, alterations to the course of Clipsley Brook and a new footbridge recorded over the watercourse.	No significant changes.
1995-1996	No significant changes. Minor redevelopment to buildings to Florida Farm.	No significant changes.
1999	No significant changes. Minor redevelopment to buildings to Florida Farm.	No significant changes.
2001	No significant changes.	No significant changes. Expansion of open cast mining 900m to the north-west.
2006-2024	No significant changes.	No significant changes.

Table 3.4.1

3.4.2 To summarise, at the time of the earliest available historic maps the site consisted primarily of agricultural land. However, shafts and other evidence of the former Florida Colliery were present. From 1894 a track was recorded which is anticipated to comprise a railroad serving other nearby collieries, and the buildings of Florida Farm were first recorded with a similar layout to the present day. The track had been removed by the mid-20th Century. Some further building has been recorded in the

south west corner of the site, and the course of Clipsley Brook was altered in this area in in the 1990's. The presence of the historic track, the surrounding land use and the road name 'Slag Lane' suggests it is likely that the site has been used for mining associated activities such as stockpiling, even after Florida Colliery had ceased operation.

3.5 Geology and geohydrology of the area

3.5.1 Geology of the area

3.5.1.1 Envirocheck reproduce geological map extracts taken from the British Geological Survey (BGS) digital geological map of Great Britain at 1: 50,000 scale. A summary of the recorded geological information for the site is presented in Table 3.5.1 below: -

Summary of Geology and likely aquifer containing strata

Strata	Bedrock or Superficial	Approximate thickness	Typical soil type	Likely permeability	Likely aquifer designation
Devensian Till	Superficial	9m to 17m	Clay, sand, silt and gravel	Impermeable	Secondary Undifferentiated (r)
Pennine Middle Coal Measures Formation	Bedrock	Up to 80m	Mudstone, siltstone, sandstone and coal	Permeable in fractures	Secondary A (r)
Pennine Lower Coal Measures Formation	Bedrock	>100m	Mudstone, siltstone, sandstone and coal	Permeable in fractures	Secondary A (r)

Table 3.5.1.1

(r) recorded aquifer designation
(a) assumed aquifer designation

3.5.1.2 It should be noted that the BGS 1:50,000 scale map of the area records the Higher Florida coal seam to subcrop in the western part of the site, with the Lower Florida coal seam recorded to subcrop offsite immediately adjacent to the western site boundary. Further details on coal seams in the area are provided in our separate Coal Mining Risk Assessment Report (ref R-STN3680NM-CMRA01_Rev02).

3.5.1.3 Superficial deposits are the youngest geological deposits formed during the Quaternary, which extends back about 2.6 million years. They rest on older deposits or rocks referred to as bedrock. Soil types and assessments of permeability are based on geological memoirs, in combination with our experience of investigations in these soil types.

3.5.1.4 Secondary A aquifers are predominantly permeable layers capable of supporting water supplies at a local rather than strategic scale. In some cases, Secondary A aquifers can form an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

3.5.1.5 Secondary undifferentiated aquifer is a designation used when it is not possible to attribute fully one of either Secondary A or Secondary B, due to the variable nature of the soils. The unit will therefore be a mix of both, which are defined as follows:

- Secondary A can be defined as: Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
- Secondary B can be defined as: layers which may store limited amounts of ground water. These groundwater stores are generally the water bearing parts of former minor aquifers.

3.5.2 Water abstractions

3.5.2.1 One active ground water and three active surface water abstraction points are located within 2000m of the site. The groundwater abstraction point lies 1596m to the south of the site, used for farming purposes. The closest surface water abstraction point lies 1227m to the south-west of the site, with water abstracted from a canal, the details of which are not supplied.

3.5.2.2 The site is not located within a zone protecting a potable water supply abstracting from a principal aquifer (i.e. a source protection zone).

3.5.3 Coal mining and brine extraction

3.5.3.1 The site is located within an area where coal has been extracted (Coal Mining Reporting Area). As a consequence, we have instructed the Coal Authority to carry out a search of their records centred on the development site. The report indicates that the site is located in an area that could be affected by underground mining in 6 seams of coal at 60m to 470m below ground level, last worked in 1920. It is indicated that any ground movement associated with such working's should have stopped, however, the site is located in an area where there is coal at or close to the surface which may have been worked in the past. Furthermore, 13 mine entries are recorded either onsite or within 20m of the site boundary. A copy of the Non-Residential Mining report and Coal Authority Consultants Report is presented within our separate Coal Mining Risk Assessment report, together with a copy of the Interpretative Mine Entry report. Coal Mining is also discussed in further detail in Section 7 of this report.

3.5.4 Shallow mining and natural subsidence hazards

3.5.4.1 The British Geological Survey present hazard ratings for shallow mining and natural subsidence hazards. The site has the following ratings;

Table summarising mining and subsidence hazards

Hazard	Rating
Non-Coal Mining Areas of Great Britain	No hazard
Potential for collapsible ground stability hazard	Very low
Potential for compressible ground stability hazard	No hazard
Potential for ground dissolution stability hazard	No hazard
Potential for landslide ground stability hazard	Very low
Potential for running sand ground stability hazard	Very low
Potential for shrinking or swelling clay ground stability hazard	Very low

Table 3.5.4

3.5.4.2 In addition to the above hazard ratings, a report completed by Ove Arup and Partners in December 1991, commissioned by the Department of the Environment (DoE) indicates where mining should be borne in mind when considered planning and development of land. The site is recorded as lying in an area of inconclusive rock (coal) mining as indicated by the report. Coal Mining is discussed in greater detail in our Coal Mining Risk Assessment Report (ref R-STN3680NM-CMRA01_Rev03) and Section 7 of this report.

3.5.5 Borehole records

3.5.5.1 The British Geological Survey (BGS) retain records of boreholes formed from ground investigations carried out on a nationwide basis. The location of boreholes with records held by the BGS is recorded on the borehole map contained within the Envirocheck report. We do not normally obtain copies of these records but can do on further instructions. There is normally a charge made by the BGS for retrieving and copying these records.

3.5.5.2 The British Geological Survey (BGS) retain records of boreholes formed from ground investigations carried out on a nationwide basis. There are some boreholes recorded close to the site and we can obtain records if required.

3.6 Landfill and infilled ground

3.6.1 There is one historic landfill site located within 1km of the site. This is associated with Clipsley Lane landfill site (former railway cutting), located 596m to the south east of the site. The site is also a Local Authority recorded site. No information of its period of operation or received wastes is available. There are also 31 areas recorded as potentially infilled land, 13 of which are recorded within 500m of the site and 2 located on site. The onsite areas of infilled land may be associated with former unrecorded pits/quarries which pre-date earliest historical maps, or related to the backfilling/remediation of shafts recorded onsite.

3.6.2 There are also 6 BGS Recorded Mineral Sites within 1km of the site, including opencast quarrying and deep mining. The nearest mineral site is related to an opencast sandstone quarry located 52m to the southwest of the site as noted on historical maps. The following table summarises these mineral sites:

Summary of mineral sites

Mineral site	Type	Location	Commodity	Licence status
Stanley Bank	Opencast	52m SW	Sandstone	Ceased
Smithy Wood	Opencast	112m NE	Sandstone	Ceased
Leigh Pit	Underground	263m E	Coal	Ceased
Haydock Colliery	Underground	479m SW	Coal	Ceased
Princess Pit	Opencast	112m SE	Sandstone	Ceased
Blackbrook Sand Pit	Opencast	787m S	Sand	Ceased

Table 3.6.2

3.6.3 With reference to Appendix J, the Local Authority record a landfill site 18m to the southeast of the site, associated with Leigh Pit. It is thought to contain colliery spoil. Similarly, Princess Pit is recorded 170m to the south-east containing similar waste.

3.7 Radon

3.7.1 A BGS Radon report has been acquired for the site and is presented in Appendix P.

3.7.2 The majority of the site lies in a lower probability radon area were <1% homes above the action level. As such, in these areas no radon protection measures are required. An area within the southwest of the site lies within a Higher Probability Radon area where 10-30% of homes are above the action level. As such, in this area full radon protection measures are required in new buildings.

3.7.3 A Radon Protection Zone Plan showing the affected plots is shown in Drawing 07 and the plots requiring full radon protection measures are B107 to B115.

3.8 Flood risk

3.8.1 Very localised parts of the site are located within a fluvial flood plain. A small area in the south-western part of the site is located in a Flood Zone 2 and 3, with small areas in the eastern and south-eastern part of the site recorded in a Flood Zone 2.

3.8.2 It should be noted that this information does not constitute a site-specific Flood Risk Assessment (FRA), and a full FRA may be required for the development to support a planning application or satisfy planning conditions.

3.9 Enquiries with statutory undertakers

3.9.1 We have contacted the following Statutory Undertakers (SUs) to obtain copies of their records in order to avoid damaging their apparatus during our fieldwork activities: -

a) BT Openreach Ltd
b) Electricity North West
c) National Grid
d) United Utilities

3.9.2 Copies of responses received prior to publication of this report are presented in Appendix I. These records have been obtained solely for the purposes described above. Some of these records have been obtained from the Internet and from our database without contacting the statutory undertaker direct. Occasionally, SU information is recorded on drawings larger than A3, and thus cannot be easily presented in this report. In such cases we will copy the correspondence but not incorporate the drawing in this report, and maintain the records on our office file.

3.9.3 In addition, we have visited the Linesearch web site (www.linesearchbeforeudig.co.uk), which provides a report on national grid networks (National Gas and Electricity Transmission Networks). Again, a copy of their report is presented in Appendix I.

3.9.4 Normally Statutory Undertakers drawings record the approximate location of their services. We recommend further on-site investigations be undertaken to confirm the position of the apparatus and thus establish the effect on the proposed development and the necessity or otherwise for the permanent or temporary diversion of the service to allow the construction of the development to safely and successfully proceed.

3.9.5 It should be noted that 11kv overhead electricity lines cross the site from in the area of the existing farm, down to the south-west and beyond into a residential area. Furthermore, a low voltage underground cable runs along the western extent of the farm. We are not aware that the supply to such services has been capped offsite and as such they should be treated as live until further information indicates otherwise. It should also be noted that an abandoned sewer is recorded within the southern part of the eastern field, which then runs along Slag Lane, across the entrance to the site and over the East Lancashire Road.

3.9.6 It should be noted that statutory undertakers' records normally exclude private services.

3.10 Enquiries with local authority building control and environmental health officers

3.10.1 We have contacted Local Authority Building Control to determine if they are aware of any issues in the local area regarding foundations and subsidence, however, at the time of writing we are yet to receive a response. This report will be updated if any pertinent information is received.

3.10.2 We have contacted the Scientific Officer for Contaminated Land in the Environmental Protection Department at St Helens Council who reports that neither the site nor adjacent sites are recorded on their contaminated land public register, however, the general area has been subject to industrial activities which may have produced sources of contamination worthy of further consideration. A copy of the correspondence is presented in Appendix J.

3.11 Unexploded Ordnance (UXO) Risk

3.11.1 We have obtained a preliminary risk review from a UXO specialist to assess the risk and identify any precautionary measures necessary for our intrusive investigations. A copy of which is presented in Appendix K. This should not be referred to or relied upon for other purposes. This risk assessment has not been carried out fully in accordance with CIRIA C681. The risk review concluded that there was a potentially credible risk of encountering UXO during intrusive ground investigations. Consequently, it was recommended that a detailed unexploded ordnance desk study was obtained to further refine the risk, but also determine the risk for the construction phase.

3.11.2 Consequently a Detailed unexploded ordnance desk study (undertaken in accordance with CIRIA C681) was obtained for the site and is presented in Appendix L. According to their response, we understand that inspection of detailed records confirms no

bomb strikes within the site footprint. The report generally concluded that the risk of a UXO encounter was considered low.

4 Fieldwork

4.1	General
4.2	Site restrictions
4.3	2017 ground investigation
4.4	Further investigation
4.5	Insitu testing
4.6	Sampling strategy

4.1 General

4.1.1 Original fieldwork comprised the formation of eighty-three (83No.) boreholes excavated using driven tube sampling (windowless sampling) techniques. Fieldwork was carried out between the 31st August and 29th September 2017. Boreholes were generally distributed on a grid system to provide a reasonable coverage of the site. Boreholes were also positioned to avoid the recorded location of historic mine shafts. Prior to commencement of exploratory excavations an electronic cable locating tool was used to scan the area of the excavation. If we received a response to this equipment, then the excavation would be relocated.

4.1.2 Plans of the site showing observed/existing site features and position of exploratory points are presented on Drawings 02a-02c. The position of exploratory points shown on these plans is approximate only and confirmation of these positions is subject to dimensional surveys, which was not included within our brief.

4.1.4 Fieldworks undertaken following recommendations within Section 13 of our Report (STN6380NM-G01_Rev01 dated October 2022) and consultee comments are summarised in the table below, completed in March 2024. Fieldwork undertaken to further delineate possible land instability risks associated with historic Coal Mining is discussed in detail in our separate Coal Mining Risk Assessment report (ref STN3680NM-CMRA01-Rev02, dated November 2024), however, a summary is provided in Section 7 of this report.

Table summarising further exploratory investigations

Date	Method	No.	Depth Range	Comments
31/08/17 – 29/09/24	Driven tube sampling	83	3.00 – 5.00m	DTS01-DTS83 To provide general coverage on a grid across the entire site footprint
15/08/22 – 19/08/22	Trial pitting and trenching	62	1.69m to 3.50m	To determine lateral extent and thickness of recorded historical ponds and areas soft/infilled ground recorded local to previous borehole locations DTS07, DTS47, DTS50 and historic ponds detailed in Drawings 02a-02c.
19/08/22	Rotary open hole	7	6.0m to 8.0m	RBH17 to RBH24 Boreholes drilled perpendicular to direction of outcrop of Higher Florida, Rams and Bottom Yard coal seams to determine outcrop locations to assist with shallow foundation design.
10/08/22 – 26/08/22	Rotary dynamic sampling with rock coring	5	11.0m to 12.5m	RBH05, RBH13 to RBH16 Boreholes dynamically sampled to top of bedrock, followed by 6m to 8m of coring. Locally open hole drilling was undertaken to a depth of 30.0m following

				coring to assess coal mining risk, discussed further in report STN3680NM-CMRA Rev01.
12/09/22	Windowless sampling	5	1.94m to 5.45m	WS101 to WS105 Boreholes drilled to determine ground conditions in Jaundrills land
19/03/24 – 28/03/24	Windowless sampling	32	1.00m to 5.45m	WS201 to WS233 (exc WS216 & WS217) Boreholes drilled to delineate contamination risks associated with historic ponds and previously recorded contamination.
19/03/24 – 28/03/24	Rotary open hole	10	30.00m	RBH201 to RBH210 Boreholes drilled in the vicinity of RBH05 and RBH16/16A, and parallel to the Higher Florida/Bottom Yard/RAMS coal seams to delineate shallow coal mining risk.
28/03/24	Hand Pitting	6	1.2m	HP201-HP206 Hand pits undertaken within Jaundrills land to assess contamination within shallow Made Ground.

Table 4.1.3

4.1.5 Relevant plans showing the location of the positions of exploratory points are presented on Drawings 02a-02c and 03a-03e. The position of exploratory points shown on these plans have been accurately surveyed.

4.1.6 The extent of fieldwork activities and position of exploratory points were determined by Soiltechnics.

4.1.7 All soils exposed in excavations were described in accordance with BS EN ISO 14688 *'Identification and Classification of soil'* and BS EN ISO 14689 *'Identification and classification of rock'.*

4.2 Site restrictions

4.2.1 2017 ground investigation

4.2.1.1 Driven Tube sampler (windowless sampling) boreholes were preferred to trial pits at the request of landowners to reduce potential damage to land drains.

4.2.1.2 The south-western parcel of the site (known as the Jaundrill plot) in the area of Clipsley Brook was difficult to access in parts. Access beyond the brook to the south was typically not possible due to the condition of existing footbridges. In addition, where access was possible, areas south of the brook were heavily overgrown with mature trees and bushes which prevented access.

4.2.2 Further ground investigation (2022)

4.2.2.1 Again, the majority of the south-western parcel of site (Jaundrill's plot) remained inaccessible during our investigation, however, we were able to undertake drilling within some locations which we could not access at the time of our 2017 ground investigation.

4.2.3 Further ground investigation (2024)

4.2.3.1 Due to very wet weather before and during the works, soft and boggy ground conditions were encountered during the March 2024 fieldwork investigations, limiting access to a number of exploratory positions across the site.

4.2.3.2 Boreholes could not be completed within the Jaundrill land due to dense nature of woodland and steep level changes, preventing access with the drill rig. Boreholes WS216 and WS217 proposed in this area were replaced by hand pits.

4.3 2017 ground investigation

4.3.1 Boreholes DTS01 to DTS83 were formed using driven tube sampling (windowless sampling) equipment. Driven tube sampling comprises driving 1m long steel sample tubes which are screw coupled together or coupled to extension rods and fitted with a screw on cutting edge. The sample tubes are of various diameters, generally commencing with 100mm and reducing, with depth, to 50mm and include a disposable plastic liner which is changed between sampling locations in order to limit the risk of cross contamination. On completion of excavation the liner containing the sample is cut open and the soil sample logged by a geo-environmental engineer.

4.3.2 Samples for determination concentration of chemical contaminants and classification laboratory testing were taken from samples obtained in the disposable tubes as sub-samples using stainless steel sampling equipment, which was cleaned with de-ionised water.

4.3.3 The driven tube sampler obtains samples under category A allowing laboratory test quality classes 3 to 5 as described in BS EN ISO 22475-1:2006.

4.3.4 Records of boreholes formed using driven tube sampling techniques are presented in Appendix D1.

4.4 Further ground investigation (2022)

4.4.1 Trial pitting and trenching using mechanical excavator

4.4.1.1 Trial pits and trenches were excavated to maximum depth of 3.5m using a 360° tracked excavator. The excavations were backfilled with excavated material compacted using the back of the excavator bucket. Whilst we attempted to reinstate the excavation to its original condition some short-term settlement of the backfilling materials may occur. A Geotechnical Engineer supervised the excavations.

4.4.1.2 A total of 62 trial pits were excavated in five areas local to recorded soft ground, infilled land or historic ponds as determined within our 2017 ground investigation. The trial pits were undertaken within the vicinity of RBH05, RBH13, RBH14, RBH15 and RBH16 to determine the extent of the localised soft ground/potential infill.

4.4.1.3 A copy of trial pit records are presented within Appendix D4.

4.4.2 Rotary drilling

4.4.2.1 Rotary boreholes RBH17 to RBH24 were formed by open hole drilling using a tricone (rock roller) bit with water flushing drill cuttings to the surface. Only the rate of advance of the drill bit, the colour and texture of the cuttings brought to the surface gives any indication of the strata penetrated. No useable geotechnical parameters can be obtained using these methods.

4.4.2.2 These boreholes were drilled to determine the location of the outcrop of the Higher Florida Coal seam as well as the Coal Authority recorded Rams and Bottom Yard Coal seams.

4.4.2.3 Rotary coring was undertaken in RBH05, RBH13, RBH14, RBH15 and RBH16 using a double tube core barrel fitted with a tungsten or diamond core bit. The double tube barrel consists of two concentric barrels. The outer is rotated by drill rods and at its lower end, carries the coring bit. These boreholes were undertaken in the areas where soft ground/infilled land/historic ponds were recorded/defined during our 2017 and 2022 ground investigations.

4.4.2.4 The inner barrel is mounted on a swivel so that it does not rotate during the drilling process. The core cut by the coring bit passes up into the inner barrel and at the end of the coring run the core barrel assembly is lifted to the surface. A plastic lining tube was fitted in the inner tube. The core is prevented from dropping out of the core barrel by a catcher mechanism fitted in the lower part of the inner barrel.

4.4.2.5 Lubrication is provided to the coring bit via the annulus between the inner and outer barrels. The lubricant is normally compressed air but can be water or a mixture of both. The lubricant also aids transport of cutting bits to the surface.

4.4.2.6 Coring was carried out using a core barrel to produce a nominal 100mm diameter core. Samples were 1.5m long reflecting the core barrel length. Every effort was made to maintain the core in a good condition once extracted from the core barrel. The cores were placed in a specially made core box and labelled.

4.4.2.7 Core samples were logged in accordance with EN ISO 14689-1:2003 *'Identification and classification of rock Part 1: Identification and description'*. Rotary core records are presented in Appendix D3, and photographic records of core recovery are presented in Appendix M.

4.4.3 Dynamic sampling

4.4.3.1 Dynamic sampling was undertaken using the rotary drilling rig in RBH05, RBH13, RBH14, RBH15 and RBH16 from surface to rockhead. The boreholes were formed using dynamic sampling equipment which comprises driving steel sample tubes which are screw coupled together with extension rods and fitted with a screw-on cutting edge. The sample tubes are of various diameters and include a disposable plastic liner which is changed between sampling runs in order to limit the risk of cross contamination. On completion of excavation the liner containing the sample is cut open and the soil sample logged by a geo-environmental engineer.

4.4.4 Driven Tube Sampling (windowless sampling)

4.4.4.1 Boreholes WS101 to WS105 were formed using driven tube sampling (windowless sampling) equipment. Details with respects to driven tube sampling methodologies are presented within Section 4.3, above.

4.4.4.2 A copy of the driven tube sampling boreholes from the 2022 investigation are presented within Appendix D2.

4.4.5 Coal mining investigation

4.4.5.1 Additional rotary drilling and trial trenching was also undertaken forming part of our updated coal mining risk assessment investigation. Further details are provided within our Coal Mining Risk Assessment (ref. STN3680NM-CMRA01 Rev01) dated October 2022.

4.5 Further Ground Investigation (2024)

4.5.1. Driven Tube Sampling (windowless sampling)

4.5.1.1 Boreholes WS201 to WS233 were formed using driven tube sampling (windowless sampling) equipment. Details with respects to driven tube sampling methodologies are presented within Section 4.3, above.

4.5.1.2 A copy of the driven tube sampling boreholes from our most recent investigation are presented within Appendix D6.

4.5.2 Hand Pitting

4.5.2.1 Hand pits HP201 to HP206 were formed using insulated hand digging tools. A copy of the driven tube sampling boreholes from our most recent investigation are presented within Appendix D5.

4.5.3 Coal Mining Investigation

4.5.3.1 Additional rotary open hole drilling was undertaken further to boreholes completed during the 2022 investigation. The updated findings are presented within our Coal Mining Risk Assessment (ref. STN3680NM-CMRA01 Rev02) dated November 2024. Rotary log records are presented in Appendix D7.

4.6 In-situ testing

4.6.1 A hand held shear vane was used where possible to provide a measure of the undrained shear strength of cohesive soils exposed in excavations. The vane test was carried out in the sides and floor of trial pits by access into the trial pit to depths of 1.2m. At depths in excess of 1.2m the tests were undertaken using extension rods to a maximum depth of 3.4m or by carrying out tests on intact clods of cohesive soils (exceeding 0.3 x 0.3 x 0.3m) removed from the trial pit using the excavator bucket.

The hand held shear vane is calibrated in kN/m^2. The apparatus reads to a maximum shear strength of 150kN/m^2. The results are reported in columns to the right of trial pit record.

4.6.2 The measurement of undrained shear strength using this apparatus is not a British Standard test, but it is a technique widely accepted as a reliable method of assessing the insitu undrained shear strength of cohesive soils for design purposes. The shear vane is not a reliable tool for assessing insitu shear strength of stony or sandy cohesive soils.

4.6.3 A pocket penetrometer was also used in the cohesive soils retrieved from the borehole. This tool is deemed to measure the apparent ultimate bearing capacity of the soil under test. The pocket penetrometer is calibrated in kg/cm^2. The reading can be approximately converted to an equivalent undrained shear strength by multiplying the results by a factor of 50. The results are reported on borehole records. The pocket penetrometer is not covered by British Standards.

4.6.4 A summary of hand held shear vane and pocket penetrometer results obtained from the cohesive soils encountered in exploratory excavations are presented in Appendix C.

4.6.5 Standard Penetration Testing (SPT) was carried out at regular frequencies in boreholes at the site. The test was carried out in accordance with BS EN ISO 22476-3:2005. Details of the test, as required by BS EN ISO 22476-3 are recorded in borehole records. In coarse granular soils, a solid 60° cone may have been used to replace the SPT cutting shoe. This test is reported as SPT(C). A summary of standard penetration testing data is presented in Appendix C.

4.6.6 Indicative soil infiltration testing was carried out in boreholes DTS11, DTS15, DTS22, DTS32, DTS43 and DTS76 in 2017. The infiltration testing was carried out generally in accordance with the procedure described in Building Research Establishment (BRE) Digest 365 (2007) "*Soakaway Design*". In all instances no or negligible infiltration was measured over the course of the monitoring period. It should be noted that testing has not been carried out strictly in accordance with the BRE publication, as this does not specifically provide for calculating an infiltration rate in a borehole. We have adapted the BRE method and calculations in order to provide an indicative infiltration rate, where possible. Test records are presented in Appendix D1.

4.7 Sampling strategies

4.7.1 Geotechnical

4.7.1.1 In general we adopted a judgemental sampling strategy in relation to geotechnical aspects of the investigation. The location and frequency of sampling was carried out in consideration of the following:

i) Topography
ii) Geology (including Made Ground)
iii) Nature of development proposals

4.7.2 Environmental

4.7.2.1 Details of sampling with respect to contamination issues are described in Section 8.

4.7.3 Sample retention

4.7.3.1 Samples are stored for a period of one month following issue of this report, unless otherwise requested.

5 Laboratory testing

5.1	Classification testing
5.2	Chemical testing

5.1 Classification

5.1.1 Laboratory testing was carried out on samples retrieved from site. The method of testing is recorded on the laboratory test certificate. The following tables summarise the classification testing scheduled to date. Laboratory test certificates are presented in Appendix E.

Table summarising classification testing undertaking during 2017 ground investigation

Exploratory point	Depth (m)	Soil type	Testing scheduled
DTS08	1.0	Devensian Till	Liquid limit/plastic limit and plasticity index/ moisture content
DTS24	1.0		
DTS53	1.0		
DTS71	0.7		
DTS65	1.5		
DTS53	1.9		
DTS49	1.3		
DTS11	1.5		
DTS15	1.1		
DTS05	1.5		
DTS23	1.0 – 3.0		Soil Desiccation Testing (Liquid limit, plastic limit, plasticity index and moisture content)
DTS30	1.0 – 3.0		
DTS54	1.0 – 3.0		
DTS33	0.1	Topsoil	Suite 8 (BRE Suite)
DTS09	0.1	Made Ground	
DTS41	0.1		
DTS70	1.5		
DTS04	0.8	Devensian Till	
DTS04	1.7		
DTS12	1.5		
DTS17	1.2		
DTS36	1.0		
DTS47	1.8		
DTS61	1.0		
DTS70	1.5		
DTS81	1.5		

Table 5.1.1a

Table summarising classification testing undertaken during 2022 ground investigation			
Exploratory point	**Depth (m)**	**Soil type**	**Testing scheduled**
RBH05	8.65-8.78	Pennine Middle Coal Measures Formation	Uniaxial compression strength testing of rock cores
RBH05	10.08-10.38		
RBH13	15.2-15.37		
RBH14	5.6-5.95		
RBH14	8.0-8.24		
RBH15	10.6-10.86		
RBH13	11.85-11.95	Pennine Middle Coal Measures Formation	Point load index testing
RBH15	9.2-9.36		
RBH16	10.4-10.5		
RBH16	4.95-5.1		
RBH16	9.5-9.6		
RBH14	2.0-2.45	Devensian Till	Single stage undrained shear strength of single 100m sample in triaxial compression
RBH13	3-3.45	Devensian Till	Undrained shear strength of set of three 38mm samples in triaxial compression (single stage)
RBH16	2.0-2.45		
RBH05	1.0-1.45	Made Ground	BRE Suite C (formerly known as Suite 8 testing)
RBH05	7.0	Pennine Middle Coal Measures Formation	Concrete BRE Suite
RBH13	2.0-2.45	Made Ground	
RBH13	5.0-5.45	Devensian Till	
RBH14	3.8	Devensian Till	
RBH14	5.2	Pennine Middle Coal Measures Formation	
RBH14	7.5		
RBH16	4.0		
RBH16-TP01	1.1	Made Ground	
Table 5.1.1b			

Table summarising classification testing undertaken during March 2024 ground investigation			
Exploratory point	**Depth (m)**	**Soil type**	**Testing scheduled**
HP201	0.50	Made Ground	BRE SD1 Suite D
WS201	1.30		
WS206	1.50		
WS207	0.80		
WS208	0.90 – 1.00		
WS204	1.20	Devensian Till	
Table 5.1.1c			

5.2 Chemical testing

5.2.1 Chemical testing was carried out based on ground conditions and with reference to the contamination Initial Conceptual Model as presented in Section 8. The test methods are recorded on the chemical test certificates. The following table summarises the chemical testing scheduled;

Table summarising classification testing undertaken during 2017 ground investigation		
Exploratory point and depth	**Medium/soil type**	**Testing scheduled (Refer to Appendix B for details)**
Soils		
DTS04 @0.80m, DTS10 @0.10m, DTS11 @0.10m, DTS12 @0.10m, DTS13 @0.10m, DTS14 @0.10m, DTS15 @0.10m, DTS16 @0.10m, DTS17@ 0.10m, DTS18 @0.10m, DTS19 @0.10m, DTS21 @0.10m, DTS22 @0.10m, DTS23 @0.10m, DTS24 @0.10m, DTS25 @0.10m, DTS26 @0.10m, DTS27 @0.10m, DTS30 @0.10m, DTS32 @0.10m, DTS33 @0.10m, DTS34 @0.10m, DTS35 @0.10m, DTS36 @0.10m, DTS39 @0.10m, DTS48 @0.20m, DTS49 @0.20m, DTS51 @0.20m, DTS52 @0.20m, DTS55 @0.10m, DTS56 @0.20m, DTS58 @0.20m, DTS62 @0.20m, DTS63 @0.20m, DTS65 @0.20m, DTS68 @0.20m, DTS69 @0.20m, DTS70 @0.20m, DTS71 @0.20m, DTS73 @0.20m, DTS78 @0.10m, DTS79 @0.10m, DTS83 @0.10m	Topsoil	Suite 1
DTS01 @0.10m, DTS01 @0.50m, DTS03 @0.10m, DTS05 @0.10m, DTS08 @0.10m, DTS09 @0.10m, DTS40 @0.10m, DTS41 @0.10m, DTS44 @0.10m, DTS47 @0.20m, DTS47 @0.30-1.00m DTS50 @0.20m, DTS53 @0.20m, DTS60 @0.30m, DTS61 @0.20m, DTS67 @0.20m, DTS74 @0.10m, DTS75 @0.10m, DTS76 @0.10m	Made Ground	Suite 1
DTS24 @0.50m, DTS36 @0.50m, DTS38 @0.50m	Devensian Till	Suite 1
DTS40 @0.10m, DTS44 @0.10m, DTS47 @0.30-1.00m	Made Ground	Suite 7
DTS55 @0.30m, DTS73 @0.20m	Topsoil	Suite 7
DTS18 @0.10m, DTS27 @0.10m, DTS49 @0.20m, DTS54 @0.20m, DTS70 @0.20m	Topsoil	Asbestos
DTS01 @0.50m, DTS64 @0.20m	Made Ground	Asbestos
DTS25 @0.50m, DTS36 @0.50m, DTS83 @0.50m	Devensian Till	Asbestos
DTS15 @0.10m, DTS31 @0.10m, DTS66 @0.20m	Topsoil	Suite 2
DTS01 @0.50m, DTS61 @0.60m	Made Ground	Suite 2
DTS64 @0.60m	Devensian Till	Suite 2
Table 5.2.1a		

Table summarising classification testing undertaken during 2022 ground investigation		
Exploratory point and depth	**Medium/soil type**	**Testing scheduled**
SW1 and SW3	Surface water – Clipsley Brook	MBAT Suite (information not contained in Appendix B)
Table 5.2.1b		

Table summarising classification testing undertaken during March 2024 ground investigation		
Exploratory point and depth	**Medium/soil type**	**Testing scheduled**
HP201 1.00m	Made Ground	Basic Classification Suite
HP202 0.40m		
HP206 0.60m		
WS201 0.80m		
WS202 0.50 – 1.00m		
WS203 0.80m		
HP204 0.20m	Topsoil	
WS204 0.10m		
WS206 3.50m	Made Ground	TPH CWG
WS208 0.30 – 0.40m		
WS209 0.50m		
WS212 1.80m		
WS221 2.50m		
WS222 1.50m		
WS223 0.80m		
WS206 0.80m	Made Ground	Asbestos Screening / TPH CWG
WS218 0.30m	Made Ground	Asbestos Screening
WS227 0.40m		
WS228 0.50m		
WS229 0.30 – 0.60m		
WS230 0.40m		
WS231 0.50m		
WS232 0.30m		
WS233 0.30m		
Table 5.2.1b		

5.2.2 Laboratory testing was carried out by an independent specialist testing house, which operates a quality assurance scheme. Copies of laboratory test result certificates are presented in Appendix F.

6 Ground conditions encountered

6.1	General
6.2	Ground conditions in the Jaundrill plot
6.3	General site ground conditions
6.4	Groundwater
6.5	Evidence of contamination
6.6	Obstructions and instability

6.1 General

6.1.1 Due to the differing ground conditions present between the Jaundrill plot of land to the southwest and the rest of the site, (see Drawing 02a-02c and 03a-03e for locations of exploratory points) ground conditions in this area have been described separately.

6.2 Ground conditions in the Jaundrill plot

6.2.1 Ground conditions in the south-western corner of the wider development site (the Jaundrill plot) in the area of boreholes DTS01-DTS05 (completed 2017) and WS101-WS105 (completed 2022), WS214 and WS215 and HP201-HP206 (completed 2024) typically comprises topsoil/Made Ground overlying Devensian Till and Pennine Middle Coal Measures Formation at depth (where proven).

6.2.2 As discussed in Section 4.2.2, due to the access restrictions in this part of the site during the initial investigations in 2017 and 2022, areas beyond Clipsley Brook to the south were not fully investigated (WS105 only). Ground conditions were further defined during hand pits undertaken during the March 2024 investigation.

6.2.3 **Made Ground** was noted as being absent within HP203-HP205 in the centre west of the area, in WS102 and DTS04 in the east of the area, and in WS214 and WS215 in the north located immediately adjacent to the Jaundrill land to the east. Where Made Ground was recorded in the southwest, north and east of the area it was encountered to depths of between 0.52m (HP202) to beyond depths of 6.0m (DTS01). It should be noted that DTS01 is not located within the site boundary and will not form part of the development area. Made Ground typically comprised of reworked natural soils, consisting of gravels, silts, sands and clays. Gravels consisted of sandstone, mudstone, brick and coal.

6.2.4 The Made Ground immediately adjacent to Vicarage Road (2.4m deep, WS104 and WS105) comprised of a dark brown gravelly sand, with gravels comprising brick, coal and sandstone. It is anticipated that Made Ground deposits in this area of the site potentially relate to a sandstone quarry which was recorded on historic maps to lie immediately adjacent to the southwest.

6.2.5 Naturally deposited **Devensian Till** was encountered in boreholes DTS04, DTS05, WS101 to WS105, WS214 to WS215 and HP202-HP206 comprising firm to stiff, medium to high strength, grey and brown gravelly sandy clay and locally as loose

orange to orangish brown silty sand or light brown sandy silt. Gravels comprised of mudstone, sandstone and coal where encountered. Where present, Devensian Till was encountered to base depths of 0.6m (WS102, east of area) to >5.45m below ground level (bgl).

6.2.6 **Pennine Middle Coal Measures Formation** was encountered in boreholes DTS03, DTS04, DTS05, WS101 to WS103 and WS105 and comprised of extremely weak to weathered weak grey mudstone. It is likely that such deposits were also present from depths of 2.2m in borehole DTS02, where the sampling apparatus refused due to competency of underlying deposits.

6.3 General site ground conditions

6.3.1 Exploratory excavations across the rest of the subject site typically comprised of Topsoil, overlying Devensian Till and bedrock Pennine Middle Coal Measures Formation. Localised Made Ground was encountered within the extent of former ponds and surrounding the existing farm buildings.

6.3.2 Topsoil

6.3.2.1 Topsoil was generally encountered in the majority of locations across the site and comprised of brown sandy clay with varying gravel content of sandstone, mudstone and coal. Topsoil ranged between depths of 0.12m to 0.5m, but averaged roughly 0.3m thick across the site.

6.3.2.2 As a practice we have adopted the following policy for description of Topsoil. If surface soils exhibit a visually significant organic content and darker colour than the soils it overlies (which are considered to be naturally deposited) then we will describe the soil as Topsoil. In some cases, it is difficult to visually distinguish the interface between topsoil and subsoils below, which may also exhibit an organic content, and in such cases, we will adopt an estimate of the interface but may also use the terms 'grading into' with some defining depths where appropriate.

6.3.2.3 Topsoil can be classified following a number of test procedures as described in BS3882:2015 *'Specification for Topsoil'* to allow its uses to be determined. We do not carry out such testing unless specifically instructed to do so.

6.3.3 Made Ground

6.3.3.1 Made Ground (outside of the Jaundrill's Plot) was encountered during the initial 2017 works as Topsoil, as per the above, including clay with small elements of anthropogenic material such as fine to medium gravels of glass and brick, or sands and gravels containing naturally derived materials including gravel of coal, mudstone and sandstone. Where proven, Made Ground deposits typically ranged in thickness from 0.3m to 1.35m depth with an average thickness of 0.9m, with deposits in borehole DTS50 encountered to 2.70m depth. The latter is likely to be associated with a historic backfilled pond, as indicated on Drawing 02b, with other locations associated with tracks, the farm yard and general surface disturbance where shallower. The

distribution and thickness of Made Ground from the initial stage of works is presented below in table 6.3.3.1.

Table summarising location and depth of Made Ground

Location	Depth (m)	Composition
DTS08	0.35	Crops onto soft brown sandy gravelly CLAY. Gravel consists of angular fine to coarse glass, mudstone, coal and slag.
DTS09	0.3	Crops onto soft brown sandy gravelly CLAY. Gravel consists of angular to sub-rounded fine to coarse sandstone, mudstone and ceramic.
DTS40	0.3	Crops onto firm brown slightly gravelly sandy CLAY. Gravel consists of fine to medium sandstone and slag.
DTS41	0.45	Crops onto firm dark brown slightly gravelly sandy CLAY. Gravel consists sub-rounded fine to medium coal and sandstone, overlying brown clayey gravelly SAND. Gravel consists of sub-angular to angular fine to medium coal and bituminous bound material
DTS44	0.9	Crops onto firm dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium sandstone, overlying black very clayey GRAVEL. Gravel consists of fine to medium coal.
DTS47	1.35	Dark brown highly organic slightly clayey SAND overlying very loose dark blackish brown sandy GRAVEL. Gravel consists of angular fine coal and slag.
DTS50	2.7	Generally soft dark brown sandy gravelly CLAY. Gravel consists of angular medium to coarse sandstone and brick
DTS53	0.85	Unlikely to be Made Ground – probable land drain art 0.75m.
DTS60	0.45	Dark brown slightly clayey SAND overlying dark brown GRAVEL and gravel consists of angular fine coal and slag.
DTS61	0.9	Dark grey slightly clayey medium SAND overlying very dark greyish brown slightly clayey GRAVEL. Gravel consists of angular fine coal.
DTS64	0.4	Dark brown slightly clayey SAND overlying dark blackish brown GRAVEL. Gravel consists of angular fine to medium coal.
DTS67	0.9	Dark brown clayey SAND overlying light grey and dark greyish brown sandy GRAVEL. Gravel consists of angular fine to medium mudstone and coal.
DTS72	0.6	Dark greyish brown very sandy CLAY overlying stiff brown mottled grey slightly gravelly very sandy CLAY. Gravel consists of angular igneous rock and brick.
DTS74	0.8	Dark grey to grey clayey sandy GRAVEL. Gravel consists of angular to sub-rounded fine to coarse limestone and sandstone.
DTS75	0.9	Grey sandy GRAVEL. Gravel consists of sub-angular □ne to coarse limestone, sandstone and slag overlying firm brown slightly sandy gravelly CLAY. Gravel consists of sub-angular medium to coarse sandstone, bituminous material and brick.
DTS76	0.85	Grass onto brown slightly silty slightly gravelly CLAY. Gravel consists of rounded medium sandstone overlying grey slightly clayey slightly sandy GRAVEL. Gravel consists of sub-angular to angular fine to coarse coal and slag.

Table 6.3.3.1

6.3.3.2 Further ground investigations were undertaken within the areas of DTS47 and DTS50 where deeper Made Ground was recorded (area of DTS50 also recorded at location of historic pond), in additional to the area of DTS07 (area of recorded soft natural deposits at typical founding depths and area of historic pond). Furthermore, investigations were also undertaken within two additional areas of recorded historical ponds local to DTS09 and between DTS21 and DTS30 (locations shown on Drawing 02a-02c).

6.3.3.3 Within each location (5 in total) an initial rotary borehole was sunk to determine the thickness of the Made Ground and/or soft deposits within each area. The lateral extent of the soft/infilled ground was then proven through a series of trial pits (trial pit locations shown on Drawings 03a-03e). The location and size of each area of soft/infilled ground is shown on Drawings 02a-02c and presented below.

Table summarising location, depth, and lateral extent of soft/infilled ground

Location	Depth (m)	Plan size (m)	Composition
RBH05	>3.0	31 x 25	Reddish brown to dark grey CLAY, SAND and GRAVEL. Gravel is glass, brick, concrete, metal.
RBH13	>3.0	26 x 25	Soft dark grey gravelly CLAY and SAND with decomposed plant matter. Gravel is coarse angular metal, plastic and brick.
RBH14	>3.1 (locally)	-	Although no clear evidence of Made Ground, soft ground sporadically recorded both laterally and vertically within the area. Unable to delineate a distinct zone of softer material for this reason.
RBH15	3.1	~20 x ~12 at widest point	Soft brown to black slightly gravelly CLAY with decomposed plant matter. Gravel is fine to coarse subangular to subrounded sandstone, concrete, glass and coal.
RBH16	>3.0	16 x 14	Soft dark grey CLAY with high decomposed plant matter content. Gravel is coarse angular glass, brick and ceramic tiles

Table 6.3.3.3

6.3.3.4 Further windowless sampling boreholes were undertaken during the March 2024 phase of works. The historic pond areas were investigated, with three combined ground gas and groundwater monitoring wells installed – one targeting Made Ground within the former ponds, and two immediately adjacent to the pond extents to assess migration of gases outside the ponds. An additional three boreholes were sunk within the areas of DTS50 and RBH05, to further assess hydrocarbon contamination risks within the Made Ground previously identified. A summary of the Made Ground identified is presented below in Table 6.3.3.4.

Table summarising location, depth, and lateral extent of soft/infilled ground			
Previous Phase Hole ID	**2024 Phase Hole IDs**	**Depth Range of MG (m)**	**Typical Composition**
DTS50	WS218 – WS223	0.90 – 3.30	Brown, grey and black CLAY and GRAVEL with organic plant matter. Gravels comprise brick, clinker and sandstone. Organic/hydrocarbon odours noted locally in WS221-WS223
DTS07/ RBH15	WS224 (inc WS224B) – WS226	1.65 – >4.45	Very soft brown gravelly CLAY with decomposed plant matter. Gravels comprise brick, coal and clinker.
RBH05	WS203 - WS210	1.40 – 3.70	Very soft brown and reddish brown CLAY. Gravels comprise brick, glass and sandstone. Hydrocarbon odour noted within WS206.
RBH16	WS211 – WS213	2.00 – 3.40	Brown and orangish brown CLAY/black & grey CLAY. Gravels comprise brick and sandstone.
Table 6.3.3.4			

6.3.4 Devensian Till

6.3.4.1 Superficial deposits across the site comprised Devensian Till. These are generally described as firm to stiff medium to high strength orangish brown mottled grey and brown and grey silty sandy clay, often but not always with gravels of sandstone, mudstone and coal present.

6.3.4.2 Locally across the site, granular layers of Devensian Till deposits were encountered, which are not considered to be laterally extensive. These typically comprised brown and orange slightly clayey medium grained sand. Again, locally but typically across the northern extent and south-eastern corner, more extensive deposits of granular Devensian Till was encountered, comprising of similar soils but extending beyond the depth of excavation. A summary of such locations is presented below.

Table summarising location and depth of granular Devensian Till		
Location	**Depth (m)**	**Composition**
DTS10	1.5 to 2.6 3.0 to >4.0	Medium dense brown clayey gravelly SAND. Gravel consists of sub-rounded to rounded sandstone and mudstone.
DTS12	0.75 to 2.0	Medium dense yellow clayey gravelly SAND. Gravel consists of sub-rounded medium to coarse sandstone.
DTS13	0.35 to >1.7	Medium dense becoming very dense orange slightly gravelly clayey SAND. Gravel consists of rounded medium sandstone
DTS14	1.4 to >2.0	Very dense yellow clayey gravelly SAND. Gravel consists of rounded medium sandstone.
DTS19	1.25 to 1.9 3.0 to >5.0	Medium dense brown slightly clayey slightly gravelly SAND. Gravel consists of rounded medium sandstone.
DTS31	1.4 to 3.6	Loose brown slightly clayey coarse SAND.
DTS33	2.3 to >4.0	Loose brown clayey SAND.
DTS34	0.5 to >4.0	Medium dense brown clayey coarse SAND.
DTS39	1.2 to >4.0	Loose brown slightly gravelly coarse SAND. Gravel consists of sub-angular fine sandstone.
DTS62	2.6 to 3.7	Medium dense brown slightly silty medium to coarse SAND.
DTS64	1.1 to >5.0	Medium dense to dense brown slightly silty medium SAND.
DTS72	0.6 to 2.9	Medium dense brown and grey medium SAND.
DTS74	2.8 to >4.0	Medium dense brown medium SAND.
RBH14	3.0 to 3.4	[Medium dense] brown slightly clayey slightly gravelly fine to coarse SAND. Gravel consists of fine to medium subangular to subrounded sandstone and mudstone.
RBH14-TP09	1.0 to 1.6 2.0 to 2.4	[Medium dense] orangish brown clayey fine to medium SAND.
RBH15	4.0 to ~6.5	[Medium dense] Brown slightly gravelly fine to medium SAND. Gravel consists of fine to medium angular to subangular sandstone and mudstone.
RBH15-TP03	2.6 to >3.0	[Medium dense] slightly gravelly clayey fine to medium SAND. Gravel consists of fine subangular quartzite.
RBH15-TP06	1.9 to 2.2	[Medium dense] reddish brown very clayey slightly gravelly SAND. Gravel consists of fine subrounded mudstone and coal.
RBH15-TP08	2.2 to 2.8	[Medium dense] reddish brown gravelly clayey fine to medium SAND. Gravel consists of medium to coarse subrounded quartzite.
RBH15-TP09	1.1 to >2.9	[Loose] Orangish brown clayey fine SAND.
RBH15-TP10	1.8 to 2.7	[Medium dense] reddish brown clayey gravelly fine to medium SAND. Gravel consists of medium to coarse subrounded quartzite and mudstone.
RBH16	1.0 to 1.8	Medium dense Brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to subangular sandstone, mudstone and coal.
RBH16-TP01	2.0 to 2.7	[Medium dense] very clayey fine SAND.
WS208	2.7 to >3.42	Medium dense gravelly silty SAND. Gravel is fine subangular sandstone and coal.
WS209	2.0 to 2.5	Medium dense brown gravelly slightly silty fine to medium SAND. Gravel is fine angular sandstone.
WS210	3.0 to 4.4	Medium dense becoming loose brown very gravelly slightly clayey medium to coarse SAND. Gravel is fine to medium subangular to subrounded sandstone and mudstone.
WS211	3.0 to 3.6	Medium dense reddish brown clayey fine SAND.
WS226	1.6 to >2.4	Very dense reddish brown silty SAND.
Table 6.3.4.2		

6.3.5 Pennine Middle Coal Measures Formation

6.3.5.1 Pennine Middle Coal Measures Formation bedrock was recorded beneath the Devensian Till and extended beyond the final depth of the borehole excavations (>30m bgl).

6.3.5.2 Where cores were extracted (to a maximum depth of 15.5m bgl) the rock was typically observed as a very weak to medium strong thinly laminated to thickly bedded grey fine-grained sandstone interbedded with extremely weak to moderately weak thickly laminated dark grey mudstone. Discontinuities were typically horizontal (locally sub-vertical) very closely spaced, planar and rough. Seams of intact coal were also recorded locally at shallow depths. The bedrock was heavily fractured locally.

6.3.5.3 Beyond the total depth of coring rotary boreholes were drilled using open hole techniques, as such only the colour and composition of the rock could be recorded. The geology was largely recorded as a sandstone with thin bands of mudstone beyond a depth of 15m bgl.

6.3.5.4 A void was encountered in RBH05 (anticipated to be associated to the Lower Florida Coal Seam) recorded between a depth of 22.9m and 24.2m bgl. Further possible workings (as indicated by a loss of flush) were recorded at a similar depth in RBH201 between 23.9m and 24.8m and are also likely to relate to same workings in the Lower Florida Coal seam.

6.3.5.5 Potential broken ground or voids and borehole instability was recorded in RBH16 and RBH16A. Further investigation of the area (boreholes RBH208 to RBH210) recorded further voids in RBH208 between depths of 28.4-29.3m (relating to the Higher Florida Coal seam) and RBH209 between depths of 6.4-8.3m bgl (relating to the Bottom Yard or Higher Florida Coal seams), as well as potential broken ground in RHB210 between depths of 10.4-11.5m bgl (potentially relating to workings in the Higher Florida Coal seam). The voids/workings are discussed further in Section 7 of the report and within our separate Coal Mining Risk Assessment Report (ref: STN3680NM-CMRA01_Rev02 dated November 2024).

6.3.5.6 Intact coal seams were recorded within RBH202 at depths of 22.5m to 24.1m bgl, in RBH203 at depths of 22.7m to 24.1m bgl, and RBH204 at depths of 23.9m to 25.5m bgl, coinciding with the approximate position of the Lower Florida Coal Seam.

6.3.5.7 Boreholes RBH205 to RBH207 were completed within an area previously not investigated between RBH16 and RBH05 and parallel to the RAMS/Bottom Yard Coal Seams. The boreholes did not encounter any shallow workings, with intact coal observed within RBH205 at depths of 27.7m to 28.6m bgl, potentially coinciding with the position of the Lower Florida Coal seam.

6.3.5.8 A series of boreholes (RBH17 to RBH24) were completed in the southwest/west of the site, in an orientation which ran approximately perpendicular to the recorded location of the subcrop of the Higher Florida, Bottom Yard and RAMS Coal seams. The location of the boreholes is presented within Drawing 02a for reference. These were

undertaken to determine constraints on shallow trench fill foundation depths and requirement to penetrate any shallow coal seams present.

6.3.5.9 Coal seams were recorded within RBH19 and RBH20 at depths ranging from 5.0m to 6.2m and thicknesses between 0.2m and 1.0m. No coals were recorded to depths of 6m in boreholes west of here (RBH17 and RBH18). The 1m thick seam recorded in RBH19 could represent the Lower Florida Coal seam based on depth and distance to outcrop/dip. The thinner 0.2m thick coal seam at 5m depth is present at the same thickness down dip in RBH20 at 6.2m depth. This may represent a thin unnamed seam. Further north in RBH03, a coal seam is present at a depth of 2.4m (0.5m in thickness), which is likely to represent the Higher Florida Coal seam.

6.3.5.10 A coal seam was also encountered in RBH22 at 3.3m depth (0.8m thick) and RBH23 (east and downdip of RBH22) at 4.6m depth (0.6m thick). This is unlikely to represent the Higher Florida given its likely presence further west around RBH19, most likely representing the Bottom Yard Coal seam as recorded on Drawing 04a.

6.3.6 Summary

6.3.6.1 The following table summarises the geology typically encountered;

Table summarising soil types

Strata	Minimum depth to bottom (m)	Maximum depth to bottom (m)	Thickness (m)	Typical description
Topsoil	0.15	0.50	0.15-0.50	Dark brown sandy clay
Made Ground	0.3	1.35, outside of known backfilled ponds >4.45m within areas of historic ponds.	0.3->3.0	Similar to above and below with gravels of glass and brick, coal, slag, metal, ceramic tiles, mudstone and sandstone.
Devensian Till (where proven)	0.6	8.5	Absent – 8.00	Stiff brown and grey slightly silty slightly sandy slightly gravelly clay, typically becoming very stiff with depth. Gravels of fine to medium sub-rounded to sub-angular sandstone and mudstone. Localised pockets of orangish brown sand.
Pennine Middle Coal Measures	No proven	Not proven	Not proven	Extremely weak to moderately weak dark grey mudstone and very weak to medium strong grey sandstone, with coal seams.

Table 6.3.1

6.4 Groundwater

6.4.1 Groundwater inflows were observed across much of the site and were often associated with sand layers within the cohesive Devensian Till, or more extensive deposits of sand forming such strata. Similarly, groundwater was also encountered within deeper Made Ground (particularly within former backfilled ponds) and locally

at the top of the bedrock within the superficial deposits. A summary of our observations is tabulated below: -

Table summarising groundwater observations

Exploratory point	Date of observation	Depth (m) below ground levels	Observations
DTS02	31/08/2017	2.00	Filling to 1.80m in 30 minutes
DTS06	31/08/2017	2.50	Filling to 2.00m in 30 minutes
DTS07	31/08/2017	2.00	Water level constant after 15 minutes
DTS08	18/09/2017	3.00	Water level constant after 20 minutes
DTS09	18/09/2017	3.00	Filling to 1.00m in 20 minutes
DTS10	18/09/2017	2.00	Filling to 1.00m in 20 minutes
DTS19	19/09/2017	2.50	Filling to 1.10m in 20 minutes
DTS20	19/09/2017	4.00	Filling to 3.20m in 20 minutes
DTS22	19/09/2017	4.00	Filling to 2.90m in 20 minutes
DTS23	20/09/2017	2.50	Filling to 2.00m in 20 minutes
DTS24	20/09/2017	2.50	Filling to 2.20m in 20 minutes
DTS31	21/09/2017	2.00	Filling to 0.50m in 20 minutes
DTS33	21/09/2017	2.20	Filling to 1.10m in 20 minutes
DTS34	21/09/2017	2.00	Filling to 1.00m in 20 minutes
DTS39	22/09/2017	2.00	Filling to 1.90m in 20 minutes
DTS40	22/09/2017	2.30	Filling to 2.00m in 20 minutes
DTS47	25/09/2017	3.20	Filling to 1.20m in 20 minutes
DTS50	25/09/2017	2.10	Filling to 0.40m in 10 minutes
DTS51	25/09/2017	3.00	Filling to 2.40m in 10 minutes
DTS52	25/09/2017	2.00	Filling to 1.60m in 10 minutes
DTS53	26/09/2017	0.80	Insufficient inflow to accumulate
DTS55	26/09/2017	2.60	Falling to 3.00m in 10 minutes
DTS56	26/09/2017	1.00	Filling to 0.90m in 15 minutes
DTS57	26/09/2017	3.00	Water level constant after 10 minutes
DTS58	26/09/2017	4.20	Falling to 4.60m in 15 minutes
DTS60	27/09/2017	2.20	Filling to 1.00m in 30 minutes
DTS61	27/09/2017	2.00	Water level constant after 5 minutes
DTS62	27/09/2017	2.60	Filling to 1.50m in 3 minutes
DTS64	27/09/2017	2.00	Water level constant after 5 minutes
DTS68	28/09/2017	3.10	Filling to 2.10m in 10 minutes
DTS70	28/09/2017	2.50	Filling to 2.00m in 10 minutes
DTS71	28/09/2017	2.80	Filling to 0.60m in 15 minutes
DTS72	28/09/2017	1.00	Water level constant after 15 minutes
DTS74	29/09/2017	2.00	Water level constant after 15 minutes
DTS81	29/09/2017	0.30	Water level constant after 15 minutes. Borehole excavated in close proximity to surface standing water.
RBH05	24/08/2022	3.7m	-
RBH13	23/08/2022	6.4m	-
RBH15	22/07/2022	4.3m	-
RBH16	26/08/2022	2.4m	-
RBH05-TP01	18/08/2022	2.2m	-
RBH05-TP08	18/08/2022	2.2m	-
RBH05-TP09	17/08/2022	1.8m	-
RBH13-TP07	15/08/2022	2.6m	-
RBH13-TP10	15/08/2022	2.0m	-

RBH15-TP08	19/08/2022	2.3m	Seepage
RBH15-TP09	19/08/2022	1.2m	Seepage
RBH16-TP01	19/08/2022	1.8m	-
RBH16-TP03	19/08/2022	2.1m	-
WS201	28/03/2024	2.0m	Water level remained constant
WS203	21/03/2024	2.0m	Water level remained constant
WS204	21/03/2024	3.0m	Water level remained constant
WS205	19/03/2024	3.0m	Water level remained constant
WS206	19/03/2024	3.0m	Water level remained constant
WS208	21/03/2024	2.0m	Water level remained constant
WS209	21/03/2024	2.0m	Water level remained constant
WS210	26/03/2024	2.5m	Filling to 0.2m upon completion.
WS213	28/03/2024	1.0m	Water level remained constant
WS218	21/03/2024	2.0m	Water level remained constant
WS219	24/03/2024	3.0m	Water level remained constant
WS220	24/03/2024	3.0m	Water level remained constant
WS221	21/03/2024	3.0m	Water level remained constant
WS222	24/03/2024	3.0m	Water level remained constant
WS223	21/03/2024	2.0m	Water level remained constant
WS224	24/03/2024	0.3m	Water level remained constant
WS225	24/03/2024	3.0m	Water level remained constant

Table 6.4.1

6.4.2 It should be noted that water levels will vary depending generally on recent weather conditions and only long-term monitoring of levels in standpipes will provide a measure of seasonal variations in groundwater levels.

6.5 Evidence of contamination

6.5.1 During excavation of our exploratory points, visual and olfactory evidence of contamination was noted, areas of contamination are detailed below in Table 6.5.1.

Exploratory hole ID / Area	Depth of observation (m bgl)	Stratum	Description
RBH13-TP07	0.8	Made Ground	Slight hydrocarbon odour.
RBH05-TP09	1.8-2.5		
WS206	2.8		
WS221	2.0		

Table 6.5.1

6.5.2 Within the locations of the historic ponds local to RBH13 and RBH16 layers of clay deposits containing decomposed plant matter (exhibiting an organic odour) were noted at depths in excess of 0.9m. The layers of decomposed plant matter typically ranged between depths of 0.2m and >1.9m bgl.

6.6 Obstructions and instability

6.6.1 No in-ground obstructions or significant instability were encountered during our site investigations. Some collapse of sides in pond infill was experienced, particularly in the trial pits in the area of RBH05.

7 Coal mining risk assessment

7.1	Introduction
7.2	Findings and recommendations of the CMRA
7.3	Site investigations discussion and results
7.4	Conclusions

7.1 Introduction

7.1.1 The site is located in a historic coal field (Coal Mining Reporting Area). As such it is recommend that a Non-Residential Mining Report is obtained for all proposed developments in such locations. Subsequently, Soiltechnics obtained Non-residential (2017) and Consultants Coal Mining (2024) reports from the Coal Authority and this indicated that the site could be affected by underground mining in 6 seams of coal between 60m and 470m depth. In addition, The Coal Authority believes there is coal at or close to the surface and this coal may have been worked at some time in the past. Several historic mine shafts were also identified within the site envelope.

7.1.2 Consequently a Preliminary Coal Mining Risk Assessment (PCMRA) Report was undertaken by Soiltechnics in August 2016, this was further supported by a Coal Mining Risk Assessment (CMRA) comprising intrusive investigations undertaken in August and September 2022 and reported in October 2022 (ref STN3680NM-CMRA01_Rev01).

7.1.3 Further intrusive works have been undertaken in March 2024, with findings detailed in an updated version of the CMRA for the site (updated report ref: STN3680NM-CMRA01_Rev03 dated July 2025).

7.2 Findings and recommendations of the CMRA

7.2.1 For completeness, the findings and recommendations of the Coal Mining Risk Assessment (CMRA) are briefly provided below.

7.2.2 The report identified land instability risks related to a large number of mine entries present on the site, which are unlikely to have been remediated and currently pose a coal related public safety issue to the site. Current site users should be advised that there is the potential that catastrophic collapse could present a risk to life. The positions of these entries are shown on Drawings 04a-04c.

7.2.3 Two further coal seams (Bottom Yard and RAMS Coal seams) are noted to outcrop to the east of the Higher Florida Coal seam in the centre of the site on Coal Authority and historic BGS mapping. The location of these seams as well as the Lower and Higher Florida Coal seams are shown on Drawing 04a-04c. There is the possibility of unrecorded shallow workings associated with the Higher and Lower Florida Coal seams, as well as the Bottom Yard and RAMS Coal seams being present within the site, which if collapsed, could also pose a coal related public safety issue to the site.

7.2.4 There is the possibility of infilled land onsite associated with potential unrecorded open cast workings. These areas are also shown on Drawings 04a-04c. There is also anecdotal evidence that open cast workings could be present to the south-east of the farm onsite.

7.2.5 Recorded mine workings were also identified within the Higher Florida and the Lower Florida coal seams in the north-eastern part of the site. The extent of the workings is indicated on Drawings 04b & 04c. Based on guidance presented in CIRIA report C758 *"Abandoned mine workings manual"* (2019), typical bulking factors for mine collapse within coal measures range from 30%-50%. Considering a worst case scenario of 30% bulking, the zone of influence of conical collapse within the Higher Florida seam located at anticipated depths of 48m below surface level could potentially migrate to within 30m of surface level, based on an extraction thickness of 1.3m. The workings in the Lower Florida seam are of less concern, which based on the above, could migrate to within 45m of surface level based on workings located at a depth of 60m below surface level.

7.2.6 Based on the above, we therefore anticipate any collapse of recorded workings associated with the Higher and Lower Florida coal seams is unlikely to cause risks of land instability and present a public safety issue given the depth of possible void migration. If piled foundations are adopted in such areas, consideration will need to be given to the effects of any roof collapse on foundation supporting soils, however given the depth of void migration (30m) even a piled foundation is unlikely to be affected.

7.2.7 The CMRA report recommended a non-intrusive approach initially with regards to locating the recorded mine shafts, to avoid disturbing ground and potentially opening any voids which may exist at depth (likely that the shafts are loosely backfilled and not a complete 'air void'). Given the known ground conditions across the site, geophysical surveys, are likely to be effective at accurately locating the mine shafts.

7.2.8 Intrusive investigations would then potentially follow, which typically consist of a series of Dynamic Probing (DP) tests undertaken in the area of the recorded mine shafts. This will allow an assessment to determine the nature of any backfill and the risks associated with potential subsidence. Mine gas could also potentially build up within shafts if they have not been treated. As such during and following any intrusive investigations, gas monitoring will be required to confirm concentrations of gases within the area of the shafts.

7.2.9 It was also recommended that once development proposals are finalised, a series of rotary boreholes are targeted in key areas of central and western part of the site to determine if shallow unrecorded workings potentially exist, associated with the Higher and Lower Florida coal seams, and assess the potential presence and shallow working of the Bottom Yard and RAMS Coal seams. Such boreholes should be taken to depths of at least 30m to determine the presence of coals and explore the condition of overlying rocks.

7.2.10 The CMRA also recommended investigative intrusive works would be required in areas of recorded potentially infilled ground as indicated on Drawings 04a-04c. We consider such works to have been completed as described below.

7.3 Site investigation discussion and results

7.3.1 Mine shaft investigation

7.3.1.1 As access was later made available for intrusive investigations, our above recommended scope was subsequently amended to include an initial phase of trial trenching and dynamic probing to confirm the locations of the 11 No. recorded mine shafts within the site.

7.3.1.2 Out of the 11 shafts a total of 6 were successfully located using trial trenching methods. Mine entry 354397-026 (located in the Jaundrill's Plot) was investigated using dynamic probing techniques to avoid damaging the well-kempt garden area and following discussions with the landowners. We were unable to successfully confirm the location of the shaft through dynamic probing techniques, however, there is evidence of soft/loose ground within the area to depths in excess of 8m, which may otherwise suggest the shaft may exist.

7.3.1.3 Where the intrusive searches were unsuccessful in locating a recorded shaft, a non-intrusive geophysical investigation was undertaken. A non-intrusive survey was also undertaken for mine entry 354397-026 (within the Jaundrill's Plot) to accurately confirm the location of the shaft. The Jaundrill's plot shaft was successfully located through non-intrusive surveying techniques. In all other instances the non-intrusive survey did not identify any evidence of mine shafts within the areas where searches were previously unsuccessful.

7.3.1.4 Recent investigations completed by Eastwoods for a proposed road bridge adjacent to mine entry 354397-026 indicated the location of the shaft centred on the coordinates based on probing and geophysical data.

7.3.1.5 Details of the locations of mine shafts successfully located are presented within Drawings 04a-04c along with exclusion zones as determined using C758 Section 5.2.3.

7.3.2 Shallow workings investigation

7.3.2.1 During the initial borehole investigation in 2017, broken/soft ground was encountered in the western half of the site (RBH01, RBH03, RBH04 and RBH06) between depths of 12.5m and 21.3m bgl. Additional coring in the vicinity of RBH01, RBH04 and RBH06 indicated the bedrock was heavily fractured. Voiding was only encountered in the central north (RBH05) with a sudden drop in drill string noted during drilling with a loss of flushing medium between depths of 22.9m to 24.2m bgl. It is anticipated the void is likely to represent a working associated with the Lower Florida Coal seam.

7.3.2.2 During the 2024 works, additional boreholes were drilled near RBH05, including RBH201 to the northeast, RBH202 to the west, and RBH203 and RBH204 to the southwest. Intact coal was observed within RBH202, RBH203 and RBH204 with no loss

in flush. A loss in flush and broken ground was noted within RBH201, at a depth of 23.9m to 24.8m (0.9m thick). Given the similar depth and thickness of the zone of flush loss as the void in RBH05, and the fact that no coal was recorded in RBH201 it is considered likely the broken ground relates to former workings where the coal has been mined.

7.3.2.3 If coals associated with the Lower Florida seam have been extracted by pillar and stall techniques in the area of RBH05 there is a risk of roof collapse, with the consequence of mine voids (as a result of roof collapse) migrating to the surface and causing adverse movement of foundations to proposed developments. Based on guidance presented in CIRIA report C758 (using the same calculation as detailed in Section 7.2.5, above) the void encountered within RBH05 at a depth of 22.9m below surface level could potentially migrate to within 9.9m of surface level, based on an extraction thickness of 1.3m. Additionally as no void was recorded it is possible that the workings within RBH201 have already collapsed and are laterally extensive to the northeast.

7.3.2.4 Where encountered elsewhere on site during the 2017 investigations, all other coal seams were noted to be intact, with the exception for the ground local to RBH16 and RBH16A. Here, it was unclear whether the coal encountered within these boreholes was entirely intact owing to the collapse of the borehole and complete loss of flush.

7.3.2.5 Further boreholes were completed in the area of RBH16/16A during the 2024 works to further delineate poor quality rock/possible voiding. RBH209 to the northwest of RBH16, observed voiding between depths of 6.4m to 8.3m bgl (1.9m thick), coinciding with observations from RBH16/16A and indicating the presence of possible workings within the Bottom Yard or Higher Florida Coal seam. RBH210 (south of RBH16/16A) did not record any coal seams however a zone of 'loose drilling' was noted between depths of 10.4-11.5m bgl (1.1m thick). Given the absence of coal and the voiding encountered at a similar depth in RBH209, it is possible that this loose strata also relates to potential workings within the Higher Florida Coal seam.

7.3.2.6 Based on the suspected workings identified in the area of RBH16/16A and RBH209/10, the zone of influence of conical collapse associated to the voids encountered within RBH209 and RBH210 at depths of 6.4m and 10.4m bgl respectively could potentially migrate to surface, based on extraction thickness of 1.9m and 1.1m respectively. As such, suspected workings in the Bottom Yard/Higher Florida Coal seam in this area of the site will require treatment to ensure long term stability of the development.

7.3.2.7 Furthermore, RBH208 was completed to the northeast of RBH16, with a void observed at depths of 28.4m to 29.3m (0.9m thick), with a 0.6m horizon of highly fractured, likely unstable rock noted above, which may indicate shallow workings within the Lower Florida Coal seam. Using the same guidance as outlined above, the zone of influence of conical collapse associated to the voids encountered within RBH208 could migrate to 19.4m bgl.

7.3.2.8 RBH208 also encountered intact coal seams between depths of 6.6-7.0m and 8.2-8.8m bgl with dark mudstone between. It is possible that the Bottom Yard and Higher Florida Coal seams encountered in RBH208 were not worked, or that the coal encountered relates to an unworked pillar of coal left in-situ.

7.4 Conclusion

7.4.1 Mine shaft investigation

7.4.1.1 The shafts located to date present a land instability risk to the proposed development. The Coal Authority, however, strongly advises against construction over abandoned shafts, even following remediation. The minimum distance for structures from open or poorly filled shafts depends on the nature and thickness of the superficial deposits. Further details with respects to the exclusions zone of the recorded shafts are provided within Section 6 of our Coal Mining Risk Assessment Report (STN3680NM-CMRA01_Rev03).

7.4.2 Shallow workings investigation

7.4.2.1 Intrusive investigations have encountered evidence of worked seams or voiding associated with coal seams within the north of the site (RBH05/RBH201) and within the western centre of site local to boreholes RBH16/16A and RBH208 to RBH210.

7.4.2.2 Given the depth of the voiding within the suspected Lower Florida Coal seam at depth in boreholes RBH05/RBH201, as well as RBH208 in the centre of the site, the risk of land instability to the proposed development is considered to be low, providing any foundation stresses are kept shallow and any piled foundations have a shallow socket into the top of the bedrock where required.

7.4.2.3 Based on the recently completed 2024 works, shallow workings/voids associated with the Bottom Yard/Higher Florida Coal seams were recorded in boreholes RBH16, RBH16A, RBH209 and RBH210, between depths of 6.4m and 11.5m bgl. Collapse of such suspected workings could present a significant land instability risk to the development, and suitable treatment is necessary.

8 Engineering assessment

8.1	General description of the development
8.2	Building foundation design and construction
8.3	Influence of trees and other major vegetation
8.4	Ground floor construction
8.5	Service trench excavations
8.6	Infiltration potential
8.7	Pavement foundations

8.1 General description of the development

8.1.1 The following assessments are made based upon the investigatory data presented in the preceding sections of this report and are made with reference to specific nature of the development. Should scheme proposals change then it may be necessary to review the investigation and report.

8.1.2 We understand that proposals are for the construction of 445No. residential units together with gardens, landscaped areas and access roads constructed to standards allowing adoption by the local highway authority. A proposed development plan is presented in Appendix N.

8.1.3 The following foundation assessments are based on using existing surface levels as a datum and levels will not significantly vary once development proposals are finalised. If this is not the case, reassessment of foundation assessments in affected areas of the site is likely to be required.

8.1.4 Furthermore, the following assessments do not take into account any land instability risks posed by coal mining legacy at the site. This is addressed further in Section 7 and our separate CMRA ref STN3680NM-CMRA01_Rev02 dated November 2024.

8.2 Building foundation, design and construction

8.2.1 Definitions of geotechnical terms used in the following paragraphs are provided in Appendix A.

8.2.2 Ground conditions

8.2.2.1 A detailed summary of ground conditions is provided in Section 6. As outlined previously, ground conditions between the Jaundrill plot of land to the south-west and the rest of the site vary significantly. It is possible that the Made Ground deposits in this area of the site are associated with the sandstone quarry that was recorded adjacent to the south-west of the site in the early 20th Century, particularly the deeper deposits.

8.2.2.2 Made Ground thicknesses are variable in the Jaundrill plot, ranging from depths of 0.52m to 2.4m where present. Note that the Made Ground encountered in DTS01 to >6m depth does not form part of the development site. Made Ground was not noted to be present in boreholes DTS04 or WS102 on the eastern edge of this area, or in HP203-HP205 to the centre west, and in WS214 and WS215 in the north located immediately adjacent to the Jaundrill land to the east.

8.2.2.3 Typically Made Ground is very localised across the rest of the site, with depths ranging from 0.3m to 1.35m where present during our initial ground investigation. Deeper deposits have been identified local to areas of recorded historic ponds, extending to depths >4.45m locally with the pond areas. The extent of the areas of Made Ground local to former ponds are defined on Drawings 02a-02c.

8.2.2.4 Deeper Made Ground was also identified in WS201-WS203 to the east of the capped mine shaft proximal to the north centre of the wider site boundary.

8.2.2.5 In all instances, it is not recommended that proposed buildings are founded within Made Ground deposits.

8.2.2.6 It should also be noted that measured shear strengths of cohesive Devensian Till are typically lower and in the range of 50-60kN/m^2 in soils excavated in the western part of the central most field, around the farm house and the northern part of the eastern most field.

8.2.2.7 In addition, to the above, it is noted that SPT N values undertaken in naturally deposited Devensian Till in the area of borehole DTS07 in the eastern part of the site are particularly low (N values of 0) to depths of 2.6m below existing surface levels. Although further investigations local to the area (RBH15 and and WS224B, WS225 and WS226) did not exhibit similar N value characteristics within natural soils, exploratory works did indicate Made Ground deposits between depths of 1.0m to >4.45m bgl. The extent of the areas of Made Ground/soft ground local to DTS07, WS224-WS226 & RBH15 are defined on Drawing 02c.

8.2.2.8 Additional investigations were also undertaken local to DTS47, which recorded up to 1.35m of Made Ground and low shear strengths in natural soils to 2.8m depth. This could be associated with the former route of Clipsley Brook and infilling following channelisation in the early 1990s. We have termed these 'softer' soils as reworked naturals soils for this reason. Further investigations completed in the area around RBH14 shows evidence of soft ground locally. However, there was no clear pattern to the presence of such soils, laterally and vertically in the area, or evidence of decomposing plant matter (as observed within other areas of the site).

8.2.2.9 Based on the above we have provided separate engineering assessments for the south-western area (Jaundrill land) and the rest of the site. We have also provided location specific advice in relation to the areas discussed in Section 8.2.2 above.

8.2.3 Foundation solution – Jaundrill plot (DTS01 to DTS05, WS101 to WS105, WS214, WS215 and HP201 to HP206)

8.2.3.1 As discussed above, depths of Made where present are variable in this area of the site. It is considered likely that the foundations assessments provided for the rest of the site can be adopted for developments in the area of exploratory positions HP203-HP205 as well as DTS04, WS102, WS214 and WS215 (no Made Ground present), and DTS05, WS101 and HP202, HP206, HP01, HP02 and HP06 (0.52m to 0.9m of Made Ground present), all typically located within the centre and east of the Jaundrill Plot.

8.2.3.2 The near surface Made Ground deposits in our opinion are incapable of supporting concentrated foundation loads without promoting high levels of total and differential settlement, possibly beyond the capability of the building superstructure.

8.2.3.3 Foundations in the area of boreholes/hand pits HP201, DTS02, DTS03, WS103, WS104 and WS105, where Made Ground ranged between depths of >1.2m and 2.4m bgl, could be deepened through the Made Ground and into underlying Devensian Till and/or bedrock of the Pennine Middle Coal Measures Formation. Formation of foundations at depths of c.2.7m bgl (based on 0.3m penetration of natural soils) could be difficult to successfully achieve and piled foundations could be a more economical solution in such instances.

8.2.3.4 Devensian Till comprising firm clay soils in such areas will adequately support proposed developments on traditional foundations. Bearing pressures as presented within Table 8.2.4.4 below can be adopted for such foundations within the Jaundrill Plot.

8.2.3.5 Bedrock comprising Mudstone deposits in such areas will adequately support proposed developments on traditional foundations and in such instances allowable bearing pressures will not be critical. Within the bedrock, suggested values for the presumed (allowable) design unit bearing resistance of strip/trench fill foundations on rock (for settlements not exceeding 0.5% of the foundation width) can be obtained from BS EN 1997-1:2004+A1:2013, Annex G.

8.2.3.6 Based on Table G.1 of Annex G, mudstone of the Pennine Middle Coal Measures Formation would be classified as Group 4 (uncemented mudstones and shales) rocks. Given that minimal penetration into the mudstone deposits has been achieved onsite, spacings of discontinuities have not been determined and only strength of the initial rock mass encountered recorded. We have therefore based our assessment of presumed bearing resistance on a worst-case scenario for rock strength (very weak) and closely spaced discontinuities.

8.2.3.7 Based on the above, a presumed design unit bearing resistance for a strip/trench fill foundation located on mudstone of the Pennine Middle Coal Measures Formation would equate to 250kN/m^2 and we would suggest that total settlement would be within acceptable limits (<25mm).

8.2.3.8 As outlined in paragraph 8.2.3.3, piled foundation solutions could be a more economical solution where Made Ground exceeds depths >2.5m. Whilst the area of

DTS01 does not form part of the development site, 6m of Made Ground was identified. Boreholes WS214 and WS215 undertaken on the south-western site boundary adjacent to this location determined competent natural immediately soils below Topsoil. In addition, HP205 and HP206 (on the northern boundary of the Jaundrill Plot to the south of DTS01) did not indicate more than 0.9m of Made Ground indicating that significantly deep Made Ground does not extend onto the subject site.

8.2.3.9 A piled foundation solution would transmit superstructural loads down through the Made Ground into the Devensian Till (if present) and Pennine Middle Coal Measures Formation at depth to obtain end bearing and shaft adhesion support. The difficulty of driving or boring piles through such deposits will need to be considered by any specialist piling company and will affect the method of pile installation.

8.2.3.10 Further investigations completed to date provide geotechnical laboratory strength testing for the Pennine Middle Coal Measures bedrock sufficient to assist with piled foundation design and determining pile resistances. A copy of the laboratory test data is presented in Appendix E. Insitu test data (SPTs) from deeper rotary holes are presented in Appendix C, along with graphical summaries of laboratory data (triaxial, UCS and point load) where relevant.

8.2.3.11 Another option could be to increase the density of the Made Ground using vibrotreatment. By increasing the density of the Made Ground, settlement levels can be substantially reduced and allow the adoption of traditional concrete strip foundations located 1m below existing or finished ground levels, whichever produces the deeper foundation. Typically, concrete strip foundations require reinforcement to stiffen the foundations to resist localised differential movement.

8.2.3.12 Should this option be considered we recommend the contents of this report be provided to a specialist vibrotreatment contractor to obtain their opinion as to the ability of the made ground to be effectively treated to allow the adoption of traditional spread foundations located at shallow depths.

8.2.3.13 Typically, following vibrotreatment, the Made Ground deposits will be able to provide an allowable bearing pressure of around 120kN/m^2 at a depth of 1m but this would need to be confirmed by the vibrotreatment specialist.

8.2.3.14 Following the recommendations of NHBC Standards, Chapter 4.6, we recommend suspended ground floors be adopted in combination with concrete strip/ trench fill foundations supported on vibrotreated soils.

8.2.3.15 Our assessment to date includes all areas accessible at the time of both the 2017, 2022 and 2024 investigations. As shown on Drawing 02a, a large portion of the Jaundrill site still remains inaccessible to heavy machinery, with hand pits HP201 to HP206 having been completed in the site area during the March 2024 investigation. Due to the position of the brook in this area, significant level changes are present and filling operations would be required to facilitate development. It is, therefore, likely that a piled foundation solution will need to be adopted for any dwellings in this area of the site, particularly with the depth of Made Ground currently present in the area of WS103 to WS105 and HP201.

8.2.4 Foundation solution – rest of site (excluding DTS07, DTS47, DTS50, RBH05, RBH13, RBH14, RBH15 & RBH16)

8.2.4.1 As discussed in Section 8.2.2 above, Topsoil deposits generally overlay Devensian Till across the rest of the site, with very localised amounts of relatively shallow Made Ground. The Devensian Till is typically cohesive in nature, however, extensive deposits of sand are present across the northern extents and the south-eastern corner of the site (refer to Section 6.3.4 for further details). Whilst the granular deposits are not considered to be typical of the site, the following engineering assessments account for the properties of these soils where present. We have also discussed the areas of where deeper Made Ground and/or soft natural soils were encountered separately.

8.2.4.2 In our opinion naturally deposited Devensian Till will adequately support proposed buildings on concrete strip/trench fill foundations. Based on laboratory determination of plasticity and following National House Building Council (NHBC) Standards Chapter 4.2, we recommend foundations extend to a minimum depth of 0.9m below existing or proposed ground levels whichever gives the deeper founding level. This is however, subject to the recommendations outlined in Section 8.3.4 below. In all cases we recommend foundation excavations fully penetrate any Made Ground and extend into the Devensian Till by a minimum of 0.3m into the naturally deposited soils, subject to an overall minimum foundation depth of 0.9m. It should also be noted that there are a number of trees and major vegetation along field boundaries which may require foundation depths exceeding the minimum depth defined above. Further guidance on this is provided in the following report paragraphs.

8.2.4.3 Laboratory testing indicates the Devensian Till deposits are typically plastic, thus our assessment of bearing values is based on the assumption that these soils predominantly exhibit cohesion. However, as discussed in paragraph 8.2.4.1 above, we have taken into consideration the presence of granular soils, which are typically medium dense at foundation levels with SPT 'N' values averaging around 10-15. The following bearing values are therefore presented based on adopting the worst-case values for cohesive and granular ground models, with a view to limiting differential settlement as discussed below. Generally, cohesive soils will provide more conservative bearing values.

8.2.4.4 Calculations for cohesive soils, based on a conservative undrained shear strength of say 55kN/m^2 (derived from measured insitu shear strengths taken below proposed founding levels – refer Appendix C for details), and utilising a SPT N Value of 10 for granular soils (derived from measured insitu SPTs taken below proposed founding levels – refer Appendix C for details) indicates the following bearing values for strip/trench fill foundations: -

Table of bearing values for traditional strip/trench fill foundations

Width (m)	Ultimate bearing value kN/m^2	Presumed bearing value kN/m^2	Allowable bearing pressure kN/m^2
0.45	410	150	150
0.6	385	140	140
0.75	375	135	135
1.0	360	130	120

Table 8.2.4.4

8.2.4.5 The presumed bearing value has been derived from the ultimate bearing value by applying a factor of safety of 3, and the allowable bearing pressure derived to limit total settlement.

8.2.4.6 As discussed in paragraph 8.2.2.5, measured shear strengths of cohesive Devensian Till are typically lower and in the range of 50-60kN/m^2 in soils excavated in the western part of the central most field, around the farm house and the northern part of the eastern most field. We have based our assessment for cohesive soils on a conservative scenario of 55kN/m^2. Following finalisation of development layouts, if the bearing pressures outlined above are not considered sufficient, a more detailed assessment can be undertaken on further instruction.

8.2.4.7 It is difficult to accurately predict the amount of total and differential movement caused by consolidation of the foundation supporting subsoils, however, providing the foundation loads do not exceed the allowable bearing pressure provided in the preceding paragraph, we suggest total settlement will be small, and probably less than 25mm. Differential settlements are totally dependent on the variation of foundation loads and consistency of the supporting ground. Assuming the foundation loads are reasonably uniform, we suggest differential settlement is unlikely to exceed say 15mm. It is likely settlement will be fully achieved within 20 years of construction.

8.2.4.8 As described in preceding paragraphs, there may be localised scenarios onsite where excavations to founding levels will encounter both cohesive and granular soils. Whilst these soils will ultimately generate similar amounts of total settlement under applied foundation loads, the rate at which settlement will be achieved will differ. Granular soils will produce settlements almost immediately loads are applied with cohesive soils generating settlement some-time after completion of construction. Thus foundations (particularly strip / trench fill concrete foundations) traversing differing soil types will be subject to some differential settlements due to differing rates at which total settlement will be achieved.

8.2.4.9 To minimise the effects of such differing rates of settlement we recommend foundations are reinforced to stiffen the concrete and thus resist the effects of differential movement where foundations traverse cohesive and granular soils. In the event that a soft/loose area of soils are located in the course of foundation excavations then we recommend excavations continue to locate stiffer/denser soils.

8.2.4.10 The bearing pressures as defined in Section 8.2.3 above can be utilised for foundations located within bedrock, which could be possible in western parts of the site where bedrock is located within 3m of surface level.

8.2.5 Foundation solution – Areas of WS201-WS203, backfilled ponds/infilled land and DTS47/RBH14

8.2.5.1 With reference to Drawings 02a-02c, due to the presence of deep Made Ground and soft natural clays of the Devensian Till (likely to be associated with continued water logging from former ponds) in the area of boreholes DTS50/RBH13, RBH05, and RBH16 extending beyond depths of 4.45m in places, traditional foundations are unlikely to

be feasible. Made Ground between 1.52-3.0m deep was encountered in WS201-WS203, to the east of capped shaft in the north of the site. Where traditional foundations could be adopted (anticipated <2.5m deep) then the bearing capacities detailed in Table 8.2.4.4 are considered suitable for use. Alternatively, a piled foundation solution, or other ground improvement techniques, could be adopted as detailed in preceding sections.

8.2.5.2 Similarly, naturally deposited cohesive soils in the area of borehole DTS07 exhibit particularly low SPT N values in comparison to shear strength measurements at similar depths. This is noted to depths of 2.6m below existing surface levels. Further investigation at similar locations (RBH15 and WS224B, WS225, WS226) did not indicate poor SPT N values in natural soils, however, Made Ground was present to depths between 1.3m to >4.45m bgl. Where Made Ground deposits/soft natural soils exceed depths of 2.5m bgl, a piled foundation solution, or other ground improvement techniques, could be adopted.

8.2.5.3 Again, natural clay soils below depths of 1.35m in the area of borehole DTS47 also exhibit abnormally low shear strengths to depths of 2.8m below existing surface levels. Although, poor soil strength was not evident within RBH14 excavated within a similar location to DTS47 during further investigations, there is evidence of low shear strengths in natural soils, measured during 2022 trial pit works. However, we were unable to accurately delineate the area of such soils with any accuracy due their often-sporadic presence both laterally and vertically.

8.2.6 Coal seam outcrops

8.2.6.1 The Higher Florida, Bottom Yard and RAMS Coal seams subcrop across the western part of the site (and possibly the Jaundrill Plot). The Higher Florida Coal seam is recorded by the Coal Authority to potentially suffer from occurrences of spontaneous combustion and is consequently regarded as at 'high risk' of succumbing to spontaneous combustion when being entered, worked or disturbed. It is therefore possible that where foundations are likely to be deepened onto bedrock in and around the Jaundrill plot, excavations may encounter coals associated with the Higher Florida seam. The potential for spontaneous combustion could therefore present a risk to structures, where sufficient volume change of founding soils could promote movement of foundations.

8.2.6.2 As discussed in Section 6.3, a series of additional boreholes (RBH17 to RBH24) were completed in the southwest/west of the site during the 2022 further works, in an orientation which ran approximately perpendicular to the recorded location of the subcrop of the Higher Florida, Bottom Yard and RAMS Coal seams. The location of the boreholes is presented within Drawing 02a for reference. Supplementary boreholes were then completed during the March 2024 works, completed in the areas between RBH05 and RBH16/16A.

8.2.6.3 Coal seams were recorded within RBH19 and RBH20 at depths ranging from 5.0m to 6.2m and thicknesses between 0.2m and 1.0m. No coals were recorded to depths of 6m in boreholes west of here (RBH17 and RBH18). The 1m thick seam recorded in RBH19 could represent the Lower Florida Coal seam based on depth and distance to

outcrop/dip. The thinner 0.2m thick coal seam at 5m depth is present at the same thickness down dip in RBH20 at 6.2m depth. This may represent a thin unnamed seam. Further north in RBH03, a coal seam is present at a depth of 2.4m (0.5m in thickness), which is likely to represent the Higher Florida Coal seam.

8.2.6.4 A coal seam was also encountered in RBH22 at 3.3m depth (0.8m thick), RBH23 (east and downdip of RBH22) at 4.6m depth (0.6m thick), RBH208 (northeast of RBH23) at 6.6-7.0m and 8.2-8.8m depth. This is unlikely to represent the Higher Florida given its likely presence further west around RBH19, most likely represents the Bottom Yard Coal seam as recorded on Drawing 04a.

8.2.6.5 Bedrock in the western and south-western parts of the site is present from depths of 2.0-3.5m below existing ground level. Coal seams appear to be present 3m below top of bedrock in the area of the recoded subcrop of the Higher Florida Coal seam, with a thinner localised seam some 0.9m below top of bedrock.

8.2.6.6 Where foundations are likely to be located within bedrock or deepened onto bedrock within the southwest and west of the site, it is considered unlikely that excavations will encounter coals, particularly those associated with the Higher Florida Coal seam. The potential for spontaneous combustion of such coals is therefore unlikely to present a risk to structures, where sufficient volume change of founding soils could promote movement of foundations. If during development, shallow coals are encountered in foundation excavations, we recommend that the following measures are implemented in such instances: -

- A cover of mudstone/Devensian Till clay of 0.5m thickness is maintained between the shallow coal and the base of the foundations
- Poor quality or thin coals < 0.5m in thickness are unlikely to be considered to be a risk
- Foundations that are likely to have less than 0.5m of cover will have to be deepened through the coal.

8.2.7 Trench Stability

8.2.7.1 Generally, we would anticipate overbreak/instability in Made Ground deposits, particularly where deeper deposits are present. Excavations in deeper deposits may potentially require shoring to maintain an open excavation.

8.2.7.2 Based on groundwater observations in exploratory excavations, we consider it is unlikely that significant groundwater will be encountered in excavations extending to depths of up to 2.0m. Beyond this depth the risks of encountering groundwater increase significantly, with groundwater inflows primarily associated with sand layers and extensive deposits of sand, promoting collapse of trench sides and the construction of a successful trench fill foundation difficult. It is also noted that when encountered at such depths, groundwater is sub-artesian and rises to within 1m of surface level in most cases. The risk of encountering shallow groundwater ingress increases in southern areas of the site towards Clipsley Brook and within the Made Ground within the former ponds, where shallow perched groundwater was encountered underlying natural clay deposits.

8.3 Influence of trees and other major vegetation

8.3.1 Soil classification and new foundation design

8.3.1.1 The results of plastic and liquid limit determinations performed on a number of samples of the cohesive Devensian Till indicate the deposits are soils of low-medium volume change potential when classified in accordance with National House Building Council (NHBC) Standards, Chapter 4.2. Foundations taken down onto a depth of 0.9m will penetrate the zone of shrinkage and swelling caused by seasonal wetting and drying. Trees and other major vegetation extend this zone and will require deeper foundations.

8.3.1.2 At the time of writing we have not received a proposed development layout and have consequently not undertaken a full assessment of the influence of trees and other major vegetation on foundations. A good guide to this subject is provided in NHBC Standards, Chapter 4.2.

8.3.2 New planting

8.3.2.1 Any planting schemes should also take into account the effect that new trees could have on foundations when they reach maturity. Again, a good guide to this subject is provided in NHBC Standards, Chapter 4.2.

8.3.3 Tree species identification

8.3.3.1 There are a number of trees and other major vegetation at the site. We recommend a qualified Arboriculturist (listed in the Arboricultural Association Directory of Consultants – www.trees.org.uk) be appointed to determine the location, height (and mature height) and water demand of all trees/major hedgerows at the site, information, which will be necessary to design foundations in accordance with NHBC Standards, Chapter 4.2.

8.3.4 Agricultural crops

8.3.4.1 It is important to note that the majority of the site at the time of our original and more recent investigations comprised fields which have recently/historically/currently supported agricultural crops. With reference to the BS8004-1986 *"Code of practice for – Foundations"*, Section 3.2.8 comments on the effect of seasonal weather changes on the shrinking and swelling of clay soils. BS8004 comments that, in areas of heavy over consolidated clay (such as Devensian Till), the seasonal drying in hot summers, usually with complete replenishment of ground water during the winter, occurs to a depth of 1.5m to 2.0m under crops and grass pastures where irrigation is not practiced. During the winter months it is possible that as the clay soils replenish then the soils could swell. It is considered likely that moisture depletion will be at its maximum during summer.

8.3.4.2 Further to the above, due to the active nature of the site, it has not been possible to undertake a comprehensive assessment of the magnitude of potential moisture depletion of near surface soils. However, a preliminary assessment has been

undertaken within the following paragraphs which will provide an indication as to the current state of moisture depletion of near surface clay soils and the effects that this may have on overall foundations depths.

8.3.4.3 Following guidance presented in Building Research Establishment Digest 412 '*Desiccation in clay soils'*, there are four main methods of detecting water depletion in clay soils and these are:

1. Comparisons of soil water contents with soils index properties
2. Comparisons of soil water content profiles
3. Comparisons of strength profiles
4. Effective stress or suction profiles

8.3.4.4 Given the nature of the site, we have been unable to undertake comparisons with a control borehole in similar soils i.e. soils which have not been influenced by the effects of vegetation at the site. In this instance, sampling was carried out with subsequent testing scheduled to provide information following BRE Digest 412 methods 1 and 2. We have selected samples from boreholes DTS23, DTS30 and DTS54 for use in the analysis.

8.3.4.5 An indication of desiccation (moisture depletion) is produced if the measured water content is less than the water content at the liquid limit multiplied by 0.4. The results are presented in graphical format on Drawing 05a to 05c. The results indicate that there is no sign of significant moisture depletion.

8.3.4.6 Liquidity Index profiles show that when the liquidity limit is equal to zero the soils water content is at the plastic limit, however, negative values indicate the soil is drier than the plastic limit and thus, potentially moisture depleted. This is presented in Drawing 05d. Boreholes DTS23 and DTS30 show a moisture content that is typically higher than the plastic limit and thus potentially not moisture depleted. However, there is a marginal series of negative values recorded between depths of 1.1m and 1.8m in borehole DTS23 which may indicate very marginal moisture depletion. Borehole DTS54, however, shows more onerous onset of moisture depletion from 1.0m. This conflicts with the evidence presented on Drawing 06c for the same borehole, and could be due to an inaccuracy in measurements recorded at the laboratory.

8.3.4.7 Based on the above, it is difficult to determine based on the preliminary assessments if near surface clay soils exhibit notable moisture depletion which would otherwise affect the minimum foundation depth outlined in paragraph 8.2.4.2 above.

8.3.4.8 In order to minimise the risk of deepened trench fill foundations we recommend that a detailed investigation and assessment of moisture depletion of near surface soils across the site is undertaken prior to development commencing. This should be undertaken following the final harvest (with crops removed within both the vertical and lateral zone of influence of the development), and a subsequent winter season allowed to elapse to enable rehydration of the soils. It should be appreciated however

that BS8004 suggests that the water deficiency developed in the ground during previous dry periods may be only partially replenished.

8.4 Ground Floor Construction

8.4.1 Ground bearing floor slabs could be adopted at this site where buildings are remote from trees and where Made Ground and Topsoil deposits are fully removed within the footprint of the building. We recommend a blanket of good quality compacted granular material be placed prior to construction of the floor slabs. This is, however, subject to the results of the detailed moisture depletion surveys as recommended in paragraph 8.3.4.8 above. If soils are noted to exhibit moisture depletion, such soils are likely to heave and potentially affect the structural integrity of ground bearing floor slabs.

8.4.2 In areas close to existing major vegetation at the site, where soils are concluded to be moisture depleted or where ground floors are elevated requiring in excess of 600mm of fills, then we recommend the use of a suspended ground floor with a sub floor void determined following NHBC Standards, Chapter 4.2.

8.4.3 In areas of the site where Made Ground is likely to be present at thicknesses greater than 600mm following construction to finished floor levels, we recommend a suspended ground floor is adopted.

8.5 Service Trench Excavations

8.5.1 Generally, the sides of trench excavations will remain stable in the short term. There is a possibility that locally, excavations may encounter more granular soils, which may include some water beyond depths of 2m. It is also noted that when encountered at such depths, groundwater is sub-artesian and rises to within 1m of surface level in most cases. In addition, deep Made Ground may be encountered locally, particularly in the Jaundrill plot and areas of infilled historic ponds. In such cases we are of the opinion that water seepages / inflows could promote progressive instability in trench sides requiring continuous trench sheet shoring to maintain an open excavation. We anticipate water will be controlled with nominal pumping techniques. Generally, we would anticipate a risk of some overbreak/instability in the made ground deposits.

8.5.2 We recommend any trench excavation requiring human entry is shored as necessary to conform with current best practice, and accepted by the Health and safety Executive (HSE) and in particular, following guidance provided in the HSE publication 'Health and safety in construction (HSG 150)' (www.hse.gov.uk).

8.6 Infiltration potential

8.6.1 Requirements for use of infiltration systems

8.6.1.1 It is a requirement under H3 (3) of the current building regulations to discharge stormwater collected by a development to soakaways as a priority (as opposed to watercourses and sewers).

8.6.2 Infiltration measurements

8.6.2.1 The site is underlain by Devensian Till deposits which generally consist of clay soils, which typically have low permeability. In a minority of cases these consist of sand deposits; however, such soils are typically water bearing and mot laterally extensive.

8.6.2.2 The permeability of the soils was measured in six boreholes generally according with the procedures described in Building Research Establishment (BRE) Digest 365 (2007) 'Soakaway Design'. However, a falling head test was conducted in borehole DTS22, in addition to boreholes WS202 and WS214 during 2024 investigations, carried out following the procedure described in BS EN ISO 22282-2:2012 *'Water permeability tests in a borehole using open systems'*. The boreholes under test were DTS11, DTS15, DTS22, DTS32, DTS43, DTS76, WS202 and WS214.

8.6.2.3 In all cases no or negligible infiltration (less than 100mm) was recorded over two hours of testing. It can be concluded, based upon these results that the Devensian Till deposits, are typically impermeable. Records are presented in Appendix D1 and D6. It should be noted that testing has not been carried out strictly in accordance with the BRE publication, as this does not provide for calculating an infiltration rate in a borehole, however, our calculations have taken this into account.

8.6.2.4 Based on measurements taken to date, and the inconsistent nature of areas of potentially more permeable sand horizons within the Devensian Till, soakaways are unlikely to be considered available for the site, and alternative means if surface water disposal will need to be considered. The brook along the southern boundary of the site, and stream flowing through the central part of the site, could potentially be considered as options.

8.7 Pavement Foundations

8.7.1 It is anticipated that the proposed access road and associated hardstanding areas will be located at or about existing ground levels, with formation typically located on Devensian Till soils. Natural soils are likely to predominantly comprise of clays, however, natural sands will be present locally. In addition, and as outlined in Section 8.2 above, significant deposits of Made Ground are present in the south-western part of the site (Jaundrill plot), in addition to localised areas across the rest of the site where historic ponds were present. These deposits are granular and cohesive in nature, and observed in loose/soft state of compaction.

8.7.2 Equilibrium CBR (California Bearing Ratio) values (with reference to Transport and Road Research Laboratory (TRRL) Report LR1132 '*Structural design of Bituminous Roads'*) are derived from knowledge of soil classification data (plasticity index for soils exhibiting cohesion (clay type) and particle size distribution for granular soils), the location of the water table, proposed pavement thickness, and weather conditions at the time of construction. It is anticipated that excavations to formation levels will encounter a mixture of both granular and cohesive soils. Granular soils will provide numerically high CBR values, but cohesive soils will typically provide significantly lower values. Assuming an average plasticity index of say 15 for cohesive soils, a low water

table and a 'thin' pavement, the following equilibrium CBR values are derived for varying construction conditions

Equilibrium CBR values for differing construction conditions		
Poor	**Average**	**Good**
CBR = 2.5%	CBR = 4.5%	CBR = 6%

Table 8.7.2

8.7.3 It is possible to derive the 'insitu' CBR value at formation from undrained shear strength data by applying a conversion factor of 23 (refer TRRL laboratory report LR889). Thus, adopting pessimistic undrained shear strength of say 50kN/m^2 at formation level (based on insitu shear strength measurements) then an equivalent CBR value can be obtained i.e.

$$\text{Insitu CBR} = \text{undrained shear strength } {}^{50}\!/_{23} = 2.17\%$$

8.7.4 The 'insitu' CBR derived above, is susceptible to change dependent upon weather conditions during construction. The equilibrium CBR value derived in paragraph 8.7.2 above is an estimate of the CBR value, which will predominate during the life of the pavement. We recommend the insitu CBR of 2.17% derived from shear strength data be utilised for design purposes and reassessed during construction. The fact that the clay subgrade soils are likely to be deemed frost susceptible will probably be the overriding criteria for pavement foundation design purposes. It should also be noted that the thickness of the pavement foundation also relates to the amount and loading from construction traffic, which is discussed in detail in the Transport and Road Research Laboratory (TRRL) Report LR1132 '*Structural design of Bituminous Roads'.*

8.7.5 Made Ground deposits at the site exhibit a degree of variation in compactness. Some long-term settlement of hardstandings will occur due to consolidation of the Made Ground deposits and from applied loads, particularly uniformly distributed loads. It is difficult to accurately predict levels of settlement, as potentially applied loading patterns are not known. Equally, some differential settlement could occur in the long term, if hardstanding is not uniformly loaded. We suggest that pavements under transient (vehicular) loads are unlikely to generate significant levels of settlement.

8.7.6 Given the size of the site, likelihood of cut and fill and that significant lengths of access road will be formed as part of the development, it may be prudent to undertake further insitu CBR testing once road layouts/cut fill depths are confirmed. At present, the CBR value based on insitu shear strength test data is relatively low and subsequently pavement formation thicknesses will be need to be increased accordingly. Undertaking further insitu testing (maybe utilising TRL DCP tests) along proposed access roads and hardstanding may yield an increase in this value, potentially above 3%, which would decrease the required formation thickness and provide associated cost savings. Conversely, such testing may also reveal areas of significantly looser/softer soils which may result in an increase in formation thickness.

9 Chemical contamination

9.1	Contaminated land, regulations and liabilities
9.2	Objectives and procedures
9.3	Development characterisation and identified receptors
9.4	Identification of pathways
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9.6	Initial conceptual model
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9.1 Contaminated land, regulation and liabilities

9.1.1 Statute

9.1.1.1 Part IIA of the Environment Protection Act 1990 became statute in April 2000. The principal feature of this legislation is that the hazards associated with contaminated land should be evaluated in the context of a site-specific risk based framework. More specifically contaminated land is defined as:

> *"any land which appears to the local authority in whose area it is situated to be in such a condition, by reasons of substances in, on or under the land, that:*
>
> *a) Significant harm is being caused or there is a significant possibility of such harm being caused; or*
> *b) Pollution of controlled waters is being or is likely to be caused".*

9.1.1.2 Central to the investigation of contaminated land and the assessment of risks posed by this land is that:

i) There must be contaminants(s) at concentrations capable of causing health effects (*Sources).*
ii) There must be a human or environmental receptor present, or one which makes use of the site periodically *(Receptor)*; and
iii) There must be an exposure pathway by which the receptor comes into contact with the environmental contaminant *(Pathway).*

9.1.1.3 In most cases the Act is regulated by Borough or District Councils and their role is as follows:

i) Inspect their area to identify contaminated land
ii) Establish responsibilities for remediation of the land
iii) See that appropriate remediation takes place through agreement with those responsible, or if not possible:
- by serving a remediation notice, or
- in certain cases carrying out the works themselves, or
- in certain cases by other powers

iv) keep a public register detailing the regulatory action which they have taken

9.1.1.4 For "special" sites the Environment Agency will take over from the Council as regulator. Special sites typically include:-

- Contaminated land which affects controlled water and their quality
- Oil refineries
- Nuclear sites
- Waste management sites

9.1.2 Liabilities under the Act

9.1.2.1 Liability for remediation of contaminated land would be assigned to persons, organisations or businesses if they caused, or knowingly permitted contamination, or if they own or occupy contaminated land in a case where no polluter can be found.

9.1.3 Relevance to predevelopment conditions

9.1.3.1 For current use, Part IIA of the Environmental Protection Act 1990 provides the regulatory regime. The presence of harmful chemicals could provide a 'source' in a 'pollutant linkage' allowing the regulator (local authority or Environment Agency) to determine if there is a significant possibility of harm being caused to humans, buildings or the environment. Under such circumstances the regulator would determine the land as 'contaminated' under the provision of the Act requiring the remediation process to be implemented.

9.1.4 Relevance to planned development

9.1.4.1 The developer is responsible for determining whether land is suitable for a particular development or can be made so by remedial action. In particular, the developer should carry out an adequate investigation to inform a risk assessment to determine:

a) Whether the land in question is already affected by contamination through source – pathway – receptor pollutant linkages and how those linkages are represented in a conceptual model

b) Whether the development proposed will create new linkages e.g. new pathways by which existing contaminants might reach existing or proposed receptors and whether it will introduce new vulnerable receptors, and

c) What action is needed to break those linkages and avoid new ones, deal with any unacceptable risks and enable safe development and future occupancy of the site and neighbouring land?

9.1.4.2 Building control bodies enforce compliance with the Building Regulations. Practical guidance is provided in Approved documents, one of which is Part C, '*Site preparation and resistance to contaminants and moisture'* which seeks to protect the health, safety and welfare of people in and around buildings, and includes requirements for protection against harm from chemical contaminants.

9.1.5 Pollution of controlled waters

9.1.5.1 Part IIA of the Environment Protection Act 1990, defines pollution of controlled waters as

'The entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'

9.1.5.2 Paragraphs A36 and A39 of statutory guidance (DETR 2000) further define the basis on which land may be determined to be contaminated land on the basis of pollution of controlled waters.

'Before determining that pollution of controlled waters is being, or likely to be, caused, the Local Authority should be satisfied that a substance is continuing to enter controlled waters, or is likely to enter controlled waters. For this purpose, the local authority should regard something as being likely when they judge it more likely than not to occur'

'Land should not be designated as contaminated land where:

a) A substance is already present in controlled waters:
b) Entry into controlled waters of that substance from the land has ceased, and
c) It is not likely that further entry will take place.

Substances should be regarded as having entered controlled waters where:

a) They are dissolved or suspended in those waters; or
b) If they are immiscible with water, they have direct contact with those waters, or beneath the surface of the waters'

9.1.5.3 Controlled waters are defined in statute to be:

> *'territorial waters which extend seawards for 3 miles, coastal waters, inland freshwaters, that is to say, the waters in any relevant lake or pond or of so much of any relevant river or watercourse as is above the freshwater limit, and groundwaters, that is to say, any waters contained in underground strata.'*

9.1.6 Further information

9.1.6.1 The above provides a brief outline as regards current statute and planning controls. Further information can be obtained from the Department for the Environment, Food and Rural Affairs (DEFRA) and their Web site www.defra.gov.uk.

9.2 Objectives and procedures

9.2.1 Objectives

9.2.1.1 This report section discusses investigations carried out with respect to chemical contamination issues relating to the site. The investigations were carried out to determine if there are any liabilities with respect to Part IIA of the Environment Protection Act prior to the development. As stated in Section 2.4.2, the investigation process followed the principles of BS 10175:2011+A2:2017 *'Investigation of potentially contaminated sites – Code of Practice',* with the investigation combining a desk study (preliminary investigation) together with the exploratory and main investigations (refer BS 10175:2011+A2:2017 for an explanation).

9.2.1.2 This section of the report produces *'Conceptual models'* based on investigatory data obtained to date. The conceptual model is constructed by identification of *contaminants* and establishment of feasible *pathways* and *receptors.* The conceptual model allows a *risk assessment* to be derived. Depending upon the outcome of the risk assessment it may be necessary to carry out remediation and/or further investigations with a view to eliminating, reducing or refining the risk of harm being caused to identified receptors. If appropriate, our report will provide recommendations in this respect.

9.2.1.3. Clearly, we must consider the current pre-development condition, establishing risks which may require action to render the site safe to all relevant (current) receptors meeting the requirements of current legislation (Part IIA of the Environmental Protection Act 1990).

9.2.1.4 Definition of terms used in the preceding paragraph and subsequent parts of this section of the report are presented in Appendix B.

9.2.2 Procedure to assess risks of chemical contamination

9.2.2.1 For the purposes of presenting this section of this report, we have adopted the following sequence in assessing risks associated with chemical contamination.

Table outlining sequence to assess risk associated with chemical contamination

Conceptual model element	Contributory information	Outcome
Receptor	Development categorisation	Identification of receptors at risk of being harmed Method of analysing test data Criteria for risk assessment modelling
Pathways	Geology and ground conditions Development proposals	Identification of critical pathways from source to receptor
Source	Previous site history Desk study information Site reconnaissance Fieldwork observations	Testing regime Identification of a chemical source Analysis of test data and other evidence

Table 9.2.2

9.2.2.2 We have adopted, in general, the procedures described in CIRIA C552, 2001 *'Contaminated land risk assessment - a guide to good practice'* in deriving a risk assessment. Initially we have carried out a 'phase 1 assessment' based on desk study information and site reconnaissance, to produce an initial conceptual model and thus a preliminary risk assessment. This model / assessment is then used to target fieldwork activities and laboratory testing, with the results of this part of the investigation used to allow a phase 2 assessment to be produced by updating the conceptual model and refining the risk assessment.

9.3 Development characterisation and identified receptors

9.3.1 Site characterisation

9.3.1.1 The nature of the site has a significant influence on the likely exposure pathways between potentially contaminated soils and potential receptors. The following table summarises elements which characterise the site based on site observations and desk study information.

Summary of site characteristics

Element	Source / criteria	Characteristic
Current land use	Observations	Site currently predominantly agricultural, with Florida Farm located centrally and Jaundrill area to the south-west disused.
Future land use	Advice	Proposed domestic housing.
Site history	Desk study	Majority of the site has been recorded as arable land, with the current farm buildings recorded in some form from the earliest historical maps in addition to the stream which runs through the centre. The south-western part of the site recorded as vegetated land, with small buildings recorded during recent years. A number of relatively small coal pits, and later shafts, have been recorded locally across the site, in addition to a mineral railway in the western most field. In more recent times a tennis court was recorded in the north-eastern corner of the site, with

		a small pond likely to have been backfilled adjacent to the south-west of Florida Farm.
Geology	Desk study	Possible localised Made Ground overlying Devensian Till (clays) overlying mudstone, siltstones, sandstones and coals of the Pennine Middle Coal Measures Formation. Higher Florida coal seam recorded at surface of bedrock in the western part of the site.
Ground water	Aquifer potential	Secondary Undifferentiated aquifer in the Devensian Till deposits and Secondary A aquifer in Pennine Middle Coal Measures Formation.
	Abstractions	One active groundwater abstraction point lies 1596m to the south of the site, used for farming purposes
Surface waters	Location	Clipsley Brook forms southern site boundary. Smaller stream recorded through the centre of the site flowing north-east to south-west and into Clipsley Brook.
	Abstractions	The closest surface water abstraction point lies 1227m to the south-west of the site, with water abstracted from a canal.

Table 9.3.1

9.3.2 Identified receptors

9.3.2.1 The principal receptors subject to harm caused by any contamination of the proposed development site are as follows.

Principle Receptor	Detail
Humans	Users of the current site
	End user of the developed site
	Construction operatives and other site investigators
Vegetation	Plants and trees, both before and after development
Controlled waters	Surface waters (Rivers, streams, ponds and above ground reservoirs)
	Ground waters (used for abstraction or feeding rivers / streams etc)
Building materials	Materials in contact with the ground

Table 9.3.2

This section of the report assesses those receptors listed above. Section 10 provides a risk assessment in relation to building materials.

9.3.3 Human receptors

9.3.3.1 The Contaminated Land Exposure Assessment (CLEA) model can be used to derive guideline values, against which land quality data can be compared to allow an assessment of the likely impacts of soil contamination on humans. The parameters used within the model can be chosen to allow guideline values to be derived for a variety of land uses and exposure pathways. For example, a construction worker is likely to be exposed in different ways and for different durations than an adult in a residential setting.

9.3.3.2 As the current site is predominantly used for arable farming the adult is considered an appropriate adult receptor. Following completion of the residential development the critical site user (receptor) is considered to be a child under the age of 6 years. This criterion has been used in the conceptual model for the current and future site use. Our assessment also considers construction operatives as adult receptors. A summary of receptors is presented in section 9.3.6.

9.3.4 Vegetation receptors

9.3.4.1 Soil contaminants can have an adverse effect on plants if they are present at sufficient concentrations. The effects of phytotoxic contaminations include growth inhibition, interference with natural processes within the plant and nutrient deficiencies.

9.3.4.2 There are a number of trees which border the site, in addition to bordering the stream which flows through the site, covering the majority of the south-western part of the site and locally around the existing site of Florida Farm. It is not understood at this stage if such vegetation will be retained as part of the development, however, is considered to be present to some extent. Vegetation will therefore be considered a viable receptor. A summary of receptors is presented in section 9.3.6.

9.3.5 Water receptors

9.3.5.1 The site lies in an area designated as a Secondary undifferentiated aquifer contained in the underlying Devensian Till deposits which are typically cohesive in nature. Whilst groundwater has been encountered locally across the site, this is not considered to represent a productive aquifer and its continuity with the underlying secondary A aquifer of the coal measures is considered to be negligible. Clipsley Brook forms the southern site boundary, with a further unnamed stream flowing through the centre of the site in a north-east to south-west direction. On this basis, given the likely impermeable nature of the near surface Devensian Till deposits, groundwater will not be considered a viable receptor. Due to the presence of water courses on site and forming the southern site boundary, surface water will be considered a viable receptor.

9.3.6 Summary of identified receptors

9.3.6.1 Based on the above assessments, the following table summarises identified and critical receptors.

Table summarising identified (viable) receptors

Principle Receptor	Detail	Viable and critical receptors		
		Viability and justification		Critical receptor
Humans	Users of the current site	Yes	Site used for farming	Adult
	End user of the developed site	Yes	Gardens accessible to children	Child
	Construction operatives and other site investigators	Yes		Adult
Vegetation	Current site	Yes	Trees on site	Vegetation
	Developed site	Yes	Trees to remain	Vegetation
Controlled waters	Surface waters (Rivers, streams, ponds and above ground reservoirs)	Yes	Stream onsite and adjacent to south	Surface waters
	Ground waters (used for abstraction or feeding rivers / streams etc)	No	Clay soils likely	Groundwater
Building materials	Materials in contact with the ground	Yes	Assessed in report section 10	Building materials

Table 9.3.6

9.4 Identification of pathways

9.4.1 Pathways to human receptors

9.4.1.1 In summary, there are three principal pathway groups for a human receptor:

Table summarising likely pathways	
Principal pathways	**Detail**
Ingestion through the mouth	Ingestion of air-borne dusts
	Ingestion of soil
	Ingestion of soil attached to vegetables
	Ingestion of vegetables
Inhalation through the nose and mouth.	Inhalation of air-borne dusts
	Inhalation of vapours
Absorption through the skin.	Dermal contact with dust
	Dermal contact with soil

Table 9.4.1

9.4.1.2 The site is currently used as arable land, with a small number of farm buildings located centrally. On this basis all of the above will be considered as potential pathways with the exception of those associated with vegetables for current land use. There is the likelihood that consideration should be given to pathways associated with vegetables in the grounds of the existing farm house, however, no vegetable plots were observed during the site visits and we have considered the wider context of the site being used for farming purposes.

9.4.1.3 The site will be redeveloped for residential use which will contain domestic type gardens. Based on such all of the above pathways will be considered for future site use. A summary of our pathway assessment is presented in Section 9.4.4.

9.4.2 Pathways to vegetation

9.4.2.1 In summary, plants are exposed to contaminants in soils by the following pathways:

- Passive and active uptake by roots.
- Gaseous and particulate deposition to above ground shoots.
- Direct contact between soils and plant tissue.

9.4.2.2 All of the above routes of exposure are considered to be present for vegetation.

9.4.3 Pathways to controlled waters

9.4.3.1 A number of pathways exist for the transport of soil contamination to controlled waters. A summary of these pathways is presented below:

- Percolation, laterally and/or vertically, of water through contaminated soils.
- Near-surface water run-off through contaminated soils.
- Saturation of contaminated soils by flood waters.

9.4.3.2 Pathways to controlled waters are considered to be present. Some of the site (principally in the vicinity of Clipsley Brook in the south-western and south-eastern parts of the site) is located in Flood Zones 2 and 3, potentially including some locations where Made Ground soils have been encountered. Therefore, saturation of contaminated soils by flood waters will be considered a potential pathway as a precaution.

9.4.3.3 Groundwater encountered in near surface Devensian Till near Clipsley Brook may also be in continuity with the watercourse. Given that the topography of the site falls towards the brook and that the site soils are predominantly low-permeability clay there is also a viable pathway for surface water percolating through localised Made Ground soils and migrating into Clipsley Brook as near-surface water run-off.

9.4.3.3 While localised areas of potentially permeable sand have been encountered onsite within the Devensian Till, such soils are not considered to present a viable pathway for percolation of water into the underlying Secondary (A) Aquifer of the coal measures. Groundwater has been observed in 35 of the 83 exploratory borehole locations. It is anticipated, however, that the majority of this water comprises perched water in localised sand lenses/more granular clays, or is in continuity with the nearby Clipsley Brook, such water is highly unlikely to be in continuity with the underlying Secondary (A) Aquifer of the coal measures.

9.4.4 Summary of identified likely pathways

9.4.4.1 Based on the above assessments, the following table summarises likely pathways of potential chemical contaminants at the site to identified receptors.

Table of likely pathways

Receptor group	Critical receptor	Pathway
Proposed site users	Child	Ingestion air-borne dusts
		Ingestion of soil
		Ingestion of soil attached to vegetables
		Ingestion of vegetables
		Inhalation air-borne dusts
		Inhalation of vapours
		Dermal contact with dust
		Dermal contact with soil
Current site users and construction operatives	Adult	Ingestion air-borne dusts
		Ingestion of soil
		Inhalation air-borne dusts
		Inhalation of vapours
		Dermal contact with dust
		Dermal contact with soil
Vegetation		Root uptake, deposition to shoots and foliage contact
Controlled waters	Groundwater	Saturation of contaminated soils by flood waters
	Surface water	Near-surface water run-off through contaminated soils

Table 9.4.4

9.5 Assessment of sources of chemical contamination

9.5.1 Introduction

9.5.1.1 Initially, potential sources of contamination are assessed using the following elements of the investigation process.

- History of the site
- Desk study information
- Site reconnaissance
- Geology
- Fieldwork

These elements will dictate a relevant soil/water testing regime to quantify possible risks of any identified contaminative sources which may harm identified receptors.

9.5.2 Source assessment – History of the site

9.5.2.1 The history of the site and its immediate surroundings based on published Ordnance Survey maps is described in Section 3.

8.5.2.2 Based on published historical maps, the majority of the site has been recorded as arable land, with the current farm buildings recorded in some form from the earliest historical maps. The stream which runs through the centre of the site has also been recorded from the earliest maps, with the south-western part of the site recorded as vegetated land, possibly even a quarry, with small buildings recorded during recent years. A number of relatively small coal pits and later shafts have been recorded locally across the site, in addition to a track/road in the western most field (the latter no longer present from the 1950s). In more recent times a tennis court was recorded in the north-eastern corner of the site, with a small pond likely to have been backfilled adjacent to the south-west of Florida Farm. Clipsley Brook was also redirected during the 1990's in the along some its course and it is likely this has involved earthworks.

8.5.2.3 It is likely that the former coal pits and shafts have been backfilled to some extent, probably with locally sourced reworked naturally deposited soils (given the time period it is likely that any man made materials present in the soils are limited) and possibly with some of the mine arising's, including coal or ashy material. If the south-western part of the site was indeed quarried, then again this may have been backfilled with similar materials. There may also be some similar material associated with the former road/track onsite. Subsequently, contaminants associated with these works are anticipated to be limited to commonly occurring contaminants such as metals and Polycyclic Aromatic Hydrocarbons (PAHs).

9.5.2.4 Immediately adjacent sites were generally associated with coal mining. A number of collieries were recorded locally, with associated mineral railways and pits, brick fields, small quarries, with in later years a series of unclassified works buildings and depots. Given the presence of Devensian Till in the area, it is considered unlikely that any associated contamination would have feasibly migrated to site and affected near surface soils.

9.5.3 Source assessment – Desk study information

9.5.3.1 Envirocheck presents a detailed database of environmental information in relation to the site including;

- Pollution incidents
- Landfill sites and infilled ground
- Trading activities

9.5.3.2 Pollution incidents

9.5.3.2.1 Based on the Envirocheck data there are two pollution incidents recorded onsite, in addition a further ten incidents recorded within 100m of the site. The two incidents recorded onsite relate to oils and the release of a unknown pollutant which turned Clipsley Brook a 'milky white' colour, both of which were categorised as minor incidents and occurred in 1999. Given the severity of the incidents and age, is considered unlikely that any residual contamination would significantly affect near surface soils at the site.

9.5.3.3 Landfill sites and infilled ground

9.5.3.3.1 There is one historic landfill site located within 1km of the site. This is associated with Clipsley Lane landfill site (former railway cutting), located 596m to the southeast of the site. The site is also a Local Authority recorded site. No information of its period of operation or received wastes is available. Given the distance to the site and intermediary superficial soils, any potential contaminants are considered unlikely to migrate and affect near surface soils at the site.

9.5.3.3.2 There are also 31 areas recorded as potentially infilled land, 13 of which are recorded within 500m of the site and 2 located on site. Some of these are likely to coincide with the Leigh Pit and Princess Pit landfills outlined by the Local Authority (refer to Appendix J). The onsite areas of infilled land may be associated with former unrecorded pits/quarries which pre-date earliest historical maps, or related to the backfilling/remediation of shafts recorded onsite. As a precaution, we have assumed that the areas of potentially infilled ground onsite could be backfilled with various materials which would provide a source of contamination. These areas are presented on Drawing 03.

9.5.3.4 Trading activities

9.5.3.4.1 Envirocheck reports a small number of active trade directories within 100m of the site. The closest is recorded 8m to the northwest of the site and associated with a vehicle repair garage. Given the scale of the trading activity, it is considered unlikely that any significant chemical contamination would be generated onsite, which could also feasibly migrate to the subject site.

9.5.4 Source assessment – Site reconnaissance

9.5.4.1 A full description of the site and observed adjacent land uses is provided in Section 3 of this report. A plan summarising observations made on site during our site reconnaissance visit is presented on Drawing 02a-02c.

9.5.4.2 We did not observe any obvious evidence of any current or recent activities on site or adjacent sites, which provide a potential source of chemical contamination. The buildings associated with Florida Farm were not noted to contain significant quantities of chemicals, and only a small amount plant/machinery was present. No above ground fuel tanks were noted.

9.5.4.3 The site has been subject to arable farming for a number of years and it is considered likely that some form of fertiliser and/or pesticides/insecticides have been used. Chemicals which are likely to persist over time within soils associated with such land use would be limited to metals and some organic contaminants such as PAHs. We have considered such usage as a potential source of contamination.

9.5.5 Source assessment – Geology

9.5.5.1 The geological map of the area indicates the topography local to the site is formed in deposits of Devensian Till overlying bedrock of the Pennine Middle Coal Measures Formation. Typically, and in our experience, these deposits do not exhibit any abnormal concentrations of naturally occurring chemical contaminants.

9.5.6 Source assessment - Fieldwork observations

9.5.6.1 None of the exploratory excavations exposed soils or groundwater displaying visual or olfactory evidence of chemical contamination. Made Ground was noted to be present in localised areas of the site. Typically this comprised of reworked natural soils and is not considered to represent a significant source of contamination, however, Made Ground in localised areas across the central and eastern areas of the site contained gravels of anthropogenic material such as brick and slag, which could provide a source of contamination. Contaminants associated with such soils are anticipated to be limited to commonly occurring contaminants such as metals and Polycyclic Aromatic Hydrocarbons (PAHs). The distribution of Made Ground is presented in further detail in Section 6.

9.5.7 Source assessment - summary

9.5.7.1 Based on the paragraphs above, we have identified the following potential sources of contamination:

Table summarising results of source assessment				
Source	**Origin of information**	**Possible contaminant**	**Probability of risk occurring**	**Likely extent of contamination**
On site				
Mining activities – shafts, pits, possible quarry	Desk study	Reworked natural soils, with coals, ash – some metals and PAHs	Likely	Local to areas of former pits/shafts/ quarry
General Made Ground associated with minor areas of development across the site	Desk Study and fieldwork	Metals, ACM, PAH's	Likely	Local to development
Infilled ground in western and north-eastern parts of the site	Desk Study	Reworked natural soils, with coals, ash – some metals and PAHs	Possible	Western and north-eastern parts of the site
Arable farming and use of chemicals	Site reconnaissance	Persistent metals and PAHs	Likely	Site wide
Table reference 9.5.7				

9.6 Initial Conceptual Model

9.6.1 Based on our assessment of potential contaminative sources, identified receptors and viable pathways to receptors described in preceding paragraphs, we have produced an initial conceptual model in the form of a table which is presented in Appendix D in the August 2016 Desk Study assessment (ref R-STN3680NM-DS01), which has been updated and is presented within Appendix H of this report.

9.6.2 Based on the conceptual model there are risks which exceed the low category which in our opinion are unacceptable, and require either remedial action or further investigation by laboratory testing of soil / water samples to refine the risk assessment.

9.7 Laboratory testing

9.7.1 Testing regime

9.7.1.1 Based on our source assessment (and our initial conceptual model) we have evidence to identify past or recent uses of the site or neighbouring sites which may have generated specific contamination. In order to carry out a quantitative assessment we have scheduled testing to measure the concentration of commonly occurring inorganic and organic contaminants, in addition to TPH, BTEX, MTBE and presence/absence of asbestos.

9.7.1.2 Sampling sent for analysis are listed in detail in Section 5. Typically, samples were sent based on obtaining sufficient site coverage, in addition to targeting areas of Made Ground and potential contaminative sources identified in the source assessment in preceding paragraphs. The results of laboratory determination of concentration of chemical contaminants are presented in Appendix F.

9.7.1.3 During additional site investigation, two water samples were taken (one upstream and one downstream) from Clipsley Brook, scheduled for an MBAT suite test.

9.7.2 Criteria for assessment of test data – Human receptors

9.7.2.1 Due to changes in guidance on contaminated land since the original issue of the 2017 report, guidance presented in Land Contamination; Risk Management (LCRM, 2021) has been followed in preference to superseded guidance.

9.7.2.2 Assessment of laboratory test data has been carried out using published generic assessment criteria (GACs). The GACs act as screening values to provide a 'trigger' to an assessor that soil concentrations above these limits might present an unacceptable risk.

9.7.2.3 Various GAC sources are used within this report. Key assumptions are made in the derivation of screening values in regard to their use and application, and exposure modelling is based on precautionary national scenarios. This generic approach can result in an overly conservative assessment; therefore, the assessor is required to review the outcome of the GQRA screening in the context of the site specific CSM and identified potential contaminant linkages.

9.7.2.4 Asbestos does not currently have published GACs which can be used for generic assessment purposes, at this stage a present / absent trigger limit has been adopted.

9.7.2.5 Specific details regarding the published GAC sources chosen and any parameter refinements made are summarised within Appendix G, along with the order of preference where multiple GAC sources are available. The exposure models adopted are discussed in the relevant sections below.

9.7.3 Criteria for assessment of test data – Construction operatives

9.7.3.1 We have adopted guideline values relating to acute occupational exposure (female) for assessment of construction operatives, assuming no PPE is worn.

9.7.4 Criteria for assessment of test data – Vegetation

9.7.4.1 To help determine the risk to vegetation from potentially phytotoxic contaminants, screening values presented within the British Standard 'Specification for Topsoil' (BS 3882:2015), and the Environment Agency online guidance 'Sewage Sludge in Agriculture: Code of Practice' have been adopted.

9.7.5 Criteria for assessment of test data – Controlled waters

9.5.5.1 For interpretation of test data in relation to water receptors we have directly compared measured values with relevant screening values for surface water receptors only. Details of the source data and adopted threshold values are outlined on the summary tables in Appendix G.

9.5.5.2 In addition to the above we have used the Metal Bioavailability Assessment Tool (M-BAT) to estimate the bioavailability of copper, nickel and zinc based on the site specific geo-chemical parameters of Clipsley Brook adjacent to the site. This M-BAT tool generated a $PNEC_{dissolved}$ screening value to replace the generic Environmental Quality Standard (EQS) to assess site specific compliance.

9.5.5.3 Based upon the initial CSM, the critical receptors for the site are considered to be the Clipsley Brook within the site/along southern boundary, whilst the Secondary A aquifer recorded at depth is not considered a viable receptor owing to the superficial Devensian Till largely acting as an aquiclude to vertical migration. Thus, we have adopted only surface waters as the critical receptor, and this has been utilised within our assessment model in Appendix G.

9.7.6 Evaluation of test data – Human receptors

9.7.6.1 Due to the size of the site and the nature of the ground conditions on site, we have separated our screening assessment for ease. All samples of Made Ground tested have been analysed separately to samples of natural strata, comprising Topsoil and locally Devensian Till.

9.7.6.2 Tables summarising and analysing test data are presented in Appendix G. The following table summarises the outcome of the analyses.

Table summarising assessment of test data for human receptors

Analysis tables	Receptor group	Critical receptor	CLEA model	Inorganic contaminants	Organic contaminants
Acute Human Health Risk	Current site users and construction operatives	Adult	Industrial / commercial	Refer to section 9.7.6.3 below	Refer to section 9.7.6.3 below
Chronic Human Health Risk	End users	Child	Residential with plant uptake	Refer to Section 9.7.6.4 below	Refer to section 9.7.6.4 below

Table 9.7.6.2

9.7.6.3 Current site users, construction operatives, adjacent site users

9.7.6.2.1 With reference to the acute human Health risk screening table within Appendix G, laboratory testing has not identified any measured concentrations of contaminants which exceed current guideline values for current site users and construction operatives. Based on the above evaluation, the concentrations of contaminants measured on soil samples taken from the site are considered unlikely to exhibit significant contamination from a perspective of human receptors in this land use scenario.

9.7.6.5.1 A soil sample collected from WS206 at 0.8m depth (completed during the March 2024 investigation), within Made Ground from the infilled pond area of RBH05 recorded a bulk fragment of chrysotile cement. No other samples collected reported the presence of asbestos, either fibres or ACMs.

9.7.6.5.3 A risk assessment has been undertaken using the JIWG Decision Support Tool (see Appendix G), there is considered to be a low risk to construction workers at the site from asbestos contamination. In addition, the risk to adjacent site users is also considered to be very low.

9.7.6.4 End users

9.7.6.4.1 With reference to chronic human health screening tables within Appendix G, analysis of chemical test data with respect to critical (child) receptors for future site users are below relevant adopted guideline values with the exception of the following samples:

Made Ground				
Contaminant	**Guideline value (mg/kg)**	**No of exceedances**	**Exceedance locations**	**Value (mg/kg)**
Arsenic	37	1	DTS61 @ 0.2m	160
Beryllium	1.7	3	DTS60 @ 0.3m DTS61 @ 0.2m WS203 @ 0.8m	1.9 2.4 14
Lead	210	1	DTS61 @ 0.2m	300
Benzo(a)pyrene	2.2	1	DTS74 @ 0.1m	5.5
Benzo(b)fluoranthene	2.6	1	DTS74 @ 0.1m	6.8
Dibenzo(a,h)anthracene	0.24	2	DTS74 @ 0.1m WS203 @ 0.8m	0.73 0.26
Topsoil				
Contaminant	**Guideline value (mg/kg)**	**No of exceedances**	**Exceedance locations**	**Value (mg/kg)**
Arsenic	37	1	DTS51 @ 0.2m	39
Beryllium	1.7	1	HP204 @ 0.2m	1.8
Lead	200	2	DTS39 @ 0.1m HP204 @ 0.2m	210 260
Dibenz(a,h)anthracene	0.24	1	HP204 @ 0.2m	0.45
Benzo(b)fluoranthene	2.6	1	HP204 @ 0.2m	4.9

9.7.6.4.2 All PAH exceedances are confined to three samples - DTS74 at 0.1m depth located in the yard of the farmhouse, WS203 at 0.8m depth near the capped shaft in the north centre (both Made Ground) and HP204 at 0.2m depth (topsoil within Jaundrill Plot). There is nothing noted on the fieldwork records which would provide reason for such contamination, and is most likely to be associated with some microscopic ash/bituminous material with usage as a farm yard (DTS74), proximity to a coal shaft (WS203) and reworking of shallow topsoil deposits (HP204). It is noted that the exceedance of dibenzo(a,h)anthracene in borehole WS203 is very marginal and is highly unlikely to present a risk of causing harm to human health.

9.7.6.4.3 Again, it is unclear what the exceedances of metals measured in WS203, DTS60, DTS61 and HP204 at depths of 0.8m, 0.3m, 0.2m and 0.2m respectively are attributed to based on fieldwork descriptions of such strata. There are no gravels of anthropogenic material, and are most likely to be associated with storage of pesticides/fertilisers, a localised recent spillage of such product, or general background concentrations where commercial/urban activities of taken place. It is noted that the exceedance of beryllium in borehole DTS60 is very marginal.

9.7.6.4.4 The elevated concentrations of arsenic and lead measured in Topsoil in DTS61 and DTS39 at depths of 0.2m and 0.1m respectively is very marginal, and again possibly associated with recent usage of pesticides/fertilisers at the site and is highly unlikely to present a risk of causing harm to human health.

9.7.6.4.5 The existing guideline value for beryllium is based on research into the impact of industrial exposure, where the inhalation exposure route poses the most significant risk to end users. Indeed, the overwhelming majority of the existing literature strongly indicates that intake of beryllium orally through dermal contact has no ill health effects on humans and there is no evidence to suggest that naturally occurring beryllium poses a risk to end users.

9.7.6.4.6 As the site has not been subject to past industrial activities which are likely to have handled beryllium, concentrations recorded on site are likely to be naturally occurring. The average concentration of natural beryllium in the earth's crust is approximately 2-5mg/kg which notably exceeds the residential guideline value of 1.7mg/kg, derived by research into industrial exposure. On site, the concentrations of beryllium within soils were generally recorded up to 2.4mg/kg, which reflect natural, background concentrations. On this basis, the recorded concentrations of beryllium are not considered to present a risk to human receptors.

9.7.6.4.7 It is noted Beryllium was measured at a concertation of 14mg/kg in Made Ground soils in WS203 at 0.8m depth, likely to be attributed to the gravels of coal and clinker in such material. Given the depth of such soils (from 0.6m below ground level), and the presence of the proposed access in this area of the site (refer to Appendix N), such contamination is unlikely to pose a risk of causing harm to proposed end users.

9.7.6.4.8 Based on the above, there is unlikely to be a significant risk of identified contamination causing harm to the health of end users of the site. We would, however, recommend as a precaution that soils to depths of 0.3m in the areas of boreholes WS203, DTS61 and DTS74 are stripped and appropriately disposed offsite. Alternatively, such soils could be reused below hardstanding/floor slabs.

9.7.6.4.9 Topsoil deposits in the area of HP204 in the area of the Jaundrill land exhibit some minor contamination relating to lead and PAHs and likely to be related to historical use of the area, with small buildings once recorded. This is the only sample of Topsoil tested in this area of the site. An access road is proposed to run through this area of the site from Vicarage Road to the west. Topsoil is likely to be stripped once site is cleared. If resued onsite, we recommend further testing is completed on Topsoil from this area of the site to ensure soils are suitable for reuse. However, it is envisaged that once mixed with Topsoil site wide, and considering the effects of dilution, the measured concentrations of contaminations in the area of HP204 are unlikely to pose a risk of causing harm to proposed end users.

9.7.6.5 *Asbestos*

9.7.6.5.2 A soil sample collected from WS206 at 0.8m depth (completed during the March 2024 investigation), within Made Ground from the infilled pond area of RBH05 recorded a bulk fragment of chrysotile cement. No other samples collected reported the presence

of asbestos, either fibres or ACMs. Given the bound nature of the ACM, which is not recorded to have been significantly weathered/degraded, and depth of such material, such asbestos is unlikely to pose a significant risk to human health.

9.7.6.6 *Total Petroleum Hydrocarbon (TPH)*

9.7.6.6.1 Olfactory evidence of TPH contamination was detected in RBH05-TP09 at depths ranging from 1.8m to 2.5m bgl and RBH13-TP07 at 0.8m depth during the 2022 investigations.

9.7.6.6.2 Additional hydrocarbon odours were noted in the same area in WS206 at 2.8m depth, and WS221 at 2.0m depth. Seven further environmental samples from both areas were analysed for TPH during the March 2024 investigation to further delineate the risk from hydrocarbon contamination, in the areas of WS206 to WS210 (RBH05-TP09) and WS221 to WS223 (RBH05-TP07).

9.7.6.6.3 With reference to chronic human health screening tables within Appendix G, analysis of chemical test data with respect to critical (child) receptors for future site users indicates all measured concentrations are below relevant adopted guideline values.

9.7.7 Evaluation of test data – Vegetation

9.7.6.7.1 Comparison of test data with guideline values is presented on phytotoxicity screening tables in Appendix G. None of the measured concentrations exceed the adopted guideline values with the exception of copper in WS203 at 0.8m depth, DTS61 at 0.2m depth (both Made Ground), DTS01 at 0.1m depth, DTS47 at 0.2m depth, DTS56 at 0.2m depth, DTS71 at 0.2m depth and HP204 at 0.2m depth (all Topsoil). Measured concentrations range from 140mg/kg to 290mg/kg, exceeding the guideline of 100-200mg/kg (subject to PH level). It is noted that major vegetation was present in the areas of DTS61 and DTS71, which was observed in a healthy condition.

9.7.6.7.2 Zinc and nickel were also marginally elevated in HP204 at 0.2m depth and DTS61 at 0.2m depth. Low pH levels have also been recorded locally.

9.7.6.7.3 Based on the recommendations outlined in paragraph 9.7.6.4.8 above, it is likely that near surface soils in the area of borehole DTS61 will be stripped and reused under buildings/hardstanding or disposed offsite. Topsoil in the areas of DTS01 (albeit this location is not within the redline boundary), DTS47 DTS56, DTS71 and HP204 is likely to be stripped and reused in gardens/landscaped areas. Given the volume of Topsoil onsite, it is considered unlikely that the very localised elevated concentrations of copper, nickel and zinc, including low pH, will pose a risk of affecting vegetation at the site once mixed with other topsoils. The copper in Made Ground at 0.8m depth is in the area of the proposed access road and is unlikely that vegetation would be proposed in this area.

9.7.6.7.4 On this basis, we are of the opinion that measured concentrations are unlikely to exhibit significant contamination with respect to vegetation, however, it is difficult to quantify the phytotoxity of some contaminants as large variations exist between plant tolerances, soil effects and synergistic/antagonistic reactions between chemicals. Due

to the complexities of the effects of soil contamination on different plant species, we recommend that the test results presented in this report are passed to a landscape architect for the selection of suitable planting.

9.7.8 Evaluation of test data – Controlled waters

9.7.9.1 Inorganic contaminants

9.7.9.1.1 With reference appendix G, the measured values of inorganic contaminants fall well below relevant guideline values with the inclusion of the PNEC guidelines derived for Clipsley Brook.

9.7.9.2 Organic contaminants (polycyclic aromatic hydrocarbons)

9.7.9.2.1 For the analysis of PAH contamination, the sum of the following contaminants has been compared to a UKDWS in absence of EQS values.

- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(ghi)perylene
- Indeno(1,2,3-cd)pyrene

9.7.9.2.2 The summed concentration of the PAH 'suite' do not exceed the UKDWS. In addition, the leachable concentrations of benzo(a)pyrene and naphthalene do not exceed their respective guideline values (for both surface and drinking waters).

9.7.9.3 Total Petroleum Hydrocarbon (TPH)

9.7.9.3.1 Localised olfactory evidence of TPH contamination was encountered within RBH05-TP09 at a depth between 1.8m and 2.5m, RBH13-TP07 at a depth of 0.8m, WS206 at 2.8m depth and WS221 at 2.0m depth. Based on the presence of cohesive soils across the site, which will significantly restrict the mobilisation and migration of contamination, and the relatively low total concentrations measured in soils, we consider the risk of harm being caused to identified surface water receptors is low.

9.7.9.4 Summary

9.7.9.4.1 Laboratory testing has not indicated an exceedance in leachable concentrations of organic and inorganic contaminants on site with respects to EQS/UKDWS guideline values and PNEC Guidelines for cooper, nickel and zinc tested.

9.7.9.4.2 Based on the above, we are of the opinion that the risk to surface waters is considered low on site.

9.8 Updated conceptual model

9.9.1 Having now completed analysis of laboratory testing, we can now update our conceptual model which is presented in Appendix H.

9.9.2 Based on the updated conceptual model, with the exception for the possible removal of soils to 0.3m depth in the area of boreholes DTS61 and DTS74, none of the assessed risks exceed the low category and on this basis remedial action is not considered necessary at this stage to render the site fit for purpose. Sources that have not been identified by laboratory testing have been removed from the conceptual model.

9.9 Actions

9.9.1 Based on the above our sole recommendations are as follows: -

- Dependent on development proposals, near surface soils are removed to a depth of 0.3m in the areas of boreholes DTS61 and DTS74 local to the farmhouse.
- Construction operatives adopt adequate hygiene precautions.

9.9.2 The presence of ACM in soils on site (albeit very localised) will require consideration in the construction phase health and safety plan. Special precautions are considered to be required in these areas, including the adoption of disposable FFP3 masks, basic personal decontamination facilities, in combination with manual/localised dust suppression. Good working practices for working on brownfield sites and for dust mitigation should be adhered to at all times, including.

- Asbestos awareness training.
- A watching brief during enabling works.
- A site-specific asbestos awareness briefing as part of the site inductions.
- Establishing an appropriate action plan in the event of encountering unexpected contamination and suspected asbestos containing materials.
- Control of material movements to minimise dust generation, for example by reducing drop heights and ensuring buckets are not over-loaded.
- Excavated materials should be dampened down.
- Blading or covering short-term stockpiles.
- Covering or seeding long-term stockpiles.

9.8.4 Providing standard PPE and hygiene protocols are maintained for working on brownfield sites, no further special precautions are required.

9.10 Risk assessment in relation to use of infiltration systems

9.10.1 With reference to Environment Agency publication '*Groundwater protection: Policy and practice (GP3)* 2012, outside of SPZ1, the EA will support sustainable drainage systems for new discharges to ground. This is subject to an appropriate risk assessment to demonstrate that ground conditions are suitable and infiltration systems do not present an unacceptable risk of promoting mobilisation of contaminants or creating new pathways for contaminant migration.

9.10.2 The permeability of the near surface Devensian Till deposits is anticipated to be limited based on infiltration testing completed to date. The site is located over a Secondary undifferentiated aquifer, which suggests the site is not sensitive to migration of contaminants in groundwater. Also, the site is not located within or close

to a source protection zone. We have carried out leachate testing of a suite of contaminants with our assessment provided in Section 9.7.8 above. Essentially, measured concentrations of leachable contaminants fall below relevant values for the local environment. On this basis the risk of infiltration systems promoting mobilisation of contaminants at the site is considered low.

9.10.3 All discharges to groundwater are subject to compliance with the Water Framework Directive (2000/60/EC) and Groundwater Daughter Directive (2006/118/EC). It should be noted that the presence of Clipsley Brook may facilitate direct discharge of water. If this is to be considered, then consultation with the Environment Agency and local utility providers would be required to ensure that discharge to the Brook complies with appropriate regulations.

9.11 Risk assessment summary and recommendations

9.11.1 Based on our assessments described above, we can provide the following summary and recommendations for each identified receptor.

9.11.2 Current/adjacent site users

9.11.2.1 As no source of significant chemical contamination has been identified on site, we are of the opinion that the site represents a low risk of causing harm to the health of identified current users of the site.

9.11.3 End users

9.11.3.1 Providing the recommendations for removing near surface soils in the areas of borehole DTS61 and DTS74 are completed (subject to final development layouts), we are of the opinion that the site represents a low risk of causing harm to the health of future end users of the developed site, based on current development proposals.

9.11.4 Construction operatives and other site investigators

9.11.4.1 The risk of damage to health of construction operatives and other site investigators is, in our opinion, low. As discussed in Section 9.9, precautions are considered to be required in areas where ACM is present, including the adoption of disposable FFP3 masks, basic personal decontamination facilities, in combination with manual/localised dust suppression. Good working practices for working on brownfield sites and for dust mitigation should be adhered to at all times, including.

- Asbestos awareness training.
- A watching brief during enabling works.
- A site-specific asbestos awareness briefing as part of the site inductions.
- Establishing an appropriate action plan in the event of encountering unexpected contamination and suspected asbestos containing materials.
- Control of material movements to minimise dust generation, for example by reducing drop heights and ensuring buckets are not over-loaded.
- Excavated materials should be dampened down.
- Blading or covering short-term stockpiles.

- Covering or seeding long-term stockpiles.

9.11.4.2 Guidance on safe working practices can be obtained from the following documents

- The Health and Safety Executive Publication *"Protection of Workers and the General Public during the Development of Contaminated Land"* (HMSO) and
- *"A Guide to Safer Working on Contaminated Sites"* (CIRIA Report 132).

9.11.4.3 In addition, reference should be made to the Health and Safety Executive. In all cases work shall be undertaken following the requirements of the Health and Safety at Work Act 1974 and regulations made under the Act including the COSHH regulations.

9.11.5 Controlled waters

9.11.5.1 Based on the risk assessment outlined in Section 9.9.2 above, we are of the opinion that the site currently represents a low risk of causing harm to water receptors.

9.11.6 Vegetation

9.11.6.1 As no source of significant chemical contamination has been identified on site, we are of the opinion that the site represents a low risk of causing harm to vegetation. However, a landscape architect should be consulted prior to planting schemes being undertaken due to localised slightly raised levels of copper, zinc and nickel and low pH levels.

9.12 Statement with respect to National Planning Policy Framework

9.11.1 Providing the recommendations described above are satisfactorily completed, we are of the opinion the proposed development will be safe and suitable for use for the purpose for which it is intended, thus meeting the requirements of the National Planning Policy Framework section 121, and compliant with the Building Regulations Part C, '*Site preparation and resistance to contaminants and moisture'.*

9.13 On Site Monitoring

9.12.1 We have attempted to identify the potential for chemical contamination on the site, however, areas, which have not been investigated at this stage, may exhibit higher levels of contamination. If such areas are exposed at any time during construction we will be pleased to re-attend site to assess what action is required to allow the development to safely proceed.

10 Gaseous contamination

10.1	Legislative framework
10.2	General
10.3	Assessment of source of gases
10.4	Gas migration
10.5	Conclusion
10.6	Statement with respect to National Planning Policy Framework
10.7	Updated Ground Gas Risk Assessment
10.8	Gas protective measures – new buildings
10.9	Gas protective measures – construction operatives

10.1 Legislative framework

10.1.1 There is currently a complex mix of documentation relating to legislative and regulatory procedures on the issue of contamination, and it is not considered a purpose of this report to discuss the detail of these regulations. Essentially, Government Policy is based on *'suitable for use approach',* which is relevant to both the current and proposed future use of land. For current use Part IIA of the Environmental Protection Act 1990 provides the regulatory regime (see Section 5.1 above). The presence of harmful soil gases could provide a 'source' in a 'pollutant linkage' allowing the regulator (Local Authority) to determine if there is a significant possibility of harm being caused to humans, buildings or the environment. Under such circumstances the regulator would determine the land as 'contaminated' under the provision of the Act requiring the remediation process to be implemented with the Environment Agency responsible for enforcement.

10.1.2 The Town and Country Planning (General Development Procedure) Order 1995, requires the planning authority to consult with the Environment Agency before granting planning permission for development on land within 250 metres of land which is being used for deposit of waste, (or has been at any time in the last 30 years) or has been notified to the planning authority for the purposes of that provision.

10.1.3 Building control bodies enforce compliance with the Building Regulations. Practical guidance is provided in Approved documents, one of which is Part C, '*Site preparation and resistance to contaminants and moisture'* which seeks to protect the health, safety and welfare of people in and around buildings, and includes requirements for protection against harm from soil gas.

10.2 General

10.2.1 The following assessment relates to the potential for, and the effects of, gases generated by biodegradable matter. A separate, but related class of problem involves migration of vapour phase of hydrocarbons resulting from spillages of petroleum and solvents, but will be considered during future site investigations. The potential for the development to be affected by Radon Gas is considered in Section 3 above. The

principal ground gases are carbon dioxide (CO_2) and methane (CH_4). The following table provides a summary of the effects of these gases when mixed with air.

Significant gas concentrations in air		
Gas	**Concentration by volume**	**Consequence**
Methane	0.25%	Ventilation required in confined spaces
	5%	Potentially explosive when mixed with air
	30%	Asphyxiation
Carbon Dioxide	0.5%	5 hour long term exposure limit (LTEL) (HSE workplace limit)
	1.5%	15 min short term exposure limit (STEL) (HSE workplace limit)
	>3%	Breathing difficulties
	>5%	Death can occur

Table 10.2.1

10.2.2 Following the current Building Regulations Approved Document C1, Section 2 '*Resistance to Contaminates*' (2004 incorporating 2010 and 2013 amendments) a risk assessment approach is required in relation to gaseous contamination based on the source-pathway-receptor conceptual model procedure. We have adopted procedures described in the following reference documents for investigation and assessments of risk of the development being affected by landfill type gases (permanent gases) and if appropriate the identification of mitigation measures.

- BS10175:2011+A2:2017 *'Investigation of potentially contaminated sites- Code of Practice'*
- BS8576:2013 '*Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)'*
- BS8485:2015 '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'*
- CIRIA Report C665 '*Assessing risks posed by hazardous ground gases to buildings*' (2007)
- NHBC report No 10627-R01(04) '*Guidance on development proposals on sites where methane and carbon dioxide are present'* (January 2007)
- CL:AIRE Research Bulletin RB17 *'A pragmatic approach to ground gas risk assessment'* (November 2012)

10.2.3 An assessment of the risk of the site being affected by ground gases is based on the following aspects.

a) Source of the gas
b) Investigation information
c) Migration feasibility
d) Sensitivity of the development and its location relative to the source

10.3 Assessment of source of gases

10.3.1 General sources

10.3.1.1 The following table summarises mine entry 354397-026 the source of gases and parameters for producing gases

Source and control of gases	
Type	**Parameters affecting the rate of gassing**
Landfills	Portion of biodegradable material, rate reduces with time.
Mine workings	Flooding reduces rate of gassing
Dock silt	Portion of organic matter
Carbonate deposits	Ground / rainwater (acidic) reacts with some carbonates to produce carbon dioxide.
Soils / rocks	Portion of organic matter

Table 10.3.1

The rate of decomposition in gas production is also related to atmospheric conditions, pH, temperature, and water content / infiltration.

10.3.1.2 The site is not located within a dockland environment and near surface soils are unlikely to exhibit high carbonate content, then potential gas sources are limited to landfills, soils with a high proportion of organic matter and mine workings.

10.3.2 Landfill and infilled ground sources

10.3.2.1 Waste Management Paper 27 (1991) produced by the Department of the Environment '*Control of Landfill Gases'* contains the recommendation to avoid building within 50m of a landfill site actively producing large quantities of landfill type gases and to carry out site investigations within a zone 250m beyond the boundary of a landfill site. No distinction is made between sites of differing ground conditions, but the paper does not advocate the site is safe beyond the 250m zone, dependant, of course, upon the type of landfill and potential for migration of landfill gases.

10.3.2.2 No landfills are present within 596m of the site. However, 6 recorded mineral sites are present within 1km of the site, the nearest of which is located 52m to the south-west of the site, and the possibility cannot be discounted that these have been used for waste deposition with material which could produce landfill type gases.

10.3.2.3 There are also 31 areas recorded as potentially infilled land, 13 of which are recorded within 500m of the site and 2 located on site. The areas of infilled land recorded onsite are present in the western and north-eastern part of the site and may be associated with former unrecorded pits/quarries which pre-date earliest historical maps, or related to the backfilling/remediation of mine shafts/coal pits recorded historically onsite (refer to Drawing 03). Again, as no records are available in relation to the areas of infilled land, we would have to adopt a worst case scenario and assume that materials which have the potential to generate landfill type gases have been used onsite. The Local Authority also indicates a landfill containing colliery spoil adjacent to the southeast (Leigh Pit).

10.3.2.4 In addition, the south-western part of the site may have been subject to quarrying activities, likely to be associated with the exploitation of sandstone. Similarly, adjacent areas of land have also been subject to the exploitation of sandstone and may have been restored with materials which have the potential to generate landfill type gases.

10.3.3 Mine workings

10.3.3.1 In addition to the above, and with reference to our Coal Mining Risk Assessment Report (ref R-STN3680NM-CMRA01-Rev03), unrecorded shallow mine workings are likely to exist below the northern central (around RBH05/RBH201) part of the site, associated with the exploitation of the Lower Florida Coal seam, and in the western central part of the site (RBH16/16A, RBH208, RBH209 and RBH210) associated with the potential exploitation of the Higher Florida/Bottom Yard coal seam.

10.3.3.2 In addition, the Higher and Lower Florida Coal seams are known to have been worked in the north-eastern part of the site at depths of 48-60m bgl, and recorded workings in the Higher Ravenhead Delf (Wigan 5ft), Main Ravenhead Delf (Wigan 4ft), and Nine Foot Mine (Top Roger/Trencherbone) in the eastern part of the site between depths of 118m to 149m bgl. The Higher and Lower Florida and Trencherbone Coal seams are also known to have a history of spontaneous combustion. Such worked seams may contain significant quantities of mine gas which is worthy of further consideration.

10.3.3.3 Mine shafts have also been identified in the western part of the site and beyond Slag Lane to the northeast. These may also provide a source of mine gas worthy of further consideration.

10.3.4 Soil conditions

10.3.4.1 During the 2017 ground investigation within the area of the three historic recorded infilled ponds, and areas of soft ground at locations of RBH05, RBH13, RBH15 and RBH16, some deposits exhibited organic clay soils, with the presence of decomposed plant matter, in localised horizons to depths of 3.0m bgl. In addition, localised horizons of Peat were also observed. Typically, the soil matrix contains natural soils, with some gravels of anthropogenic material.

10.3.4.2 Although overall gas generation potential is low as the labile organic material has been exhausted over time, elevated concentrations of landfill type gasses can still be detected in monitoring wells within such deposits. A literature review has shown no evidence of ground gas incidents from Alluvium type soils (organic soils) in above ground buildings. Sustained high-volume generation is not feasible, and preferential open pathways are not present, therefore ground gases would likely not migrate at sufficient volumes or concentrations to pose a viable risk. However, it was deemed prudent to determine the concentrations of potential landfill gases in such soils, as well as their flow rates. As a result, several gas and groundwater monitoring wells were installed during the March 2024 investigation, covering the infilled pond areas and soft ground mentioned in section 10.3.4.1.

10.3.4.3 Made Ground deposits were encountered in similar areas in excess of 4.45m deep, which typically contained some gravels of natural materials with some slag, brick and

glass locally. Made Ground deposits were also identified in the south-western part of the site (Jaundrill plot).

10.3.5 Source assessment summary

10.3.5.1 The following table summarises the possibility of a source of landfill type gases from desk study information.

Source assessment summary		
Potential source origin	**Viability of source**	**Evidence**
Landfills	Unlikely	Desk study information.
Infilled ground	Likely	Desk study information – 2 large areas of infilled ground recorded onsite have not been identified with intrusive works. Former coal pits/shafts are present, in addition to a possible infilled quarry to the southwest and immediately adjacent sites which have been subject to quarrying activities. Four areas of infilled land have been identified during intrusive activities relating to infilled ponds.
Mine workings	Possible	Desk Study information – workings known to exist at depths of 48-149m bgl across the site. Intrusive investigation indicated potential shallow workings in the western /central parts of the site, and 4 No. shafts in the western part of the site and 3 No. shafts beyond Slag Lane to the northeast.
Dock silt	Unlikely	Site remote from dockland environment.
Carbonate deposits	Unlikely	Recorded and observed soil conditions do not indicate high concentrations of carbonates.
Soils / rocks	Likely	Soils local to historic ponds contain organic material which could generate gases.

Table 10.3.5

10.3.5.2 Based on the above, there is a possibility of a source of potential landfill gases which may affect the subject site. On this basis, it is considered necessary to consider possible pathways for migration of ground gases, from this potential source to the site.

10.4 Gas migration

10.4.1 Exploratory excavations encountered a reasonably consistent deposit of Devensian Till which typically comprises of impermeable clays to depths of in excess of 2-5m, which in our opinion are effectively impermeable and would significantly restrict both lateral and vertical migration of landfill type gases. No deposits of significant Made Ground which could indicate the presence of former infilled pits and the like, have been determined through site investigations to date.

10.4.2 Whilst granular lenses have been identified locally, in addition to more extensive deposits across the northern and south-eastern parts of the site, it is considered that any migration of gases from offsite sources would be significantly restricted by Devensian Till, which is persistent in the local area. The colliery spoil tips recorded by the LA to the southeast are unlikely to provide a significant source of gas given that deposited materials will consist of mine waste i.e. coals, mudstone, shales, sandstone etc.

10.4.3 The only exception to this would be within the areas of the recorded organic soils local to areas of recorded historic ponds/soft ground encountered on site, and mine gas risks associated with mining legacy at the site (mine shafts and unrecorded/recorded workings).

10.5 Ground Gas Monitoring Rationale

10.5.1 Ground gas sources which were identified in the iCSM as potentially posing an unacceptable risk to development were as follows:

- Deep, organic infilled ground
- Deep, organic-rich Made Ground
- Mine gases from mine workings/shafts.

10.5.2 13 No. gas monitoring wells were installed at the site during the March 2024 investigation, and a total of 4 No. visits were undertaken over a period of 8 weeks.

10.5.3 Gas monitoring wells were installed across historic infilled ponds containing both Made Ground and deep organic material. WS214 and WS215 were also installed adjacent to the site's western boundary to monitor potentially migrating gases from off-site deep Made Ground to the southwest (previous borehole DTS01).

10.6 Ground Gas Monitoring Results

10.6.1 A summary of the ground gas monitoring results follows, with the full results detailed within Appendix O.

- Gas flow rates were detected up to 0.3l/hr, and were generally observed at 0.1-0.2l/hr across the site.
- Steady concentrations of methane were generally observed at 0.2% across the site. WS213 (area of RBH16/16A) recorded a peak concentration of 4.2% falling quickly to a steady concentration of 0.5%.
- Elevated carbon dioxide was observed within WS205 (RBH05 area), WS212 (RBH16 area, inside mapped extent of former pond) and on two occasions in WS219 (RBH13 area, inside mapped extent of former pond), ranging from 6.7% to 9.1%. Elsewhere on site concentrations of carbon dioxide were measured in the range of 0.2% to 4.7%.
- Steady concentrations of oxygen were observed to be significantly depleted in WS205, WS211 and WS219, with concentrations recorded ranging from 2.7% to 10.8%.

10.7 Updated Ground Gas Risk Assessment

10.7.1 Infilled Ground

10.7.1.1 Elevated methane was observed within WS212 only (installed within Made Ground), within the centre of the RBH16/16A area, with a peak concentration of 4.2%, falling quickly to a steady concentration of 0.5%. Adjacent boreholes WS213 and WS211 were installed within natural deposits, recorded steady concentrations of methane ranging from 0.1% to 0.2%. All other positions across the site were generally observed at or below 0.3% methane. Given the very low flow rates recorded, the very low steady state concentration of methane and lack of a high volume ground gas source recorded with WS212, the risk from methane from beneath the site is low.

10.7.1.2 Elevated levels of carbon dioxide were observed within WS205 (northeast of RBH05 area), WS212 and WS219 (centre of RBH13 area). Depleted oxygen has also been observed within WS205 and WS219, alongside WS211. Based on a review of the exploratory hole logs and the CSM it is not thought that these are considered to be associated with the microbial degradation of petroleum hydrocarbons.

10.7.1.3 Locations WS212 and WS219 were located within the centre of the mapped location of the infilled ponds and elevated carbon dioxide and depleted oxygen were not observed within the adjacent installation locations installed in natural ground outside the mapped pond extents.

10.7.1.4 Given the very low flow rates, corresponding low concentrations of methane and small volume of the backfilled ponds, it is not considered likely that high volume generation of ground gases is feasible. As such the risk from ground gases migrating into housing constructed over the backfilled ponds is considered low. Full radon protection measures are also being incorporated into new buildings in the area as defined in Drawing 07 and Section 3.7 (plots B107 to B115).

10.7.1.5 Installations in WS214 and WS215 recorded very low concentrations of ground gas indicating no gas migration from the off-site deep Made Ground to the southwest is occurring.

10.7.1.6 Outside of the ponds in WS205, WS212 and WS219, there appears to be a lack of significant actively generating ground gas sources across the site, however, mine gas risks are assessed further below.

10.7.2 Mine Gas Assessment

10.7.2.1 Full details of the mine gas risk assessment are provided in the Coal Mining Risk Assessment report ref R-STN3680NM-CMRA01-Rev_03 (dated July 2025), and a summary is provided below.

10.7.2.2 Beyond a depth of 30 m, workings are not considered to pose a significant risk to the development due to the thickness of competent rock and low permeability and saturated superficial cover on site, along with the absence of faults and the treatment of mine shafts and overlying shallower workings. However, the residual risk from the

ungrouted mine workings at depths of between 20-30m bgl cannot be ruled out, and it is recommended that protection measures are put into place in properties overlying potential workings at this depth.

10.7.2.3 Workings within the Lower Florida seam at 20-30m bgl have been encountered in two areas on site (RBH201/RBH05 and RBH208). Given that four coal seams subcrop at <30m bgl in the western half of the site, and have workings within the Lower Florida and Bottom Yard seams, it is recommended that gas protection measures should be incorporated into all enclosed structures in the western half of the site to mitigate against the residual risk posed by mine gases.

10.7.2.4 No other workings at 20-30m bgl have been encountered on site and no workings at any depth have been encountered in borehole locations completed in the eastern half of the site. A Coal Mine Gas Risk Plan is included in Drawing 09 and shows the conjectured depths of seams across the site determined by dip-trigonometry and summarises the findings of exploratory boreholes.

10.7.2.5 The below figure (extracted from the gas zoning plan) shows the conjectured location of the encountered workings within the Lower Florida seam at the 30m bgl limit, as indicated by the dashed red line. This line has been determined by a combination of dip-trigonometry from the outcrop of the seam, refined by the depth of coal and workings encountered on site, and limited by the location of boreholes which did not encounter the coal seam in any form within 30m from surface.



10.7.2.6 To the west of the red line, both the workings shallow and superficial cover thins, and all properties must be subject to ground gas protection measures. To the east of the red line, the workings dip beyond depths of 30m bgl, and a greater thickness of low permeability clays and saturated sands are present, thereby lessening the risk from mine gases. A buffer has been provided to add an element of conservatism to the assessment, with all plots requiring ground gas protection measures shown by the yellow zone. Specifically, these are all plots west of the watercourse, and plots B1-B3, B36-B44, B45-B49 and B82-B86 east of the watercourse.

10.7.2.7 All plots requiring gas protection measures must include suspended floor slabs with a passively ventilated sub-floor void. It is recommended that this is supplemented with a suitable gas membrane (equivalent to CS-2 ground gas protection measures) in order to provide a differential pressure barrier to migration of mine gases into new buildings. This should also serve to address the full radon protection mitigation measures in the south-western part of the site.

10.8 Gas protective measures – new buildings

10.8.1 Section 7.4 of BS 8485:2015+A1:2019 states:

'Once the design measures have been selected……these should be developed into a detailed design report supported by detailed drawings and specifications. The detailed design should then be described in the design report'.

10.8.2 Development must not proceed until the scope and design of gas protection measures has been approved by the Local Authority.

10.8.3 The design report should also state the verification requirements, which may include inspection and integrity testing of installed gas protection measures, immediately following installation and before subsequent construction obscures such measures.

10.9 Gas protective measures - construction operatives

10.9.1 Areas near landfill sites, underground coal strata or in organic rich deposits (such as peat) have the potential to generate both harmfully low oxygen levels and high carbon dioxide and methane levels in confined spaces. The assessment for such situations may therefore require using gas monitors to warn of significant leaks of gas into confined spaces to minimise the risks associated with an oxygen-deficient atmosphere which could lead to asphyxiation, and/or a toxic or explosive atmosphere due to high levels of carbon dioxide and methane.

10.9.2 During construction, all confined spaces should be risk assessed prior to any human entry. As a minimum confined spaces should be monitored prior to entry and for short and long-term exposure periods to ensure levels are within acceptable concentrations or suitable breathing equipment adopted.

10.9.3 We recommend further reference is made to the following documents to minimise the risks to construction workers from ground gases:

- Health and Safety Executive Publication *"Protection of Workers and the General Public during the Development of Contaminated Land"* (HMSO)
- *"A Guide to Safer Working on Contaminated Sites"* (CIRIA Report 132)
- Health and Safety Executive Publication EH40/2005 *''Workplace Exposure Limits''*

11 Effects of ground conditions on building materials

11.1	General
11.2	Reference documents
11.3	Hazard identification and assessment
11.4	Provision of test data to specifiers/manufacturers/installers
11.5	Risk assessments for individual building materials
11.6	Concrete – general mechanisms of attack
11.7	Concrete – sulphate attack
11.8	Concrete – chloride attack
11.9	Concrete – acid attack
11.10	Concrete – magnesium attack
11.11	Concrete – ammonium attack
11.12	Concrete blocks
11.13	Clay bricks/pipes
11.14	Mortar
11.15	Metals – general
11.16	Metals – cast iron
11.17	Metals – steel piles
11.18	Metals – stainless steel
11.19	Metals – galvanised steel
11.20	Metals – copper
11.21	Metals – lead
11.22	Plastics – general
11.23	Plastic membranes and geotextiles
11.24	Plastic pipes
11.25	Electrical cables
11.26	Rubbers

11.1 General

11.1.1 Building materials are often subjected to aggressive environments which cause them to undergo chemical or physical changes. These changes may result in loss of strength or other properties that may put at risk their structure integrity or ability to perform to design requirements. Aggressive conditions include:-

- Severe climates
- Coastal conditions
- Polluted atmospheres
- Aggressive ground conditions

This report section only considers aggressive ground conditions, with other items considered outside our brief and scope of investigations.

11.1.2 In aggressive ground conditions, the potential for contaminant attack depends on the following:-

- The presence of water as a carrier of chemical contaminants, (except free phase organic contamination)
- The availability of the contaminant in terms of solubility, concentration and replenishment rate
- Contact between the contaminant and the building material
- The nature of the building materials and its capability of being attacked by contaminants

In general the thicker the building material the less likelihood there is for contaminant attack to cause damage to the integrity of the structure.

11.2 Reference documents

11.2.1 Following the Environment Agency publication *'Model Procedures for the Management of Land Contamination'* (Contaminated Land Report 11) the following documents have been referred to in production of the following report paragraphs.

- *'Performance of Building Materials in Contaminated Land'* report BR255 (Building Research Establishment 1994).
- *'Risks of Contaminated Land to Buildings, Building Materials and Services. A Literature Review'* - Technical Report P331 (Environment Agency 2000).
- *'Guidance on assessing and managing risks to buildings from land contamination'* - Technical Report P5 035/TR/01).
- Building Regulations Approved document C - site preparation and resistance to contaminants and moisture (Office of the Deputy Prime Minister, 2004).
- *'Concrete in aggressive ground'* Special Digest 1: 2005 (Building Research Establishment).

11.3 Hazard identification and assessment

11.3.1 The identification of hazards is based on the findings of this investigation primarily relating to former land uses (potential for chemical contamination, and likely type of contamination) and laboratory determination of concentration of chemical contaminants. Clearly, the scope of laboratory testing is determined with respect to former land uses, contaminants which may cause harm to human health and water resources.

11.3.2 Based on the above, the scope of our testing regime is described in Sections 8. We have utilised this test data in production of the following risk assessments in relation to building materials, in conjunction with test data targeting the effects of chemical attack on concrete in contact with the ground, as described in BRE Special Digest 1.

11.3.3 The identification of hazards from contamination and subsequent assessment of risks is based on the following:-

- The contaminants present on site.
- The nature of the contaminant (i.e. calcium sulphate is much less soluble than sodium or magnesium sulphate and is, therefore, less of a concern with regards sulphate attack).
- The concentration of contaminants - in general the higher the concentration the greater the hazard.
- The solubility of the contaminants - contaminants which are not soluble will not generally react with materials.
- The permeability of the soils - i.e. case by which fluids can transport contaminants to the building.

11.3.4 The process of risk assessment for building materials is concerned with identification of the hazard (contaminants at the site - a source) and subsequently how the contaminants can reach the building (pathway) and how they can react with the building (receptor). Thus the risk assessment is produced based on the source - pathway - receptor model.

11.4 Provision of test data to specifiers/manufacturer/installer

11.4.1 The following risk assessments are based on current published data. We strongly recommend, however, that information gained from this investigation are provided to specifiers/manufacturers/installers of building materials/service ducts/apparatus who may have more up to date research to confirm the ability of the product to resist the effects of chemical contaminants at the site for the desired lifespan of the product.

11.5 Risks assessments for individual building materials

11.5.1 The following/typical sections contain risk assessments for various building materials likely to be incorporated in developments. Other materials which we are not aware of may also be used in developments and in contact with the ground and, therefore, recommend the suppliers are consulted with respect to ground conditions at this site and their opinion sought as to the ability of the product to resist chemical conditions determined at the site.

11.6 Concrete - General mechanisms of attack

11.6.1 There are a number of mechanisms by which contaminants attack concrete including the following:-

- Hydrolysis of the hardened concrete.
- Degradation as a result of exchange reactions between calcium in calcium hydroxide (free lime hydrate) and ions in aggressive solutions.
- Expansive reactions as a result of chemical reaction or salt crystallisation.

11.7 Concrete - Sulphate attack

11.7.1 Hazard

11.7.1.1 Sulphate attack on concrete is characterised by expansion, leading to loss of strength, cracking, spalling and eventual disintegration. There are three principal forms of sulphate attack, as follows:-

- Formation of gypsum through reaction of calcium hydroxide and sulphate ions.
- Ettringite formation through reaction of tricalcium alluminate and sulphite irons.
- Thaumasite formation as a result of reactions between calcium silicate hydrates, carbonate ions (from aggregates) and sulphate ions.

11.7.2 Assessment

11.7.2.1 The hazard of sulphide attack is addressed by reference to procedures described in Building Research Establishment (BRE) Special Digest 1: 2005 '*Concrete in Aggressive Ground*' to establish a design sulphate class (DS) and the '*aggressive Chemical Environment for Concrete*' (ACEC). These procedures have been followed during our investigation and are described in the following paragraphs.

11.7.3 Desk Study Information

11.7.3.1 The first step in the procedure is to consider specific elements of the desk study. These are tabulated below.

Summary of desk study information

Element	Interrogation	Outcome	SD1: 2005 reference
Geology	Likelihood of soils containing pyrites	Unlikely	Box C6
Past industrial uses	Is the site classed as Brownfield?	Yes	C2.1.2

Table 11.7

11.7.3.2 A brownfield site is defined in SD1: 2005 as a site, or part of a site which has been subject to industrial development, storage of chemicals (including for agricultural use) or deposition of waste, and which may contain aggressive chemicals in residual surface materials, or in ground penetrated by leachates. Where the history of the site is not known, it should be treated as brownfield until there is evidence to classify it as natural.

11.7.3.3 Based on the above it is necessary to follow the procedures described in figure C6 ('*locations on brownfield sites except where soils may contain pyrite*').

11.7.4 Assessment of Design Sulphate Class

11.7.4.1 The sulphate concentration in a 2:1 water/soil extract was measured in 11 samples of Made Ground, 6 samples of Pennine Middle Coal Measures, 11 samples of Devensian Till and 1 sample of Topsoil. The results are summarised in Table 11.7.7.

11.7.5 Assessment of groundwater mobility

11.7.5.1 With reference to SD1: 2005, Section C3.2, we are of the opinion that 'mobile groundwater' conditions are characteristic for Topsoil and Made Ground, with Devensian Till and Pennine Middle Coal Measures deposits (with reference to SD1: 2005, Section C3.1), generally having a low permeability and thus 'static' groundwater conditions are considered characteristic.

11.7.6 Assessment of pH

11.7.6.1 Following SD1: 2005, Section C5.1.1 (step 4) the characteristic value for pH within Devensian Till and Pennine Middle Coal Measures deposits is 5.4 and 8.5 respectively, derived by taking the mean of the lowest 2 of the pH results. The characteristic values for pH within Made Ground and Topsoil equate to the lowest measured value and measure value of 7.4 and 6.3 respectively.

11.7.6.2 Although a small number of samples produced a pH value below 5.5, this is not considered statistically 'significant' in the population of results and thus the concentration of chlorides and nitrates was not measured.

11.7.7 Assessment of aggressive chemical environment for concrete (ACEC)

11.7.7.1 Based on the design sulphate class, characteristic value of pH and assessment of groundwater mobility, and with reference to table C2 of SDI: 2005, the ACEC class for each soil type is presented in Table 11.7.7 below.

Summary of concrete classification

Soil type	No. of samples	Characteristic pH	GW mobility	Characteristic TPS	Characteristic sulphate (mg/l)	DS class	ACEC class
Topsoil	1	6.3	Static	N/A	N/A	DS-1	AC-1s
Infrastructure in area of northern infilled pond [no plots in this area]	6	8.3	Static	N/A	4790*	DS-4	AC-3s
Made Ground elsewhere	9	7.5	Static	N/A	1,145*	DS-2	AC-1s
Devensian Till	11	5.4	Mobile	N/A	396**	DS-1	AC-1s
Pennine Middle Coal Measures Formation	6	8.5	Mobile	N/A	81	DS-1	AC-1

Notes
*** Mean of top 2 results**
**** - Mean of top 20% of results**

Table reference 11.7.7

11.7.7.2 If more than one soil/groundwater source has been tested at the subject site, the more onerous of design sulphate class and ACEC class should be adopted.

11.7.7.3 Made ground associated with the infilled pond in the vicinity of RBH05 is classified as DS-4 AC-3s which can be attributed to the elevated water soluble sulphate within RBH05. The Made Ground at RBH05 comprised of reddish-brown clayey gravel of brick and coal. Subsequent testing from the vicinity of RBH05 (WS206, WS207 and WS208) has also identified elevated water soluble sulphate observed within WS206 at 1.5m, at 1630mg/l. There are no proposed plots within the area of the infilled pond, however, any concrete infrastructure within this area should be designed to DS-4 AC-3s.

11.7.7.4 Made Ground elsewhere on site is classified as DS-2 AC-1s which can be attributed to elevated water soluble sulphate in WS201. Natural soils and rocks hold a DS-1 AC-1 class.

11.8 Concrete - Chloride attack

11.8.1 Hazards

11.8.1.1 There are a number of ways in which chlorides can react with hydrated cement compounds in concrete. These are as follows:-

- Chlorides react with calcium hydroxide in the cement binder to form soluble calcium chloride. This reaction increases the permeability of the concrete reducing its durability.

- Calcium and magnesium chlorides can react with calcium aluminate hydrates to form chloroaluminates which result in low to medium expansion of the concrete.

- If concrete is subject to wetting and drying cycles caused by groundwater fluctuations, salt crystallisation can form in concrete pores. If pressure produced by crystal growth is greater than the tensile strength of the concrete, the concrete will crack and eventually disintegrate.

11.8.2 Risk assessment

11.8.2.1 Chlorides of sodium, potassium, and calcium are generally regarded as being non-aggressive towards mass concrete; indeed brine containers used in salt mines have been known to be serviceable after 20 years service. Depending upon the type of concrete, and the cement used up to 0.4% chloride is allowed in BS8110: Part 1.

10.8.2.2 In view of the past use of the site we consider the likelihood of elevated concentrations of chlorides in the ground is not likely to occur and on this basis have not specifically measured concentrations of chlorides and, in our opinion, the risk of buried concrete being affected by chlorides is considered low.

11.9 Concrete - Acid attack

11.9.1 Hazards

11.9.1.1 Concrete being an alkaline material is vulnerable to attack by acids. Prolonged exposure of concrete structures to acidic solutions can result in complete disintegration.

11.9.2 Risk assessment

11.9.2.1 The rate of acid attack on concrete depends upon the following:-

- The type of acid
- The acid concentration (pH)
- The composition of the concrete (cement/aggregate)
- The soil permeability
- Groundwater movement

British Standard BS8110: Part 1 classifies extreme environment as one where concrete is exposed to flowing groundwater that has a pH<4.5. The standard also warns that Portland Cement is not suitable for acidic conditions with a pH of 5.5 or lower.

11.9.2.2 The pH of the soil/groundwater was typically measured exceeding 5.5 on this basis the risk of concrete being affected by acidic conditions is considered low.

11.10 Concrete - Magnesium attack

10.5.1 Hazards

10.5.1.1 Magnesium salts (excepting magnesium hydrogen carbonate) are destructive to concrete. Corrosion of concrete occurs from cation exchange reactions where calcium in the cement paste hydrates and is replaced with magnesium. The cement loses binding power and eventually the concrete disintegrates.

10.5.2 Risk assessment

10.5.2.1 In practise 'high' concentrations of magnesium will be found in the UK only in ground having industrial residues. Following BRE Special Digest 1:2005, measurement of the concentration of magnesium is recommended if sulphate concentrations in water extract or groundwater exceed 3000mg/l. Once measured the concentration of magnesium is considered further in BRE Special Digest in establishing the concrete mix to resist chemical attack.

10.5.2.2 We are not aware the site has been subject to any manufacturing processes which would have included magnesium containing compounds. We did test samples of the Made Ground, Devensian Till and Pennine Middle Coal Measures Formation for water soluble magnesium, which were measured ranging between 5.6mg/l and 31mg/l, respectively. Such concentrations are unlikely to impact concrete, recorded below the lowest exposure class of XA1.

11.11 Concrete - Ammonium attack

11.11.1 Hazards

11.11.1.1 Ammonium salts, like magnesium salts act as weak acids and attack hardened concrete paste resulting in softening and gradual decrease in strength of the concrete.

11.11.2 Risk assessment

11.11.2.1 UK guidance is not available on the concentration of ammonium which may affect concrete. BS EN 206-1: 2000 '*Concrete - Part 1: Specification, performance, production and conformity*' does, however, provide exposure classes for concrete in contact with water with varying concentrations of ammonia for the design/specification for concrete mixes.

11.11.2.2 Groundwater is unlikely to come into contact with foundations at the site. In addition the site has no history which provides evidence of the uses of ammonia on site, and in overall conclusion the risk of concrete being affected by ammonia is considered low.

11.12 Concrete blocks

11.12.1 Hazards

11.12.1.1 Precast aggregate concrete blocks and autoclaved aerated concrete blocks are commonly used in the construction of shallow foundations. Concrete blocks are potentially attacked by the same contaminants and ground conditions which affect dense concrete.

11.12.2 Risk Assessment

11.12.2.1 In general, the mechanism of attack on concrete blocks is the same for hardened concrete. We recommend parameters for ground conditions for concrete described in the preceding paragraphs for concrete blockwork in contact with the ground/groundwater and the blockwork manufacturers confirmation sought for applicability of their product.

11.13 Clay Bricks/Pipes

11.13.1 Clay Bricks are highly durable materials which have been used in buildings for many centuries. Fire clay pipe material can also be considered similarly resistant to contaminants.

11.13.2 Hazards

11.13.2.1 Dissolution of clay brick in a potentially serious cause of deterioration. The extent of dissolution depends upon the solubility of the glassy material (produced by firing of the clay) contained in the brick. The acidic nature of the glass phase will produce low

solubility in a neutral and acidic environment, but can be soluble in a basic environment.

11.13.2.2 A potentially more serious hazard for brickwork is the crystallisation of soluble salts within the brick pore structure. Salts are transported by water to the interior of the brick originating from the external environment or by rehydration, however, are only likely to occur when there is a gradient from a wet interior to a drying surface. The potential, therefore, for salt crystallisation in the ground is, therefore, low.

11.13.3 Risk Assessment

11.13.3.1 There seems to be little published information as regards the resistance to clay bricks/pipes in aggressive ground conditions, however, clay bricks are generally considered very durable. As no significant concentrations of chemical contaminants have been identified at this site in combination with near neutral pH conditions it is considered unlikely that ground conditions are sufficiently aggressive to cause damage to brickwork/clay pipes.

11.13.3.2 Some basic guidance is provided in BS5628-3: 2005 '*Code of Practice for the Use of Masonry - Part 3: Materials and components, design and workmanship*' with regards to resistance of masonry to resist the effects of sulphate attack.

11.14 Mortar

11.14.1 Mortars are based on building sands mixed with cement and/or lime as a binder. In the UK Portland cements and masonry cement are commonly used. Masonry cements are a mixture of Portland Cements and fine mineral filler (i.e. Limestone) with an air entraining agent.

11.14.2 Hazards

11.14.2.1 Mortar is subject to the same agents for deterioration as concrete with the major cause of deterioration being sulphate attack.

11.14.3 Risk assessment

11.14.3.1 Sulphates can originate from soils/groundwater or from the bricks themselves. Calcium, magnesium, sodium and potassium sulphates are present in almost all fired-clay bricks. Water can dissolve a fraction of these sulphates and transport them to the mortar.

11.14.3.2 Currently, we are not aware of any guidance on the resistance of mortars to sulphate attack. The Building Research Establishment report that the sulphate resistance of mortar was improved by the use of sulphate resisting Portland cements and lime. Some guidance is also provided in BS5628-3: 2005 '*Code of Practice for the use of Masonry - Part 3: Materials and components, design and workmanship'.*

11.14.3.2 Based on ground conditions determined at the site the risk of significant sulphate attack on mortars (Based on testing/analysis of sulphates in relation to concrete - refer Section 11.7) is considered low.

11.15 Metals - general

11.15.1 There are a number of metals which are used in buildings either as piles, services, non structural and, indeed, structural components. The most common metals used in buildings are steel, stainless steel, copper, lead, zinc, aluminium and cast iron. All these metals can deteriorate through corrosion process. Corrosion can affect metals in a variety of ways depending upon the nature of the metal and the environment to which it is subjected. In most common forms of corrosion are:-

- Electrochemical - the most common form of corrosion in an aqueous solution
- Chemical corrosion - occurs when there is a direct charge transfer between the metal and the attacking medium (examples are oxidation, attack by acids, alkalis and organic solvents)
- Microbial induced corrosion

11.16 Metals - Cast iron

11.16.1 Cast iron is a term to describe ferrous metals containing more than 1.7% carbon and is used extensively in the manufacture of pipes.

11.16.2 Hazards

11.16.2.1 Generally, cast iron has a good resistance to corrosion by soils, however, corrosion can occur due to the following mechanisms:-

1) Generation of large scale galvanic cells caused by differences in salt concentrations, oxygen availability or presence of stray electrical currents.

2) Hydrochloric acid will cause corrosion at any concentration and temperature. Dilute sulphuric, nitric and phosphoric acids are also aggressive as also are well aerated organic acids.

11.16.3 Risk assessment

11.16.3.1 Testing can be carried out on site to measure the resistivity and redox potential of soils which can assist in deriving recommendations for protection of cast iron components using coatings, burial trenches, or isolation techniques. Currently, however, there is no specific guidance and we recommend advice is sought from manufacturers.

11.16.3.2 Guidelines produced by the Water Research Centre (WRc) on the use of ductile iron pipes, state that highly acidic soils (pH <5) are corrosive to cast iron pipe even when protected by a zinc coating or polythene sleeving. WRc also indicate that groundwater containing >300ppm chloride may corrode even protected cast iron pipes.

11.16.3.3 On the basis that the pH of soils at the site are typically not less than 5, and groundwater is unlikely to be in contact with cast iron elements, then the risk of ductile cast iron pipes being affected by acid/chloride attack is considered low. We

have not carried out any redox/resistivity testing (considered outside our brief) and thus we cannot comment further with regards to the risks of galvanic action.

11.17 Metals - Steel piles

11.17.1 Hazards

11.17.1.1 The corrosion of steel requires the presence of both oxygen and water. In undisturbed natural soils the amount of corrosion of driven steel piles is generally small. In disturbed soils (made ground) however, corrosion rates can be high and normally twice as high as those for undisturbed natural soils.

11.17.2 Risk Assessment

11.17.2.1 Guidance on the use of steel piles in different environments is provided in British Steel's piling handbook which includes calculating the effective life of steel piles. There is no specific guidance, however, for contaminated soils in this publication. Coatings can be provided to the pile surface but experience has shown that some coatings can be damaged during driving, particularly in ground which can contain hard materials such as brick/concrete/stone.

11.18 Metals - Stainless steel

11.18.1 Hazards

11.18.1.1 Stainless steel is used in a number of building components including services, pipework, reinforcement bars and wall ties. There is little knowledge, however, of the performance of stainless steel in aggressive environments.

11.18.2 Risk assessment

11.18.2.1 Stainless steel can withstand pH of 6.5 to 8.5, but the chlorine content of a soil increases the risk of corrosion. At concentrations of 200mg/l type 304 stainless steel can be used, but for concentrations of 200 to 1000mg/l type 316 should be used in preference to type 304, but for concentrations greater than 1000mg/l type 316 should always be used.

11.18.2.2 At this site the pH of the soils was measured between 4.4 and 8.3. Although it is considered unlikely that groundwater will be in contact with stainless steel components (unless we are advised otherwise), we recommend manufacturers' advices are sought with respect to their resistance to ground conditions encountered at this site.

11.19 Metals - Galvanised steel

11.19.1 Hazards

11.19.1.1 Galvanising steel is a means of protecting steel from aggressive environments; however, zinc galvanising can be corroded by salts and acids.

11.19.2 Risk assessment/remedial action

11.19.2.1 There is no current specific guidance on the effects of aggressive ground conditions on galvanised steel, however, some research indicates zinc alloys are generally more resistant than pure zinc coatings in aggressive conditions.

11.20 Metals - Copper

11.20.1 Hazards

11.20.1.1 Copper is commonly used for gas and water supplies. Copper is generally resistant to corrosion in most natural environments, but in contaminated ground copper can be subject to corrosion by acids, sulphates, chlorides and ground containing cinders/ash. Wet peat (pH 4.6) and acid clays (pH 4.2) are considered aggressive conditions to promote corrosion to copper.

11.20.2 Risk assessment

11.20.2.1 There is no specific published guidance on what constitutes aggressive conditions to copper except very acid/peaty conditions.

11.20.2.2 There are no significantly acidic or peaty conditions in near surface soils at the site or, indeed, significant concentrations of ash/cinders. On this basis the risk of significant corrosion to copper in contact with the ground is considered low.

11.21 Metals - Lead

11.21.1 Hazards

11.21.1.1 Lead is used in tanking, flashings, damp proof courses, etc. Lead is a durable material which is resistant to corrosion in most environments. Lead damp proof courses can be subject to attach from the lime released by Portland Cement based mortar and concrete. In the presence of moisture, a slow corrosive attack is initiated on lead sheet. In such cases a thick coat of bitumen should be used to protect the lead damp proof course.

11.21.2 Risk assessment

11.21.2.1 There is no current guidance on the performance of lead in contact with contaminated soils, however, acids and alkalis (lime) could be aggressive towards lead.

11.21.2.2 At the site pH conditions were measured in the range of 4.4 to 8.3 therefore, we recommend manufacturers' advices are sought with respect to their resistance to ground conditions encountered at this site.

11.22 Plastics - General

11.22.1 The range of plastics in construction is wide and increasing. The deterioration of plastics varies with the individual material and the environment to which it is exposed. In general, plastics deteriorate through degradation of their polymer constituent, but loss of plasticizer and other additives can render plastics ultimately unserviceable.

11.23 Plastic membranes and geotextiles

11.23.1 Plastic membranes and textiles are used in the construction industry as damp proof courses, gas resistant membranes, cover systems and liners. They are typically used to restrict the movement of gas or water into buildings, building materials or components or to separate differing soil types. Typically materials used for membranes are polyethylene (PE) and poly vinyl chloride (PVC).

11.23.2 Hazards

11.23.2.1 Membranes of PE and PVC are attacked by a variety of acids and solvents. PE has a poor corrosion resistance to oxidising acids (nitric and sulphuric) at high concentrations. Hydrochloric acid (HCl) does not chemically attack PE but can have a detrimental effect on its mechanical properties. Alkalis, basic salts, ammonia solutions and bleaching chemicals such as chlorine will cause deterioration of PE. PE is resistant to non oxidising salt solutions.

11.23.2.2 PVC is degraded by the action of oxidising acids. Nitric acid is particularly aggressive towards PVC. PVC does not deteriorate under the action of neutral or alkaline solutions.

11.23.3 Risk assessment

11.23.3.1 There is no published guidance on quantitative assessment of the risks to PE or PVC although there is a lot of advice on how contaminants react with these plastics. In general, the more concentrated the contamination the greater the risk to plastic membranes/geotextiles.

11.23.3.2 Based on the investigatory data obtained to date, and in consideration of the hazards described above, there is no evidence of significant concentrations of acids or alkalis, indicating the risks of ground conditions at the site affecting PE and PVC materials are considered low.

11.24 Plastic Pipes

11.24.1 Hazards

11.24.1.1 Plastic pipes are predominantly manufactured from PVC and PE but other materials can be used. In general they perform well but it is known that chemical attack and permeation of contaminants through the pipes can result from use in contaminated land. A published review on plastic pipes reports the following:-

- Polyethylene (PE) - good resistance to solvents, acids and alkalis
- Poly vinyl chloride (PVC) - most common form of pipe. Good general resistance to chemical attack but can be attacked by solvents such as ketones, chlorinated hydrocarbons and aromatic polypropylene (PP) - chemically resistant to acids, alkalis and organic solvents but not recommended for use with storing oxidising acids, chlorinated hydrocarbons and aromatics.
- Poly vinylidene fluoride (PVDF) - inert to most solvents, acids and alkalis as well as chlorine, bromide and other halogens
- Polytetrafluoroethylene (PTFE) - one of the most inert thermoplastics available. PTFE has good chemical resistance to solvents, acids and alkalis

A survey carried out by the Water Research Centre (WRc) on reported incidents of permeation (more than 25), only two involved PVC with these incidents relating to spillages of fuel.

11.24.2 Assessment

11.24.2.1 A survey carried out by the Water Research Centre (WRc) on reported incidents of permeation (more than 25), only two involved PVC with these incidents relating to spillages of fuel.

11.24.2.2 The UK Water Industry research (UKWIR) have published a document entitled *'Guidance for the selection of Water supply pipes to be used in Brownfield sites'.* The publication defines brownfield sites as

> *'Land or premises that have been used or developed. They may also be vacant, or derelict. However they are not necessarily contaminated'*

11.24.2.3 The subject site has not previously been developed however, it would appear that it has been used, and on this basis could potentially be considered brownfield in accordance with the UKWIR document. Following the preliminary risk assessment procedures described in the UKWIR document however, (paragraph 2.4.2) there is no evidence to indicate that chemicals have ever been used or stored on site or adjacent to the development. On this basis it is considered unlikely that there will be a requirement to use barrier water supply pipes. However, we have measured elevated concentrations of PAHs in the vicinity of the farm house and barrier pipes may be required in such areas. We recommend United Utilities however is consulted on this to gain their opinion and requirements

11.25 Electrical cables

11.25.1 Hazards

11.25.1.1 Electrical cables are generally protected by plastic sleeves. These sleeves are potentially subject to chemical and permeation in similar modes as plastic pipes.

Medium and low voltage cables are often laid directly into the ground and are thus at risk of attack by contaminants. High voltage cables tend to be laid in trenches backfilled with 'clean' materials.

11.25.2 Risk assessment/remedial action

11.25.2.1 The selection of appropriate sheathing material is important to provide resistance to ground conditions at the site and recommend manufacturers' advices are sought.

11.26 Rubbers

11.26.1 Hazards

11.26.1.1 Rubbers are crosslinked polymeric materials containing a number of additives such as carbon black, fillers, antioxidant and vulcanising agents. The corrosion resistance of rubber is dependant upon the polymeric constituent. The mechanisms by which rubbers deteriorate when placed in aggressive chemical environments are similar to those described for plastics. Oxidation is the principal form of degradation. Whilst rubbers are resistant to strong acids and alkalis, they are rapidly attacked by oxidising agents such as nitric acid and oxidising salts such as copper, manganese and iron.

11.26.1.2 Rubber is also susceptible to attack by certain hydrocarbons and oils. The absorption of these liquids causes the rubber to smell.

11.26.2 Risk assessment/remedial action

11.26.2.1 Information on the effect of a range of chemicals on the physical properties of various rubbers has been produced by the Rubber and Plastics Research Association. This was based on observations carried out following immersion tests using undiluted chemicals, but this has limitations such as the effects of combined chemicals and the effects of dilution.

11.26.2.2 We recommend manufacturers of the rubber materials likely to be in contact with the ground at the site are consulted to confirm, or otherwise, the applicability of their product.

12 Landfill issues

12.1	Disposal of soils off site
12.2	Landfill tax
12.3	Reuse of soils – Materials Management Plans

12.1 Disposal of soils off site

12.1.1 Disposal of waste soils must comply with the Landfill Directive and amendments to the *'Landfill (England and Wales) Regulations'.* Essentially, this requires the 'waste producer' to classify soils for off-site disposal to an appropriately licensed landfill facility. Laboratory testing on soils from the site would be required to allow such classification in accordance with current Environment Agency waste acceptance criteria and procedures. We can carry such testing and an assessment of soil classification for disposal on further instructions.

12.2 Landfill tax

12.2.1 Disposal of soils to landfill sites is normally subject to landfill tax with rates varying from year to year based on government policy and composition of material to be disposed of. Current information on rates of landfill tax can be obtained from the HM Revenue and Customs website. (www.hmrc.gov.uk).

12.3 Reuse of Soils - Materials Management Plans

12.3.1 Where soils are to be moved and reused onsite, or are to be imported to the site, a Waste Exemption or an Environmental Permit is required.

12.3.2 An alternative is the use of a Materials Management Plan (MMP) to determine where soils are and are not considered to be a waste. By following *'The Definition of Waste: Development Industry Code of Practice'* published by CL:AIRE (produced in 2008 and revised in March 2011), soils that are suitable for reuse without the need for remediation (either chemical or geotechnical) and have a certainty of use, are not considered to be waste and therefore do not fall under waste regulations. In addition, following this guidance may present an opportunity to transfer suitable material between sites, without the need for Waste Exemptions or Environmental Permits.

12.3.3 MMPs offering numerous benefits, including maximising the use of soils onsite, minimising soils going to landfill and reducing costs and time involved in liaising with waste regulators.

12.3.4 We can provide further advice on this and provide fees for producing a Materials Management Plan on further instruction.

13 Further investigations

13.1 Further investigations

13.1 Although we have endeavoured to provide a comprehensive investigation for the proposed development within budgetary constraints there are areas, which we recommend further investigations be carried out.

13.2 Coal Mining

13.2.1 Shallow workings/voids associated with the Bottom Yard/Higher Florida Coal seams were recorded in boreholes RBH16, RBH16A, RBH209 and RBH210, between depths of 6.4m and 11.5m bgl. Collapse of such suspected workings could present a significant land instability risk to the development, and suitable treatment is necessary. Further details are presented in our CMRA for the site (ref STN3680NM-CMRA01-Rev_03 dated July 2025).

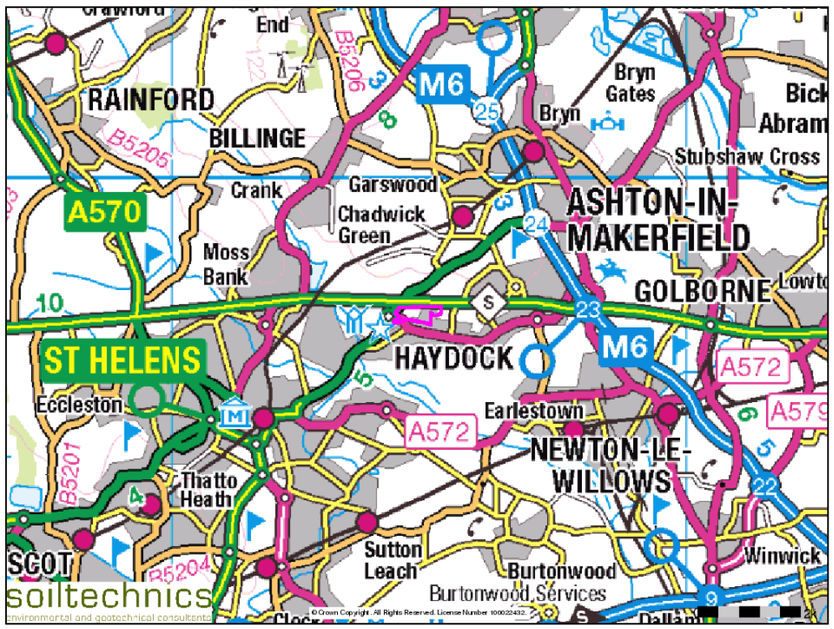
13.3 Rest of the site

13.3.1 We would recommend that further investigations are undertaken in such areas to establish the following: -

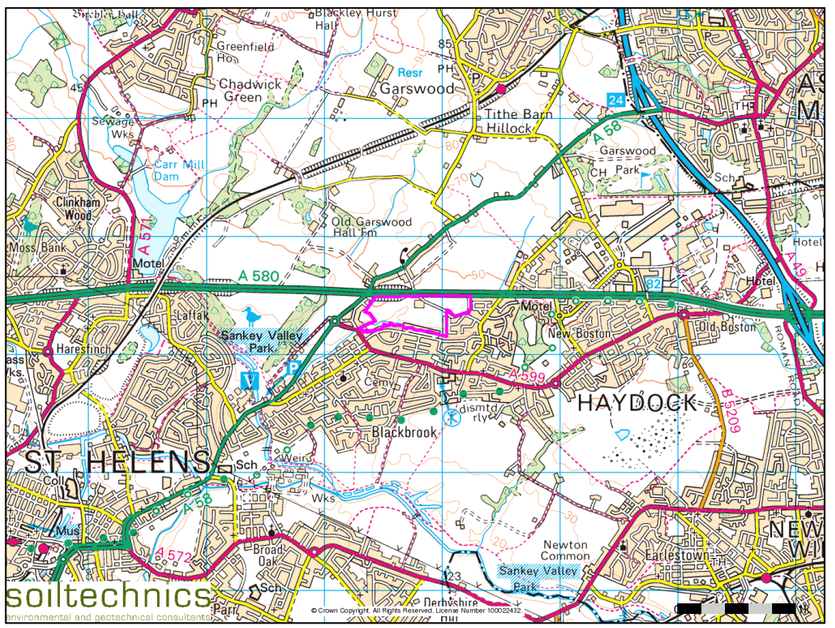
- In order to determine the requirement of deepened trench fill foundations, a detailed investigation and assessment of moisture depletion of near surface soils should be undertaken prior to development commencing. This should be undertaken following the final harvest (with crops removed within both the vertical and lateral zone of influence of the development), and a subsequent winter season allowed to elapse to enable rehydration of the soils (where practicable).
- Reassessment of CBR values once layout of site has been confirmed and locations of pavements are known utilising insitu testing (TRL DCP techniques).
- A Remediation Strategy is necessary to establish the necessary measures to mitigate the risk from land contamination and ground gases.
- We recommend that plot specific investigations are completed in the areas where dwellings fall within the areas of the former ponds identified (RBH05, RBH13, RBH15, and RBH16), and the area of softer natural soils at RBH14, to determine with greater accuracy, required founding depths.

13.3.2 We would be pleased to carry out any of the supplementary investigations described above and provide proposals with costings on further instruction.

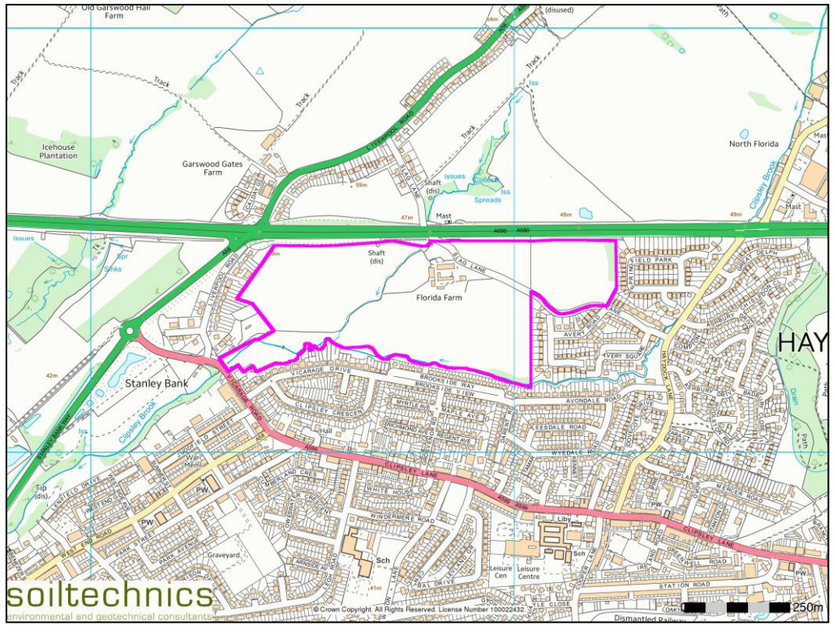
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Locality extract from Ordnance Survey map



Neighbourhood extract from Ordnance Survey map



Street extract from Ordnance Survey map

Title	Scale	Drawing number
Site location plan	Not to scale	01

East Lancashire Road *(A580)*

Residential housing

Approximate area of recorded infill/historic pond

Approximate area of recorded infill/historic pond

Jaundrill Land plot

Area inaccessible to heavy plant

Clipsley Brook

Key

- WS — Driven tube sampling (windowless sampling) boreholes within area of recorded historic ponds and farm house
- WS — Driven tube sampling (windowless sampling) boreholes to determine contamination extents
- WS — Driven tube sampling (windowless sampling) boreholes for new site entrance and further delineation of Made Ground in Jaundrill plot
- RBH — Rotary boreholes
- HP — Hand dug trial pit for Vicarage Road access
- Approximate area of recorded infill / historic pond / soft ground
- DTS — Driven tube sampling (windowless sampling) boreholes (undertaken August/September 2017).
- RBH — Rotary boreholes (undertaken August/September 2022)
- WS — Driven tube sampling (windowless sampling) boreholes (undertaken August/September 2022).
- Lower Florida Coal Seam as recorded by BGS/Coal Authority mapping
- Higher Florida Coal Seam as recorded by BGS/Coal Authority mapping
- Bottom Yard Coal Seam as recorded by Coal Authority mapping
- RAMS Coal Seam as recorded by Coal Authority mapping
- Site boundary

Notes

1. Base drawing provided by Client.
2. Exploratory locations are approximate.

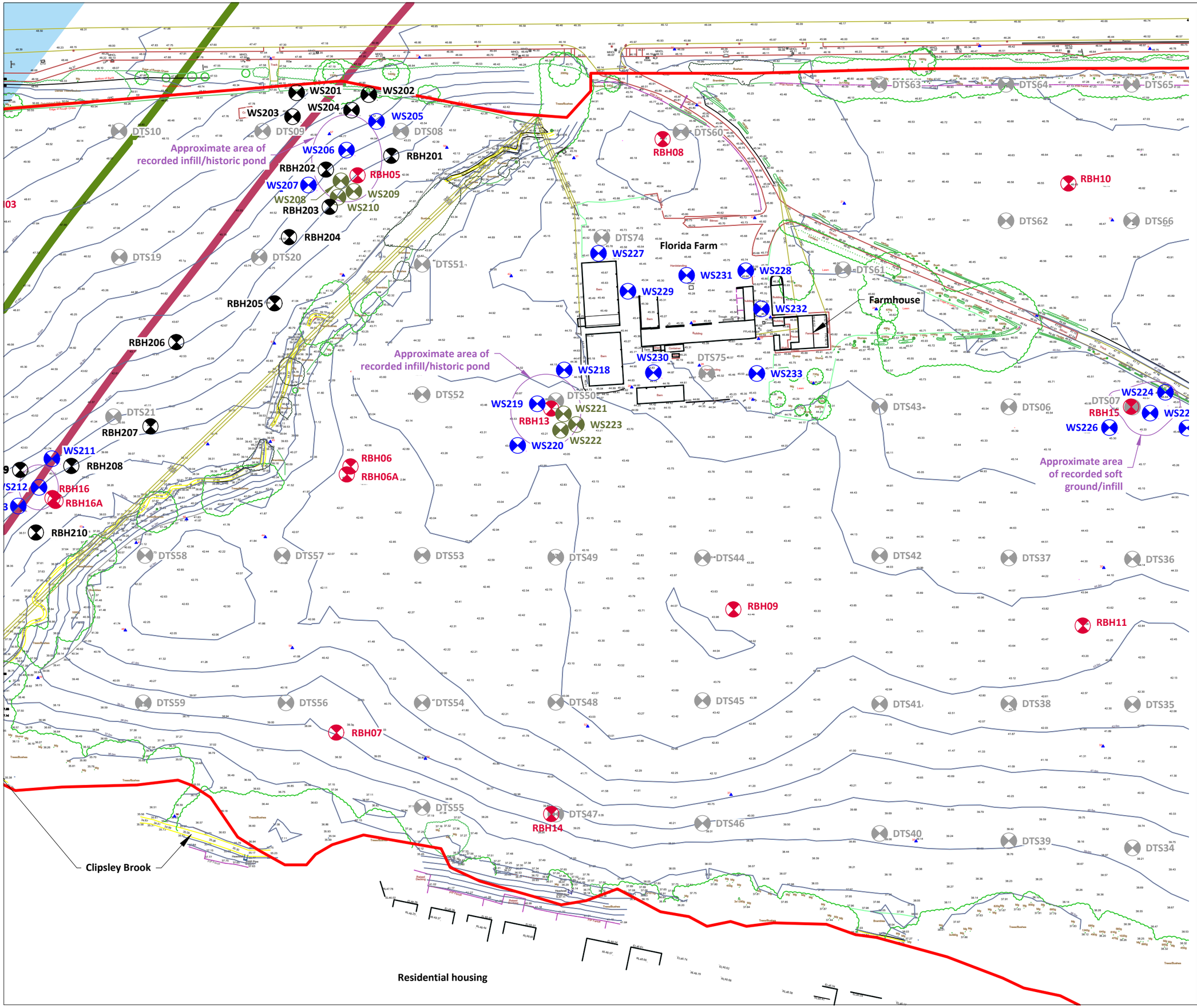
REV	DESCRIPTION	PREP	DATE
A	First issue	AM	26.11.2024

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PROJECT
Florida Farm, East Lancashire Road, Merseyside

TITLE
Exploratory hole plan (current layout)

DRAWING NO.	SCALE AT A3
STN3680-02a	1:1250



Key

- **WS** — Driven tube sampling (windowless sampling) boreholes within area of recorded historic ponds and farm house
- **WS** — Driven tube sampling (windowless sampling) boreholes to determine contamination extents
- **WS** — Driven tube sampling (windowless sampling) boreholes for new site entrance and further delineation of Made Ground in Jaundrill plot
- **RBH** — Rotary boreholes
- Approximate area of recorded infill / historic pond / soft ground
- **DTS** — Driven tube sampling (windowless sampling) boreholes (undertaken August/September 2017).
- **RBH** — Rotary boreholes (undertaken August/September 2022)
- **WS** — Driven tube sampling (windowless sampling) boreholes (undertaken August/September 2022).
- Higher Florida Coal Seam as recorded by BGS/Coal Authority mapping
- Bottom Yard Coal Seam as recorded by Coal Authority mapping
- RAMS Coal Seam as recorded by Coal Authority mapping
- Site boundary

Notes

1. Base drawing provided by Client.
2. Exploratory locations are approximate.

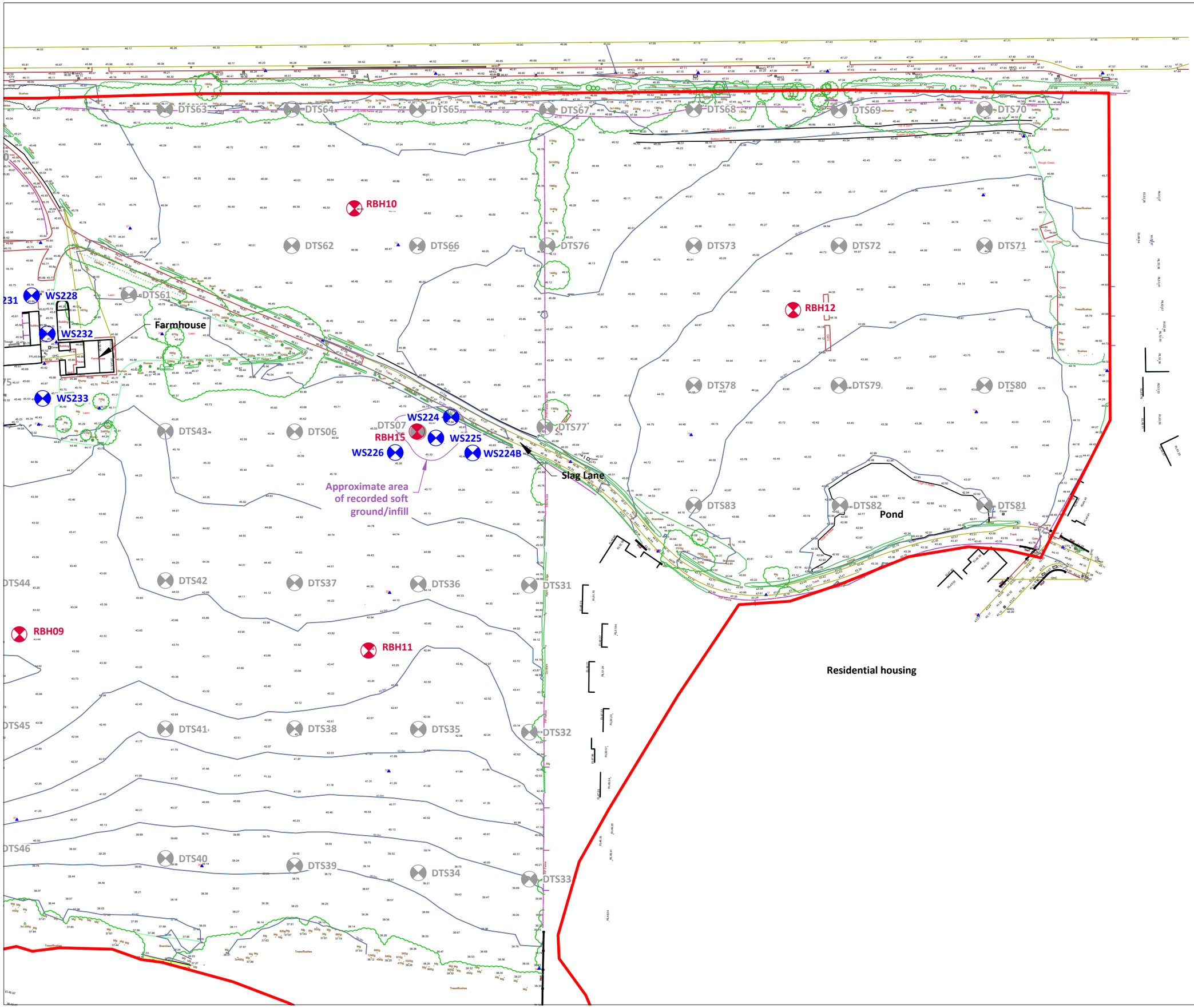
REV	DESCRIPTION	PREP	DATE
A	First issue	AM	26.11.2024

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PROJECT
Florida Farm, East Lancashire Road, Merseyside

TITLE
Exploratory hole plan (current layout)

DRAWING NO.	SCALE AT A3
STN3680-02b	1:1250



Key

- **WS** — Driven tube sampling (windowless sampling) boreholes within area of recorded historic ponds and farm house
- Approximate area of recorded infill / historic pond / soft ground
- Site boundary
- **DTS** — Driven tube sampling (windowless sampling) boreholes (undertaken August/September 2017).
- **RBH** — Rotary boreholes (undertaken August/September 2022)

Notes

1. Base drawing provided by Client
2. Exploratory locations are surveyed

REV	DESCRIPTION	PREP	DATE
A	First issue	AM	26.11.2024

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PROJECT
Florida Farm, East Lancashire Road, Merseyside

TITLE
Exploratory hole plan (current layout)

DRAWING NO.	SCALE AT A3
STN3680-02c	1:1250



Key:

- Trial Pit
- Rotary Borehole

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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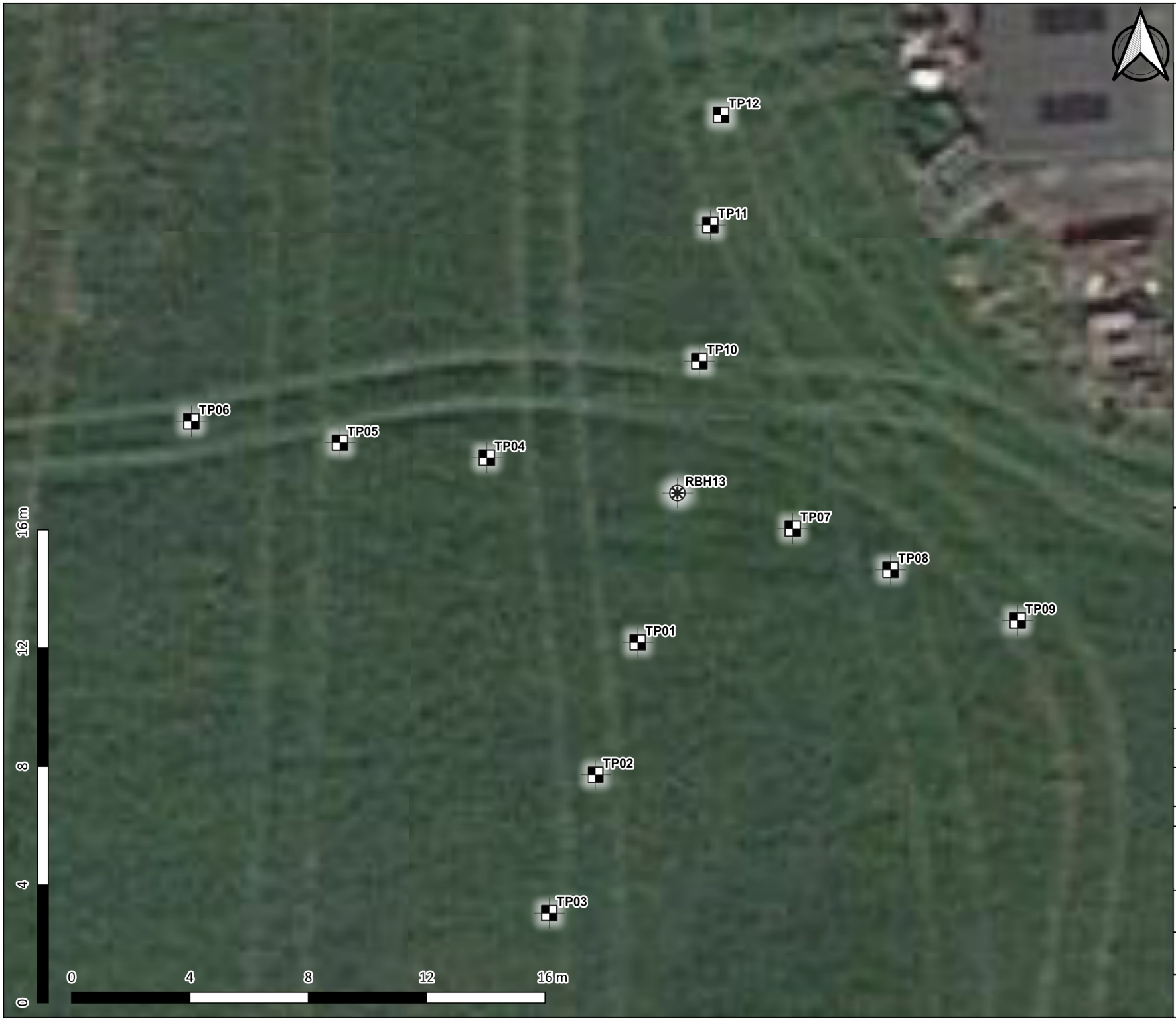
REV	DATE	COMMENT ON VARIATION
A	Oct 2022	First issue

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PROJECT
Florida Farm, Haydock

TITLE
Site Location Plan

PROJECT No.	DRAWING	REVISION
STN3680NM	03a	A



Key:

- Trial Pit
- Rotary Borehole

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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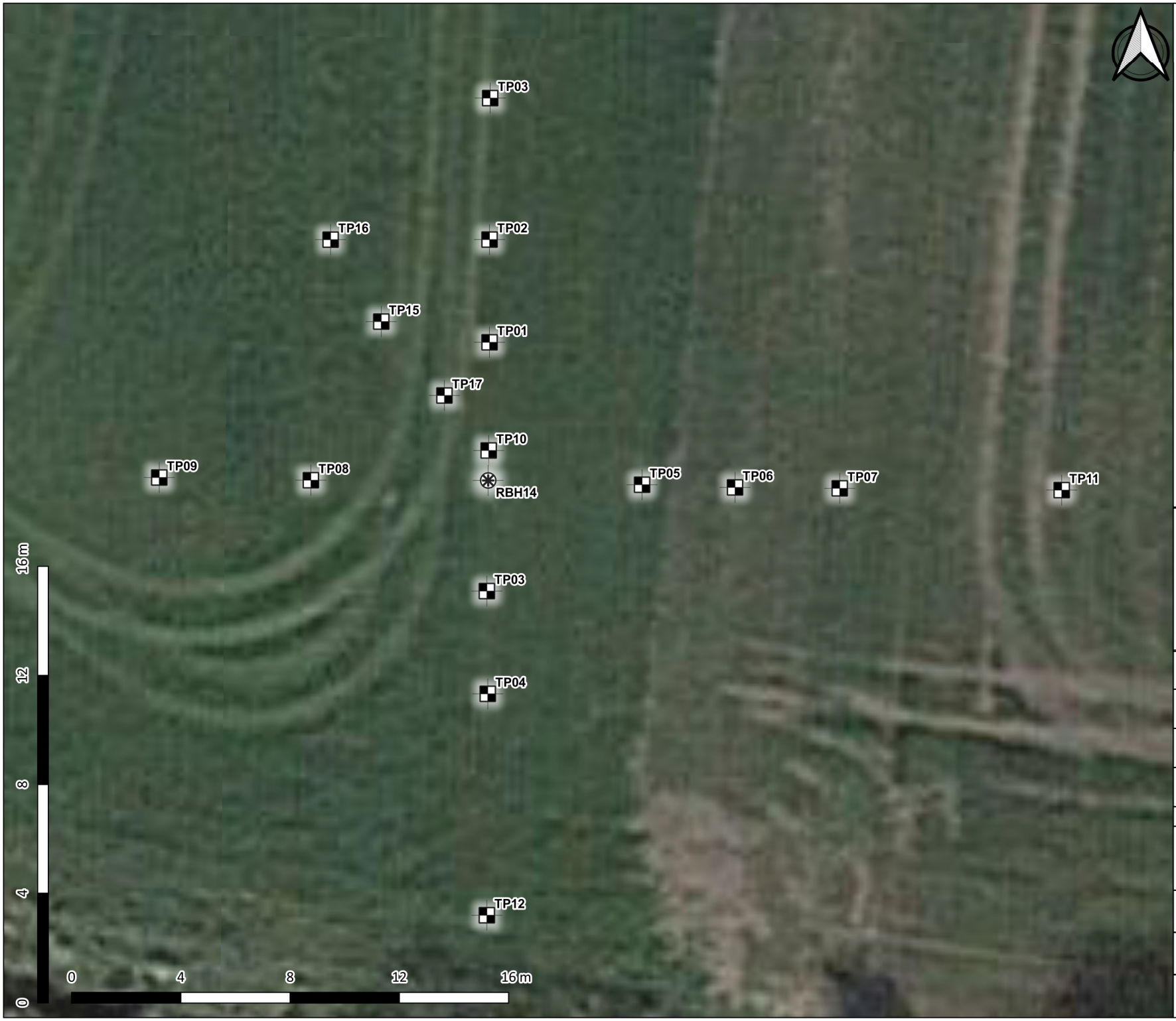
REV	DATE	COMMENT ON VARIATION
A	Oct 2022	First issue

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PROJECT
Florida Farm, Haydock

TITLE
Site Location Plan

PROJECT No.	DRAWING	REVISION
STN3680NM	03b	A



Key:

Trial Pit

Rotary Borehole

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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REV	DATE	COMMENT ON VARIATION
A	Oct 2022	First issue

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PROJECT
Florida Farm, Haydock

TITLE
Site Location Plan

PROJECT No.	DRAWING	REVISION
STN3680NM	03c	A



Key:

- Trial Pit
- Rotary Borehole

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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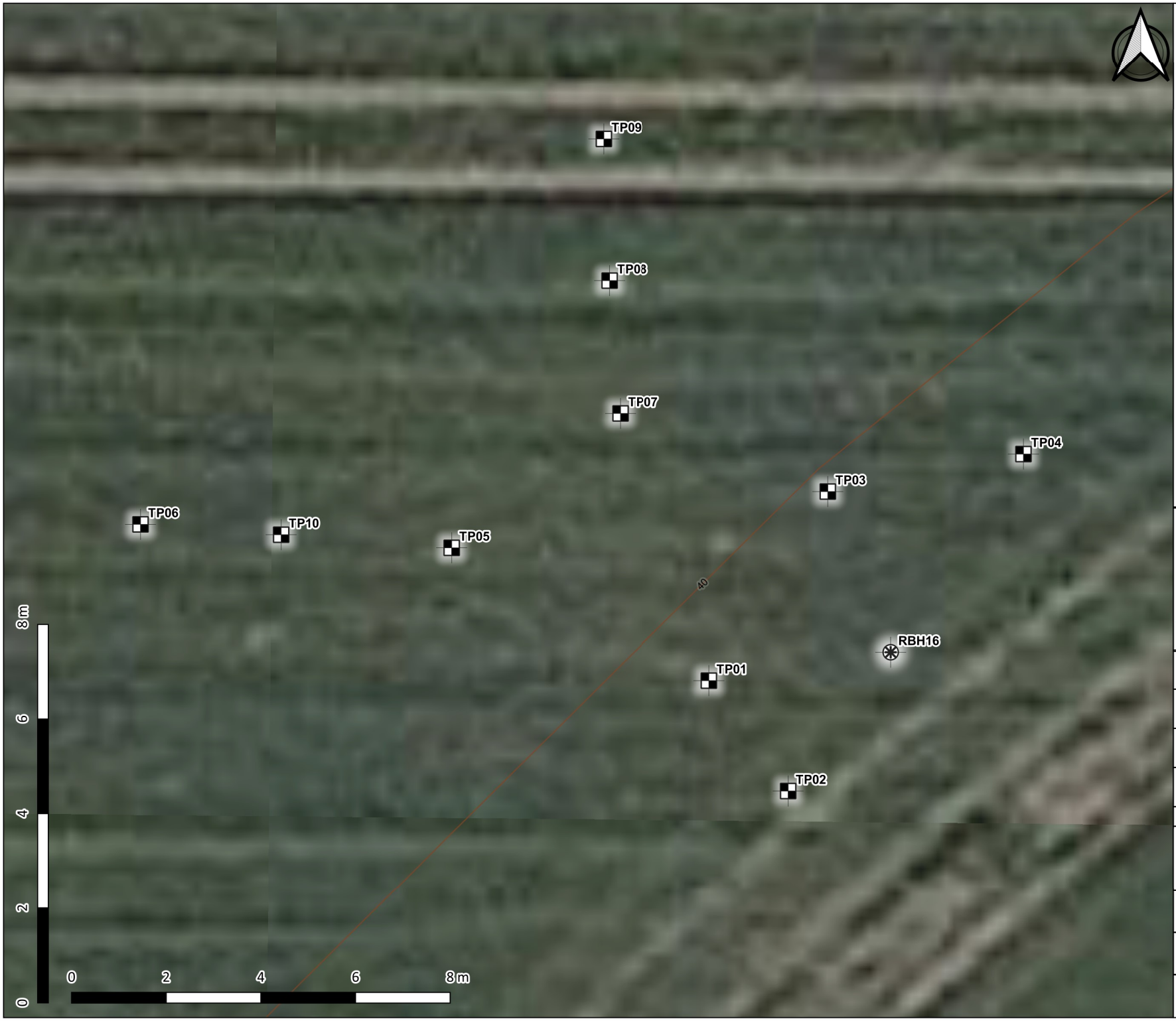
REV	DATE	COMMENT ON VARIATION
A	Oct 2022	First issue

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PROJECT
Florida Farm, Haydock

TITLE
Site Location Plan

PROJECT No.	DRAWING	REVISION
STN3680NM	03d	A



Key:

- Trial Pit
- Rotary Borehole

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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REV	DATE	COMMENT ON VARIATION
A	Oct 2022	First issue

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PROJECT
Florida Farm, Haydock

TITLE
Site Location Plan

PROJECT No.	DRAWING	REVISION
STN3680NM	03e	A

East Lancashire Road *(A580)*

Residential housing

354397-005

354397-025

354397-007

354397-006

354397-026

Jaundrill Land plot

Clipsley Brook

Key

This shaft capped by Closed Collieries Team at ground level. The cap was 16 feet (4.88mm) square x 21 inches (533mm) thick reinforced with H section RSj girders 7in x 6in x 15ft. (178mm x 150mm x 1.6m)

Location of exposed mine shaft with collapse zone radius (exclusion zone) determined to C758 Section 5.2.3

Mine shaft not encountered within 10m departure zone of Coal Authority recorded mine shaft location

Coal Authority recorded mine entry

Lower Florida Coal Seam as recorded by BGS/Coal Authority mapping

Higher Florida Coal Seam as recorded by BGS/Coal Authority mapping

Bottom Yard Coal Seam as recorded by Coal Authority mapping

RAMS Coal Seam as recorded by Coal Authority mapping

Area of potentially infilled land

Site boundary

Notes

1. Base drawing provided by Client
2. Exploratory locations are surveyed

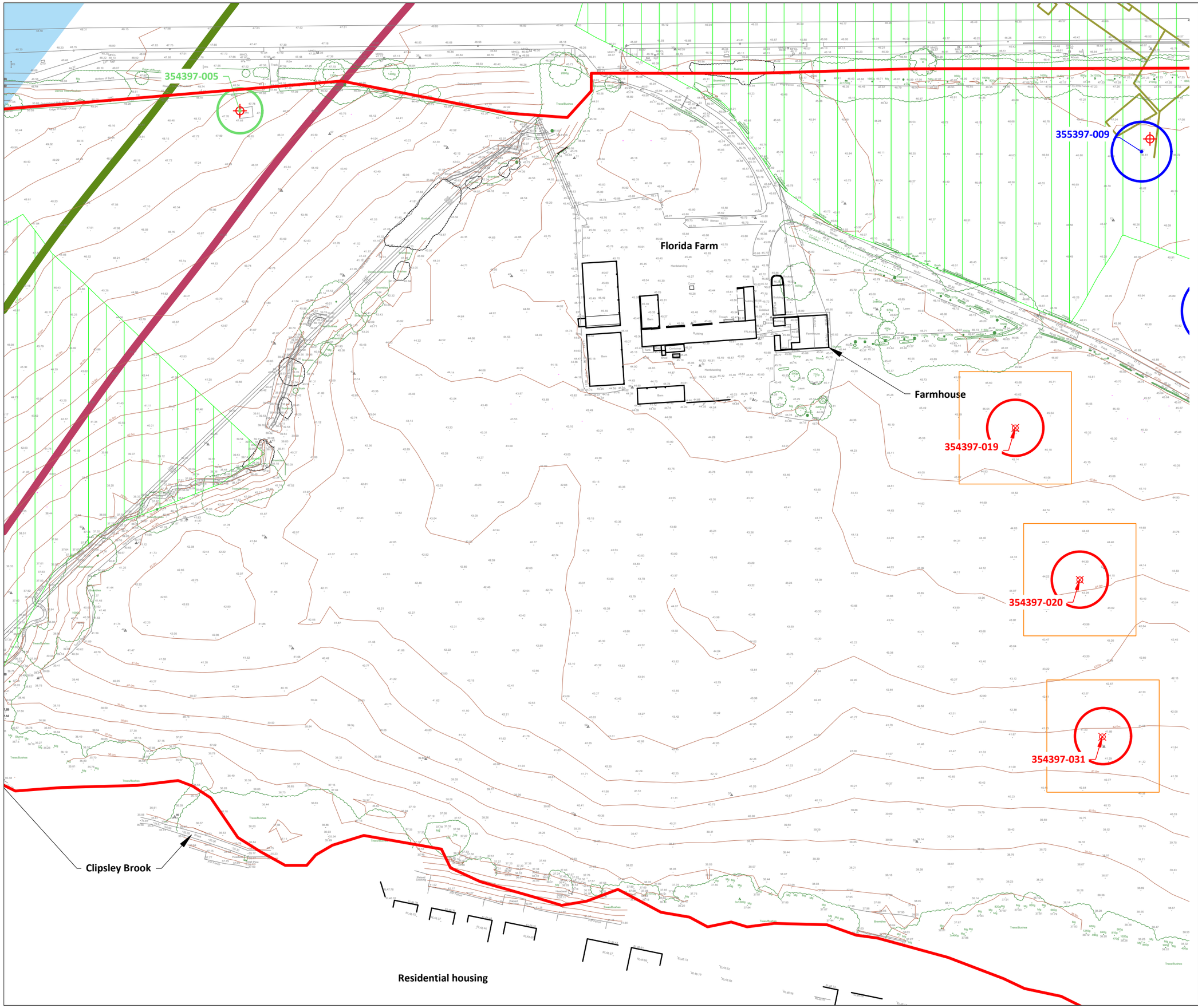
REV	DESCRIPTION	PREP	DATE
A	First issue	AM	26.11.2024

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PROJECT
Florida Farm, East Lancashire Road, Merseyside

TITLE
Plan showing areas of coal mining features

PROJECT NO.	SCALE AT A3	DRAWING NO.
STN3680NM	1:1250	04a



Key

This shaft capped by Closed Collieries Team at ground level. The cap was 16 feet (4.88mm) square x 21 inches (533mm) thick reinforced with H section RSj girders 7in x 6in x 15ft. (178mm x 150mm x 1.6m)

Location of exposed mine shaft with collapse zone radius (exclusion zone) determined to C758 Section 5.2.3

Mine shaft not encountered within 10m departure zone of Coal Authority recorded mine shaft location

X Coal Authority recorded mine entry

Higher Florida Coal Seam as recorded by BGS/Coal Authority mapping

Bottom Yard Coal Seam as recorded by Coal Authority mapping

RAMS Coal Seam as recorded by Coal Authority mapping

Area of potentially infilled land

Geophysical survey area

Workings in the Lower Florida Coal seam

Site boundary

Notes

1. Base drawing provided by Client
2. Exploratory locations are surveyed

REV	DESCRIPTION	PREP	DATE
A	First issue	AM	26.11.2024

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PROJECT
Florida Farm, East Lancashire Road, Merseyside

TITLE
Plan showing areas of coal mining features

PROJECT NO.	SCALE AT A3	DRAWING NO.
STN3680NM	1:1250	04b

355397-009

355397-010

355397-013

355397-014

354397-019

354397-020

354397-031

Farmhouse

Slag Lane

Pond

Residential housing

A580 EAST LANCASHIRE ROAD

SLAG LANE

AVERY ROAD

Key

- Location of exposed mine shaft with collapse zone radius (exclusion zone) determined to C758 Section 5.2.3
- Mine shaft not encountered within 10m departure zone of Coal Authority recorded mine shaft location
- Coal Authority recorded mine entry
- Workings in the Lower Florida Coal seam
- Workings in the Higher Florida coal seam
- Geophysical survey area
- Site boundary

Notes

1. Base drawing provided by Client
2. Exploratory locations are surveyed

REV	DESCRIPTION	PREP	DATE
A	First issue	AM	26.11.2024

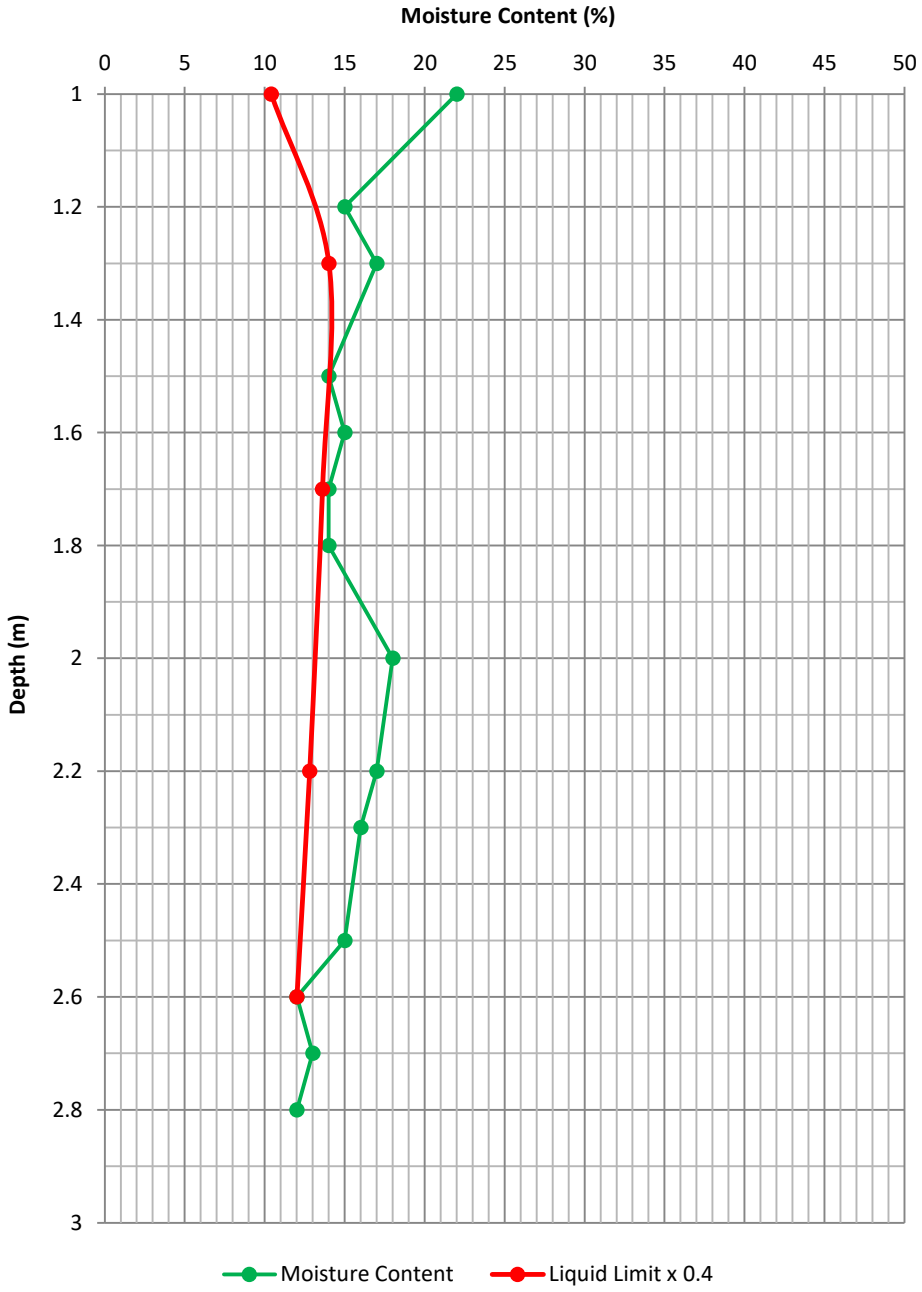
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PROJECT
Florida Farm, East Lancashire Road, Merseyside

TITLE
Plan showing areas of coal mining features

PROJECT NO.	SCALE AT A3	DRAWING NO.
STN3680NM	1:1250	04c

Comparison of Moisture Content (%) with Liquid Limit (w_L) x 0.4 in DTS23 where moisture content < 0.4w_L = desiccation

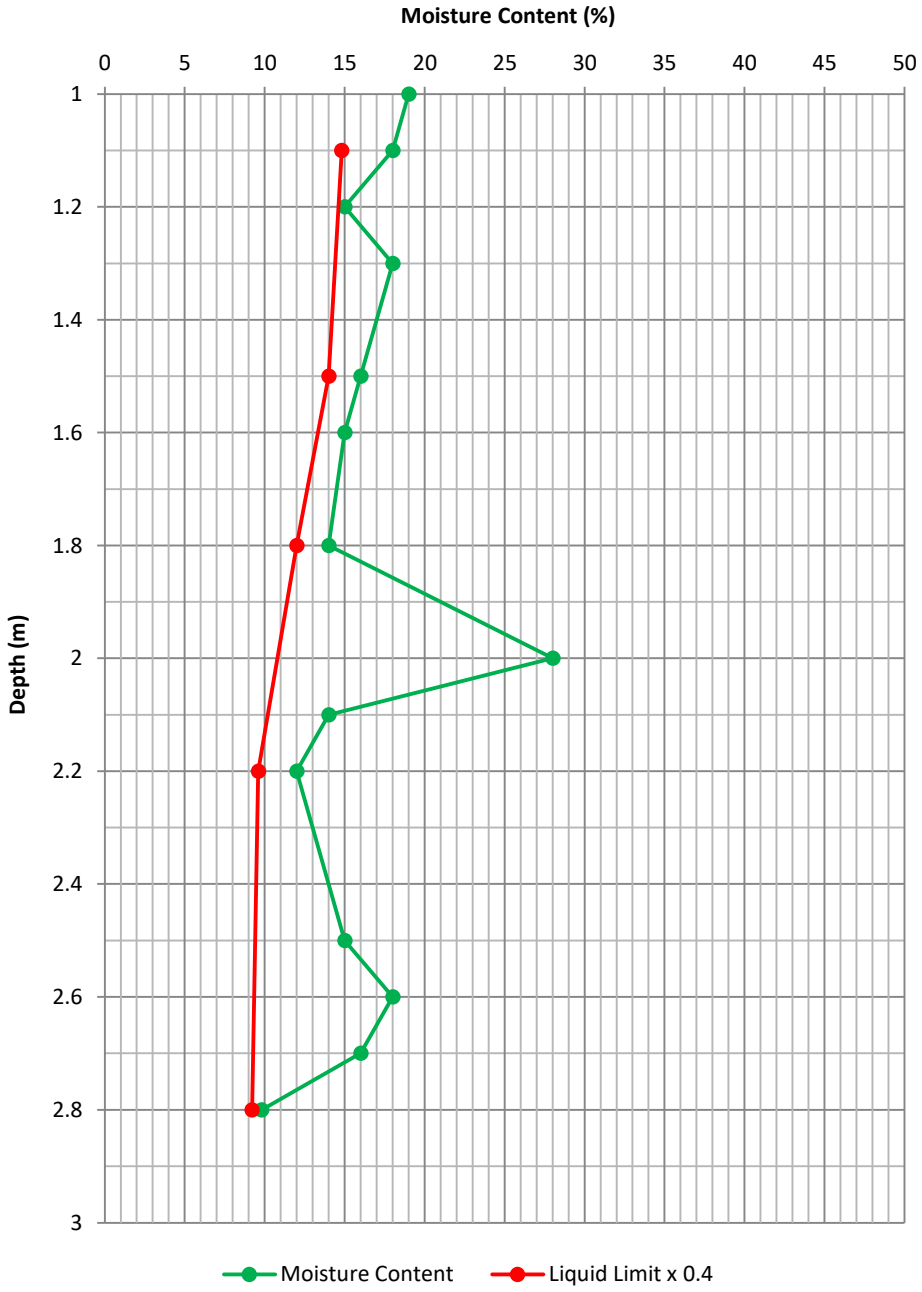


Notes

1) The water content at which soil can be considered to be desiccated can be related to the soils index properties, in this case the Liquid Limit (w_L). The onset of significant desiccation occurs when the soils moisture content is at 0.4 times the Liquid Limit. If therefore w < 0.4 w_L, then the soil is significantly desiccated.
2) Calculations used to detect soil desiccation based on BRE digest 412

Title	Scale	Drawing number
Comparison of Moisture Content and Liquid Limit profiles in borehole DTS23	As shown	5a

Comparison of Moisture Content (%) with Liquid Limit (w_L) x 0.4 in DTS30 where moisture content < 0.4w_L = desiccation

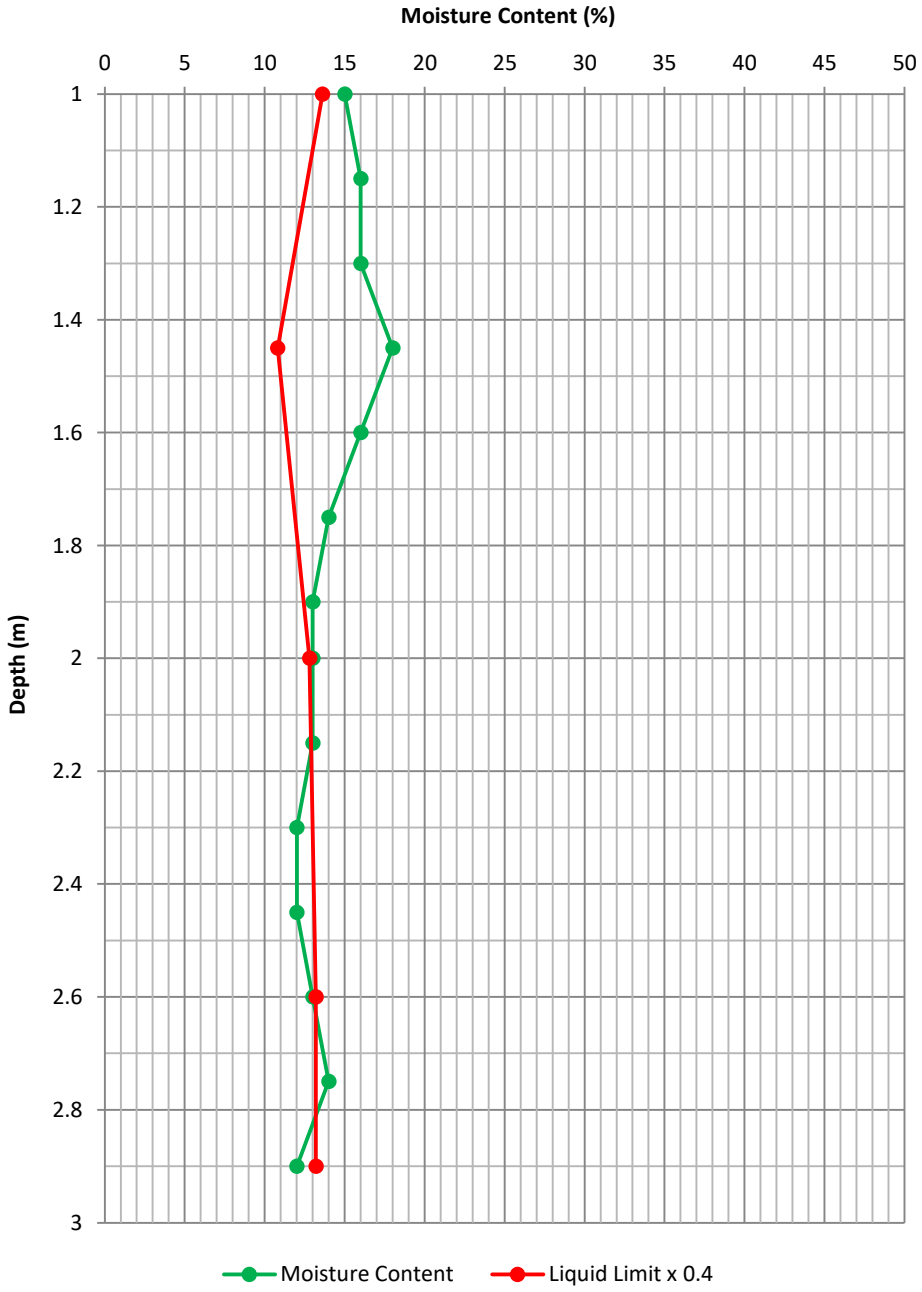


Notes

1) The water content at which soil can be considered to be desiccated can be related to the soils index properties, in this case the Liquid Limit (w_L). The onset of significant desiccation occurs when the soils moisture content is at 0.4 times the Liquid Limit. If therefore w < 0.4 w_L, then the soil is significantly desiccated.
2) Calculations used to detect soil desiccation based on BRE digest 412

Title	Scale	Drawing number
Comparison of Moisture Content and Liquid Limit profiles in borehole DTS30	As shown	05b

Comparison of Moisture Content (%) with Liquid Limit (w_L) x 0.4 in DTS54 where moisture content < 0.4w_L = desiccation

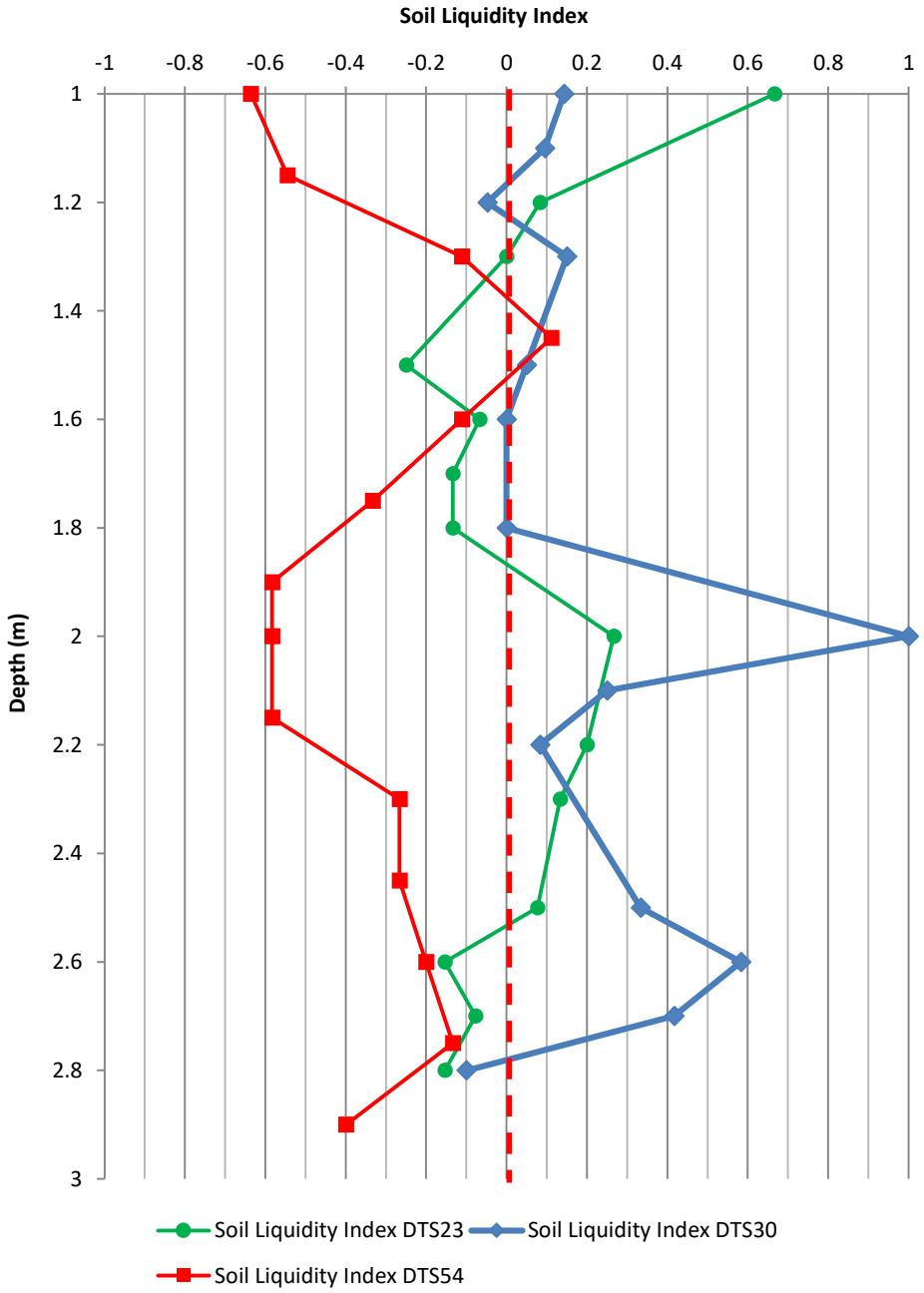


Notes

1) The water content at which soil can be considered to be desiccated can be related to the soils index properties, in this case the Liquid Limit (w_L). The onset of significant desiccation occurs when the soils moisture content is at 0.4 times the Liquid Limit. If therefore w < 0.4 w_L, then the soil is significantly desiccated.
2) Calculations used to detect soil desiccation based on BRE digest 412

Title	Scale	Drawing number
Comparison of Moisture Content and Liquid Limit profiles in borehole DTS54	As shown	05c

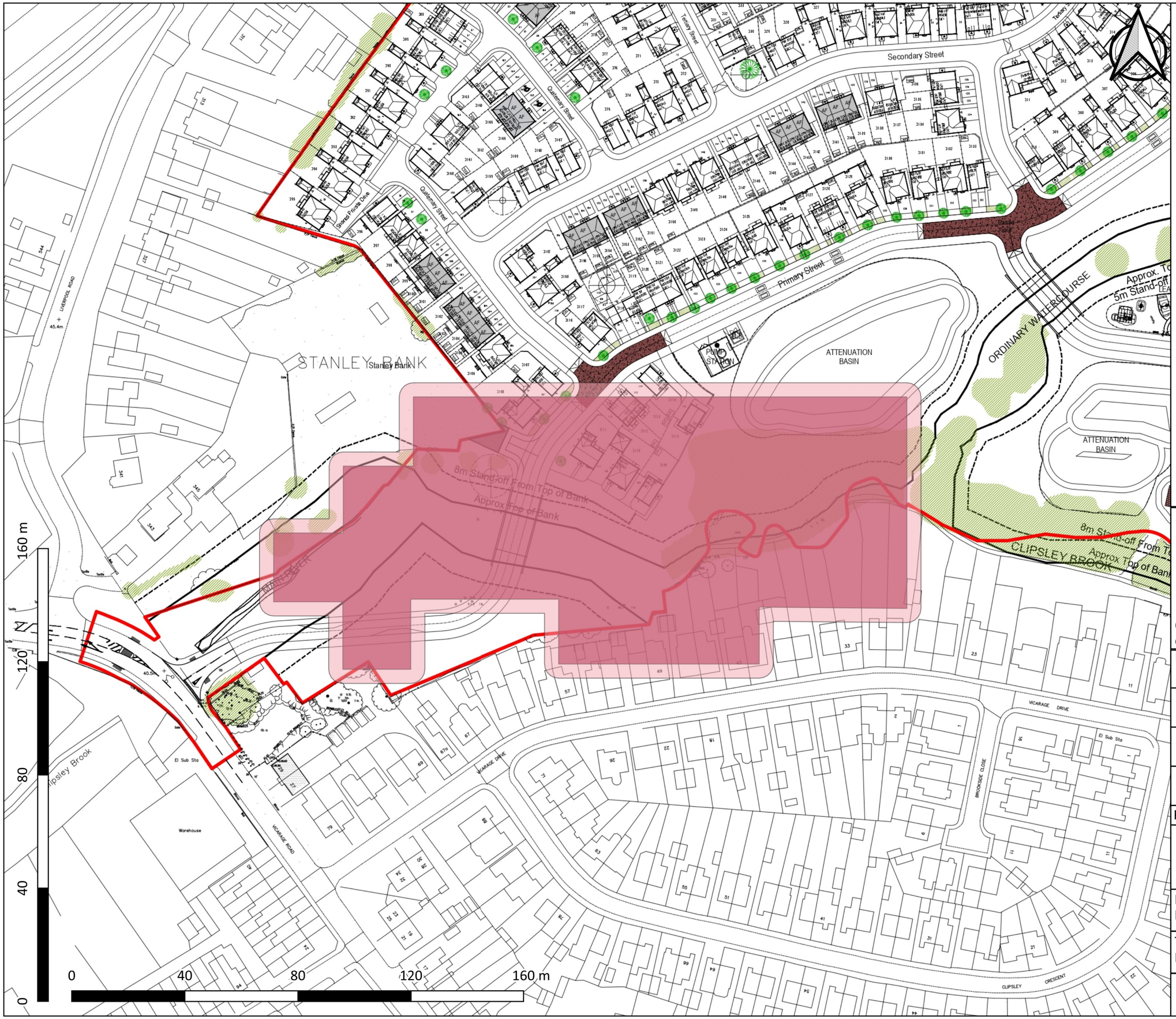
Comparison of Liquidity Index profiles in boreholes DTS23, DTS30 and DTS54 where negative value indicate potential desiccation



Notes

1) When Liquidity limit value (IL)=0, the soils water content is at the plastic limit, while a negative value indicates that the soil is drier than the plastic limit and thus, desiccated.
2) Calculations used to detect soil desiccation based on BRE digest 412

Title	Scale	Drawing number
Comparison of Liquidity Index profiles in boreholes DTS23, DTS30 ad DTS54	As shown	05d



Key:

- 5m radon buffer (10-30% zone)
- Radon Zone: 10-30%

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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Map data © 2022 Google

REV	DATE	COMMENT ON VARIATION
B	July 2025	Update as per finalised planning layout
A	March 2023	First issue

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PROJECT
Florida Farm, Haydock

TITLE
Radon Protection Zone Plan

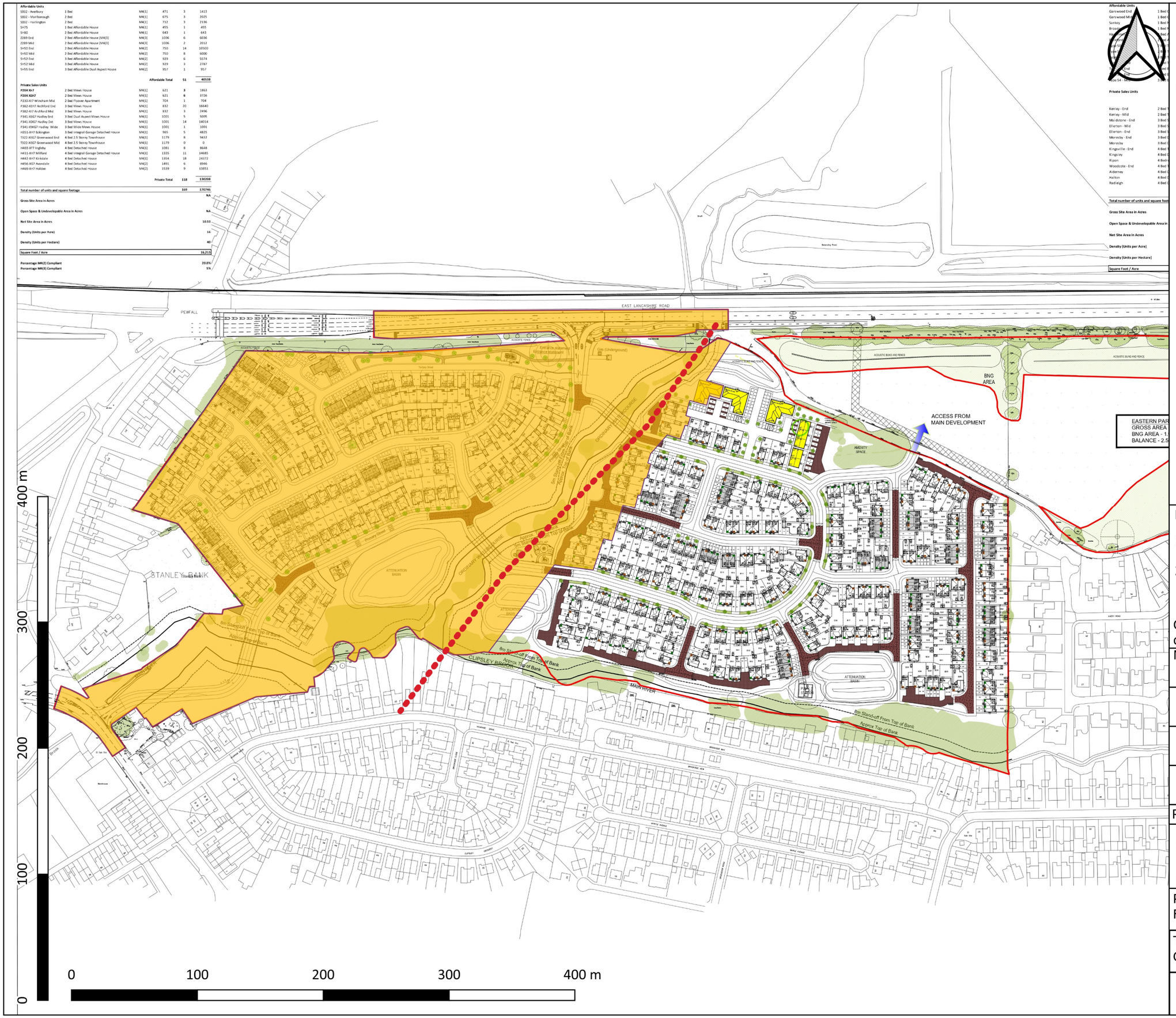
PROJECT No.	DRAWING	REVISION
STN3680NM	07	B

Affordable Units					
S832 - Avebury	1 Bed	M4(1)	471	3	1413
S832 - Marlborough	2 Bed	M4(1)	675	3	2025
S832 - Hartington	2 Bed	M4(1)	712	3	2136
SH75	1 Bed Affordable House	M4(1)	455	1	455
SH80	2 Bed Affordable House	M4(1)	643	1	643
Z289 End	2 Bed Affordable House (M4(3)	M4(3)	1006	6	6036
Z289 Mid	2 Bed Affordable House (M4(3)	M4(3)	1006	2	2012
SH52 End	2 Bed Affordable House	M4(2)	750	14	10500
SH50 Mid	2 Bed Affordable House	M4(2)	750	8	6000
SH52 End	3 Bed Affordable House	M4(2)	929	6	5574
SH52 Mid	3 Bed Affordable House	M4(2)	929	3	2787
SH55 End	3 Bed Affordable Dual Aspect House	M4(2)	957	1	957
			Affordable Total	51	40538
Private Sales Units					
P204 X67	2 Bed Mews House	M4(1)	621	**3**	1863
P204 X267	2 Bed Mews House	M4(1)	621	**6**	3726
P220-X67 Wincham Mid	2 Bed Flyover Apartment	M4(1)	704	1	704
P382-X67 Archford End	3 Bed Mews House	M4(1)	832	20	16640
P382-X67 Archford Mid	3 Bed Mews House	M4(1)	832	3	2496
P341-X067 Hadley End	3 Bed Dual Aspect Mews House	M4(1)	1001	5	5005
P341-X067 Hadley Det	3 Bed Mews House	M4(1)	1001	14	14014
P341-X067 Hadley -Wide	3 Bed Wide Mews House	M4(1)	1001	1	1001
H351-X67 Eckington	3 Bed Integral Garage Detached House	M4(1)	965	5	4825
T322-X167 Greenwood End	4 Bed 2.5 Storey Townhouse	M4(1)	1179	8	9432
T322-X167 Greenwood Mid	4 Bed 2.5 Storey Townhouse	M4(1)	1179	0	0
H403-X77 Ingleby	4 Bed Detached House	M4(1)	1081	8	8648
H411-X477 Millford	4 Bed Integral Garage Detached House	M4(1)	1335	11	14685
H442-X477 Kirkdale	4 Bed Detached House	M4(1)	1354	18	24372
H456-X67 Avondale	4 Bed Detached House	M4(2)	1491	6	8946
H469-X477 Holden	4 Bed Detached House	M4(2)	1539	9	13851
			Private Total	118	130200
Total number of units and square footage				169	170746
Gross Site Area in Acres					NA
Open Space & Undevelopable Area in Acres					NA
Net Site Area in Acres					10.53
Density (Units per Acre)					16
Density (Units per Hectare)					40
Square Foot / Acre					16,215
Percentage M4(2) Compliant					20.6%
Percentage M4(3) Compliant					5%

Affordable Units	
Garswood End	1 Bed
Garswood Mid	1 Bed
Sankey	1 Bed
Broad	1 Bed
	End
	Mid
Plots 54 -	

Private Sales Units	
Kenley - End	2 Bed
Kenley - Mid	2 Bed
Maidstone - End	3 Bed
Ellerton - Mid	3 Bed
Ellerton - End	3 Bed
Moresby - End	3 Bed
Moresby	3 Bed
Kingsville - End	4 Bed
Kingsley	4 Bed
Ripon	4 Bed
Woodcote - End	4 Bed
Alderney	4 Bed
Halton	4 Bed
Radleigh	4 Bed

Total number of units and square foot
Gross Site Area in Acres
Open Space & Undevelopable Area in
Net Site Area in Acres
Density (Units per Acre)
Density (Units per Hectare)
Square Foot / Acre



Key:

Site Boundaries

Conjectured workings at 30m bgl

Gas Protection Measures Required

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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Map data © 2022 Google

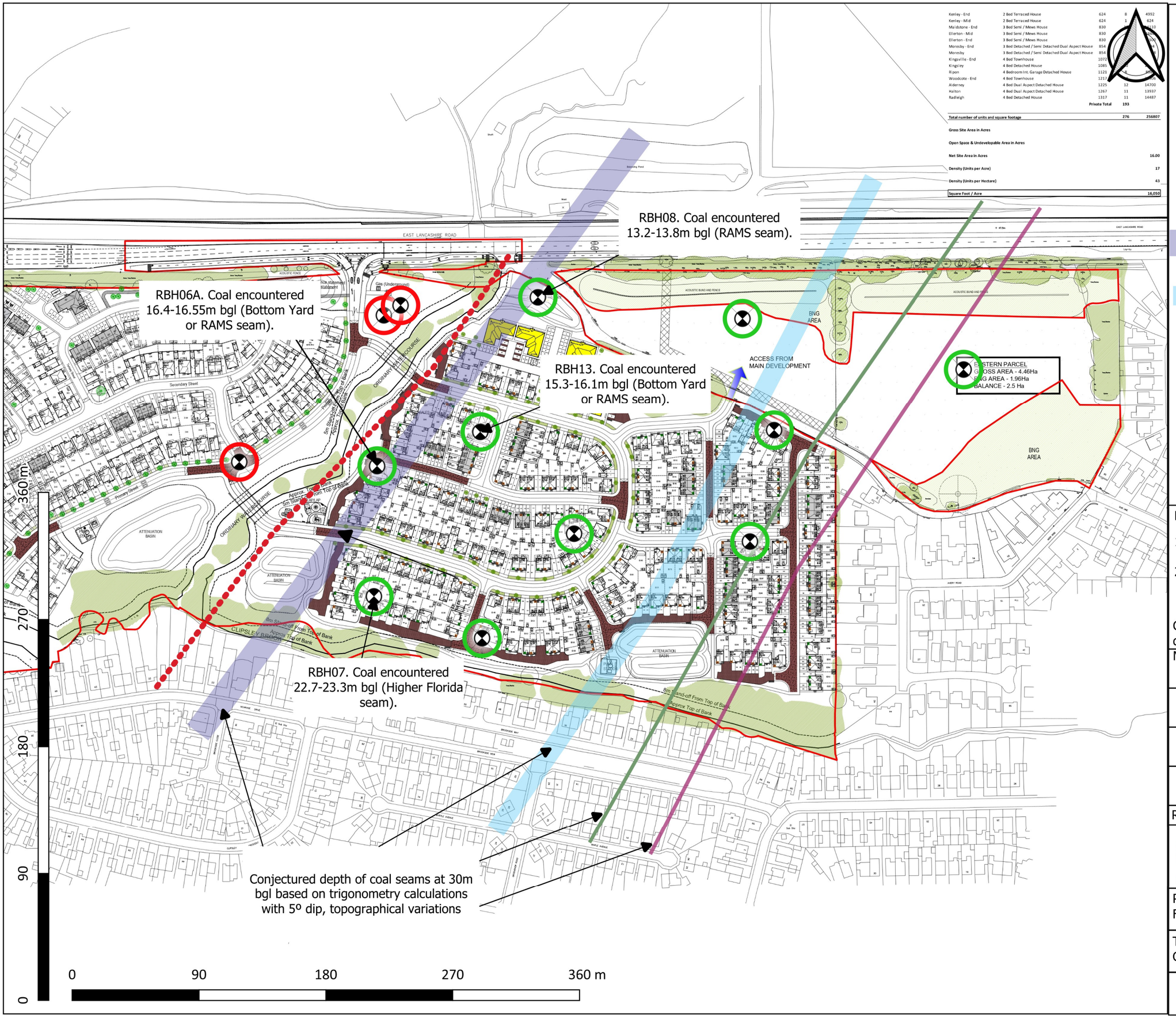
REV	DATE	COMMENT ON VARIATION
A	June 2025	First issue

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PROJECT
Florida Farm, St Helens

TITLE
Gas Protection Zoning Plan

PROJECT No.	DRAWING	REVISION
STN360NM	08	A



Kenley - End	2 Bed Terraced House	624	8	4992
Kenley - Mid	2 Bed Terraced House	624	1	624
Maidstone - End	3 Bed Semi / Mews House	830	4	3320
Ellerton - Mid	3 Bed Semi / Mews House	830	1	830
Ellerton - End	3 Bed Semi / Mews House	830	2	1660
Moresby - End	3 Bed Detached / Semi Detached Dual Aspect House	854	4	3416
Moresby	3 Bed Detached / Semi Detached Dual Aspect House	854	2	1708
Kingsville - End	4 Bed Townhouse	1072	4	4288
Kingsley	4 Bed Detached House	1085	4	4340
Ripon	4 Bedroom Int. Garage Detached House	1121	4	4484
Woodcote - End	4 Bed Townhouse	1217	4	4868
Alderney	4 Bed Dual Aspect Detached House	1225	12	14700
Halton	4 Bed Dual Aspect Detached House	1267	11	13937
Radleigh	4 Bed Detached House	1317	11	14487
		Private Total	193	
Total number of units and square footage			276	256807
Gross Site Area in Acres				
Open Space & Undevelopable Area in Acres				
Net Site Area in Acres				16.00
Density (Units per Acre)				17
Density (Units per Hectare)				43
Square Foot / Acre				16,050

Key:

- Rotary boreholes in east of site. No workings encountered <30m bg
- Rotary boreholes with workings encountered in Lower Florida at <30m bgl
- Conjectured depth of workings at 30m bgl
- Conjectured depth of Lower Florida at 30m bgl
- Conjectured depth of Higher Florida at 30m bgl
- Conjectured depth of Bottom Yard at 30m bgl
- Conjectured depth of RAMS at 30m bgl

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

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A	July 2025	First issue
REV	DATE	COMMENT ON VARIATION

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PROJECT
Florida Farm

TITLE
Coal Mine Gas Risk Plan

PROJECT No.	DRAWING	REVISION
STN3680NM	09	A

Definition of geo-environmental terms used in this report

Conceptual model
Textual and/or schematic hypothesis of the nature and sources of contamination, potential migration pathways (including description of the ground and groundwater) and potential receptors, developed on the basis of the information obtained from the investigatory process.

Contamination
Presence of a substance which is in, on or under land, and which has the potential to cause harm or to cause pollution of controlled water.

Controlled water
Inland freshwater (any lake, pond or watercourse above the freshwater limit), water contained in underground strata and any coastal water between the limit of highest tide or the freshwater line to the three mile limit of territorial waters.

Harm
Adverse effect on the health of living organisms, or other interference with ecological systems of which they form part, and, in the case of humans, including property.

Pathway
Mechanism or route by which a contaminant comes into contact with, or otherwise affects, a receptor.

Receptor
Persons, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by the contaminant(s).

Risk
Probability of the occurrence of, and magnitude of the consequences of, an unwanted adverse effect on a receptor.

Risk assessment
Process of establishing, to the extent possible, the existence, nature and significance of risk.

Definition of environmental risk/hazard terms used in this report

Based on CIRIA report C552 '*Contaminated land risk assessment – A guide to good practice*'.

Potential hazard severity definition

Category	Definition
Severe	Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters
Medium	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures
Mild	Pollution of non-sensitive waters, minor damage to buildings or structures
Minor	Requirement for protective equipment during site works to mitigate health effects, damage to non-sensitive ecosystems or species

Probability of risk definition

Category	Definition
High likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
Low likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable

Level of risk for potential hazard definition

Probability of risk	Potential severity			
	Severe	**Medium**	**Mild**	**Minor**
High likelihood	Very high	High	Moderate	Low/Moderate
Likely	High	Moderate	Low/Moderate	Low
Low likelihood	Moderate	Low/Moderate	Low	Very low
Unlikely	Low/Moderate	Low	Very low	Very low

See below for definitions of 'very high' to 'very low'

Definition of environmental risk/hazard terms used in this report

Based on CIRIA report C552 '*Contaminated land risk assessment – A guide to good practice'.*

Risk classifications and likely action required:

Very high risk
High probability that severe harm could arise to a designated receptor from an identified hazard OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised is likely to result in substantial liability. Urgent investigation and remediation are likely to be required.

High risk
Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the long term.

Moderate risk
It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is likely that the harm would be relatively mild. Investigation is normally required to clarify risks and to determine potential liability. Some remedial works may be required in the long term.

Low risk
It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst normally be mild.

Very low risk
It is a low possibility that harm could arise to a designated receptor. On the event of such harm being realised it is not likely to be severe.

List of documents used in assessment of chemical contamination

No.	Title	Publication reference / publisher
1	Human health toxicological assessment of contaminants in soil	EA Science Report – SC050021/SR2
2	Updated technical background to the CLEA model	EA Science Report – SC050021/SR3
3	CLEA Software (Version 1.03 beta) Handbook	EA Science Report - SC050021/SR4
4	Guidance on comparing Soil Contamination Data with a Critical Concentration	CIEH
5	The LQM/CIEH S4ULs for Human Health Risk Assessment (2015)	LQM/CIEH
6	Assessment of Risks to Human Health from Land Contamination: An overview of the development of soil guideline values and related research	R&D Publication, Contaminated Land Report CLR 7
7	Contaminants of Soil: Collation of Toxicological Data and Intake Values for Humans	R&D Publication, Contaminated Land Report CLR 9
8	The Contaminated Land Exposure Assessment Model (CLEA): Technical Basis and Algorithms	R&D Publication, Contaminated Land Report CLR 10
9	Model Procedures for the Management of Land Contamination	R&D Publication, Contaminated Land Report CLR 11
10	Contaminants in Soil: Collection of Toxicological Data and Intake Values for Human Values	R&D Publications, Tox. 6
11	Soil Guideline Values for Contamination (2002)	R&D Publications, SGV 10
12	Soil Guideline Values (2009)	EA Science Reports – SC050021
13	Atkins ATRISK^{SOIL} (2011)	http://www.atrisksoil.co.uk
14	Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (September 2014)	CL:AIRE

CIEH	Chartered institute of Environmental Health
LQM	Land Quality Management
EA	Environment Agency
CL:AIRE	Contaminated Land: Applications in Real Environments

Testing suite summary

Table summarising testing suites		
Suite	**Parameters**	**Medium**
Suite 1	Arsenic, beryllium, boron, cadmium, chromium (total and VI), copper, lead, mercury, nickel, selenium, vanadium zinc, cyanide (free, total and complex), organic matter content, PAH (16 speciated), pH, phenol (total), TOC	Soil
Suite 2	Arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, PAH (16 speciated), pH, phenol (total), sulfate (water soluble), sulfide, nitrate	Leachate
Suite 3	Arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, PAH (16 speciated), pH, phenol (total), sulfate (water soluble), sulfide, nitrate	Water
Suite 4	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, MTBE, PAH (16 speciated), organic matter	Soil
Suite 5	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, MTBE, PAH (16 speciated)	Leachate
Suite 6	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, MTBE, PAH (16 speciated)	Water
Suite 7	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, TOC, organic matter	Soil
Suite 8	Sulphur (total), sulphate (water and acid soluble), pH	Soil
Suite 9	Sulphate, ammoniacal nitrogen, dissolved magnesium, pH	Water
Suite 10	VOC, SVOC, TOC, organic matter	Soil
Suite 11	VOC, SVOC	Leachate
Suite 12	VOC, SVOC	Water
Suite 13	Organotins dibutyltin/ tributyl-tin/tetrabutyltin/triphenyl-tin, tetraethyl-lead/tetramethyl-lead	Soil
Suite 14	Organotin	Leachate
Suite 15	Organotin	Water
Suite 16	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, VOC, SVOC	Soil, water, leachate
Suite 17	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, SVOC, VOC, arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, pH, phenol (total), sulfate (water soluble), sulfide, nitrate	Soil, water, leachate
Concrete BRE suite	pH, sulphate (water and acid soluble), magnesium (water soluble), ammonia (water soluble), chloride, nitrate	Soil

Definition of geotechnical terms used in this report - foundations

Strip foundations.
A foundation providing a continuous longitudinal ground bearing.

Trench fill concrete foundation.
A trench filled with mass concrete providing continuous longitudinal ground bearing.

Pad foundation.
An isolated foundation to spread a concentrated load.

Raft foundation.
A foundation continuous in two directions, usually covering an area equal to or greater than the base area of the structure.

Substructure.
That part of any structure (including building, road, runway or earthwork) which is below natural or artificial ground level. In a bridge this includes piers and abutments (and wing walls), whether below ground level or not, which support the superstructure.

Piled foundations and end bearing piles. A pile driven or formed in the ground for transmitting the weight of a structure to the soil by the resistance developed at the pile point or base and the friction along its surface. If the pile supports the load mainly by the resistance developed at its point or base, it is referred to as an end-bearing pile; if mainly by friction along its surface, as a friction pile.

Bored cast in place pile.
A pile formed with or without a casing by excavating or boring a hole in the ground and subsequently filling it with plain or reinforced concrete.

Driven pile.
A pile driven into the ground by the blows of a hammer or a vibrator.

Precast pile.
A reinforced or pre-stressed concrete pile cast before driving.

Driven cast in place pile.
A pile installed by driving a permanent or temporary casing, and filling the hole so formed with plan or reinforced concrete.

Displacement piles.
Piled formed by displacement of the soil or ground through which they are driven.

Skin friction.
The frictional resistance of the surrounding soil on the surface of cofferdam or caisson walls, and pile shafts.

Downdrag or negative skin friction. A downwards frictional force applied to the shaft of a pile caused by the consolidation of compressible strata, e.g. under recently placed fill. Downdrag has the effect of adding load to the pile and reducing the factor of safety.

Definition of geotechnical terms used in this report – bearing values

To Eurocode 7

Formal definitions of Eurocode terms are provided in BS EN 1990:2002 '*Eurocode – Basis of Structural Design*'. The following are considered informal definitions relating to the context of the geotechnical design report.

Bearing resistance
Calculated ability of a foundation to resist applied actions considered for ultimate and serviceability limit states.

Ultimate limit state (ULS) considerations
Partial factors applied to soil parameters, and actions (applied loads) in bearing resistance calculations to avoid risk of failure of the foundation in bearing.

Serviceability limit state (SLS) considerations
Calculations to determine bearing resistance of a foundation which will generate acceptable levels of settlement under applied actions

Characteristic geotechnical parameters
These are based on results and derived values from laboratory field tests, complemented by well-established experience.

Pre-Eurocode 7 methods.

Ultimate bearing capacity.
The value of the gross loading intensity for a particular foundation at which the resistance of the soil to displacement of the foundation is fully mobilised.

Presumed bearing value.
The net loading intensity considered appropriate to the particular type of ground for preliminary design purposes. The particular value is based on calculation from shear strength tests or other field tests incorporating a factor of safety against shear failure.

Allowable bearing pressure.
The maximum allowable net loading intensity at the base of the foundation, taking into account the ultimate bearing capacity, the amount and kind of settlement expected and our estimate of ability of the structure to accommodate this settlement.

Factor of safety.
The ratio of the ultimate bearing capacity to the intensity of the applied bearing pressure or the ratio of the ultimate load to the applied load.

Definition of geotechnical terms used in this report – road pavements

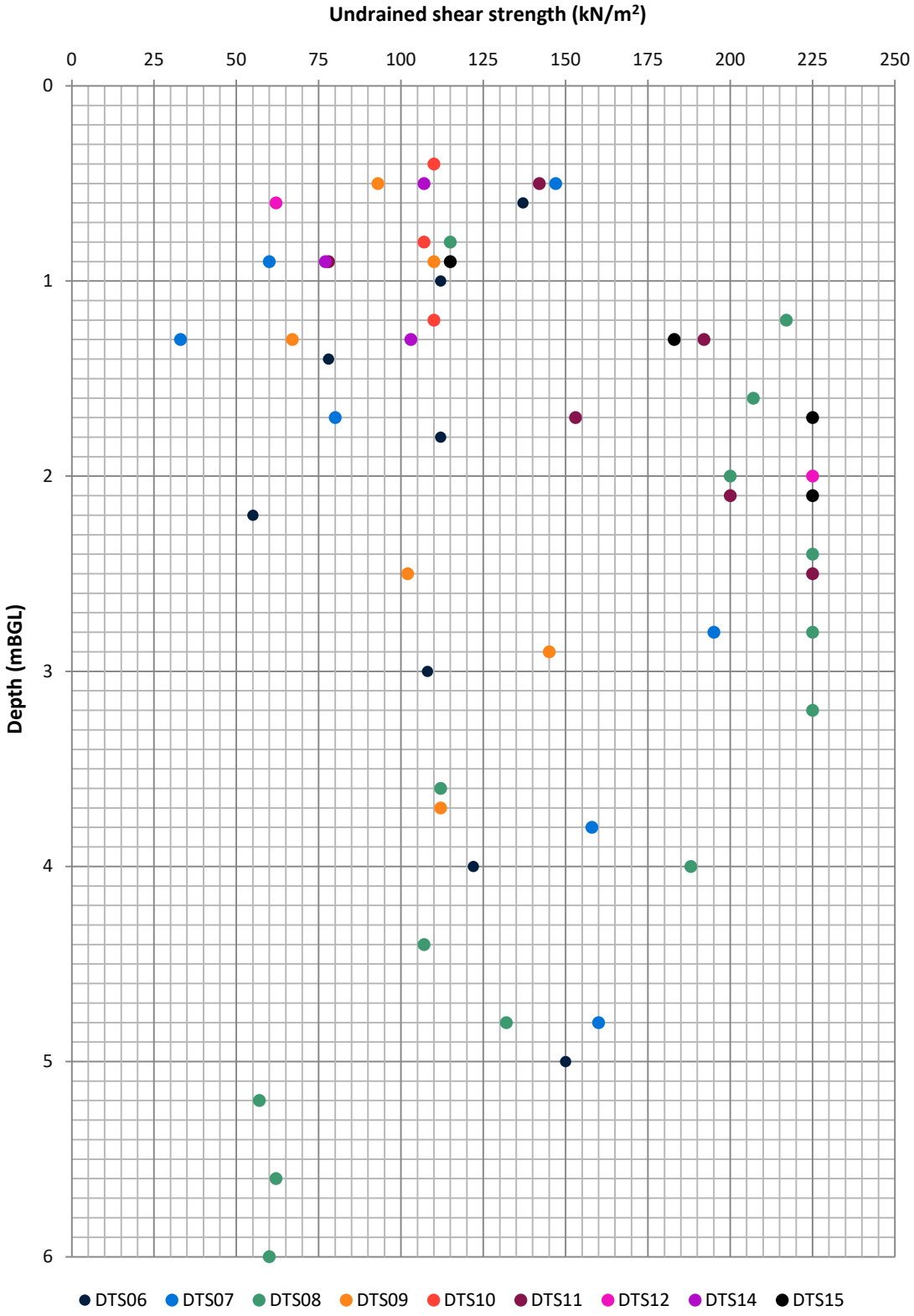
The following definitions are based on Transport and Road Research Laboratory (TRRL) Report LR1132.

Equilibrium CBR values.
A prediction of the CBR value, which will be attained at formation level under the completed pavement.

***Thin pavement*.**
A thin pavement (which includes both bound and unbound pavement construction materials) is 300mm thick (very lightly trafficked road) and a thick pavement is 1200mm thick (typical of motorway construction).

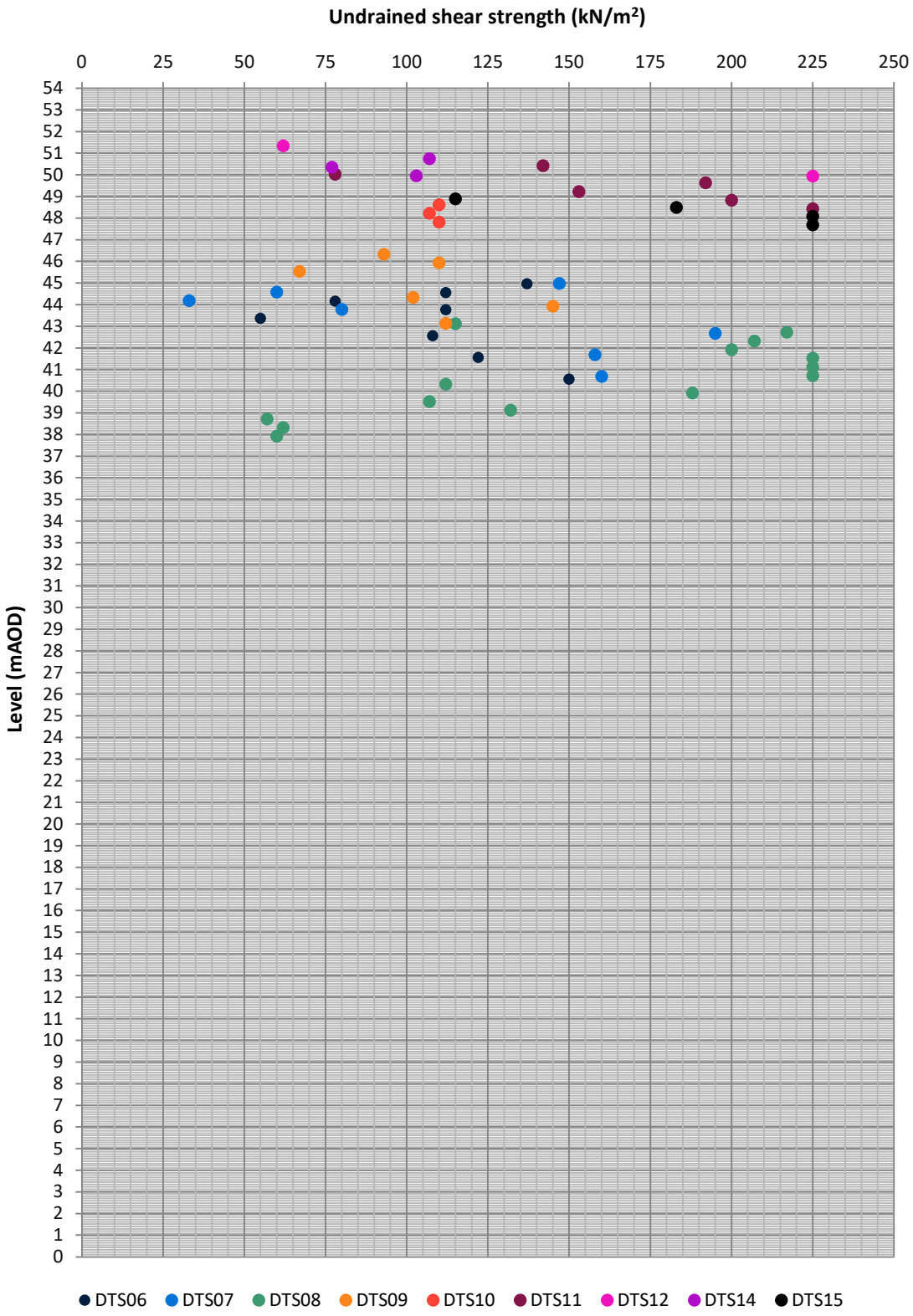
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Plot summarising Pocket Penetrometer results versus depth filtered by location



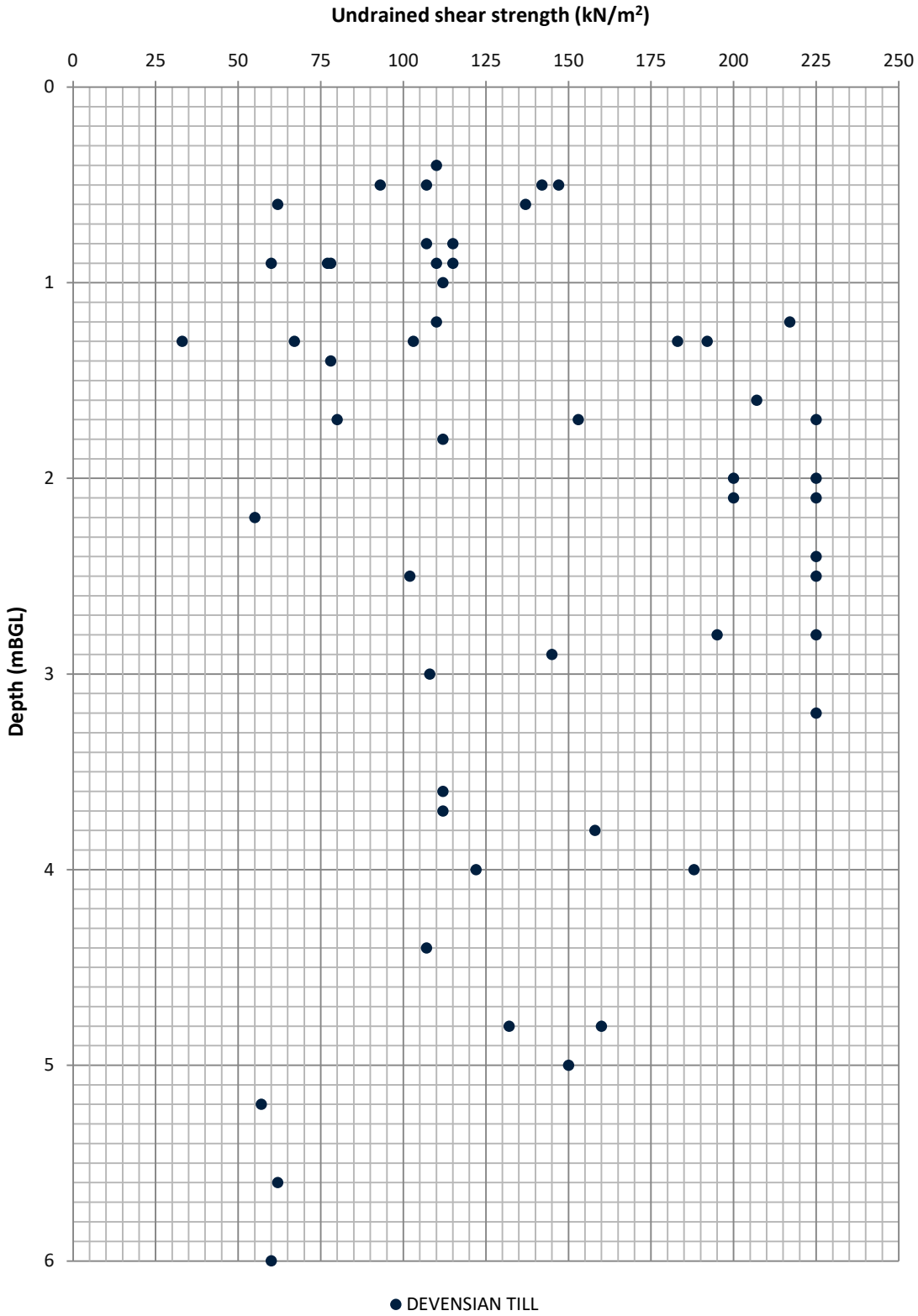
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Plot summarising Pocket Penetrometer results versus level filtered by location



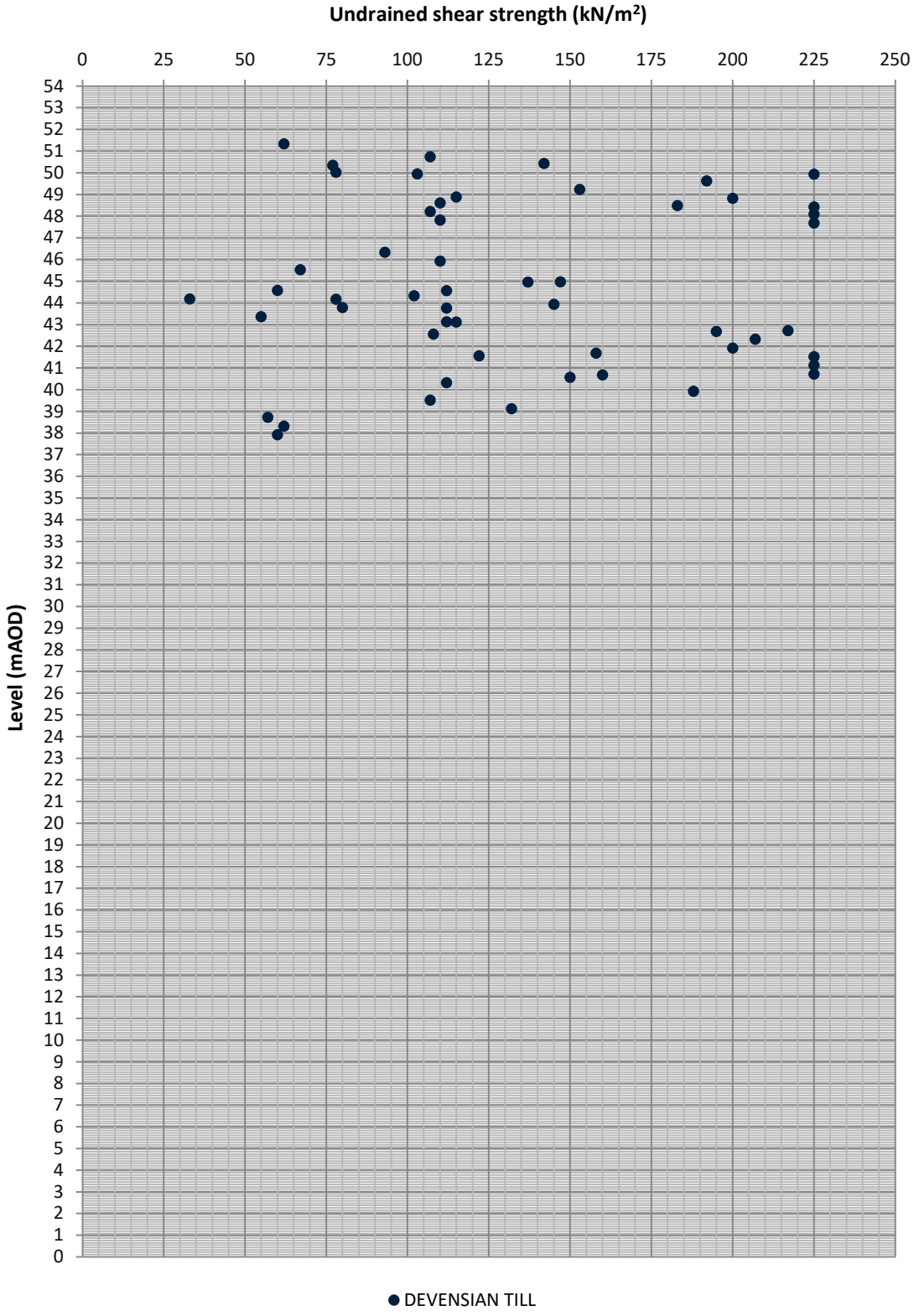
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



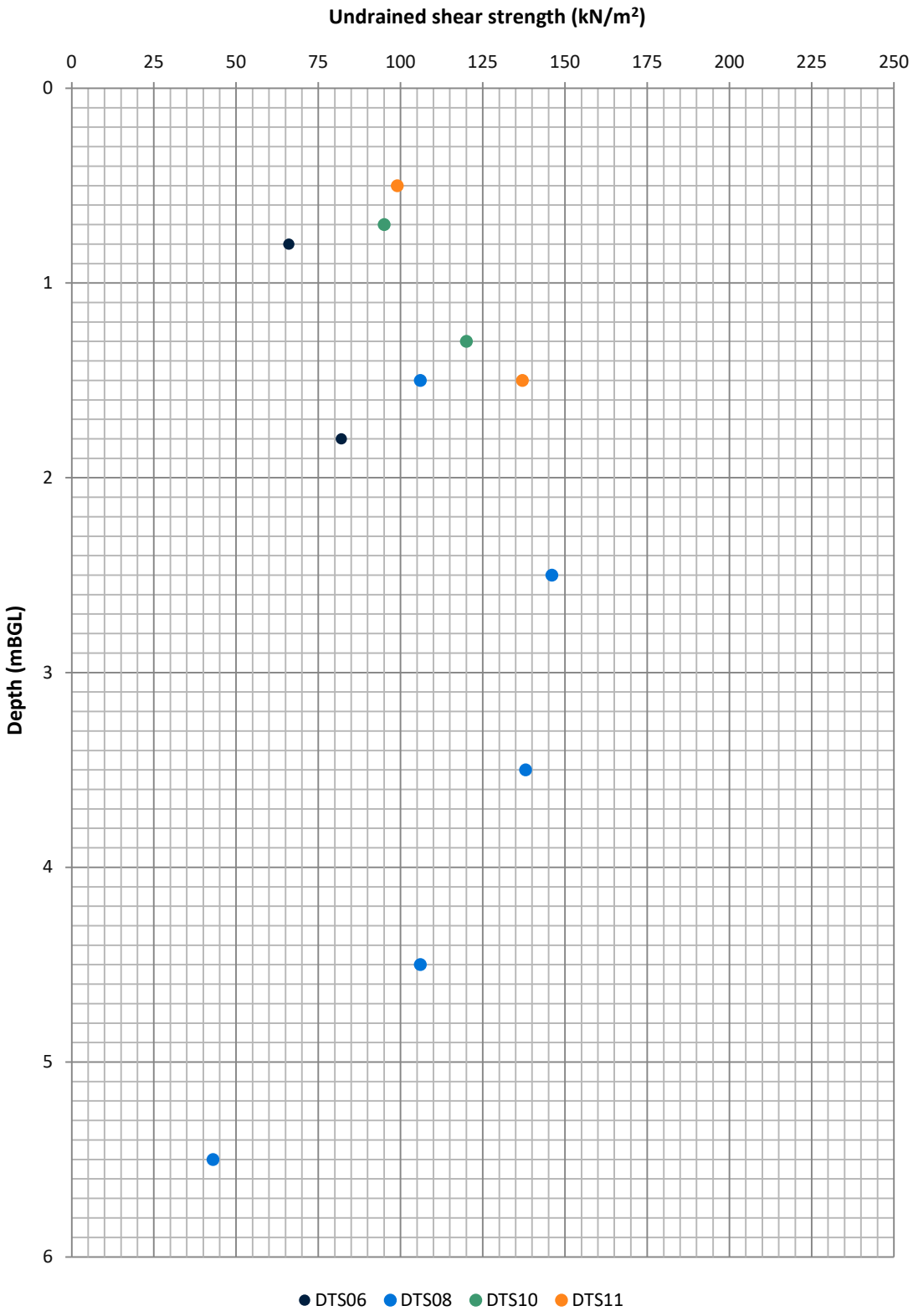
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Plot summarising Pocket Penetrometer results versus level filtered by geology



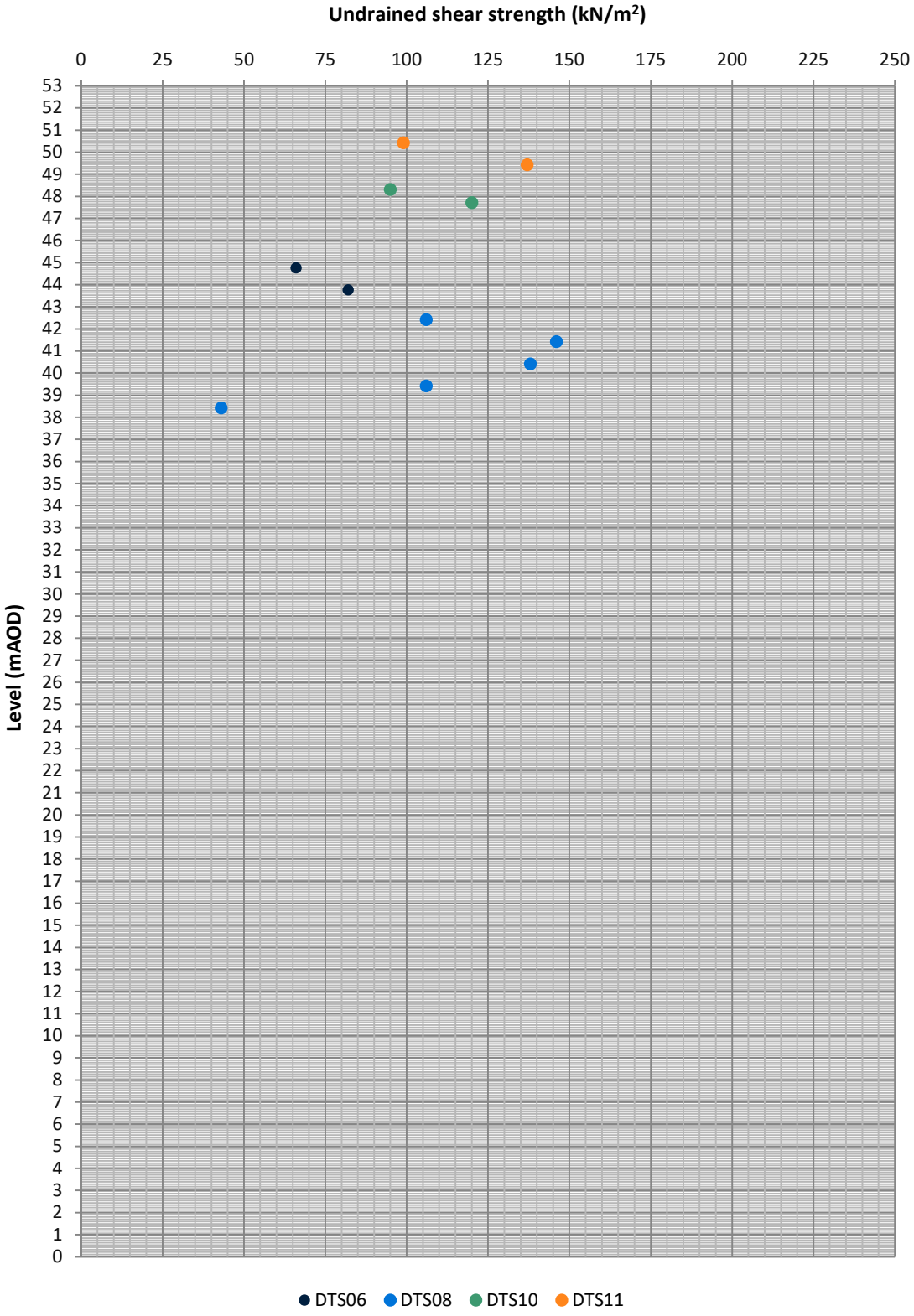
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Plot summarising Shear Vane results versus depth filtered by location



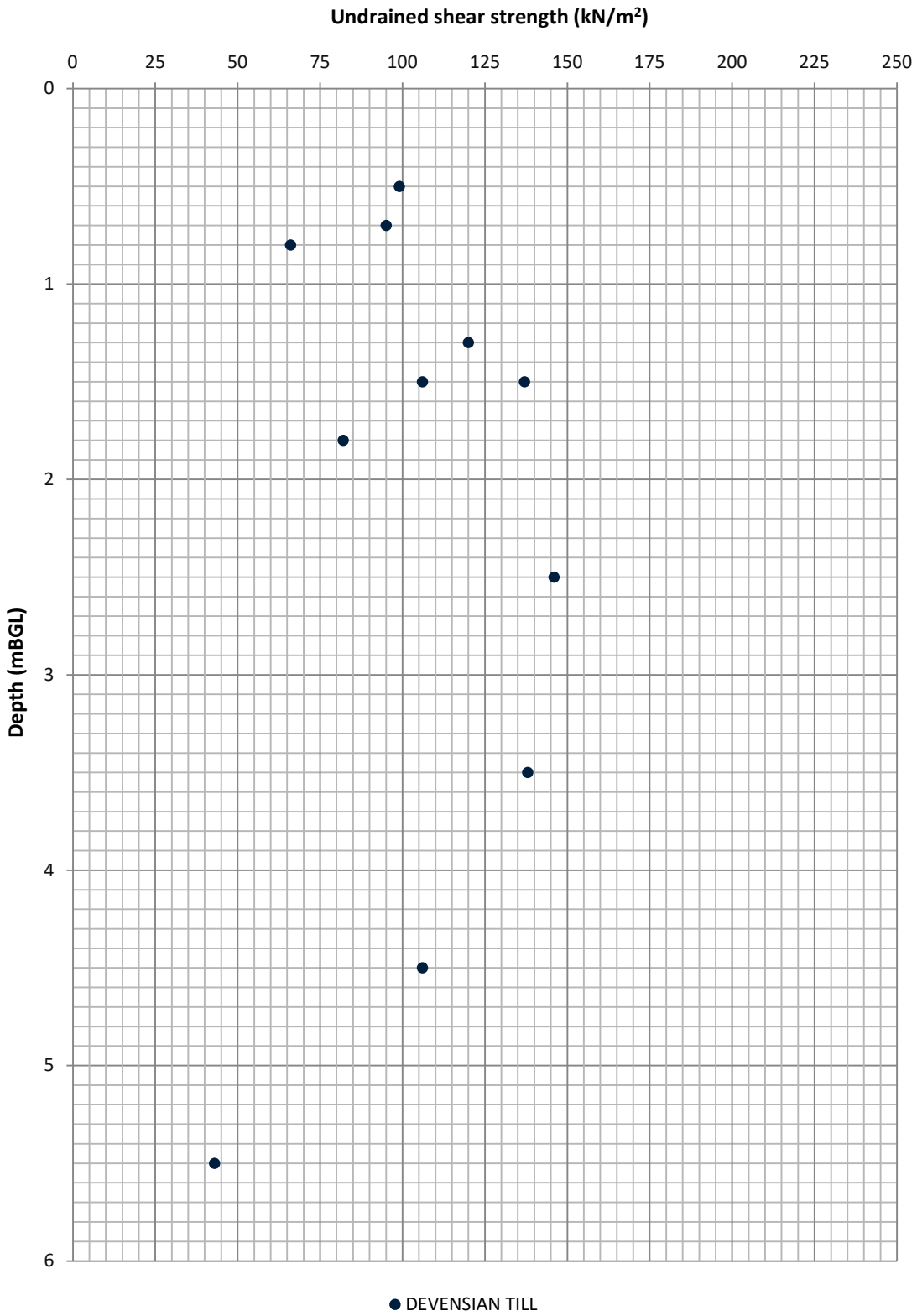
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Plot summarising Shear Vane results versus level filtered by location



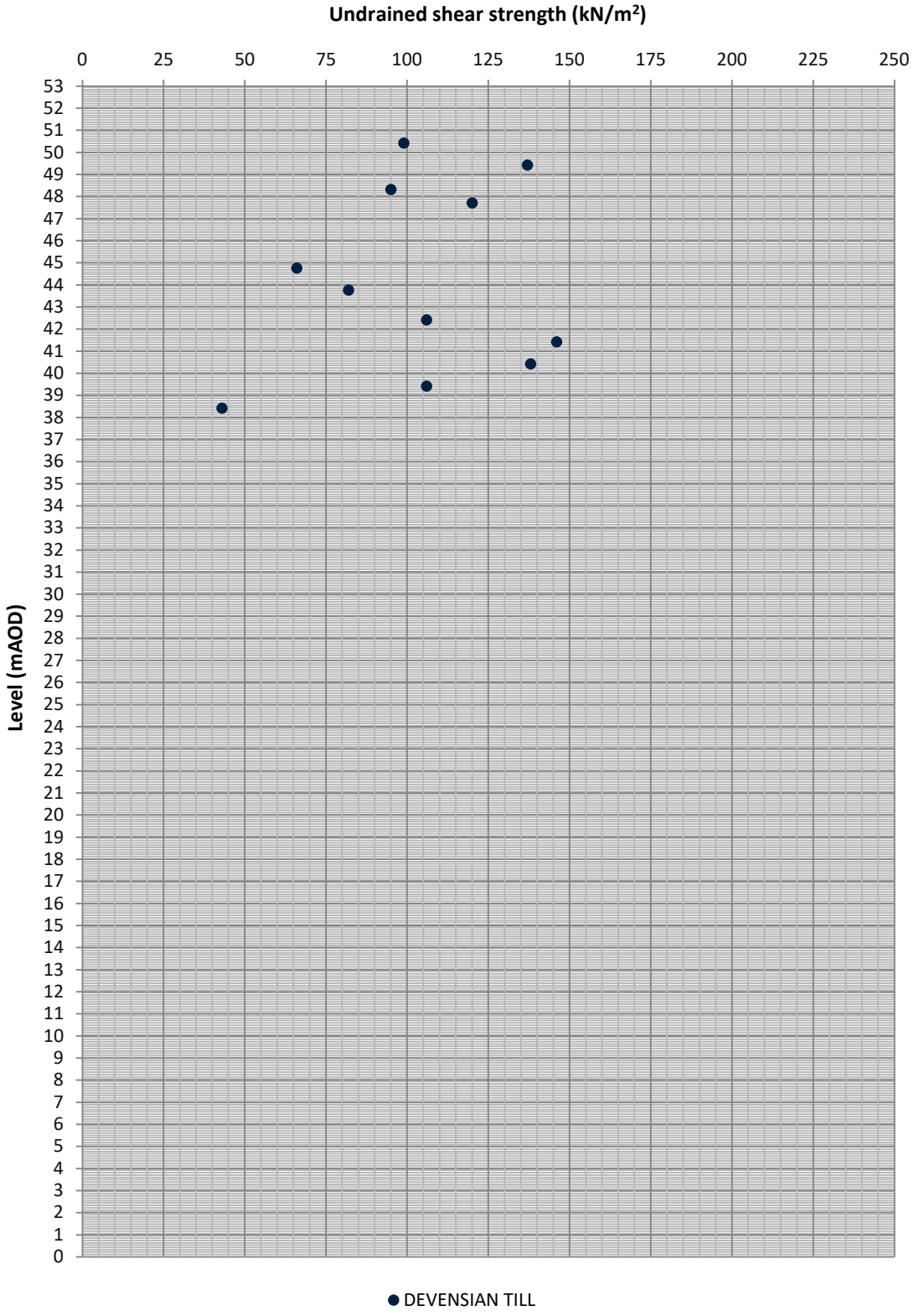
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Plot summarising Shear Vane results versus depth filtered by geology



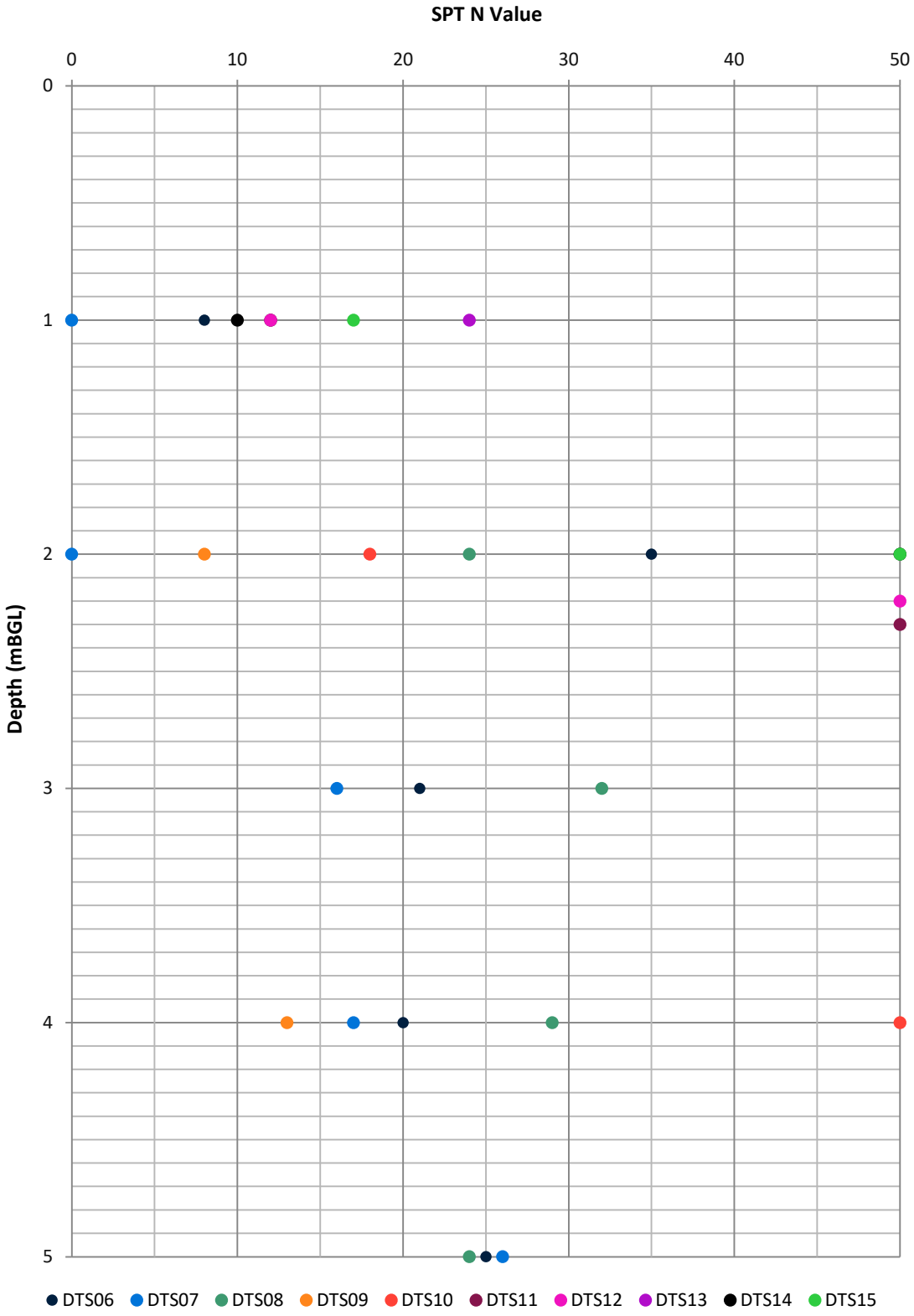
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Plot summarising Shear Vane results versus level filtered by geology



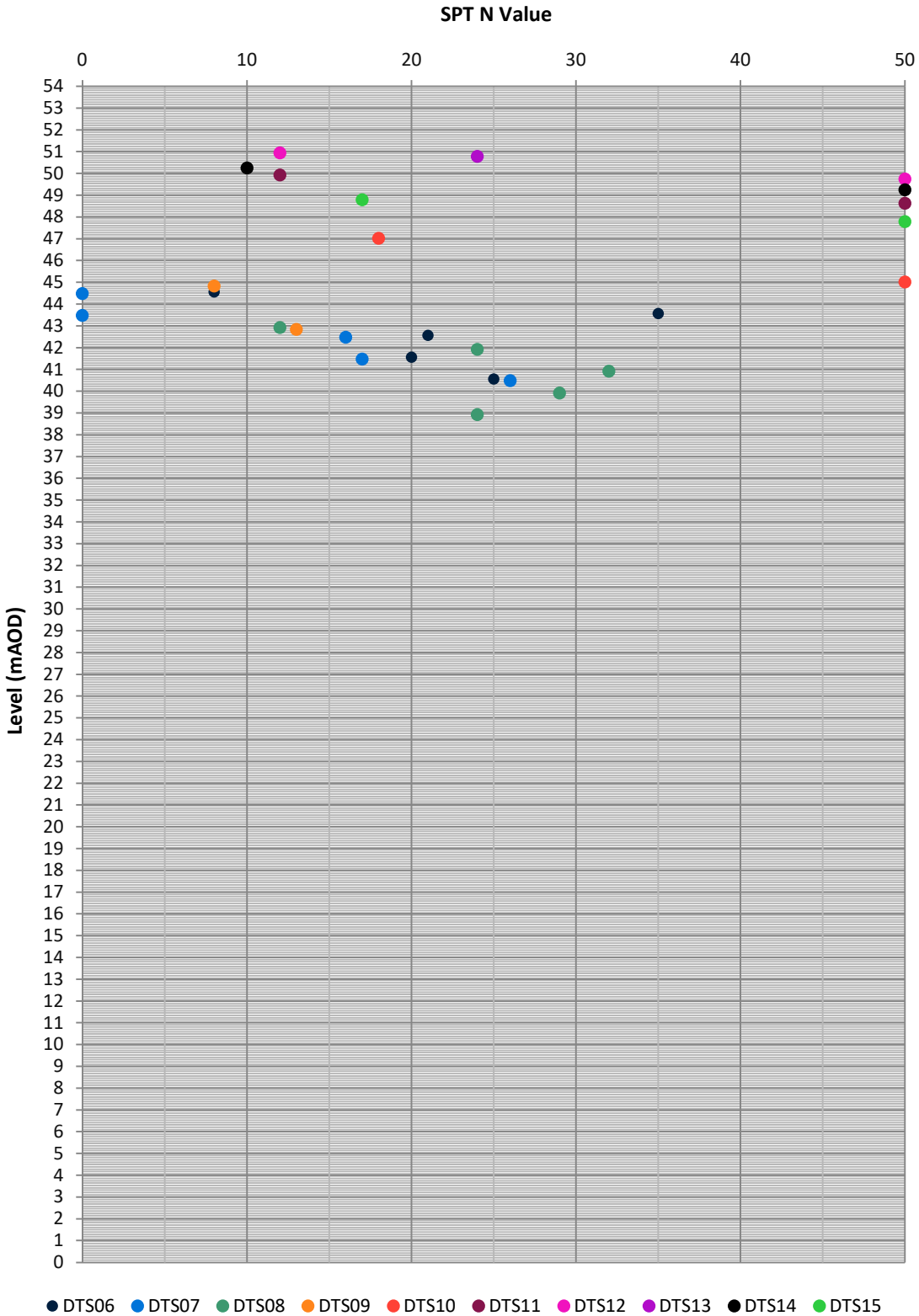
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



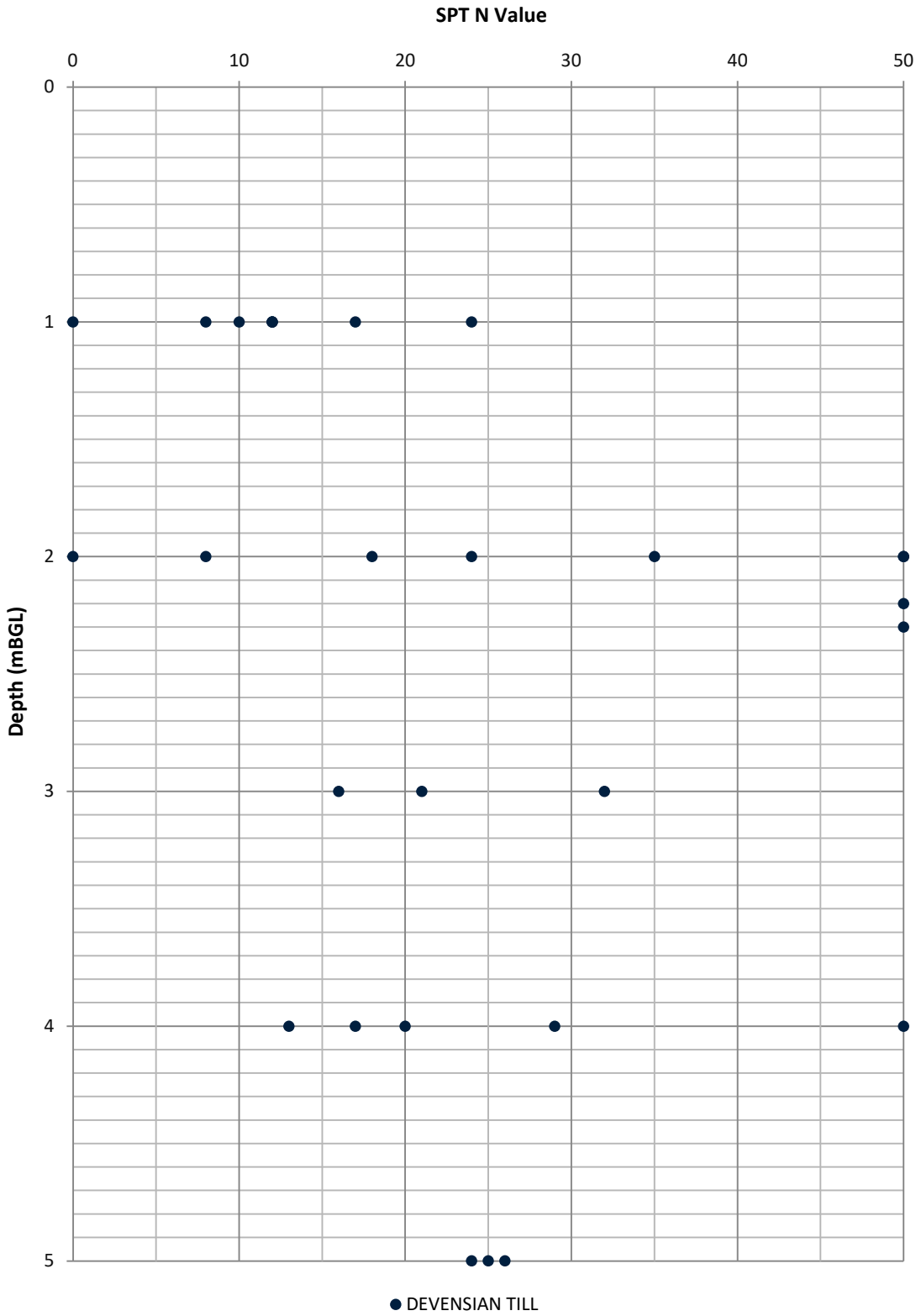
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



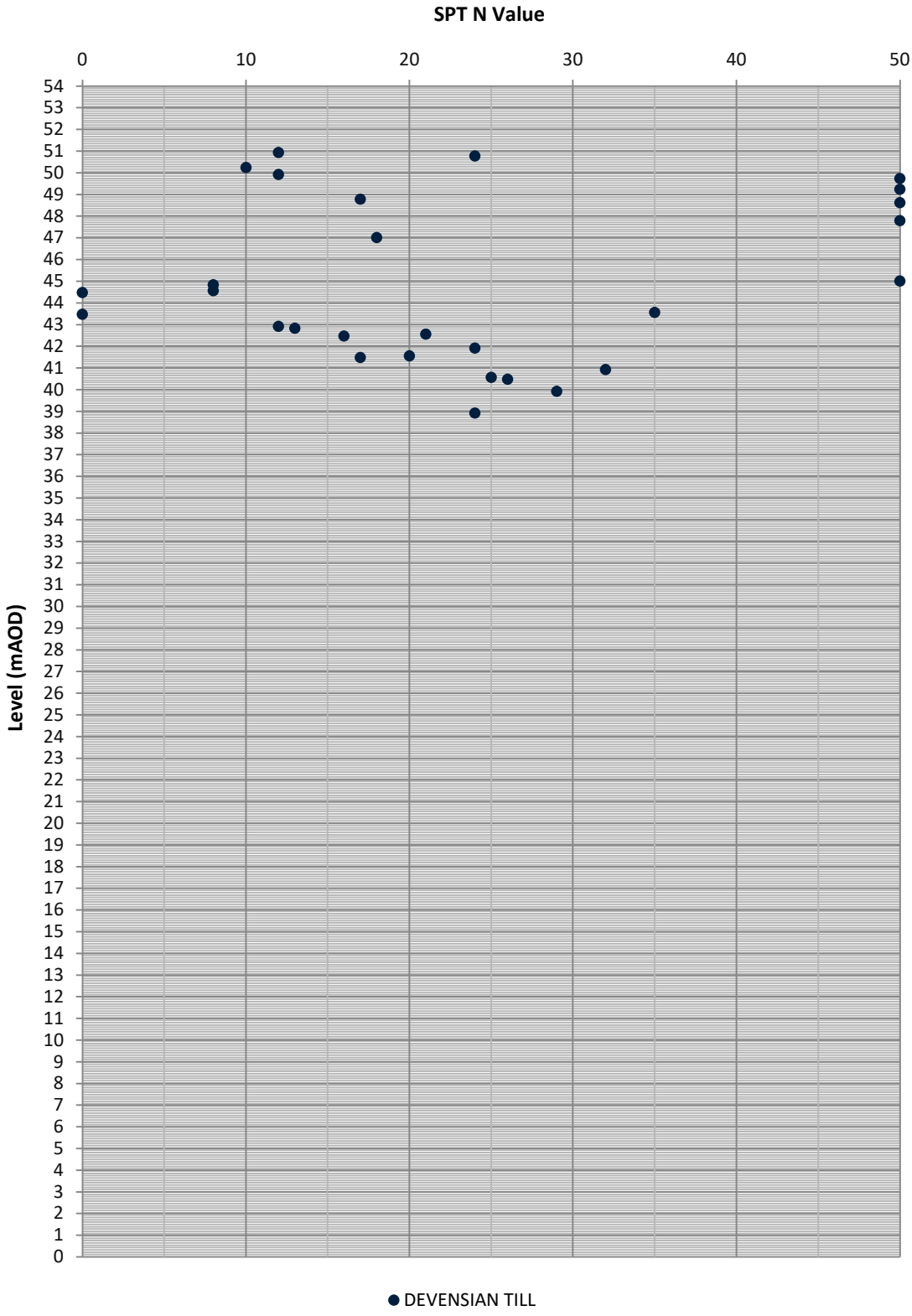
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



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Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS06	0.60	2.5/3.2/2.5	2.73	137
DTS06	1.00	1.4/1.8/3.5	2.23	112
DTS06	1.40	1.7/1.5/1.5	1.57	78
DTS06	1.80	2.3/2.4/2	2.23	112
DTS06	2.20	1/1.5/0.8	1.10	55
DTS06	3.00	1.8/2.5/2.2	2.17	108
DTS06	4.00	1.5/2.8/3	2.43	122
DTS06	5.00	3/2.6/3.4	3.00	150
DTS07	0.50	3/2.8/3	2.93	147
DTS07	0.90	1.4/1.4/0.8	1.20	60
DTS07	1.30	0.2/1/0.8	0.67	33
DTS07	1.70	1.5/1.5/1.8	1.60	80
DTS07	2.80	4.5/3.4/3.8	3.90	195
DTS07	3.80	3/3/3.5	3.17	158
DTS07	4.80	3.8/2/3.8	3.20	160
DTS08	0.80	2.2/2.6/2.1	2.30	115
DTS08	1.20	4.5/4.5/4	4.33	217
DTS08	1.60	4.4/4.2/3.8	4.13	207
DTS08	2.00	3.5/4.5/4	4.00	200
DTS08	2.40	4.5/4.5/4.5	4.50	225
DTS08	2.80	4.5/4.5/4.5	4.50	225
DTS08	3.20	4.5/4.5/4.5	4.50	225
DTS08	3.60	1.8/1.5/3.4	2.23	112
DTS08	4.00	4/3.7/3.6	3.77	188
DTS08	4.40	2.4/2/2	2.13	107
DTS08	4.80	2.8/2.3/2.8	2.63	132
DTS08	5.20	1/1/1.4	1.13	57
DTS08	5.60	1/2/0.7	1.23	62
DTS08	6.00	1.1/1.4/1.1	1.20	60
DTS09	0.50	1.6/2.8/1.2	1.87	93
DTS09	0.90	2.6/2/2	2.20	110
DTS09	1.30	1.2/1.4/1.4	1.33	67
DTS09	2.50	1.8/2.1/2.2	2.03	102
DTS09	2.90	3.8/2.4/2.5	2.90	145
DTS09	3.70	2.4/1.5/2.8	2.23	112
DTS10	0.40	2/2.4/2.2	2.20	110
DTS10	0.80	3/1.4/2	2.13	107
DTS10	1.20	1.8/2.1/2.7	2.20	110
DTS11	0.50	2.8/2.5/3.2	2.83	142

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Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS11	0.90	1.4/1.5/1.8	1.57	78
DTS11	1.30	4/4/3.5	3.83	192
DTS11	1.70	3.2/3/3	3.07	153
DTS11	2.10	3/4.5/4.5	4.00	200
DTS11	2.50	4.5/4.5/4.5	4.50	225
DTS12	0.60	0.7/2.5/0.5	1.23	62
DTS12	2.00	4.5/4.5/4.5	4.50	225
DTS14	0.50	1.8/2.8/1.8	2.13	107
DTS14	0.90	2.3/0.8/1.5	1.53	77
DTS14	1.30	2.2/2/2	2.07	103
DTS15	0.90	1.6/2.8/2.5	2.30	115
DTS15	1.30	4/2.8/4.2	3.67	183
DTS15	1.70	4.5/4.5/4.5	4.50	225
DTS15	2.10	4.5/4.5/4.5	4.50	225
DTS16	0.40	1.4/0.8/2.1	1.43	72
DTS16	0.80	2.9/2/2.6	2.50	125
DTS16	1.20	3.2/2/2.8	2.67	133
DTS16	1.60	3.2/3.8/4.2	3.73	187
DTS16	2.00	4.5/4.5/4.5	4.50	225
DTS16	2.40	4.5/4.5/4.5	4.50	225
DTS17	0.40	2/1.8/1.6	1.80	90
DTS17	0.80	1.8/1.6/2.2	1.87	93
DTS17	1.20	4/4/4.5	4.17	208
DTS17	1.60	1.5/2/1.6	1.70	85
DTS17	2.00	4/4/3.8	3.93	197
DTS17	2.40	4.5/4.5/4.5	4.50	225
DTS18	1.30	2/1.8/1.8	1.87	93
DTS18	1.70	1.6/1.3/1.3	1.40	70
DTS18	2.10	2/3.5/3.2	2.90	145
DTS18	2.50	0.5/1/0.2	0.57	28
DTS18	2.70	1.8/2/1.5	1.77	88
DTS19	0.40	3.2/3.4/3	3.20	160
DTS19	0.80	1.8/2.3/2.8	2.30	115
DTS19	1.20	2.8/3.2/1.5	2.50	125
DTS19	2.00	3.4/3.8/4	3.73	187
DTS19	4.00	4.5/4.5/4.5	4.50	225
DTS20	0.40	3.5/2.2/3	2.90	145
DTS20	0.80	3/3.8/2	2.93	147
DTS20	1.20	4.5/3.5/3	3.67	183

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS20	1.60	3.5/4/4	3.83	192
DTS20	2.00	3.8/3.8/4.5	4.03	202
DTS20	2.40	4.5/4.5/4.5	4.50	225
DTS20	2.80	4.5/4.5/4.5	4.50	225
DTS20	4.20	4.5/3/4.5	4.00	200
DTS20	4.60	4.5/4.5/4.5	4.50	225
DTS21	0.60	1.6/1.7/1.6	1.63	82
DTS21	1.00	1.3/1.2/1.3	1.27	63
DTS21	1.40	1/1.9/1.5	1.47	73
DTS21	1.80	1.7/1.8/2	1.83	92
DTS21	2.20	3.5/3.8/2	3.10	155
DTS21	2.60	4.5/4.5/4.5	4.50	225
DTS21	3.00	4.5/4.5/4.5	4.50	225
DTS21	3.40	3/3.8/4.5	3.77	188
DTS21	3.80	4.5/4.5/4.5	4.50	225
DTS22	0.40	2.2/1.6/1.8	1.87	93
DTS22	0.80	2/2/1.5	1.83	92
DTS22	1.20	1.6/1.4/2	1.67	83
DTS22	1.60	0.6/0.7/0.6	0.63	32
DTS22	2.00	3.8/2.8/4	3.53	177
DTS22	2.40	3.4/4/4.5	3.97	198
DTS22	2.80	2.6/4.5/4.5	3.87	193
DTS22	3.80	2.6/4.5/4.5	3.87	193
DTS23	0.40	2/2.2/3	2.40	120
DTS23	0.80	2.1/2/2.2	2.10	105
DTS23	1.20	1.4/0.5/1.2	1.03	52
DTS23	1.60	1.1/2.3/2.2	1.87	93
DTS23	2.00	3.4/3.3/2.5	3.07	153
DTS23	2.40	1.2/1.1/1.3	1.20	60
DTS23	2.80	2.1/2.9/3.6	2.87	143
DTS23	3.20	3/2.5/2	2.50	125
DTS23	3.60	2/3/3.5	2.83	142
DTS23	4.00	3/4/4.5	3.83	192
DTS24	0.50	2.8/4/3	3.27	163
DTS24	0.90	2/2.4/2	2.13	107
DTS24	1.30	1.5/1.8/0.8	1.37	68
DTS24	1.90	2/2.4/2.4	2.27	113
DTS24	2.80	4.5/4.5/4.5	4.50	225
DTS25	0.40	1.2/2.1/2.3	1.87	93

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS25	0.80	2.5/1.8/1.6	1.97	98
DTS25	1.20	4.5/4/4.5	4.33	217
DTS25	1.60	2.5/4.5/1.8	2.93	147
DTS25	2.40	4.5/4.5/4.5	4.50	225
DTS26	0.50	1.1/2.2/2.3	1.87	93
DTS26	0.90	1.4/1.6/1.6	1.53	77
DTS26	1.30	0.8/1.1/1.5	1.13	57
DTS26	1.70	0.8/0.8/1.2	0.93	47
DTS26	2.10	1.6/2.5/2.5	2.20	110
DTS27	0.30	2.5/4.1/3.6	3.40	170
DTS27	0.70	1.8/1.7/2.2	1.90	95
DTS27	1.10	2.5/2.5/2.8	2.60	130
DTS27	1.50	2/3/3.4	2.80	140
DTS27	1.90	3/3.5/4	3.50	175
DTS27	3.00	4.5/4.5/4.5	4.50	225
DTS28	0.50	1.3/1.5/3	1.93	97
DTS28	0.90	2/2.5/2.2	2.23	112
DTS28	1.00	1/1/0.8	0.93	47
DTS28	1.30	1/2.6/2.2	1.93	97
DTS28	2.10	1.6/3.5/3	2.70	135
DTS28	2.50	1.9/2.5/2.2	2.20	110
DTS28	2.90	3.5/4/4.5	4.00	200
DTS28	3.30	3.5/3.1/3.6	3.40	170
DTS28	3.70	4.5/4.5/4.5	4.50	225
DTS29	0.40	2.5/2.8/2.4	2.57	128
DTS29	0.80	2.3/2.4/2.4	2.37	118
DTS29	1.20	1.8/1.8/2.1	1.90	95
DTS29	1.60	1.4/1.4/1.8	1.53	77
DTS29	2.00	1.5/1.4/1.6	1.50	75
DTS30	0.60	1.6/2/1.8	1.80	90
DTS30	1.00	2/1.5/2.2	1.90	95
DTS30	1.40	1.8/2.6/2.4	2.27	113
DTS30	1.80	4/4.5/3.8	4.10	205
DTS30	2.20	4/3.5/3.5	3.67	183
DTS30	3.00	4.5/4.5/4.5	4.50	225
DTS30	3.40	4.5/4.5/4.5	4.50	225
DTS31	0.50	1.8/1.4/2	1.73	87
DTS31	0.90	1.7/1.7/1.5	1.63	82
DTS31	1.30	0.7/0.3/1.1	0.70	35

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS31	4.00	2/1.3/2	1.77	88
DTS32	0.40	2.5/2/1.5	2.00	100
DTS32	0.80	2.5/0.4/2.8	1.90	95
DTS32	1.20	1/1/1.5	1.17	58
DTS32	1.60	3/2.5/2	2.50	125
DTS32	2.00	4/3.8/2.8	3.53	177
DTS32	2.40	2.8/2.4/3.7	2.97	148
DTS32	2.80	2.4/2.5/2	2.30	115
DTS33	0.50	1.3/1.4/2	1.57	78
DTS33	1.30	1/1.1/1.8	1.30	65
DTS33	1.70	1/1.5/1.2	1.23	62
DTS35	0.40	1.5/1.8/1.9	1.73	87
DTS35	0.80	4.2/3.4/4	3.87	193
DTS35	1.20	2/1.8/2.6	2.13	107
DTS35	1.60	1.9/4/4.2	3.37	168
DTS35	2.00	4.5/4.5/4.5	4.50	225
DTS35	2.40	4.5/4.5/4.5	4.50	225
DTS35	2.80	3/3.2/2	2.73	137
DTS35	3.20	3.8/3.6/4	3.80	190
DTS35	3.60	3.2/1.6/3.5	2.77	138
DTS35	4.00	4.3/2.7/3	3.33	167
DTS36	0.40	1.5/1.5/1.5	1.50	75
DTS36	0.80	1/1.5/1.2	1.23	62
DTS36	2.50	2/3/2.4	2.47	123
DTS36	3.30	2/1.8/2.2	2.00	100
DTS36	3.70	2/2.9/2.2	2.37	118
DTS37	0.50	2/2/1.8	1.93	97
DTS37	0.90	1/1.5/0.8	1.10	55
DTS37	1.30	1.2/1/1.7	1.30	65
DTS37	1.70	1.5/2/1.5	1.67	83
DTS37	2.10	3/3.6/2.4	3.00	150
DTS37	2.50	4.5/3.5/4	4.00	200
DTS37	2.90	3.5/3.9/4.5	3.97	198
DTS37	3.30	2/2.5/3	2.50	125
DTS37	3.70	1.8/2.4/2.4	2.20	110
DTS38	0.40	2/2.5/2.3	2.27	113
DTS38	0.80	1.8/2.5/3	2.43	122
DTS38	1.20	0.8/0.6/1.1	0.83	42
DTS38	1.60	2.6/2.1/1.2	1.97	98

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS38	2.00	2/2/3.3	2.43	122
DTS38	2.40	1/2.4/2.4	1.93	97
DTS38	2.80	2.4/1.5/2	1.97	98
DTS38	3.20	2.3/1/1.7	1.67	83
DTS38	3.60	1.6/2.6/2	2.07	103
DTS38	4.00	2.7/2/4.5	3.07	153
DTS39	0.50	1.7/1.8/1.5	1.67	83
DTS39	0.80	1.8/2.3/1.5	1.87	93
DTS40	0.80	1/1.5/1.7	1.40	70
DTS40	2.30	2.4/2/1.7	2.03	102
DTS41	0.90	1.8/1.9/2.6	2.10	105
DTS41	1.30	2/2.6/1.6	2.07	103
DTS41	1.70	2/3.2/2.3	2.50	125
DTS41	2.10	3.5/4.2/4.3	4.00	200
DTS41	2.50	3/2.2/2.7	2.63	132
DTS41	2.90	2.3/2/2.5	2.27	113
DTS41	3.30	2.1/1.9/2	2.00	100
DTS41	3.70	3.2/2.8/3.2	3.07	153
DTS41	4.10	2.6/2.8/3	2.80	140
DTS41	4.50	2.8/2/2.4	2.40	120
DTS41	4.90	2.8/2.1/2.4	2.43	122
DTS42	0.40	2.4/2.2/2	2.20	110
DTS42	0.80	1.6/1.8/1	1.47	73
DTS42	1.20	1.2/1.1/1.4	1.23	62
DTS42	1.60	1.9/1/2.2	1.70	85
DTS42	2.00	2.2/1.9/1.4	1.83	92
DTS42	2.40	3.6/4/4	3.87	193
DTS42	2.80	4.2/4.3/4.5	4.33	217
DTS42	3.20	2.8/2.5/3.2	2.83	142
DTS42	3.60	3.5/2.4/3	2.97	148
DTS42	4.00	2/2.6/3	2.53	127
DTS43	0.30	2.4/3.2/2	2.53	127
DTS43	0.70	2.6/2.5/2.4	2.50	125
DTS43	2.10	3/4/4.5	3.83	192
DTS43	2.50	4.2/4/4	4.07	203
DTS43	2.90	3.6/4.2/3	3.60	180
DTS43	3.30	2/2.5/2.6	2.37	118
DTS43	3.70	3.7/2.4/2.8	2.97	148
DTS44	1.40	1.6/2.6/3.4	2.53	127

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS44	1.80	4.5/4.5/4.5	4.50	225
DTS44	2.20	4.5/4.5/4.5	4.50	225
DTS44	2.60	4/4/4	4.00	200
DTS44	3.00	3/2.9/3.2	3.03	152
DTS45	1.30	2/1.8/1.5	1.77	88
DTS45	1.70	2.1/1.9/2.1	2.03	102
DTS45	2.10	4/4.5/3.8	4.10	205
DTS45	2.50	4/4.5/4.5	4.33	217
DTS45	2.90	4.4/4.5/4.5	4.47	223
DTS45	3.30	4/1.6/3.4	3.00	150
DTS45	3.70	2.5/3/3.4	2.97	148
DTS46	1.60	2.5/2.3/2.9	2.57	128
DTS46	2.00	3/2.3/2.9	2.73	137
DTS46	2.40	1.5/1.7/1.9	1.70	85
DTS46	2.80	1.4/1.6/1.8	1.60	80
DTS47	2.00	0.25/0.25/0.25	0.25	13
DTS47	2.50	0.5/0.25/0.25	0.33	17
DTS47	3.20	0.25/0.25/0.25	0.25	13
DTS47	3.70	4/4/4	4.00	200
DTS47	4.10	4.5/4.5/4	4.33	217
DTS48	0.40	1/1/0.75	0.92	46
DTS48	0.80	0.75/0.75/0.75	0.75	38
DTS48	1.30	1/1/1	1.00	50
DTS48	1.60	1.25/1/1	1.08	54
DTS48	2.00	1/1/1	1.00	50
DTS48	2.40	1/1/1	1.00	50
DTS48	2.80	1/1/1	1.00	50
DTS48	3.20	1/1.25/1	1.08	54
DTS48	3.50	1.25/1.25/1.25	1.25	63
DTS49	0.50	1.5/1/1.5	1.33	67
DTS50	0.80	0.25/0.5/0.25	0.33	17
DTS50	1.20	0.5/0.25/0.25	0.33	17
DTS50	1.50	0.5/0.5/0.5	0.50	25
DTS50	2.00	0.5/0.25/0.25	0.33	17
DTS50	2.40	0.5/0.5/0.5	0.50	25
DTS50	2.80	0.5/0.25/0.5	0.42	21
DTS50	3.20	0.5/0.5/0.5	0.50	25
DTS50	3.50	0.5/0.5/0.5	0.50	25
DTS50	4.00	0.25/0.5/0.5	0.42	21

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS50	4.50	0.5/0.5/0.5	0.50	25
DTS51	0.60	2.5/2.5/2.5	2.50	125
DTS51	1.00	2.5/2.5/2.5	2.50	125
DTS51	1.40	3/3/3	3.00	150
DTS51	1.80	4/3.5/4	3.83	192
DTS51	2.30	4/3/3	3.33	167
DTS51	2.60	3/3/3	3.00	150
DTS51	3.00	3/3/3.25	3.08	154
DTS51	3.40	3/3.5/3	3.17	158
DTS51	3.80	3/2.75/2.75	2.83	142
DTS51	4.30	3/2.75/3	2.92	146
DTS51	4.80	3/3/3	3.00	150
DTS52	0.50	1/1/1.25	1.08	54
DTS52	0.90	1/1.5/1.5	1.33	67
DTS52	1.30	1/1.5/1.5	1.33	67
DTS52	1.70	1.5/1.25/1.5	1.42	71
DTS52	2.00	1.5/1.5/1.5	1.50	75
DTS52	2.50	1.25/1.25/1.25	1.25	63
DTS52	3.00	1/1/1.5	1.17	58
DTS53	0.50	1/1/1	1.00	50
DTS53	0.90	1/1.25/1	1.08	54
DTS53	1.30	1/1/1	1.00	50
DTS53	1.80	1.25/1.5/1	1.25	63
DTS53	2.00	1/1/1	1.00	50
DTS53	2.20	1/1.25/1	1.08	54
DTS53	3.20	1.25/1.25/1	1.17	58
DTS53	3.70	1/1/1	1.00	50
DTS53	4.20	1/1/1.25	1.08	54
DTS53	4.70	1.25/1.25/1.25	1.25	63
DTS54	1.00	1/1/1	1.00	50
DTS54	1.30	1.25/1/1	1.08	54
DTS54	1.90	1/1.25/1	1.08	54
DTS54	2.40	1/1/1	1.00	50
DTS54	2.90	1.25/1.25/1	1.17	58
DTS54	3.40	1.5/1/1	1.17	58
DTS54	3.90	1/1/1	1.00	50
DTS54	4.40	1/1/1	1.00	50
DTS55	0.60	1/1/1	1.00	50
DTS55	1.00	1.25/1/1	1.08	54

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS55	1.50	1/1.25/1	1.08	54
DTS55	2.00	1.5/1.25/1	1.25	63
DTS55	2.50	1/1/1	1.00	50
DTS55	3.00	1.25/1.25/1.25	1.25	63
DTS55	3.50	1/1.5/1	1.17	58
DTS56	0.60	1/1/1	1.00	50
DTS56	1.00	1.25/1.25/1.25	1.25	63
DTS56	1.40	1/1.5/1.25	1.25	63
DTS56	2.00	1/1/1	1.00	50
DTS56	2.50	1.25/1.25/1.5	1.33	67
DTS56	3.00	1.5/1.5/1.5	1.50	75
DTS56	3.50	1.25/1/1	1.08	54
DTS56	4.00	1/1/1	1.00	50
DTS57	0.70	1/1/1	1.00	50
DTS57	1.10	1.25/1.5/1	1.25	63
DTS57	1.60	1/1/1.25	1.08	54
DTS57	2.00	1/1/1.25	1.08	54
DTS57	2.50	1/1/1.25	1.08	54
DTS57	3.00	1.25/1.25/1.25	1.25	63
DTS57	3.50	1/1/1	1.00	50
DTS57	4.00	1/1/1	1.00	50
DTS58	0.50	1/1/1	1.00	50
DTS58	0.90	1.25/1/1	1.08	54
DTS58	1.40	1/1.25/1	1.08	54
DTS58	1.90	1.25/1.25/1.25	1.25	63
DTS58	2.60	1.5/1/1	1.17	58
DTS58	3.10	1/1/1	1.00	50
DTS58	3.70	1/1/1	1.00	50
DTS58	4.10	1.25/1.25/1	1.17	58
DTS60	0.60	0/0.25/0.25	0.17	8
DTS60	1.50	1/1/1	1.00	50
DTS60	2.00	1/1/1	1.00	50
DTS60	2.50	1.25/1/1	1.08	54
DTS60	3.00	1/1/1	1.00	50
DTS60	3.50	1/1/1.25	1.08	54
DTS60	4.00	1/1/1	1.00	50
DTS61	1.50	1/1/1	1.00	50
DTS61	1.90	1.25/1.25/1	1.17	58
DTS61	2.30	1/1/1	1.00	50

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS61	2.80	1/1/1.25	1.08	54
DTS61	3.20	1/1/1	1.00	50
DTS61	3.80	1/1/1	1.00	50
DTS63	1.20	1/1/1	1.00	50
DTS63	1.70	1.25/1/1	1.08	54
DTS63	2.30	1/1/1	1.00	50
DTS63	2.80	1.25/1/1	1.08	54
DTS63	3.20	1.5/1/1	1.17	58
DTS63	3.70	1/1/1	1.00	50
DTS64	0.70	1/1/1	1.00	50
DTS65	0.50	1/1.25/1	1.08	54
DTS65	1.00	1/1.25/1	1.08	54
DTS65	1.50	1/1/1	1.00	50
DTS65	2.00	1/1/1	1.00	50
DTS65	3.00	1/1/1	1.00	50
DTS65	3.50	1.25/1/1	1.08	54
DTS66	0.40	1/1/1	1.00	50
DTS66	1.00	1.25/1.25/1.25	1.25	63
DTS66	1.40	1/1.25/1	1.08	54
DTS66	1.80	1.25/1/1	1.08	54
DTS66	2.00	1/1/1	1.00	50
DTS66	2.40	1/1/1	1.00	50
DTS66	2.90	1/1.25/1.25	1.17	58
DTS66	3.40	1.25/1/1	1.08	54
DTS67	1.00	1/1/1	1.00	50
DTS67	1.40	1/1/1.25	1.08	54
DTS67	1.80	1/1/1	1.00	50
DTS67	2.30	1.25/1.25/1.5	1.33	67
DTS67	2.70	1.5/1/1	1.17	58
DTS67	3.20	1/1.5/1	1.17	58
DTS67	3.70	1.25/1.25/1.25	1.25	63
DTS68	0.50	1/1/1	1.00	50
DTS68	0.90	1.25/1.25/1.25	1.25	63
DTS68	1.30	1.5/1.25/1.25	1.33	67
DTS68	1.70	1/1/1	1.00	50
DTS68	2.20	1/1/1	1.00	50
DTS68	2.80	1.5/1/1	1.17	58
DTS68	3.40	1/1/1.25	1.08	54
DTS68	3.80	1.5/1.5/1.25	1.42	71

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS69	0.50	1/1/1.25	1.08	54
DTS69	0.90	1.25/1/1.25	1.17	58
DTS69	1.30	1/1/1	1.00	50
DTS69	1.70	1.25/1.25/1	1.17	58
DTS69	2.20	1/1.5/1.5	1.33	67
DTS69	2.80	1.5/1.5/1.5	1.50	75
DTS70	0.40	1/1/1.5	1.17	58
DTS70	0.80	1.25/1.25/1.5	1.33	67
DTS70	1.30	1.5/1.5/1	1.33	67
DTS70	1.80	1/1/1	1.00	50
DTS70	2.40	1/1/1	1.00	50
DTS70	3.90	2/2/2.5	2.17	108
DTS71	0.40	1/1.25/1	1.08	54
DTS71	0.80	1.25/1/1	1.08	54
DTS71	1.30	1/1/1	1.00	50
DTS71	1.70	1/1.25/1.5	1.25	63
DTS71	2.20	1.5/1.5/1	1.33	67
DTS71	2.80	1/1/1	1.00	50
DTS71	3.20	1.5/1.25/1.25	1.33	67
DTS71	3.70	1.25/1.25/1.25	1.25	63
DTS72	2.90	1.25/1.5/1	1.25	63
DTS72	3.20	1/1/1.25	1.08	54
DTS72	3.70	1/1.25/1	1.08	54
DTS73	0.40	1/1/1.25	1.08	54
DTS73	0.80	1.25/1/1.25	1.17	58
DTS73	1.20	1.25/1/1	1.08	54
DTS73	1.70	1/1/1	1.00	50
DTS73	2.20	1.25/1.25/1	1.17	58
DTS73	2.80	1.25/1/1	1.08	54
DTS73	3.20	1/1/1	1.00	50
DTS74	1.30	1.4/1.2/0.9	1.17	58
DTS74	1.50	1.9/1.8/1.9	1.87	93
DTS74	1.70	1.4/1.5/1.5	1.47	73
DTS74	2.10	1.8/1.7/1.8	1.77	88
DTS74	2.50	1/1.4/1.8	1.40	70
DTS74	2.80	2.1/1.7/1.9	1.90	95
DTS75	1.00	0.8/2.8/2.6	2.07	103
DTS75	1.40	1/1.9/1.3	1.40	70
DTS75	1.80	1.4/1.1/1	1.17	58

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS75	2.20	2.2/1.4/2.8	2.13	107
DTS75	2.60	3/4/4	3.67	183
DTS75	3.40	3.9/4.5/3.9	4.10	205
DTS75	3.80	3.4/4/3	3.47	173
DTS76	0.90	0.6/0.1/0.8	0.50	25
DTS76	1.30	1/1/1.2	1.07	53
DTS76	1.70	1.6/1/1.5	1.37	68
DTS76	2.10	1.6/1.8/1.7	1.70	85
DTS76	2.50	2.4/2.5/2.3	2.40	120
DTS76	2.90	2/1.9/2.1	2.00	100
DTS77	0.40	1.5/1.3/1.5	1.43	72
DTS77	0.80	2/2.4/1.8	2.07	103
DTS77	1.00	1.8/1.9/2	1.90	95
DTS77	1.20	1.7/1.6/1.6	1.63	82
DTS77	2.00	2.5/1.9/2.2	2.20	110
DTS77	2.40	2.7/3/3.4	3.03	152
DTS77	2.80	2.5/3.7/3.9	3.37	168
DTS78	0.50	1.8/2.1/1.9	1.93	97
DTS78	0.90	1.7/0/1.6	1.10	55
DTS78	1.30	2/2.4/1.8	2.07	103
DTS78	1.70	2/2.2/2.5	2.23	112
DTS78	2.10	3/3/2.5	2.83	142
DTS78	2.50	2.7/2.4/2	2.37	118
DTS78	2.90	2.4/2.8/2.6	2.60	130
DTS79	0.50	1.5/1.4/1.7	1.53	77
DTS79	0.90	1.3/1.5/1.5	1.43	72
DTS79	1.30	3/2.4/2	2.47	123
DTS79	1.70	3.6/4/4	3.87	193
DTS79	2.10	2.4/2.3/3	2.57	128
DTS79	2.50	4.5/3/2	3.17	158
DTS79	2.90	4.5/3/2.4	3.30	165
DTS80	0.40	0.5/1.4/1.9	1.27	63
DTS80	0.80	1.8/1.5/1.9	1.73	87
DTS80	1.20	2.8/2.6/2.4	2.60	130
DTS80	1.60	2.3/2.6/1.9	2.27	113
DTS80	2.00	1.2/2/1.8	1.67	83
DTS80	2.40	3.4/2.8/2.8	3.00	150
DTS80	2.80	4/3.6/3.6	3.73	187
DTS80	3.20	2.9/3/3.1	3.00	150

Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	esult 1/Result 2/Result	#DIV/0!	Result
DTS80	3.60	3/2.8/2.8	2.87	143
DTS80	4.00	3.2/2.8/4	3.33	167
DTS81	0.30	2/2.2/2.4	2.20	110
DTS81	0.70	1.4/1.6/1.8	1.60	80
DTS81	1.10	2.2/2.4/1.8	2.13	107
DTS81	1.50	1.5/1.4/1.3	1.40	70
DTS81	1.90	2.4/1.5/2	1.97	98
DTS81	2.30	2/0.9/1.5	1.47	73
DTS81	2.70	1.2/1.1/2	1.43	72
DTS82	0.40	2.5/3.5/2	2.67	133
DTS82	0.80	1.8/1.8/2	1.87	93
DTS82	1.20	2/1.9/2.1	2.00	100
DTS82	1.60	3.2/4/3	3.40	170
DTS82	2.00	2.4/2.8/3.2	2.80	140
DTS82	2.40	2.4/2.8/3.4	2.87	143
DTS82	2.80	3/3.4/3.2	3.20	160
DTS83	0.30	2.3/2/1.5	1.93	97
DTS83	0.70	1.8/3.8/2.1	2.57	128
DTS83	1.10	1.4/1.3/1.4	1.37	68
DTS83	1.50	1.4/1.6/1.2	1.40	70
DTS83	1.90	3.9/4.5/4.2	4.20	210
DTS83	2.30	4/4.5/3.8	4.10	205
DTS83	2.70	4.1/4.5/4.5	4.37	218
DTS83	3.10	4.4/2.8/4	3.73	187
DTS83	3.50	2.5/2.9/3.8	3.07	153
DTS83	3.90	2/2.5/3	2.50	125

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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
DTS06	0.80	42/42	42.00	66
DTS06	1.80	55/50	52.50	82
DTS08	1.50	66/70	68.00	106
DTS08	2.50	90/97	93.50	146
DTS08	3.50	98/78	88.00	138
DTS08	4.50	61/75	68.00	106
DTS08	5.50	26/29	27.50	43
DTS10	0.70	64/58	61.00	95
DTS10	1.30	68/85	76.50	120
DTS11	0.50	66/60	63.00	99
DTS11	1.50	90/85	87.50	137
DTS16	0.80	58/55	56.50	88
DTS16	1.20	68/68	68.00	106
DTS16	1.80	75/98	86.50	135
DTS18	1.50	44/40	42.00	66
DTS20	0.80	72/53	62.50	98
DTS20	1.80	82/88	85.00	133
DTS20	2.80	100/102	101.00	158
DTS22	0.50	55/44	49.50	77
DTS22	1.50	44/58	51.00	80
DTS24	0.80	58/55	56.50	88
DTS24	1.80	55/40	47.50	74
DTS24	2.80	74/78	76.00	119
DTS26	0.50	42/38	40.00	63
DTS26	1.50	24/32	28.00	44
DTS32	0.50	50/45	47.50	74
DTS32	1.50	58/45	51.50	81
DTS35	0.80	78/63	70.50	110
DTS35	1.20	80/72	76.00	119
DTS35	1.80	94/75	84.50	132
DTS35	2.20	104/116	110.00	172
DTS35	2.80	92/95	93.50	146
DTS37	0.50	30/39	34.50	54
DTS37	1.50	61/55	58.00	91
DTS39	0.50	32/35	33.50	52
DTS41	0.80	45/47	46.00	72
DTS41	1.20	60/65	62.50	98
DTS41	1.80	90/82	86.00	135
DTS41	2.50	81/75	78.00	122

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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
DTS41	3.80	98/88	93.00	145
DTS41	4.50	60/74	67.00	105
DTS44	1.50	112/80	96.00	150
DTS44	2.50	102/110	106.00	166
DTS45	1.50	52/45	48.50	76
DTS45	2.50	92/88	90.00	141
DTS45	3.50	62/65	63.50	99
DTS74	1.50	56/45	50.50	79
DTS75	1.50	62/56	59.00	92
DTS75	2.50	98/80	89.00	139
DTS76	1.50	72/62	67.00	105
DTS76	2.50	82/85	83.50	131
DTS77	0.80	54/50	52.00	81
DTS77	1.80	54/56	55.00	86
DTS77	2.80	88/95	91.50	143
DTS78	0.50	68/58	63.00	99
DTS78	1.50	70/64	67.00	105
DTS78	2.50	56/60	58.00	91
DTS80	0.50	42/34	38.00	59
DTS80	1.50	55/62	58.50	91
DTS80	2.50	78/80	79.00	124
DTS80	3.50	75/75	75.00	117
DTS82	0.80	59/48	53.50	84
DTS82	1.80	80/88	84.00	131
DTS82	2.80	74/80	77.00	120

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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
DTS06	1.00	1/2	2/2/2/2	3	8	150	300
DTS06	2.00	3/4	8/8/10/9	7	35	150	300
DTS06	3.00	3/3	4/5/5/7	6	21	150	300
DTS06	4.00	4/4	4/5/5/6	8	20	150	300
DTS06	5.00	4/4	4/6/7/8	8	25	150	300
DTS07	1.00	0/0	0/0/0/0	0	0	150	300
DTS07	2.00	0/0	0/0/0/0	0	0	150	300
DTS07	3.00	2/3	3/4/4/5	5	16	150	300
DTS07	4.00	3/3	4/3/5/5	6	17	150	300
DTS07	5.00	4/4	6/7/6/7	8	26	150	300
DTS08	1.00	1/3	2/3/3/4	4	12	150	300
DTS08	2.00	4/4	5/5/7/7	8	24	150	300
DTS08	3.00	6/5	6/7/8/11	11	32	150	300
DTS08	4.00	6/5	6/8/8/7	11	29	150	300
DTS08	5.00	6/6	6/6/6/6	12	24	150	300
DTS09	2.00	2/1	2/2/2/2	3	8	150	300
DTS09	4.00	2/2	2/2/2/7	4	13	150	300
DTS10	2.00	2/3	3/4/4/7	5	18	150	300
DTS10	4.00	25	50	25	50	60	30
DTS11	1.00	2/2	2/3/3/4	4	12	150	300
DTS11	2.30	17/8	36/14	25	50	105	85
DTS12	1.00	3/1	3/3/3/3	4	12	150	300
DTS12	2.20	25	50	25	50	30	10
DTS13	1.00	2/3	3/4/7/10	5	24	150	300
DTS13	1.50	25		50	0	50	
DTS14	1.00	1/2	2/2/3/3	3	10	150	300
DTS14	2.00	12/13	50	25	50	35	30
DTS15	1.00	1/2	3/3/3/8	3	17	150	300
DTS15	2.00	25	50	25	50	40	30
DTS16	1.00	2/3	3/3/2/3	5	11	150	300
DTS16	2.50	10/15	25/25	25	50	135	105
DTS17	1.00	1/2	3/3/2/3	3	11	150	300
DTS17	2.50	17/8	28/22	25	50	135	95
DTS18	1.00	1/2	1/2/1/1	3	5	150	300
DTS18	3.00	3/5	11/15/24	8	50	150	200
DTS19	2.00	2/1	2/2/2/4	3	10	150	300
DTS19	4.00	6/6	5/5/5/6	12	21	150	300
DTS20	1.00	1/1	1/3/3/3	2	10	150	300
DTS20	3.00	3/3	2/4/4/5	6	15	150	300
DTS20	5.00	5/5	6/7/7/8	10	28	150	300

Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
DTS21	2.00	3/3	3/3/3/4	6	13	150	300
DTS21	4.00	3/3	3/3/4/5	6	15	150	300
DTS22	1.00	2/2	2/3/3/3	4	11	150	300
DTS22	3.00	3/3	3/3/4/5	6	15	150	300
DTS23	2.00	2/3	3/3/4/4	5	14	150	300
DTS23	3.00	7/7	11/11/11/12	14	45	150	300
DTS24	1.00	1/2	2/3/5/5	3	15	150	300
DTS24	3.00	3/3	6/7/7/7	6	27	150	300
DTS25	2.00	7/7	9/10/20/20	14	59	150	300
DTS26	1.00	1/1	1/1/1/1	2	4	150	300
DTS26	2.00	25	50	25	50	10	10
DTS27	2.00	5/6	10/10/10/10	11	40	150	300
DTS27	3.00	25	50	25	50	5	5
DTS28	1.00	1/1	1/1/1/1	2	4	150	300
DTS28	3.00	1/1	1/1/1/1	2	4	150	300
DTS29	2.00	25	50	25	50	30	20
DTS30	1.00	1/1	1/1/1/1	2	4	150	300
DTS30	3.00	3/3	5/8/8/8	6	29	150	300
DTS31	1.00	1/1	2/2/2/2	2	8	150	300
DTS31	3.00	2/2	1/2/2/2	4	7	150	300
DTS32	2.00	3/3	4/4/5/6	6	19	150	300
DTS32	4.00	3/3	4/4/5/6	6	19	150	300
DTS33	1.00	2/2	2/3/2/3	4	10	150	300
DTS33	3.00	2/2	2/2/2/2	4	8	150	300
DTS34	1.00	3/4	5/5/6/7	7	23	150	300
DTS34	3.00	1/1	1/2/3/3	2	9	150	300
DTS35	2.00	2/4	5/6/7/8	6	26	150	300
DTS35	4.00	2/3	4/4/4/4	5	16	150	300
DTS36	1.00	2/2	2/2/2/2	4	8	150	300
DTS36	3.00	2/3	4/5/6/6	5	21	150	300
DTS37	2.00	3/3	4/5/6/6	6	21	150	300
DTS37	4.00	2/3	4/4/5/5	5	18	150	300
DTS38	2.00	2/2	2/2/2/2	4	8	150	300
DTS38	4.00	3/3	3/4/4/4	6	15	150	300
DTS39	1.00	2/2	3/3/3/3	4	12	150	300
DTS39	3.00	2/1	1/1/1/1	3	4	150	300
DTS40	2.00	2/2	2/2/2/2	4	8	150	300
DTS40	2.45	25	50	25	50	10	10
DTS41	1.00	2/3	3/3/3/3	5	12	150	300
DTS41	3.00	2/4	4/4/4/4	6	16	150	300

Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
DTS42	2.00	3/3	3/3/3/3	6	12	150	300
DTS42	4.00	5/3	5/5/5/5	8	20	150	300
DTS43	1.00	2/2	2/2/2/2	4	8	150	300
DTS43	3.00	3/3	3/3/3/3	6	12	150	300
DTS44	2.00	2/2	2/3/3/3	4	11	150	300
DTS44	4.00	4/4	5/5/5/5	8	20	150	300
DTS45	1.00	2/3	3/3/3/3	5	12	150	300
DTS45	3.00	3/3	3/3/3/3	6	12	150	300
DTS47	1.00	1/0	1/0/1/0	1	2	150	300
DTS47	3.00	2/2	3/4/4/5	4	16	150	300
DTS47	4.70	25	50	25	50	20	10
DTS48	2.00	3/3	4/5/5/6	6	20	150	300
DTS48	4.00	5/3	4/3/3/4	8	14	150	300
DTS49	1.00	1/2	2/3/2/3	3	10	150	300
DTS49	3.00	4/3	4/4/5/5	7	18	150	300
DTS49	5.00	3/4	4/6/11/14	7	35	150	300
DTS50	2.00	2/1	0/1/0/0	3	1	150	300
DTS50	4.00	3/4	5/6/7/8	7	26	150	300
DTS51	1.00	2/2	3/3/3/3	4	12	150	300
DTS51	3.00	3/3	3/4/4/5	6	16	150	300
DTS51	5.00	3/5	7/10/15/13	8	45	150	300
DTS52	2.00	4/3	4/3/3/3	7	13	150	300
DTS52	4.00	4/4	6/6/8/8	8	28	150	300
DTS53	1.00	2/1	2/3/3/3	3	11	150	300
DTS53	3.00	4/5	5/7/10/9	9	31	150	300
DTS53	5.00	5/5	6/8/8/9	10	31	150	300
DTS54	2.00	4/3	4/5/5/7	7	21	150	300
DTS54	4.00	3/4	4/5/6/5	7	20	150	300
DTS55	1.00	3/3	1/1/1/1	6	4	150	300
DTS55	3.00	3/3	5/5/6/6	6	22	150	300
DTS55	4.10	25	50	25	50	0	0
DTS56	2.00	3/4	5/5/6/7	7	23	150	300
DTS56	4.00	2/3	3/4/5/8	5	20	150	300
DTS57	1.00	2/3	3/3/3/3	5	12	150	300
DTS57	3.00	3/3	4/5/4/5	6	18	150	300
DTS57	5.00	3/4	4/4/5/5	7	18	150	300
DTS58	2.00	3/3	5/5/5/5	6	20	150	300
DTS58	4.00	3/4	4/4/5/4	7	17	150	300
DTS59	1.00	2/3	3/3/2/2	5	10	150	300
DTS59	2.00	2/2	2/3/4/4	4	13	150	300

Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
DTS59	4.00	3/4	6/7/7/8	7	28	150	300
DTS60	1.00	2/2	2/3/2/3	4	10	150	300
DTS60	3.00	3/3	4/4/6/6	6	20	150	300
DTS60	5.00	4/5	7/8/8/9	9	32	150	300
DTS61	2.00	2/3	4/4/5/5	5	18	150	300
DTS61	4.00	3/4	5/5/7/7	7	24	150	300
DTS62	1.00	0/1	2/2/2/3	1	9	150	300
DTS62	3.00	2/2	2/4/4/5	4	15	150	300
DTS63	2.00	3/4	4/4/5/5	7	18	150	300
DTS63	4.00	3/5	5/7/7/8	8	27	150	300
DTS64	1.00	3/2	3/3/3/3	5	12	150	300
DTS64	3.00	3/2	4/5/5/6	5	20	150	300
DTS64	5.00	3/3	5/7/8/11	6	31	150	300
DTS65	2.00	2/3	3/3/4/4	5	14	150	300
DTS65	4.00	2/2	2/2/3/3	4	10	150	300
DTS66	1.00	1/1	2/2/2/2	2	8	150	300
DTS66	3.00	2/3	2/3/4/3	5	12	150	300
DTS67	2.00	2/3	3/3/5/4	5	15	150	300
DTS67	4.00	2/3	3/4/3/4	5	14	150	300
DTS68	1.00	2/3	3/3/3/4	5	13	150	300
DTS68	3.00	2/3	3/4/6/8	5	21	150	300
DTS69	2.00	2/3	4/3/2/3	5	12	150	300
DTS69	4.00	3/3	3/2/2/2	6	9	150	300
DTS70	1.00	2/2	3/4/4/3	4	14	150	300
DTS70	3.00	2/3	4/5/7/7	5	23	150	300
DTS71	2.00	3/3	4/4/5/5	6	18	150	300
DTS71	4.00	3/18	17/8/9/9	21	43	150	300
DTS72	1.00	2/3	4/3/2/5	5	14	150	300
DTS72	3.00	6/5	5/6/7/7	11	25	150	300
DTS73	2.00	2/3	3/4/5/5	5	17	150	300
DTS73	4.00	6/4	4/5/6/7	10	22	150	300
DTS74	1.00	2/2	2/2/3/3	4	10	150	300
DTS74	3.00	3/2	3/4/5/5	5	17	150	300
DTS75	2.00	2/3	3/4/4/5	5	16	150	300
DTS75	4.00	4/5	5/6/5/6	9	22	150	300
DTS76	2.00	2/2	2/3/4/3	4	12	150	300
DTS77	1.00	1/1	1/2/1/2	2	6	150	300
DTS77	3.00	3/4	5/6/6/7	7	24	150	300
DTS78	2.00	3/2	4/4/4/5	5	17	150	300
DTS79	1.00	1/2	2/2/3/3	3	10	150	300

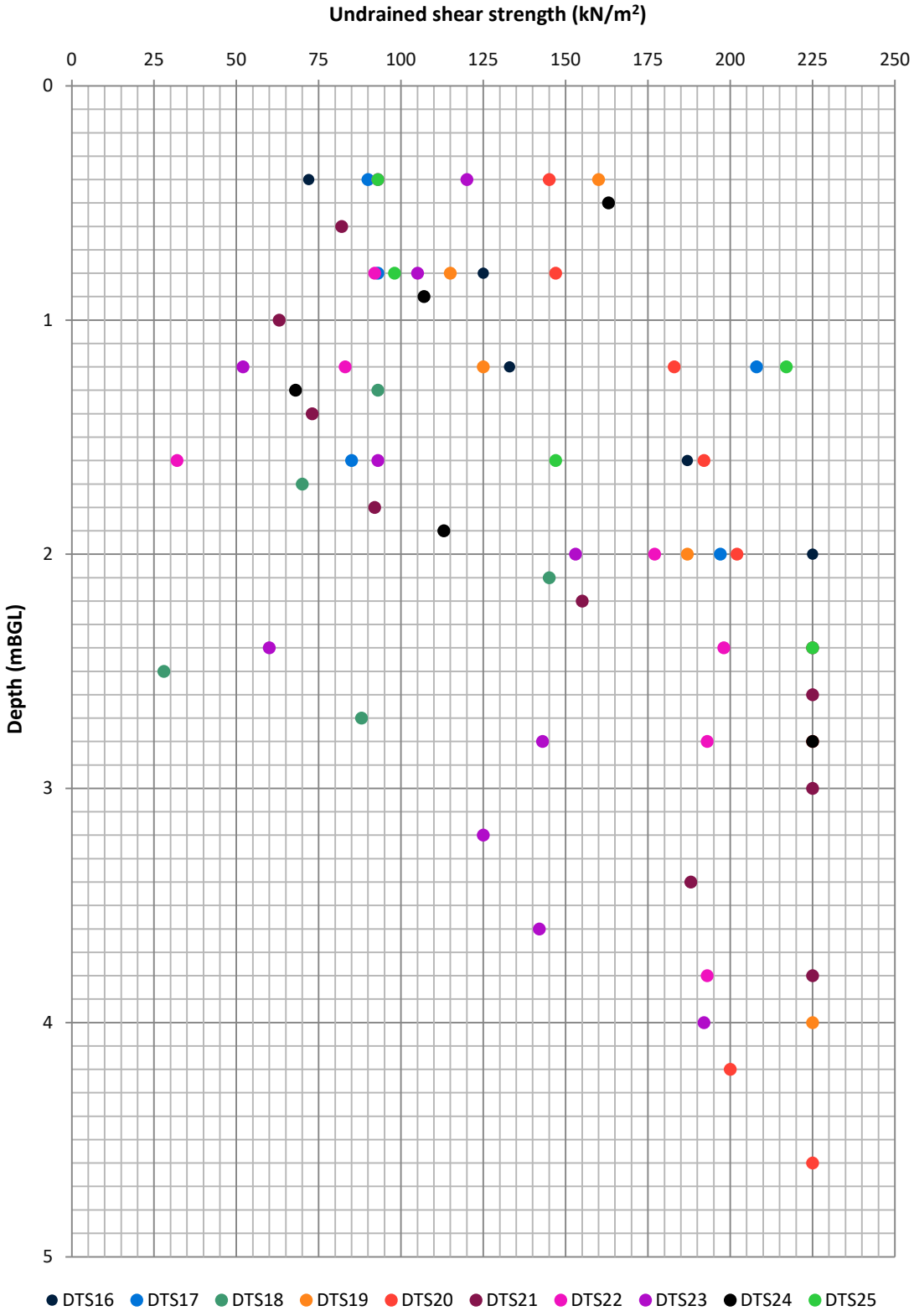
soiltechnics
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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
DTS79	3.00	3/3	4/4/6/6	6	20	150	300
DTS80	2.00	2/1	2/2/3/4	3	11	150	300
DTS80	4.00	3/4	4/5/5/6	7	20	150	300
DTS81	1.00	1/2	2/2/2/3	3	9	150	300
DTS81	3.00	2/2	3/3/4/4	4	14	150	300
DTS82	2.00	2/3	2/3/4/4	5	13	150	300
DTS83	1.00	1/0	1/0/1/2	1	4	150	300
DTS83	3.00	4/4	5/5/6/6	8	22	150	300

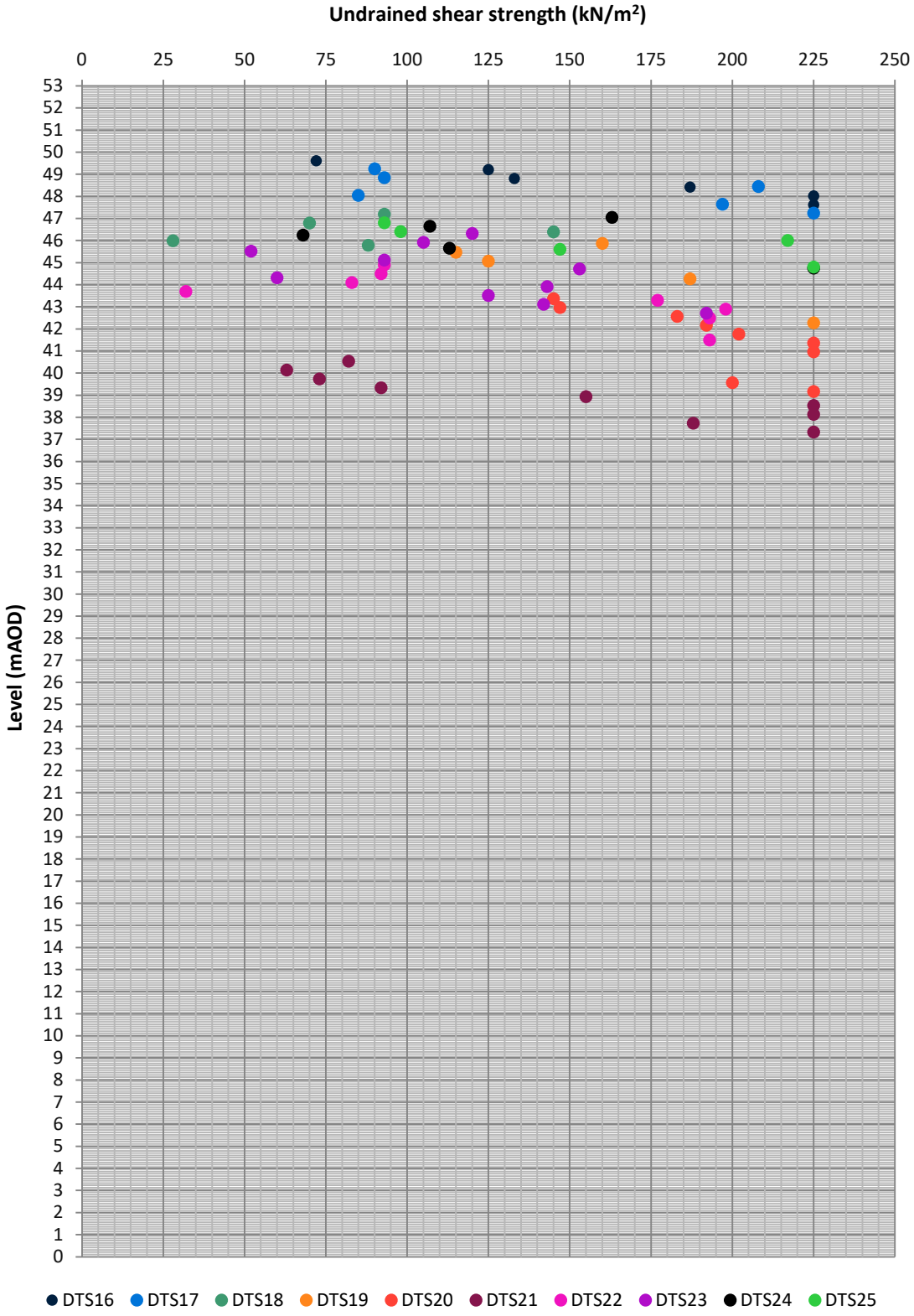
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Plot summarising Pocket Penetrometer results versus depth filtered by location



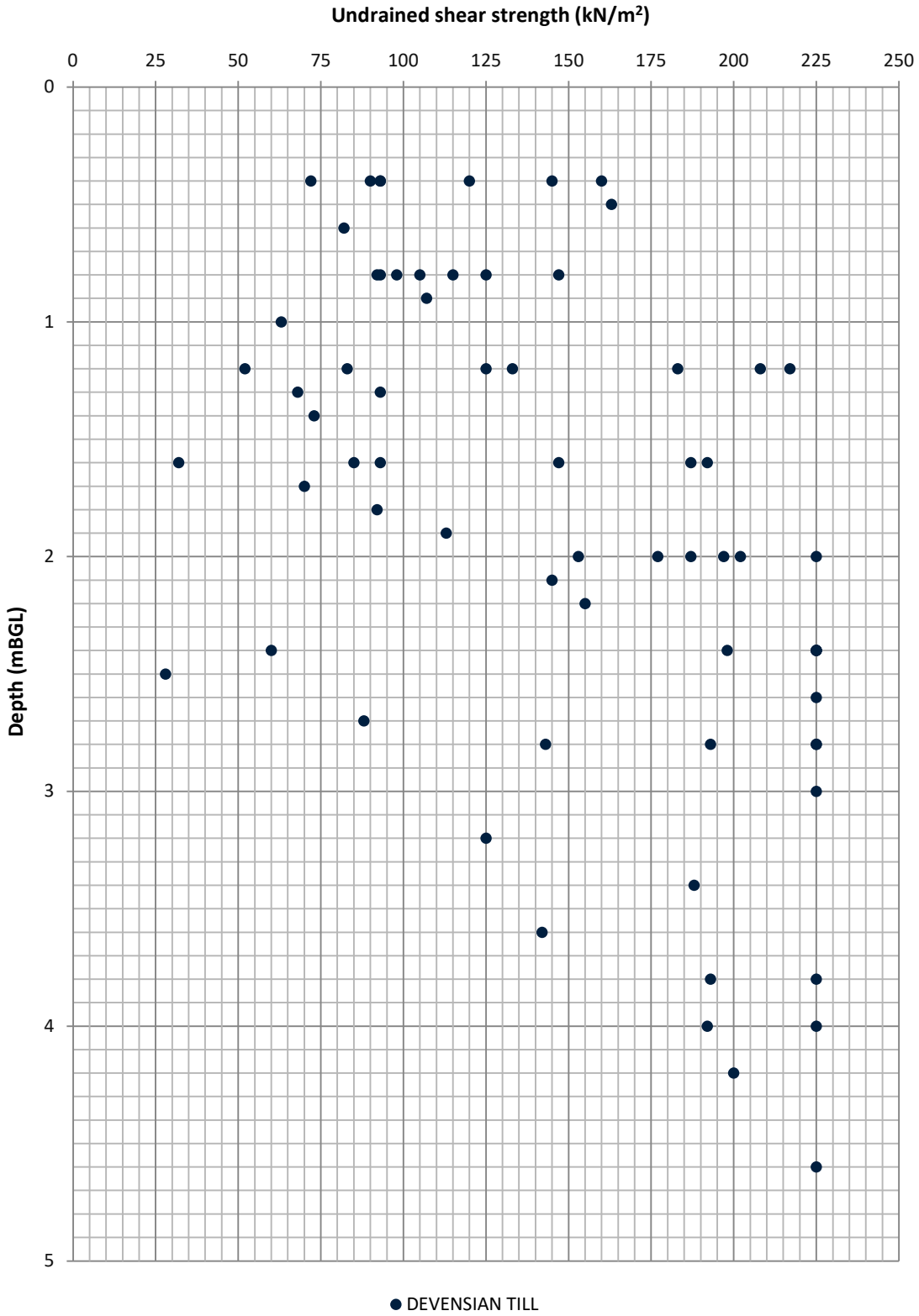
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Plot summarising Pocket Penetrometer results versus level filtered by location



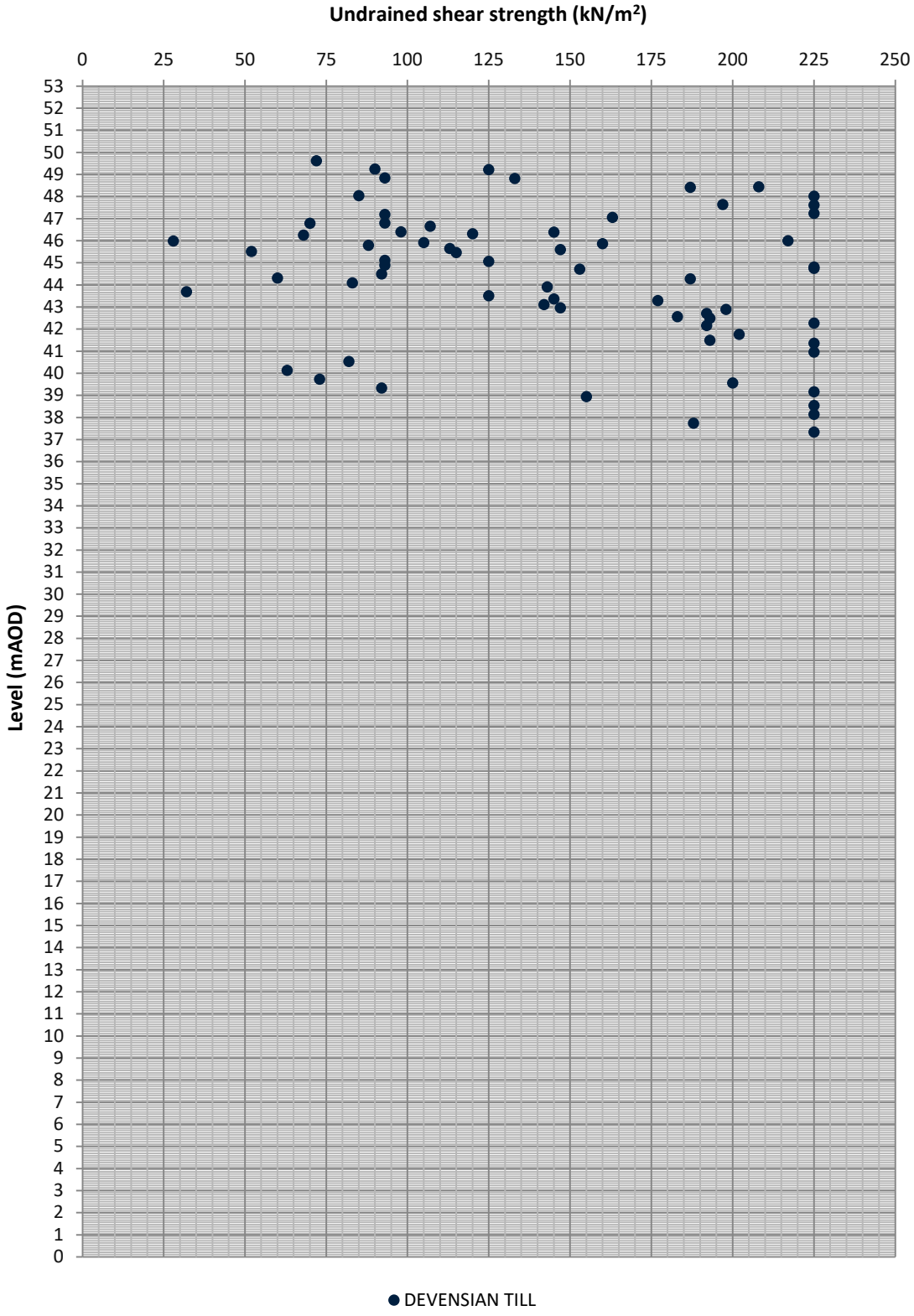
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



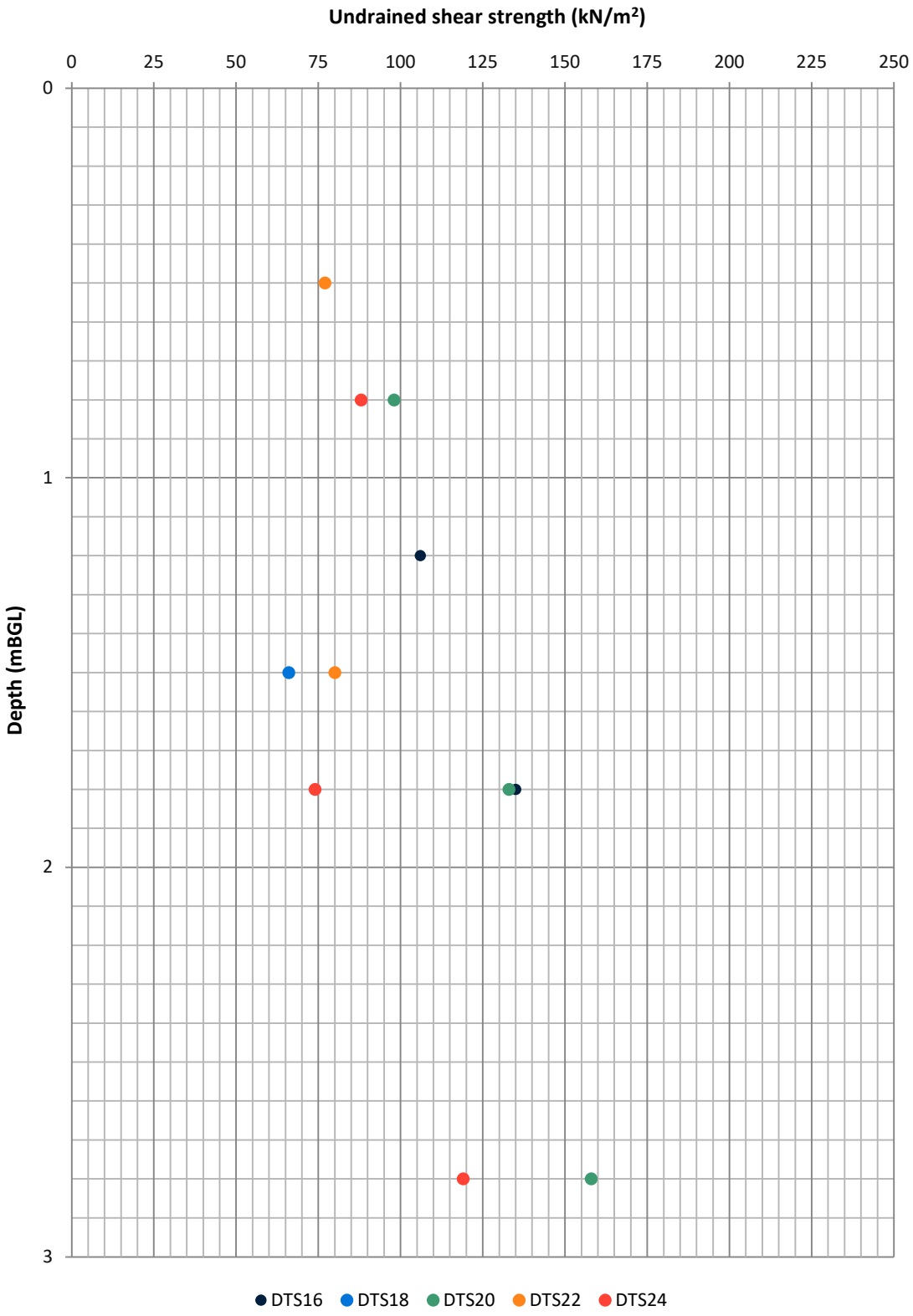
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Plot summarising Pocket Penetrometer results versus level filtered by geology



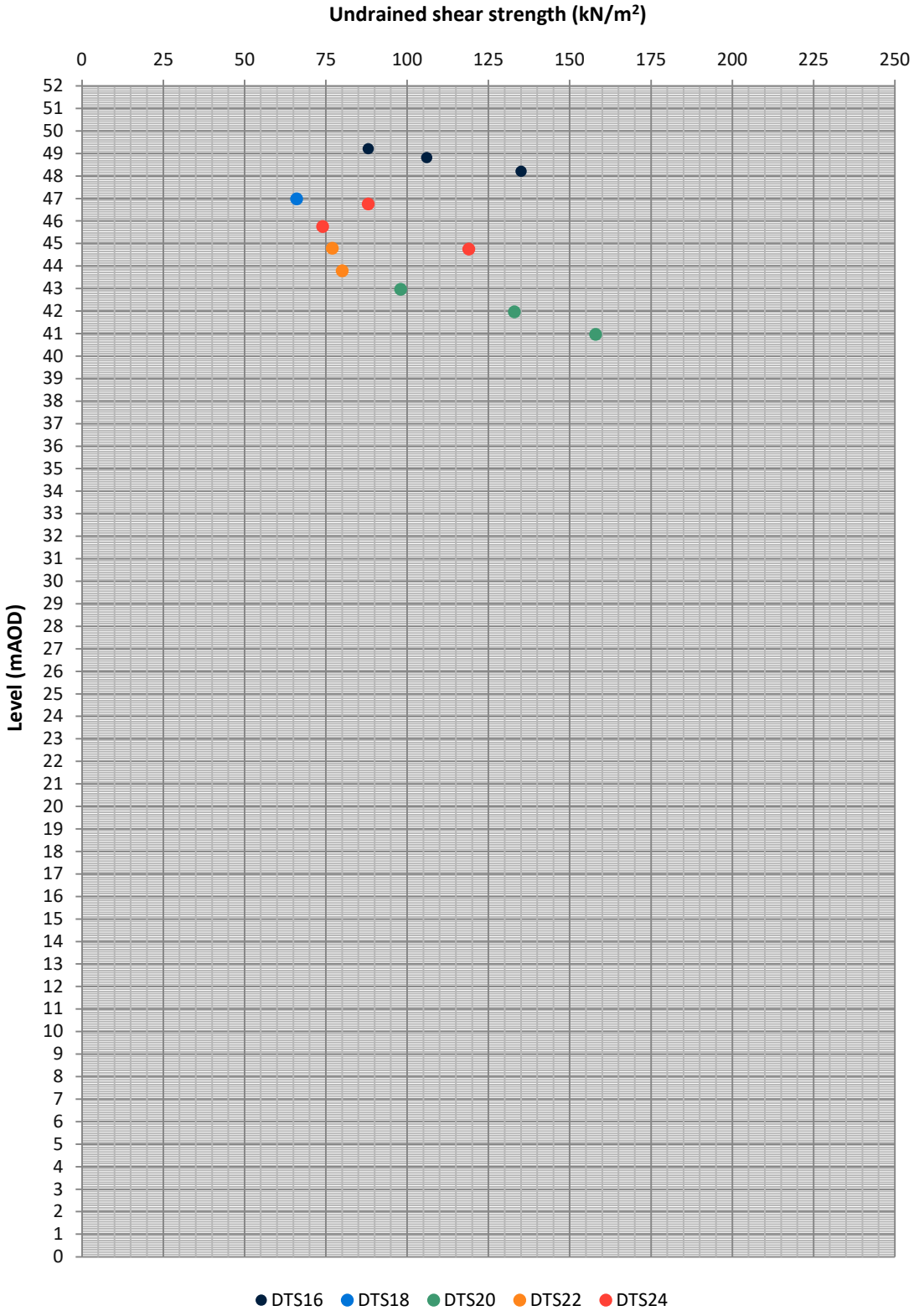
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Plot summarising Shear Vane results versus depth filtered by location



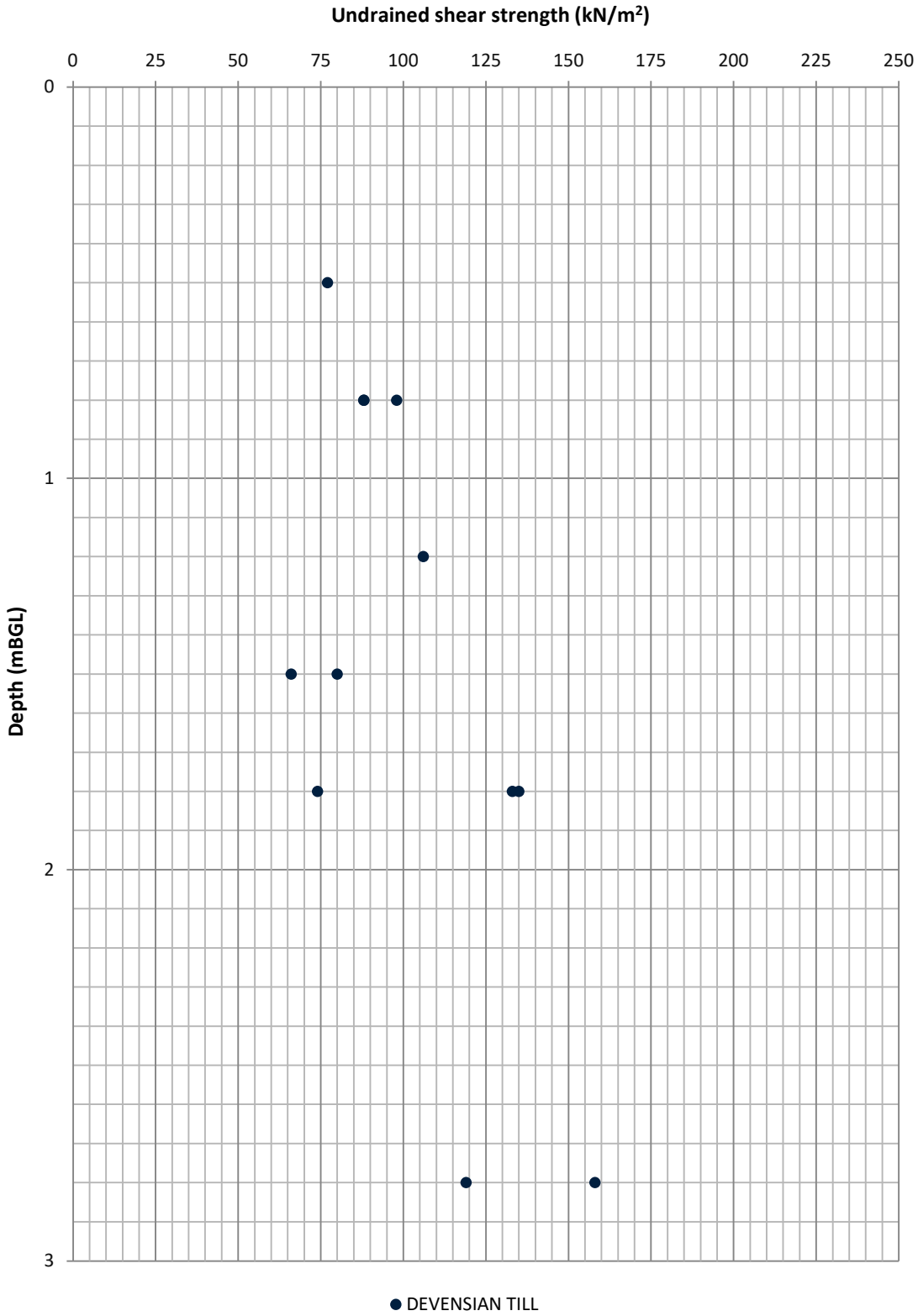
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Plot summarising Shear Vane results versus level filtered by location



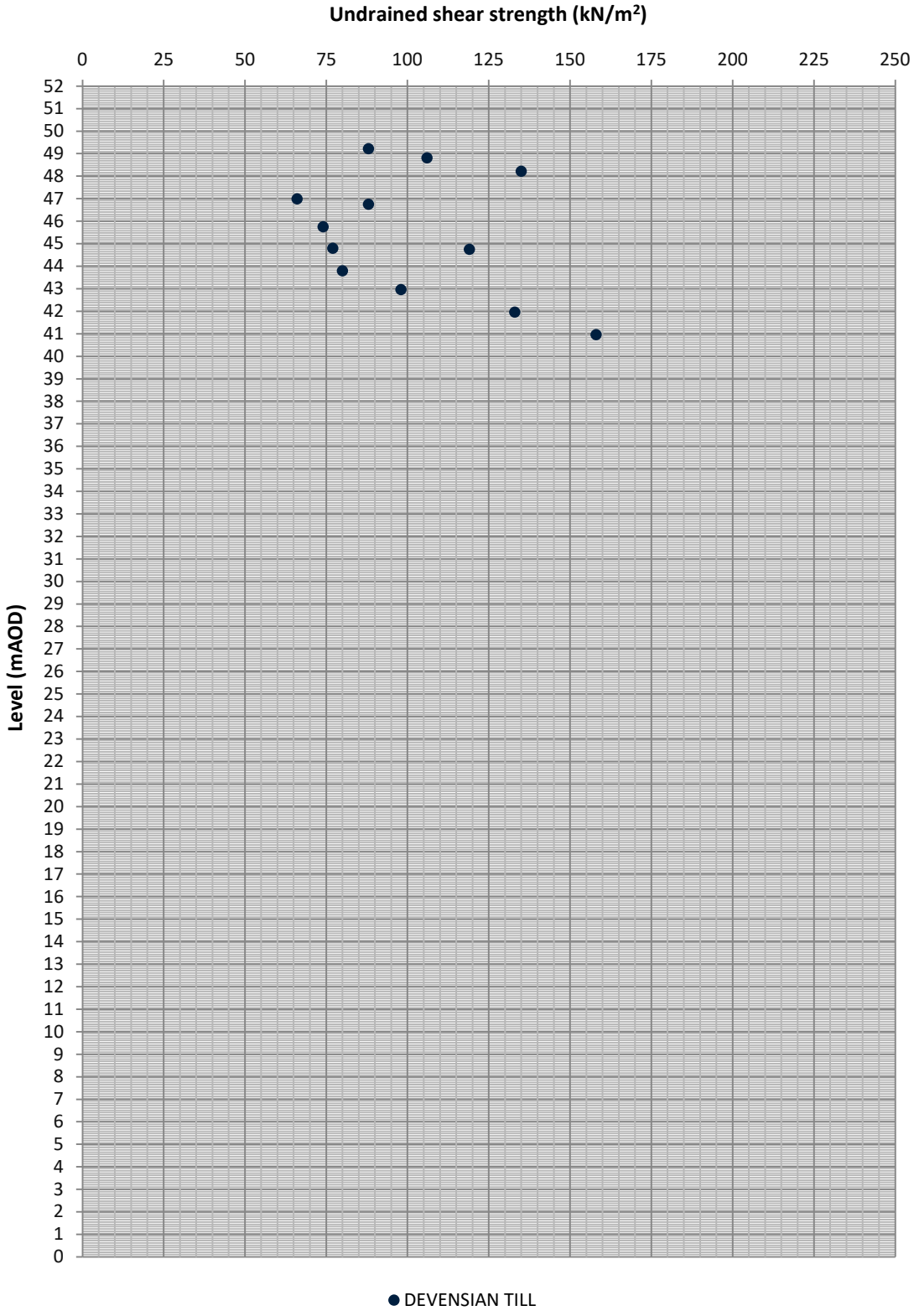
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Plot summarising Shear Vane results versus depth filtered by geology



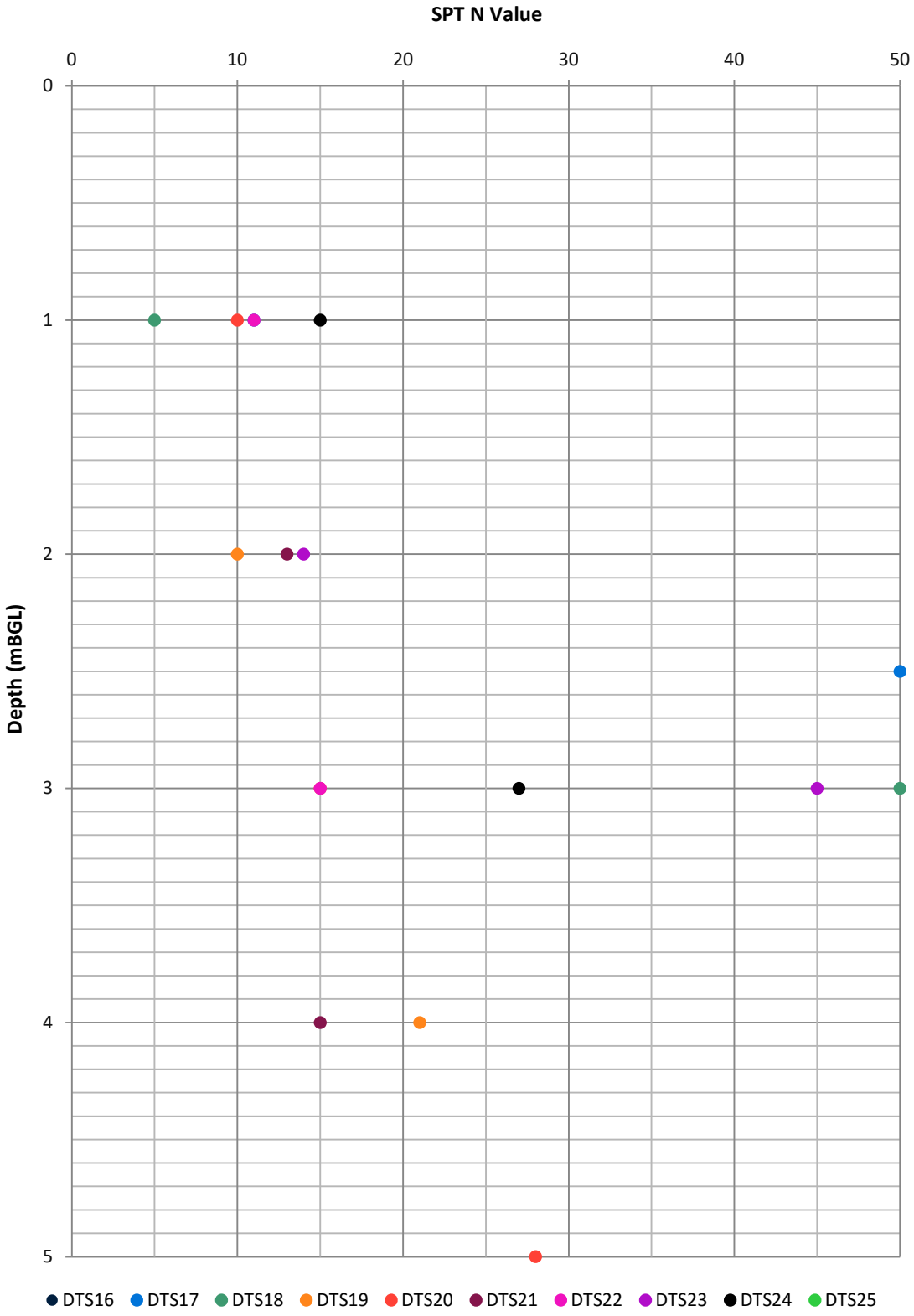
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Plot summarising Shear Vane results versus level filtered by geology



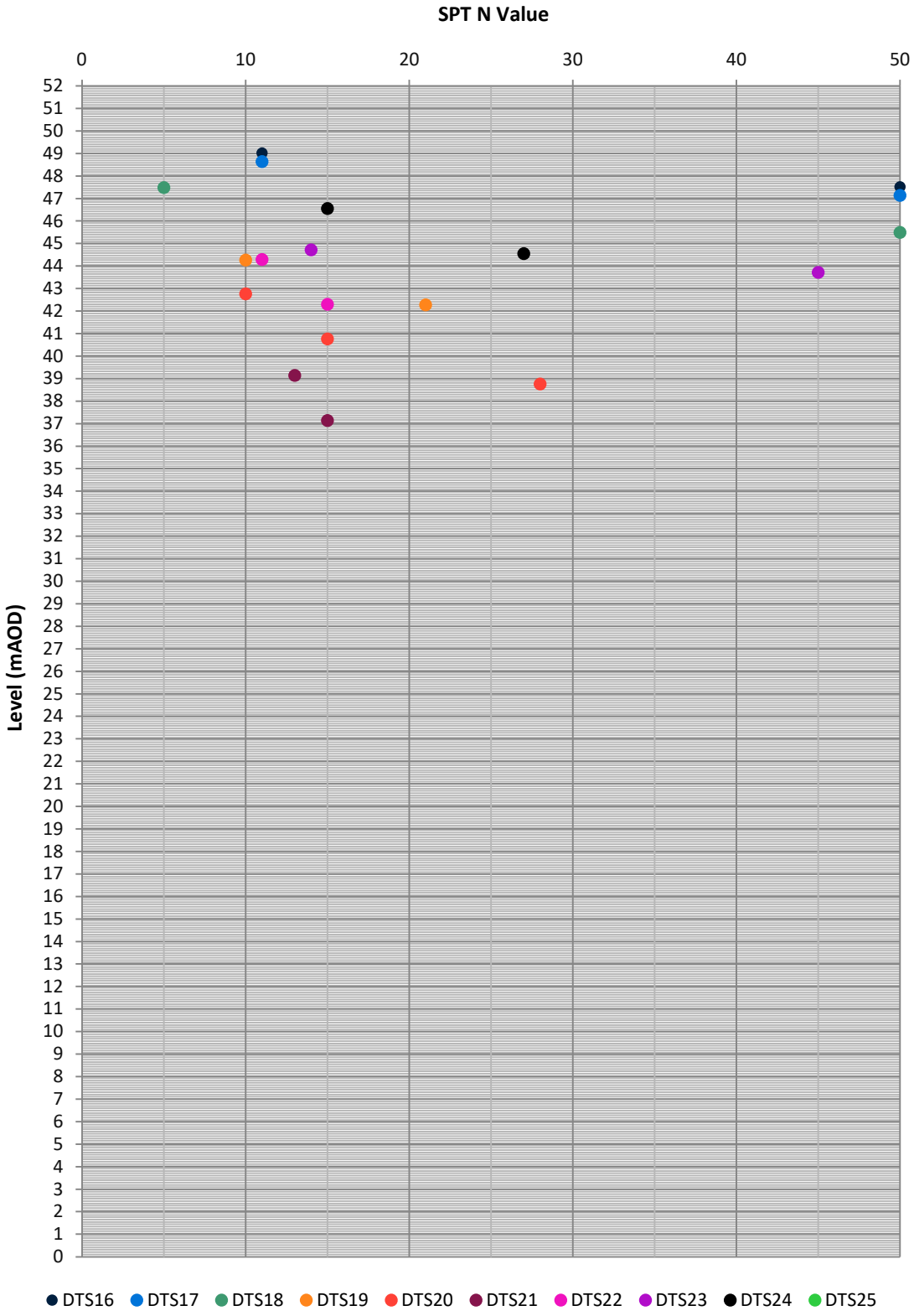
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



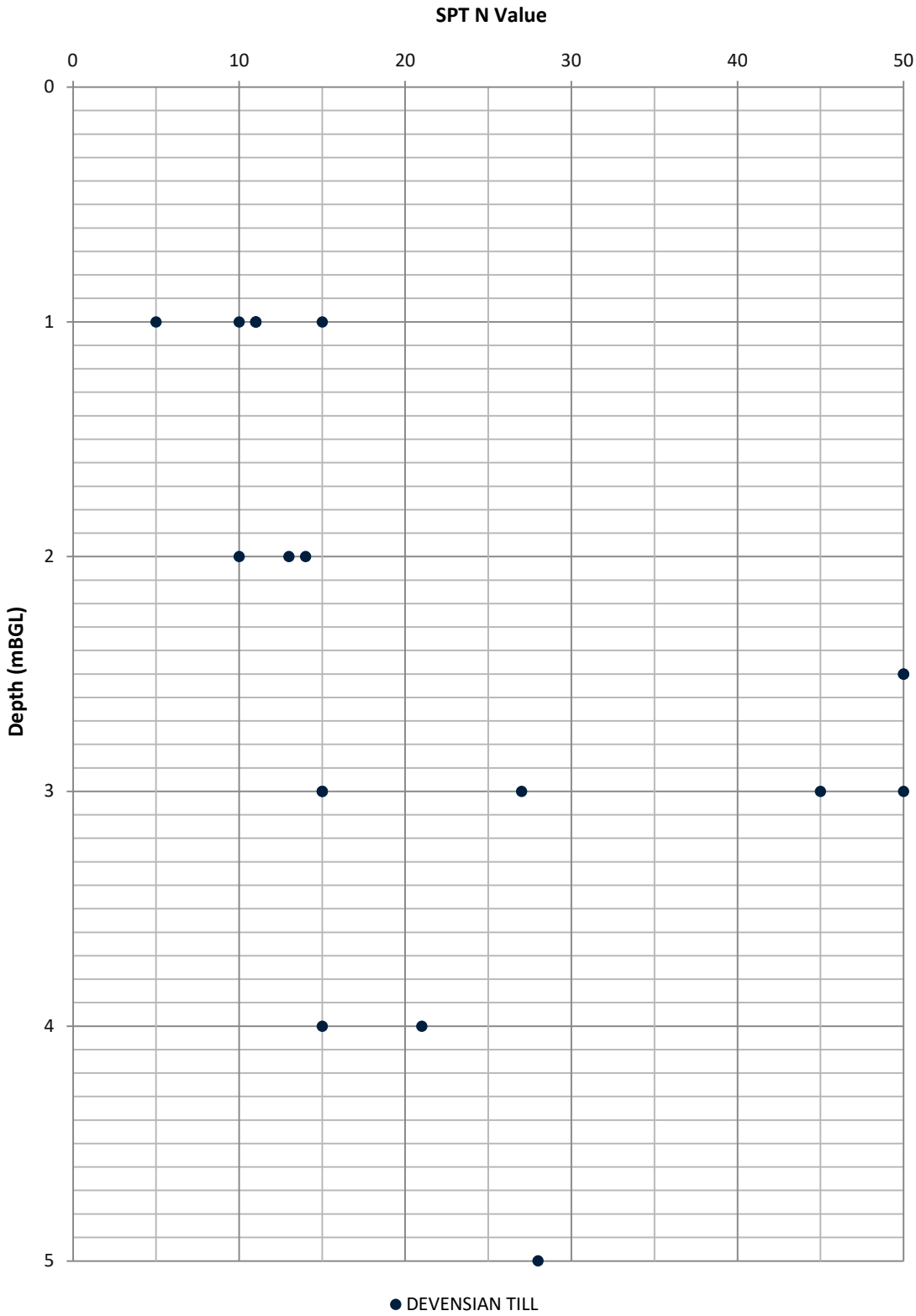
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



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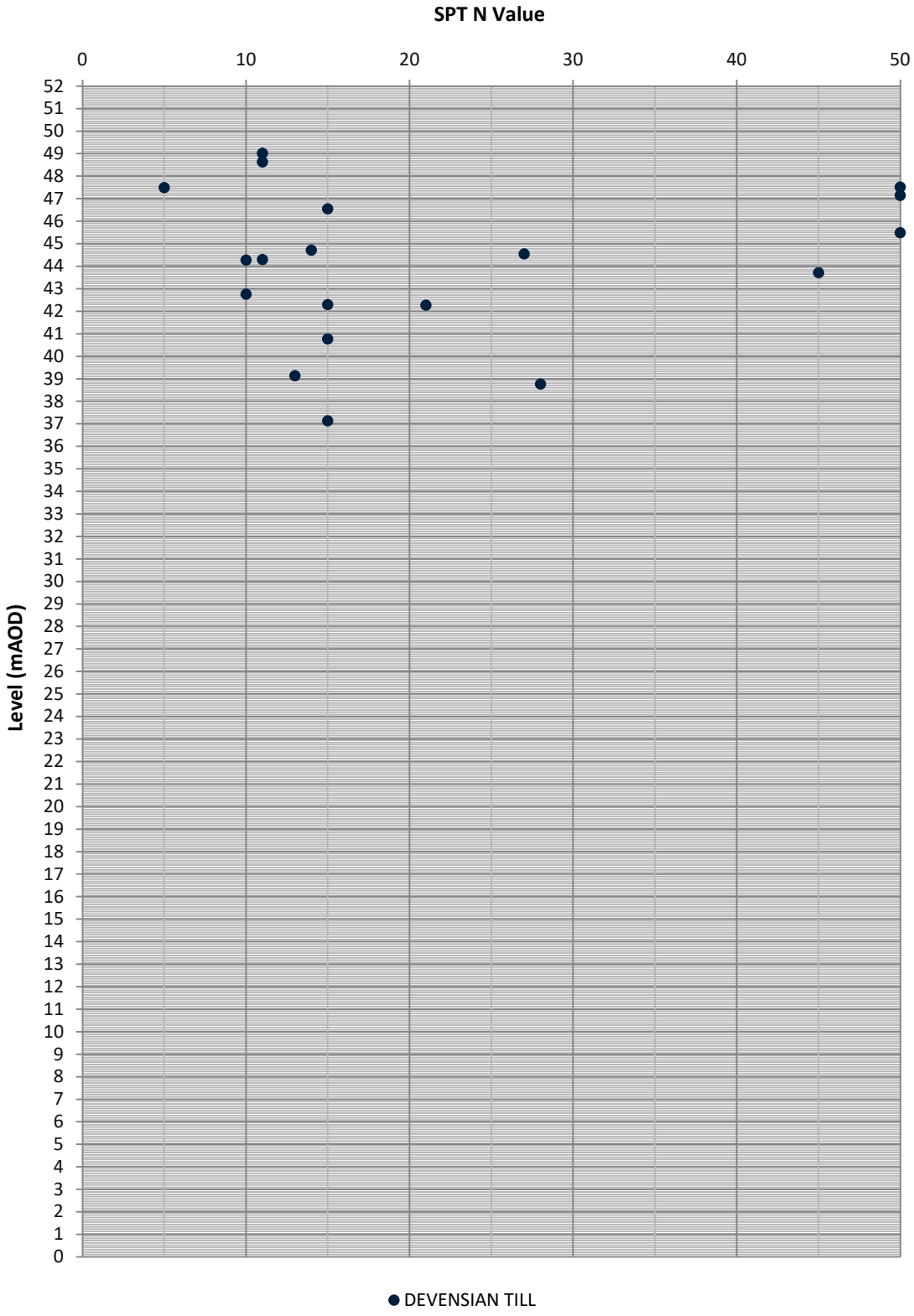
Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



Created: 31/10/2022

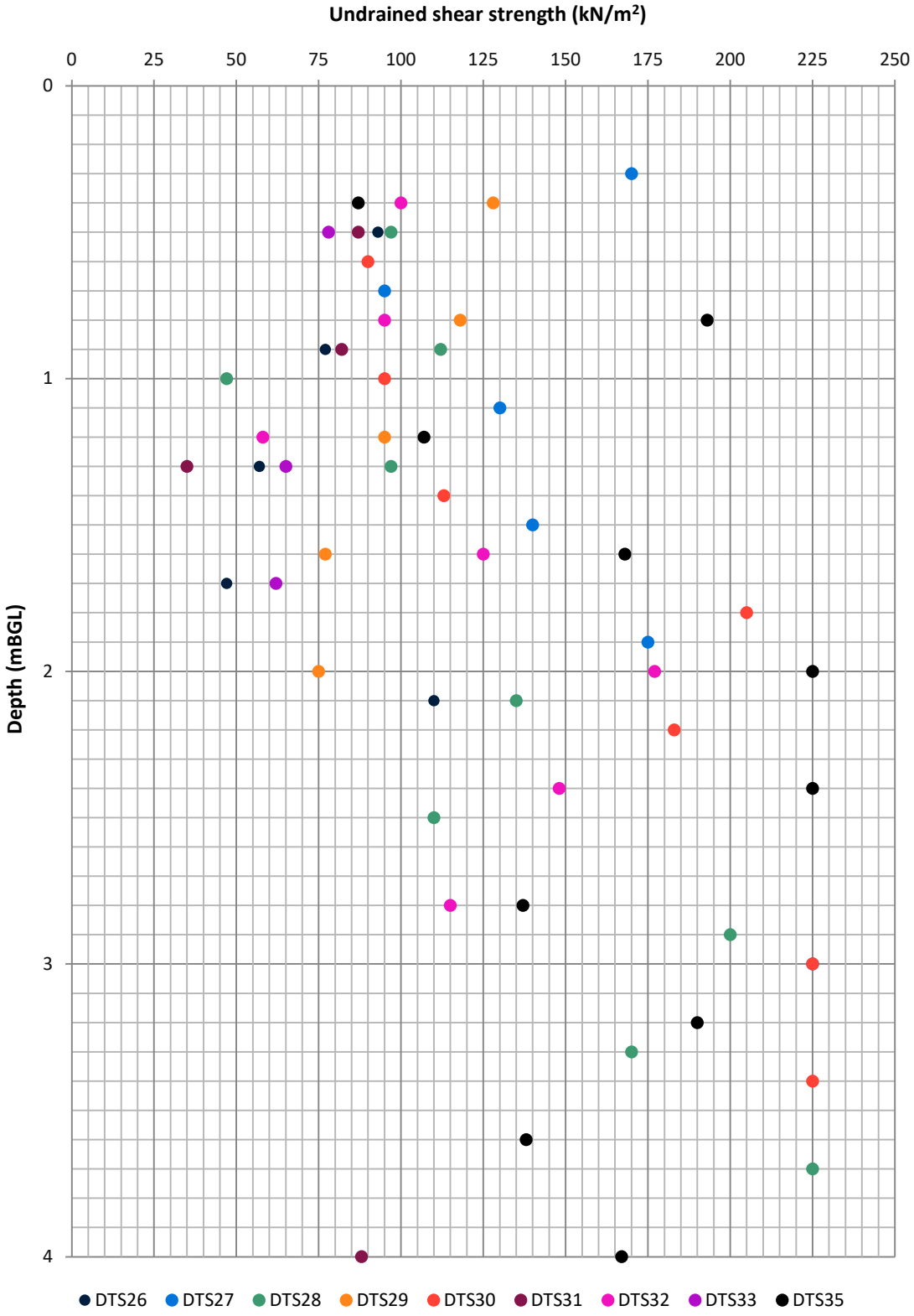
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



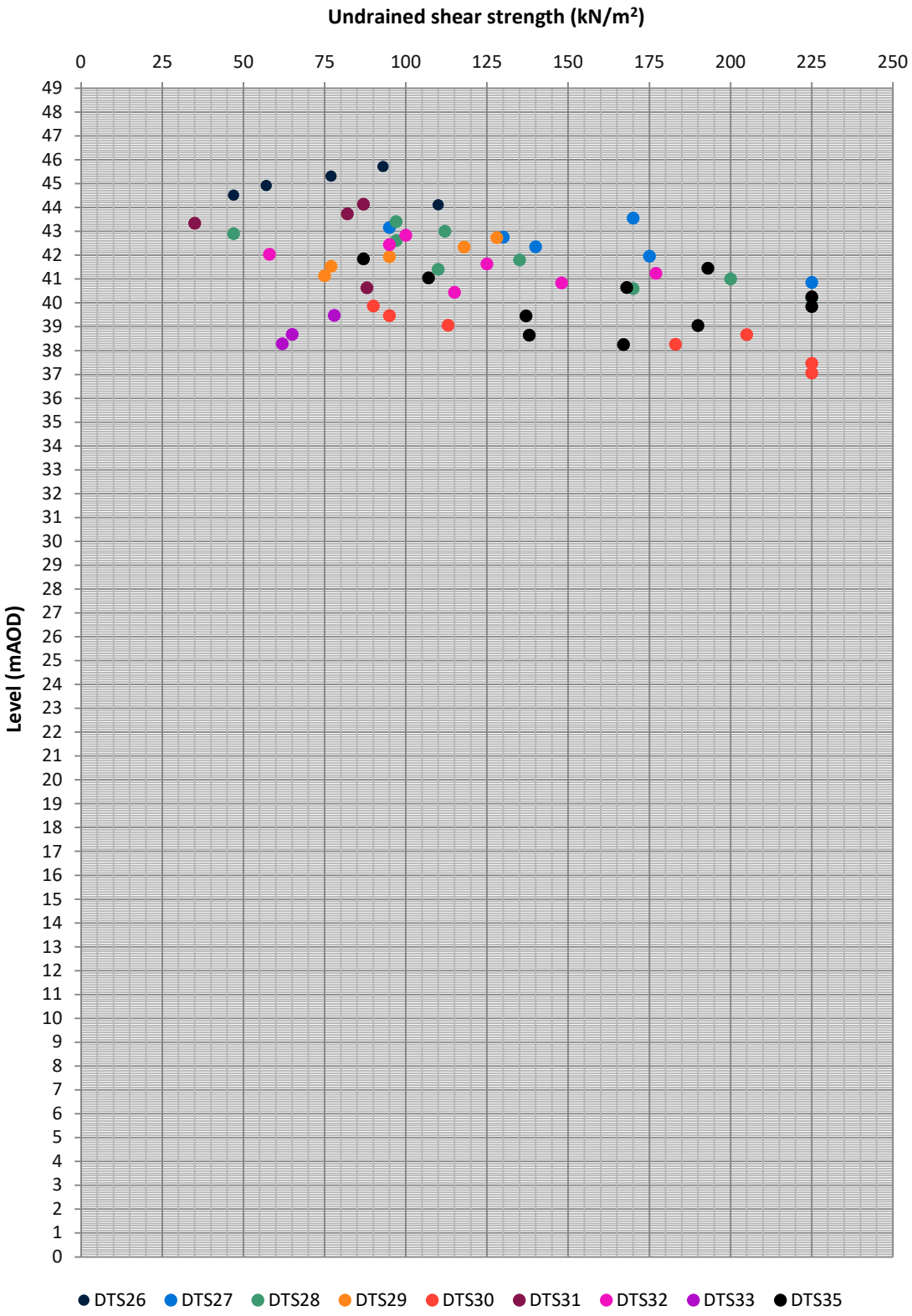
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Plot summarising Pocket Penetrometer results versus depth filtered by location



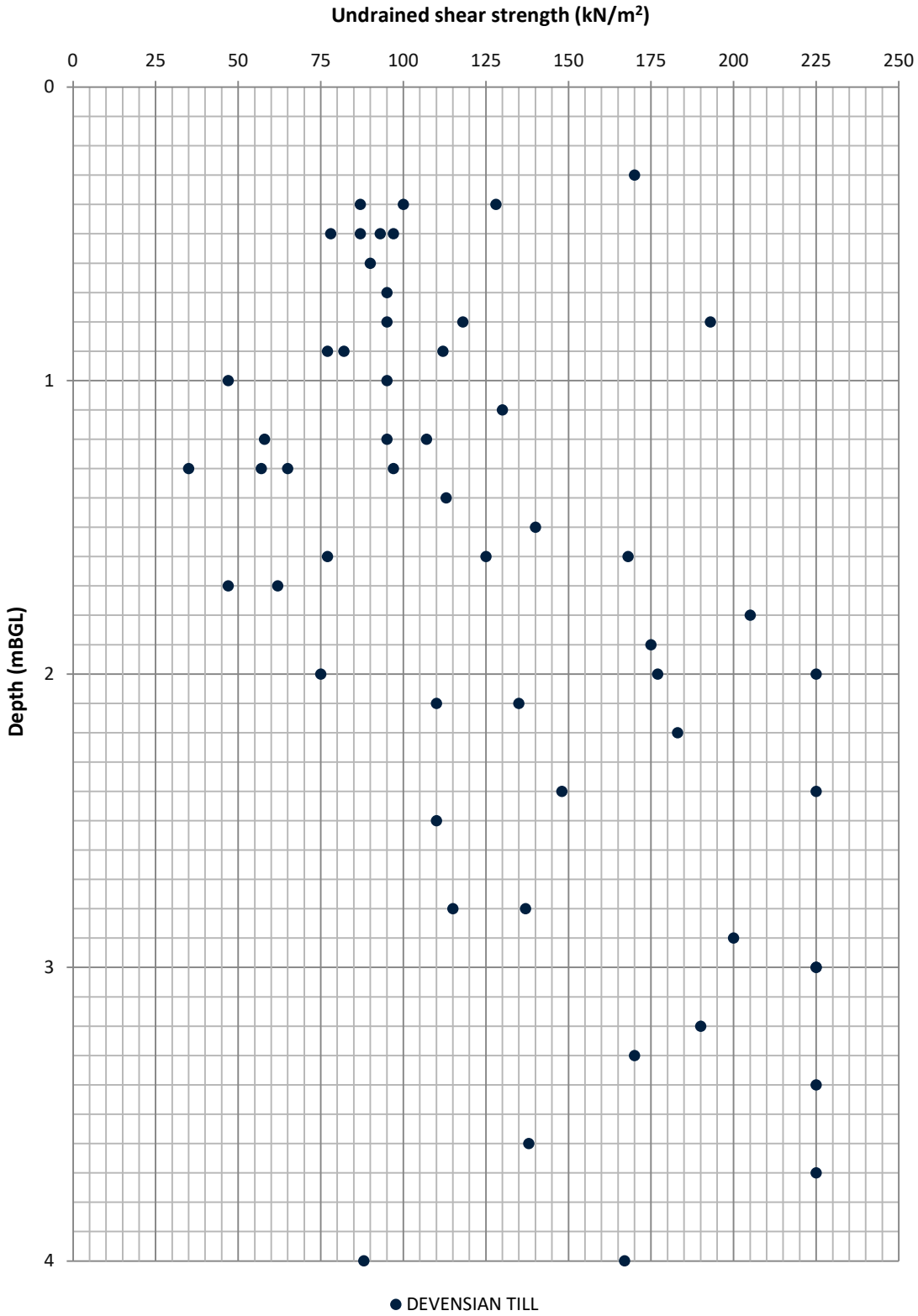
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Plot summarising Pocket Penetrometer results versus level filtered by location



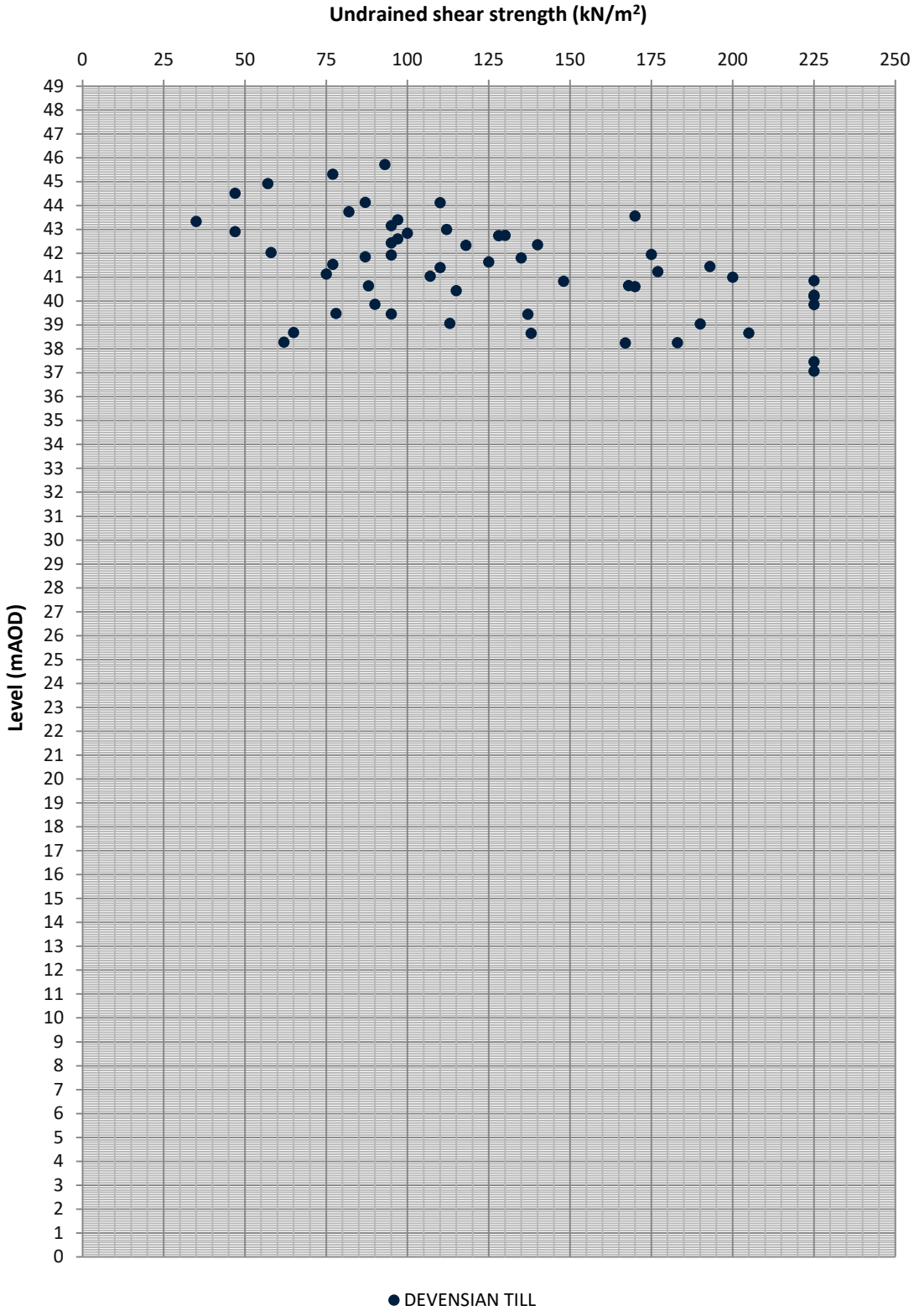
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



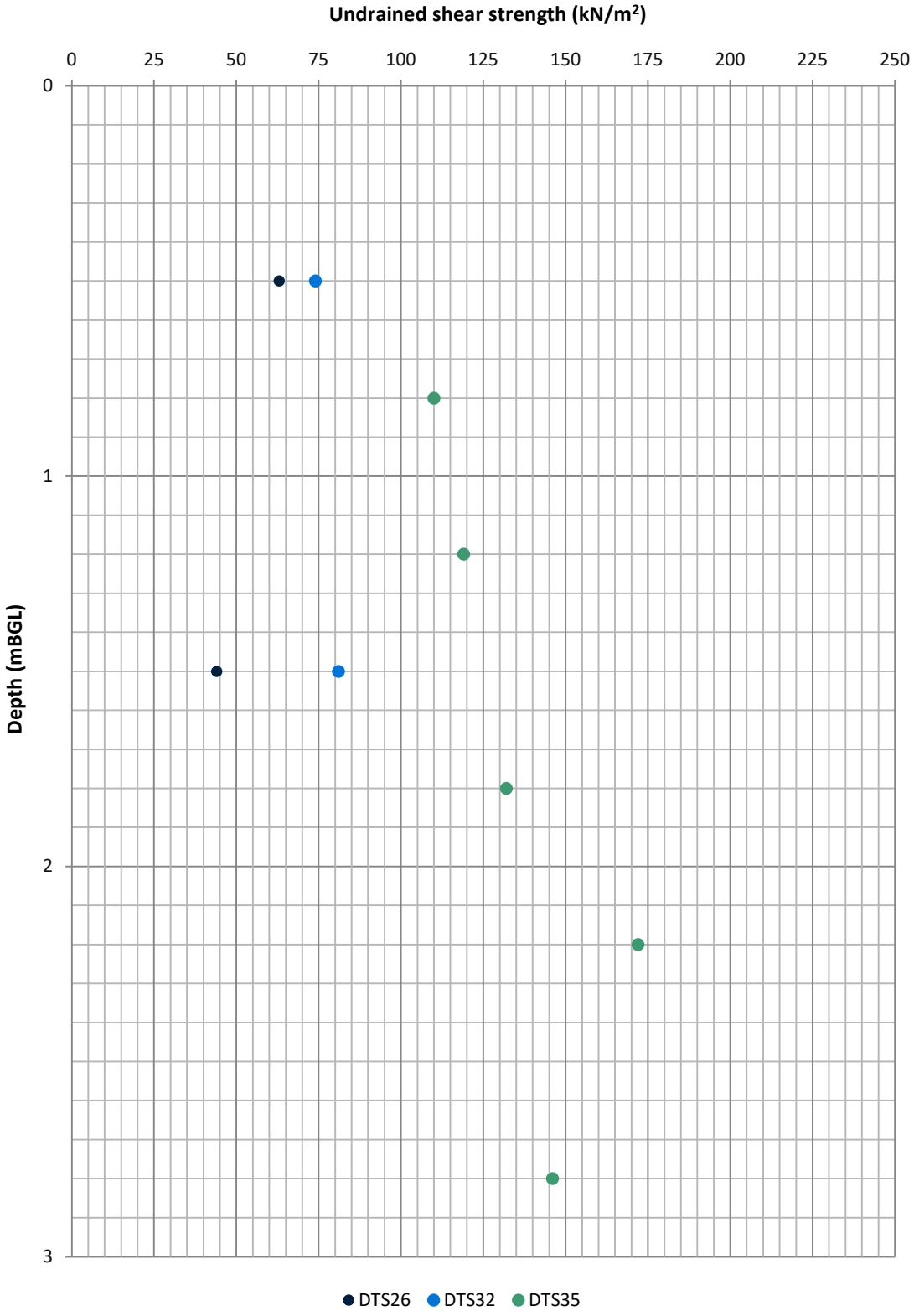
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Plot summarising Pocket Penetrometer results versus level filtered by geology



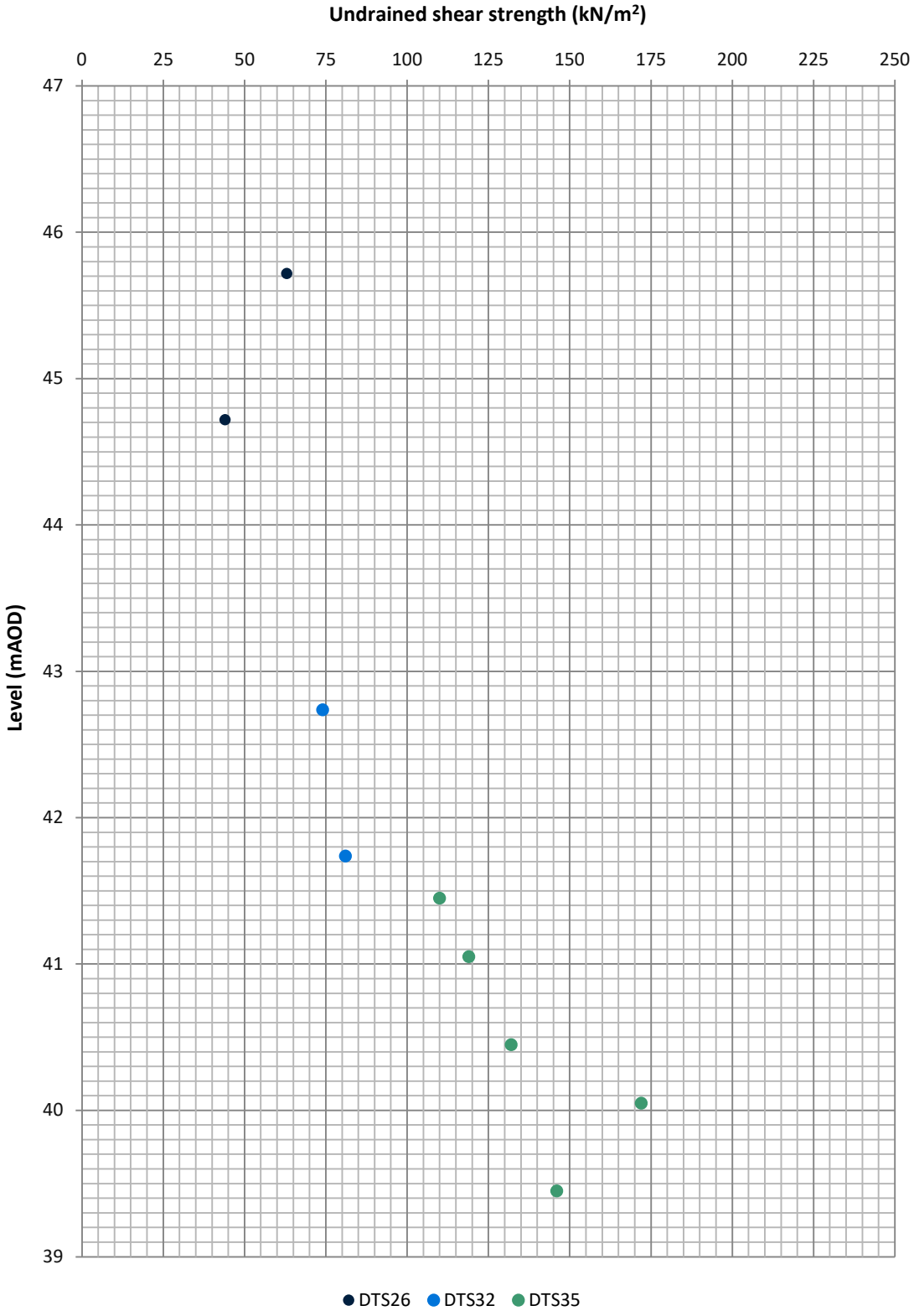
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Plot summarising Shear Vane results versus depth filtered by location



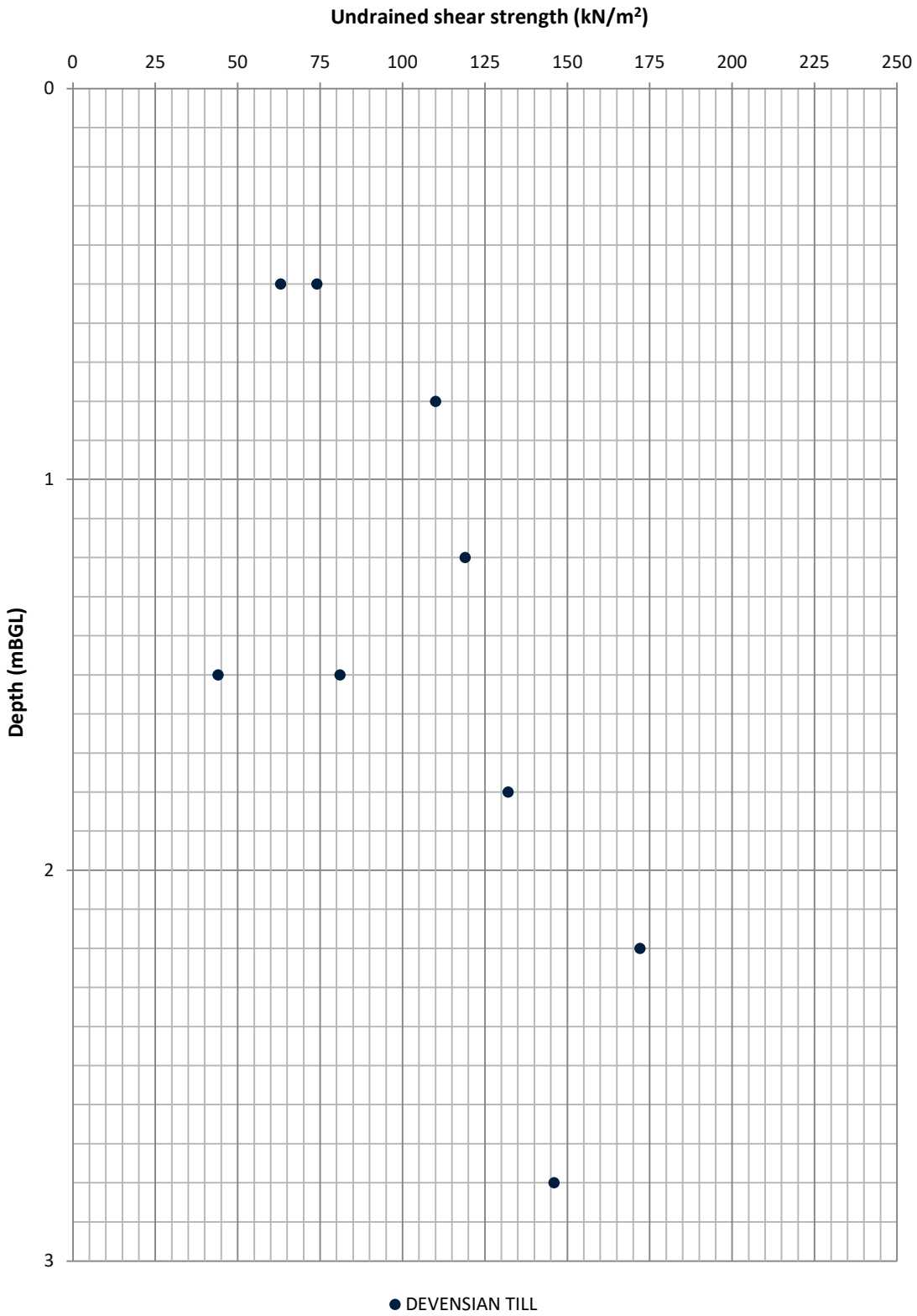
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Plot summarising Shear Vane results versus level filtered by location



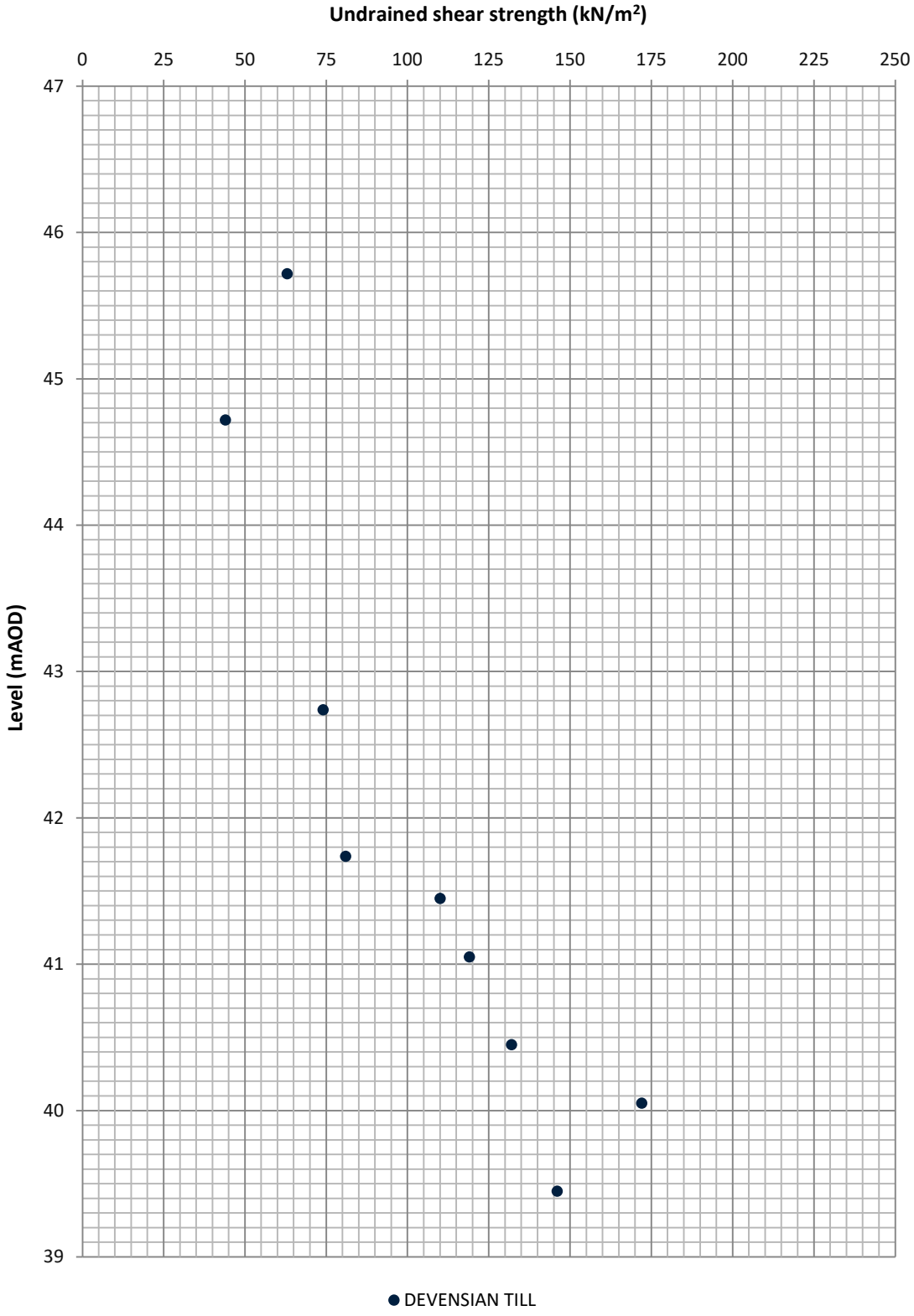
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Plot summarising Shear Vane results versus depth filtered by geology



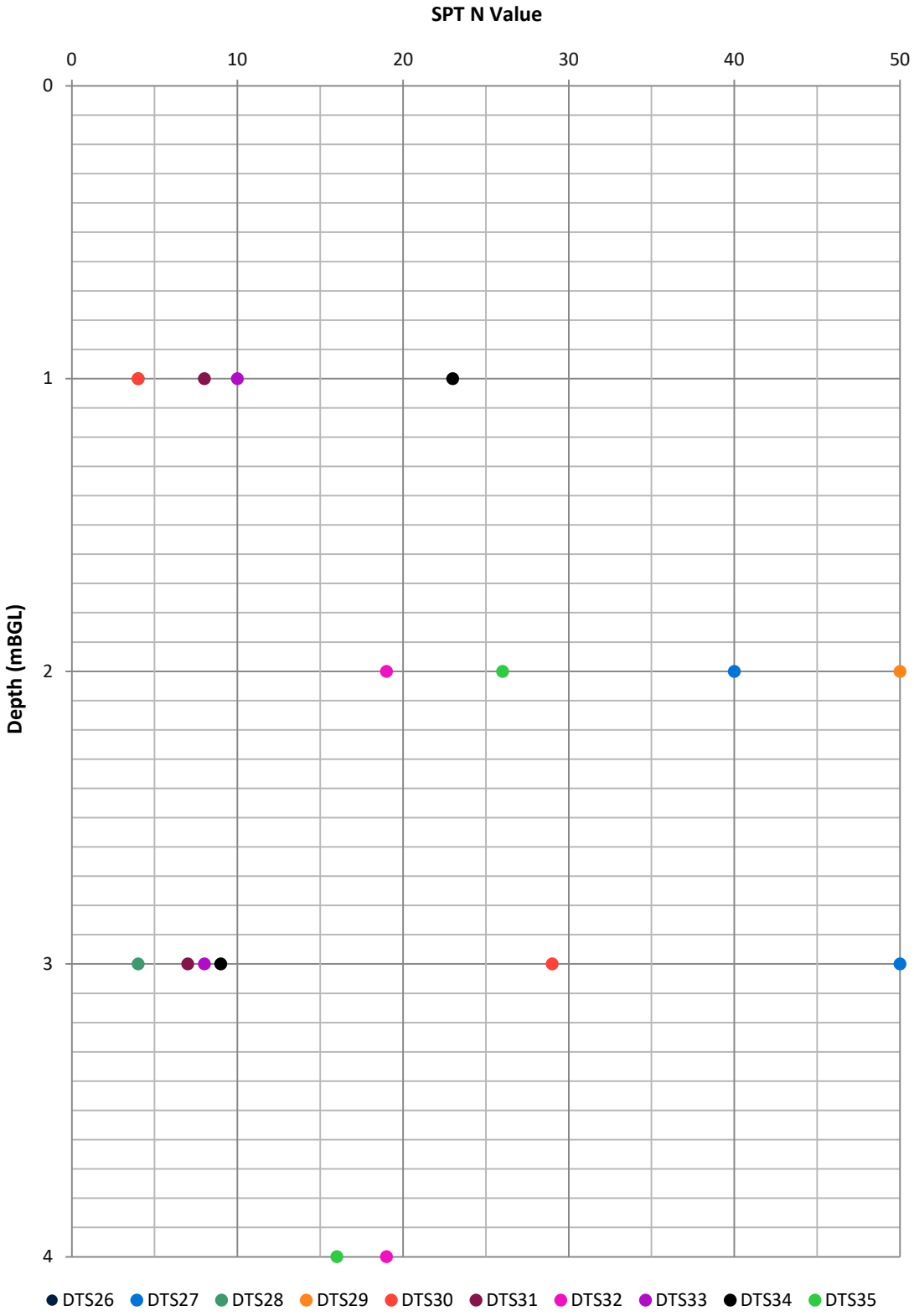
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Plot summarising Shear Vane results versus level filtered by geology



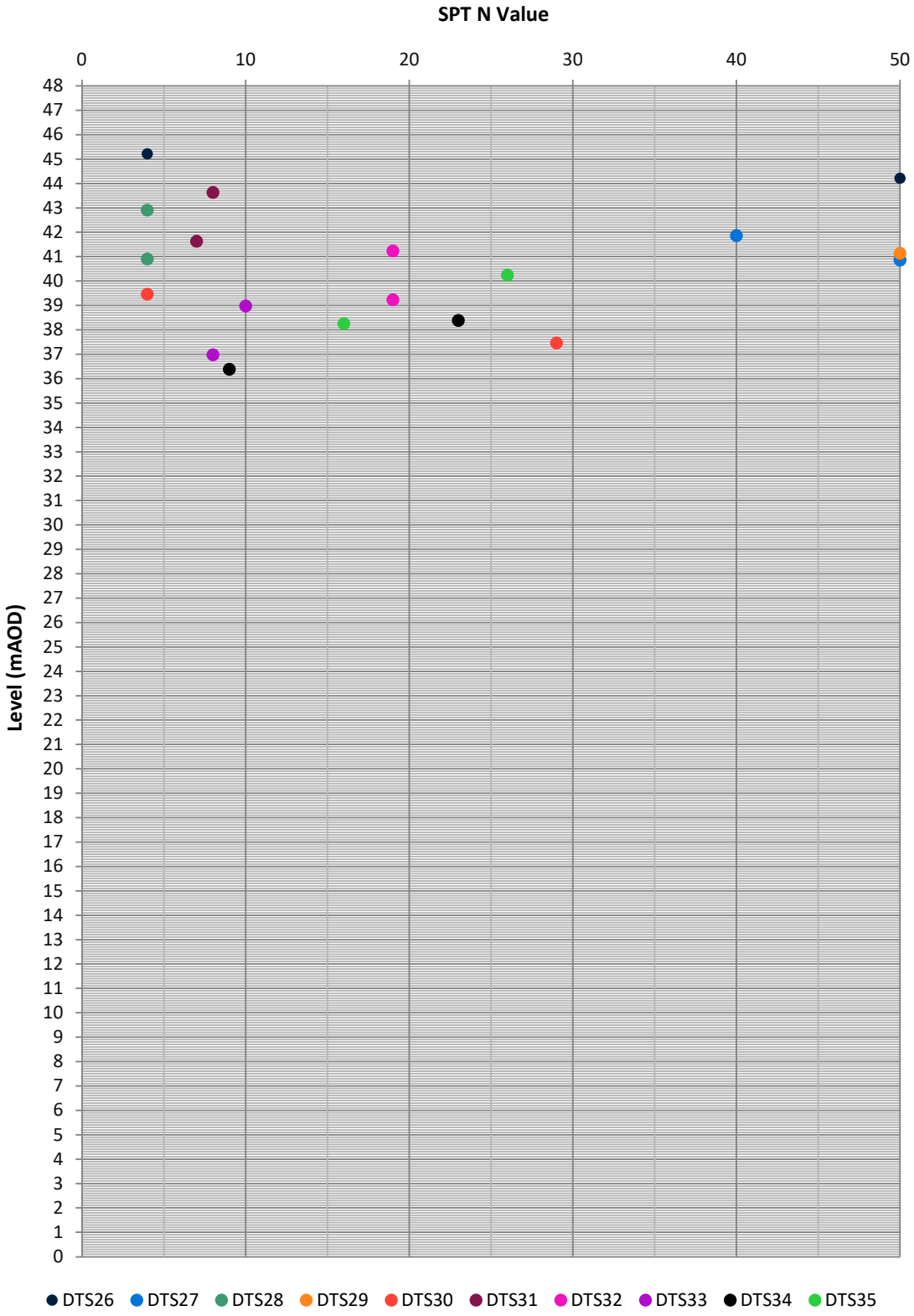
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



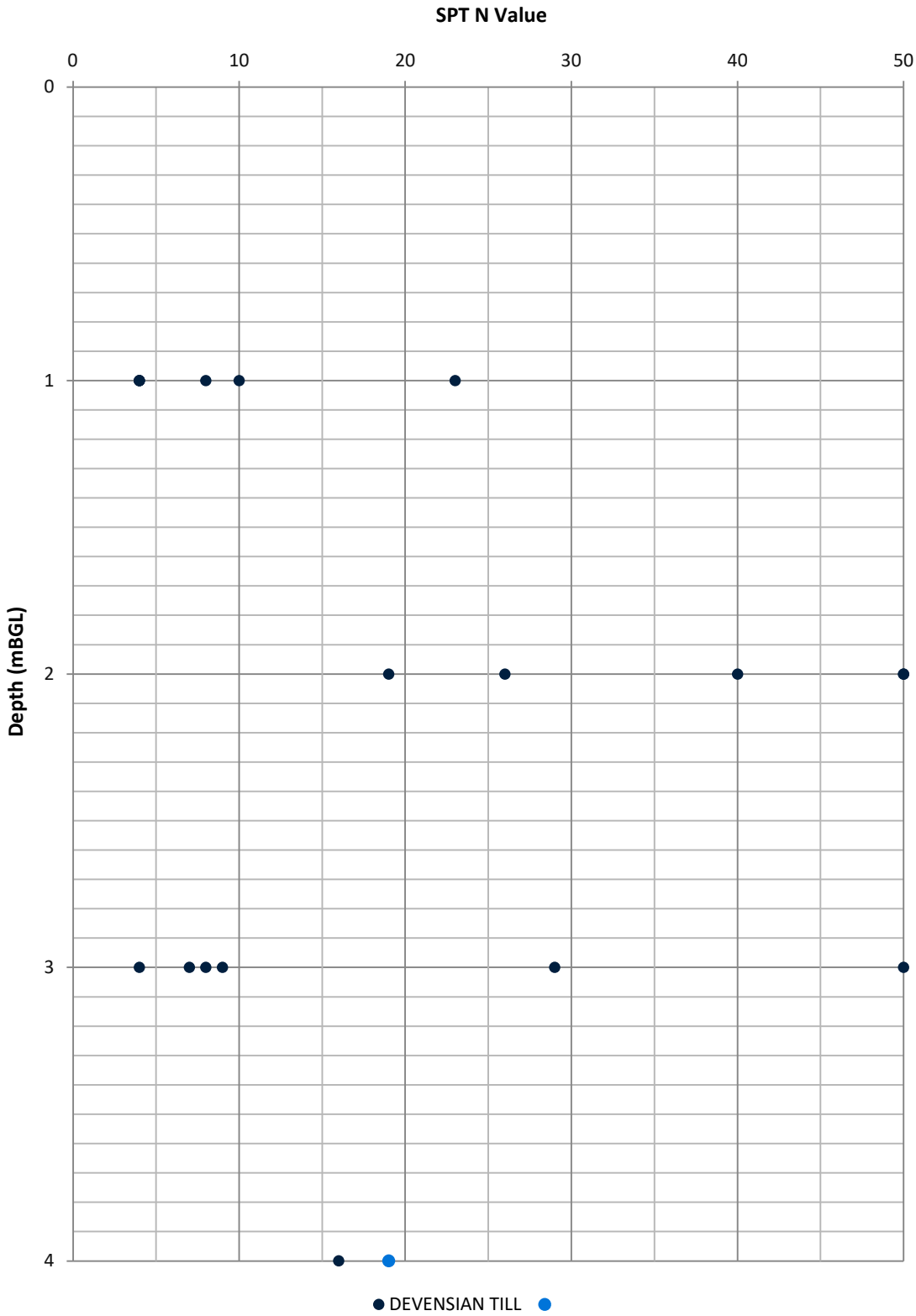
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



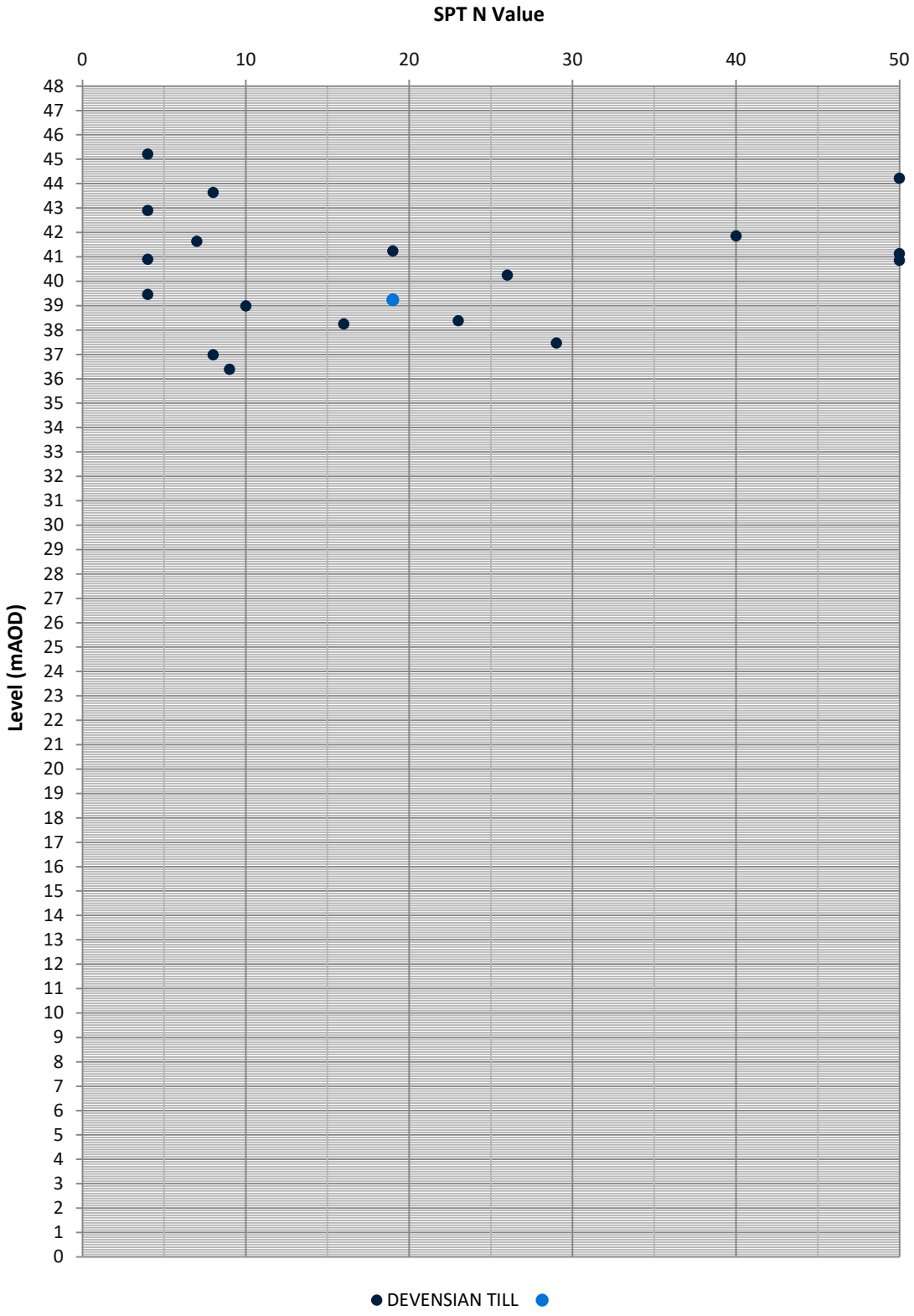
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



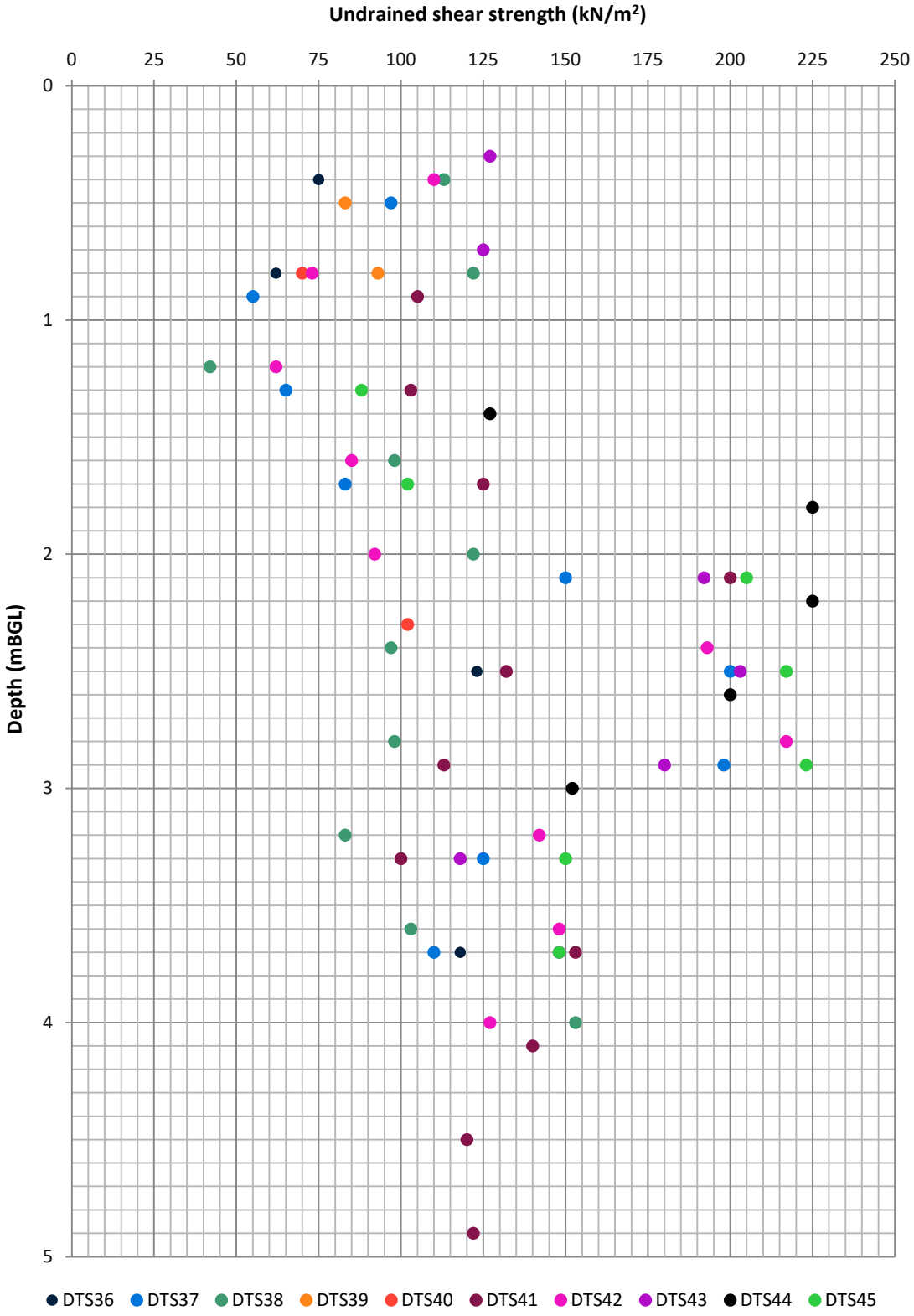
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



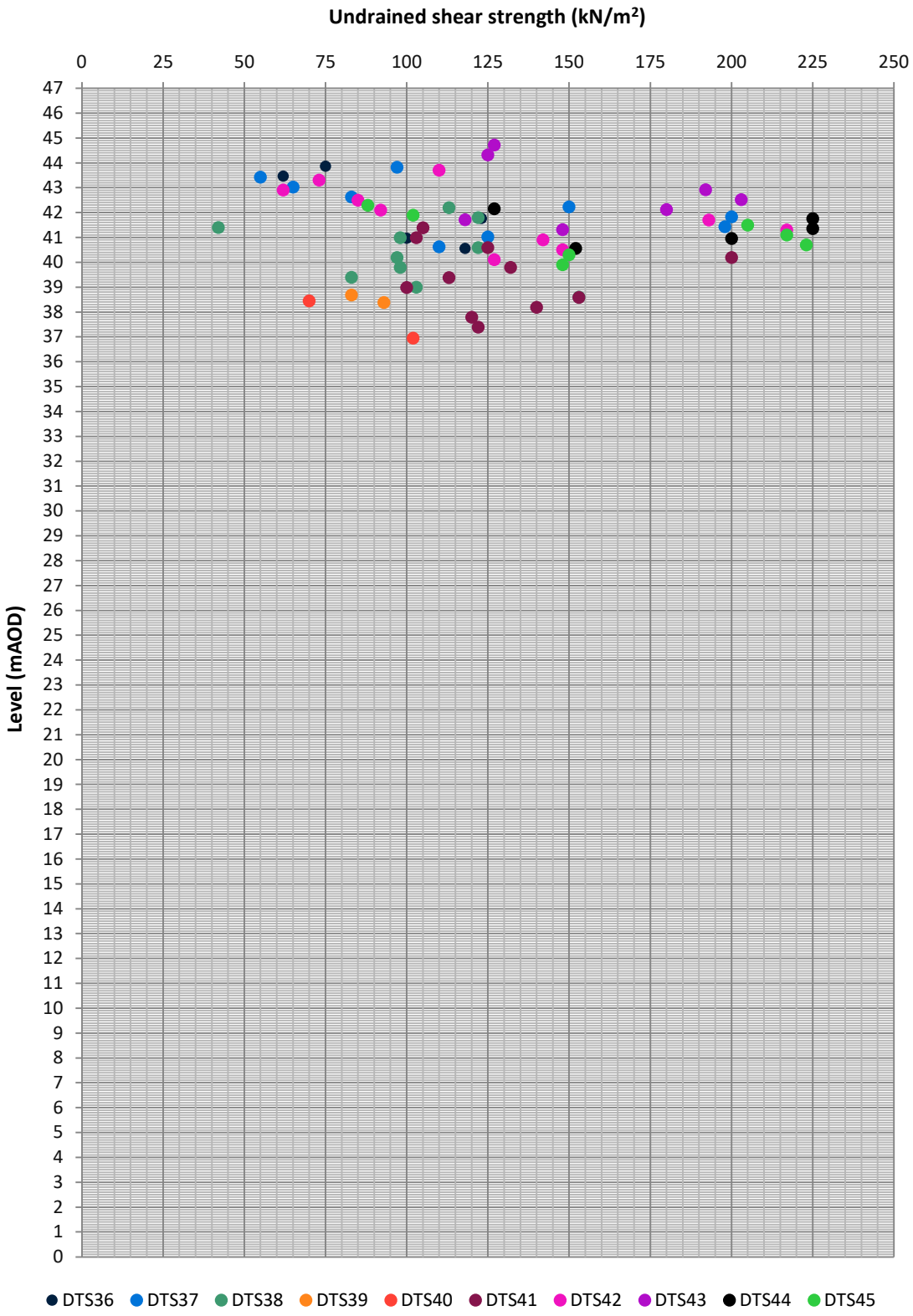
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Plot summarising Pocket Penetrometer results versus depth filtered by location



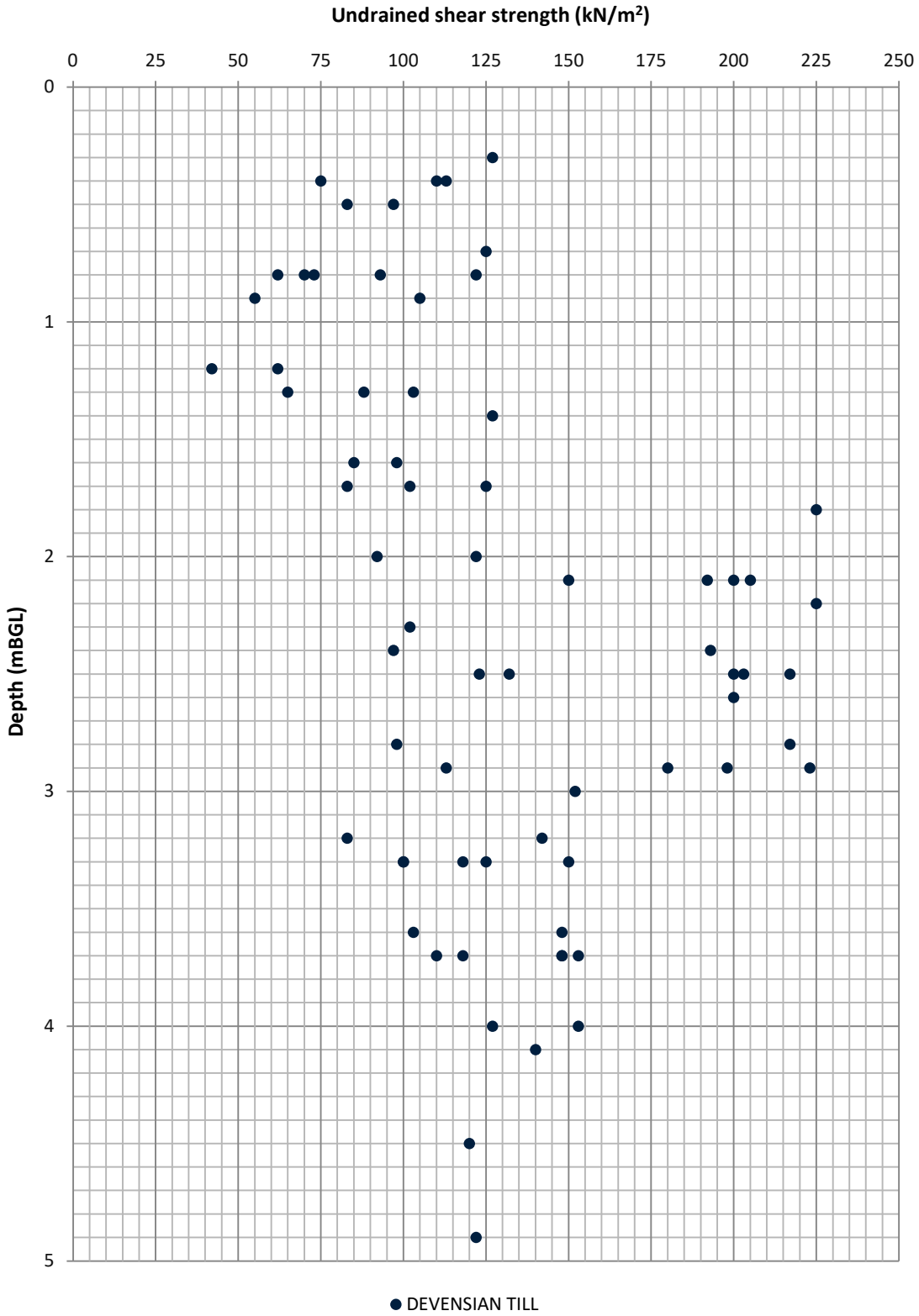
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Plot summarising Pocket Penetrometer results versus level filtered by location



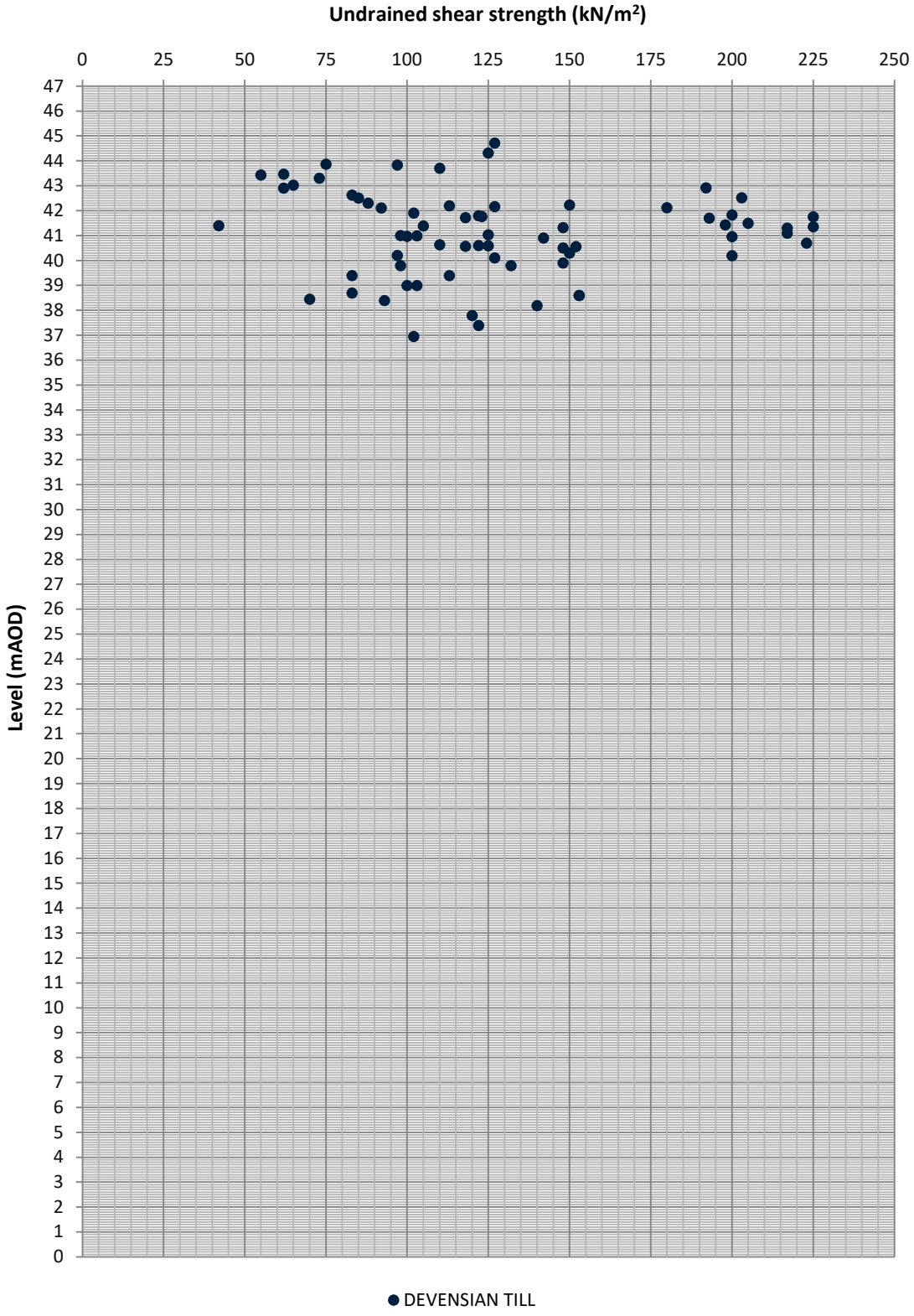
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



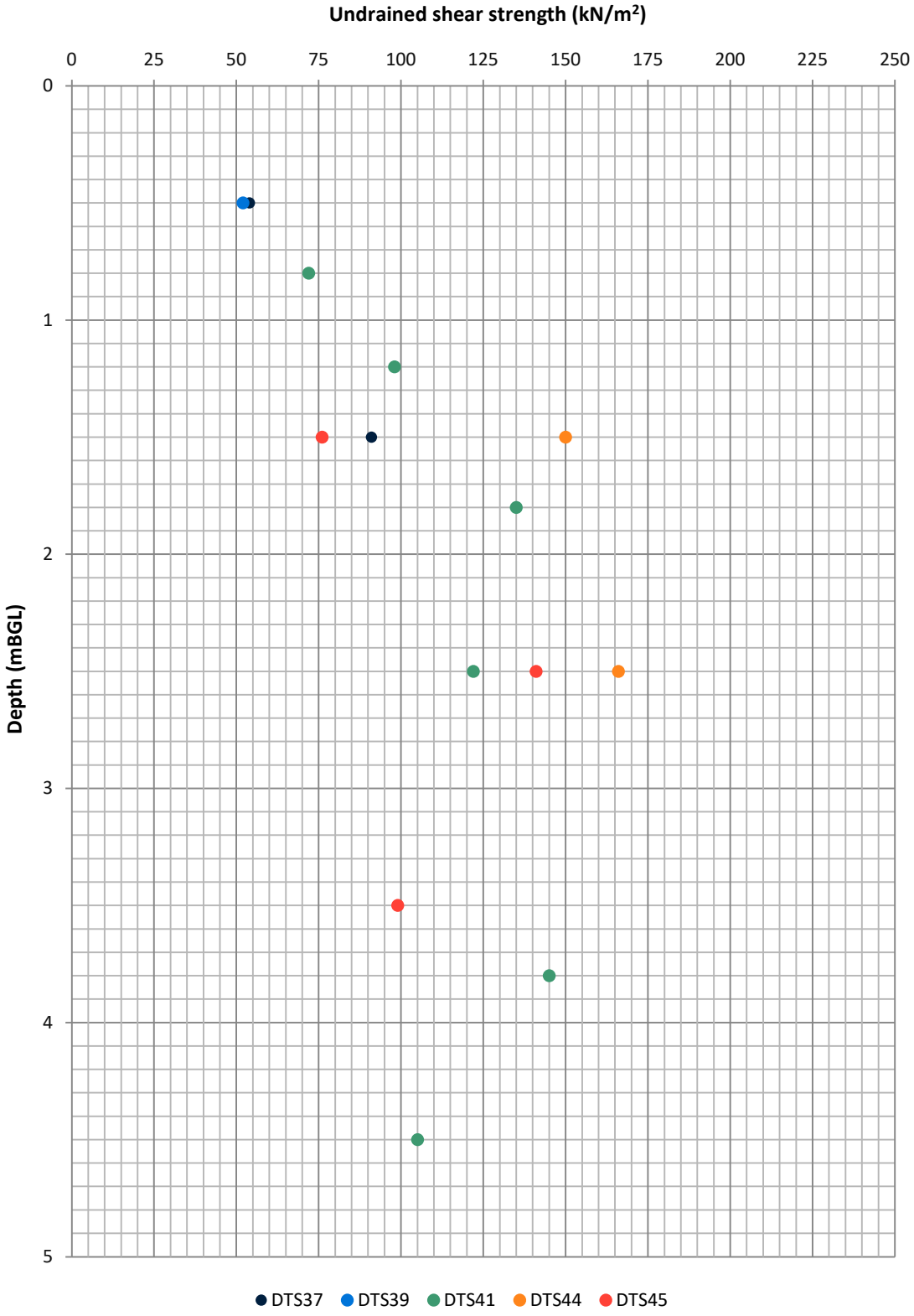
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Plot summarising Pocket Penetrometer results versus level filtered by geology



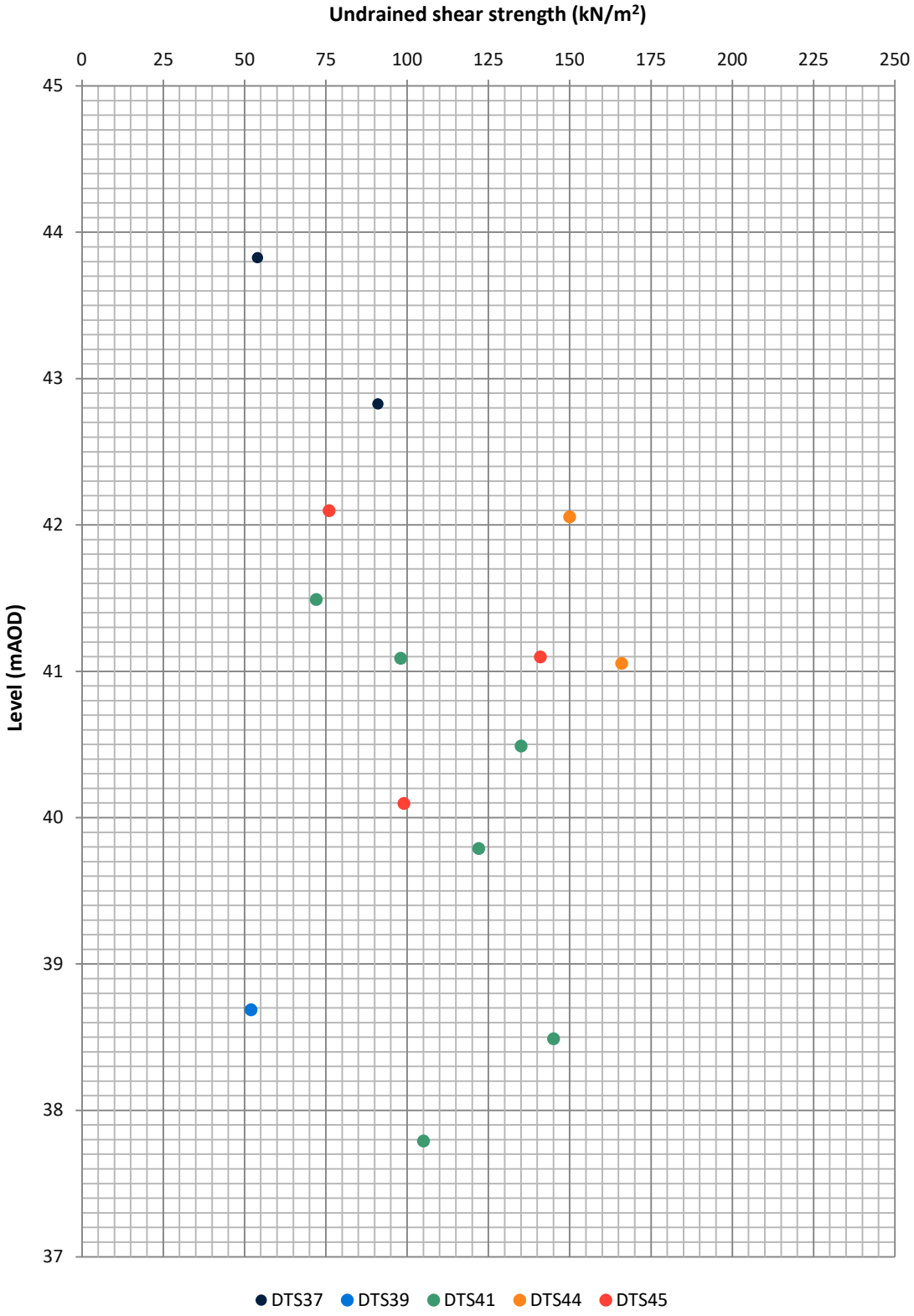
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Plot summarising Shear Vane results versus depth filtered by location



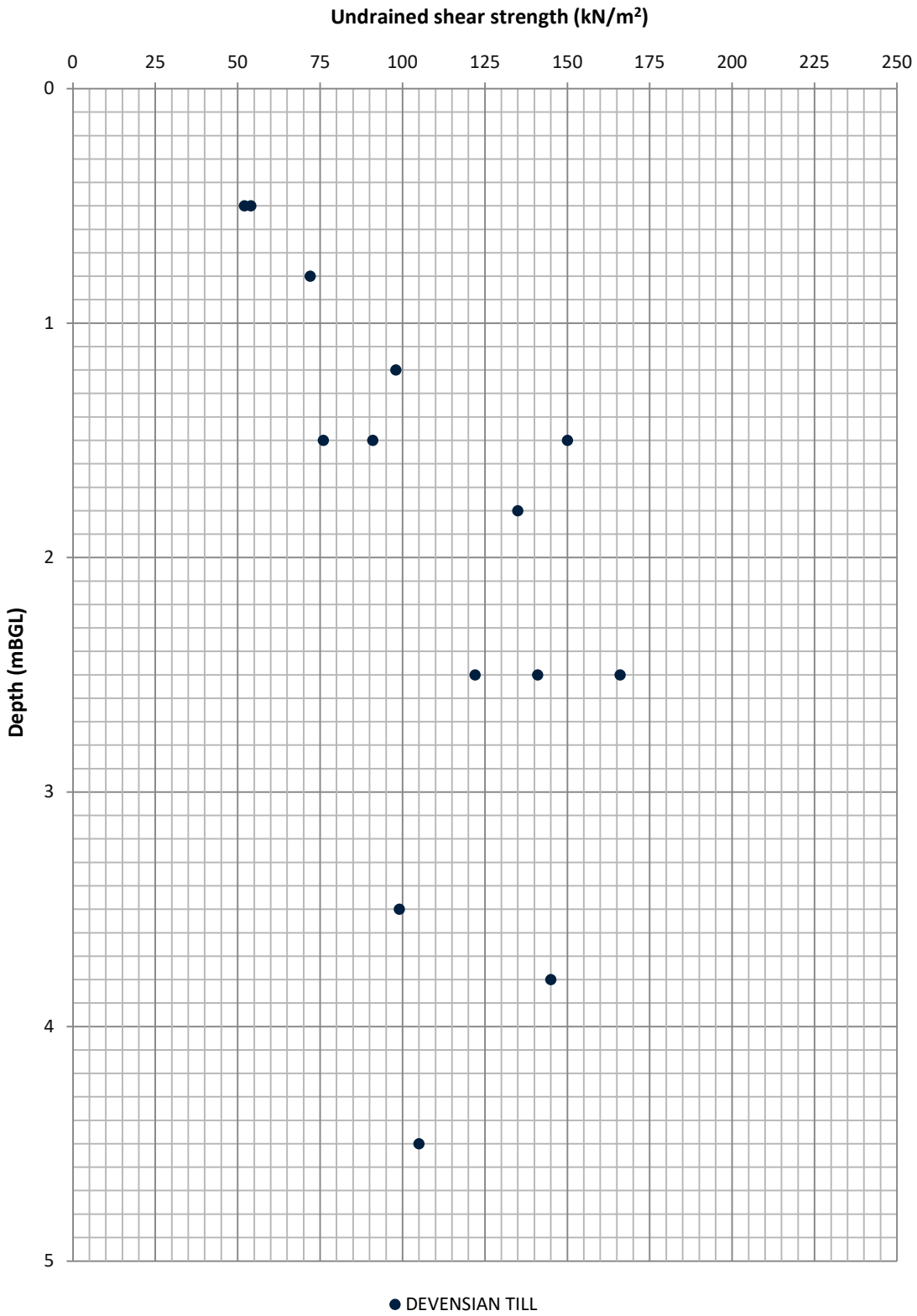
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Plot summarising Shear Vane results versus level filtered by location



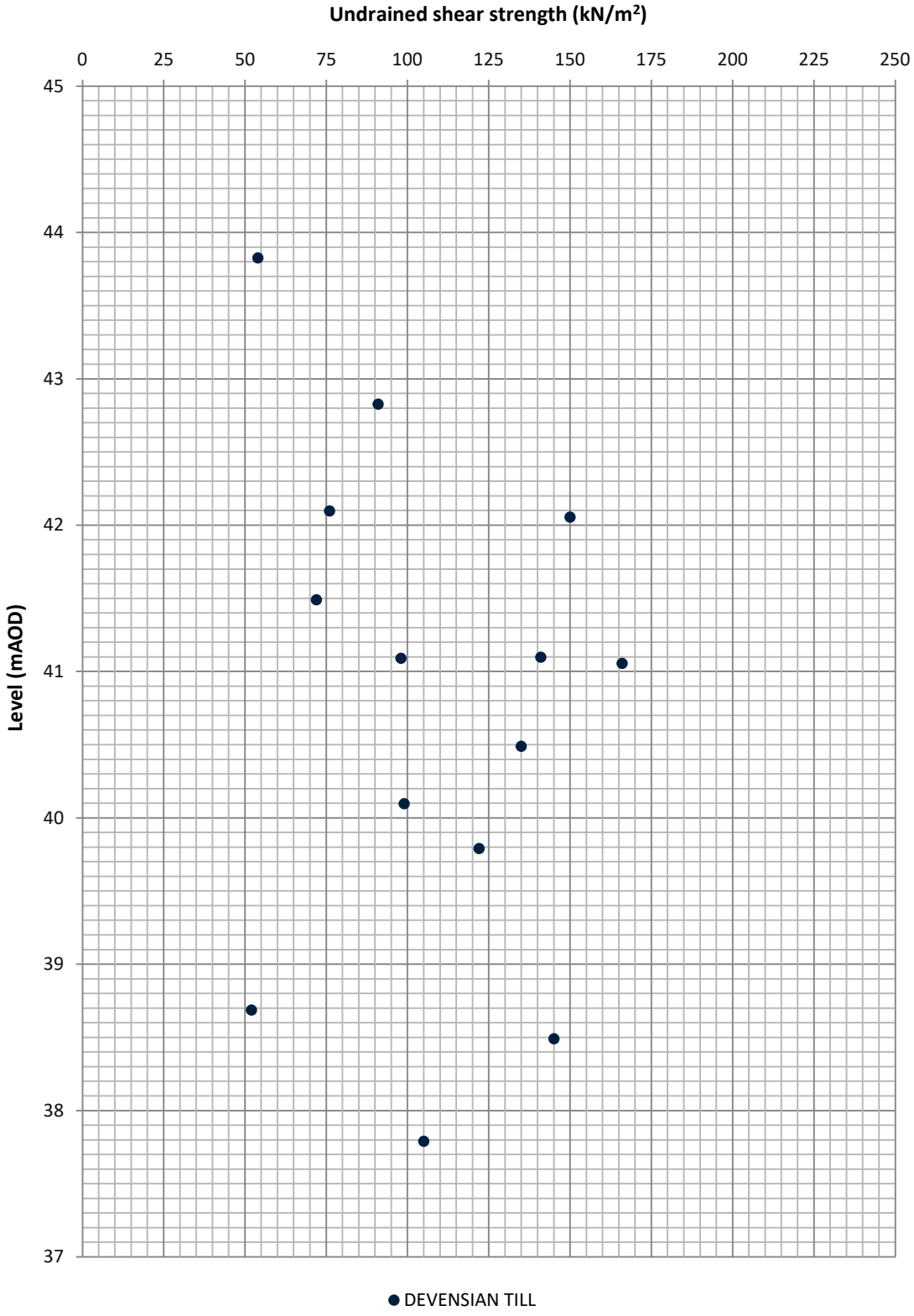
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Plot summarising Shear Vane results versus depth filtered by geology



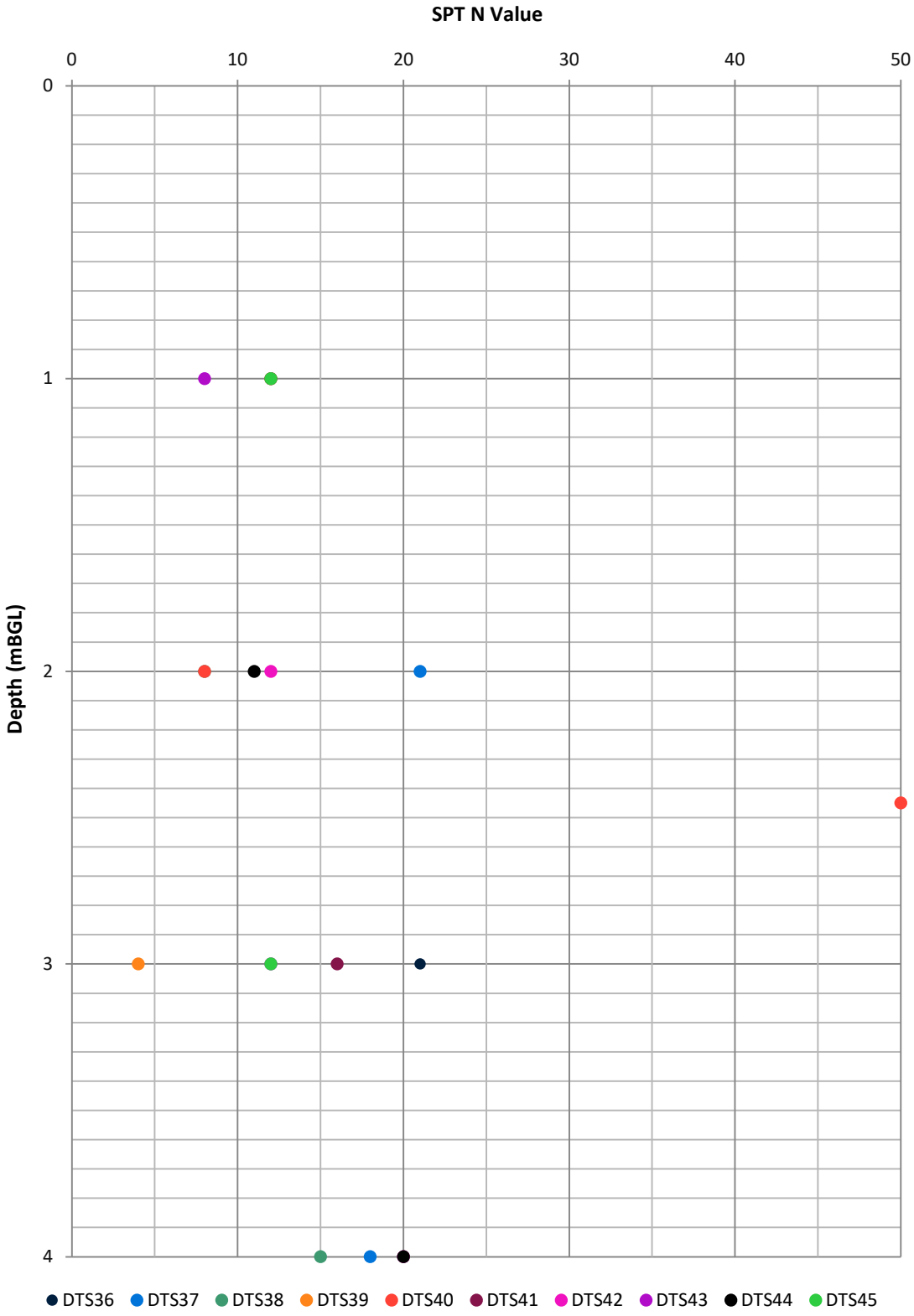
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Plot summarising Shear Vane results versus level filtered by geology



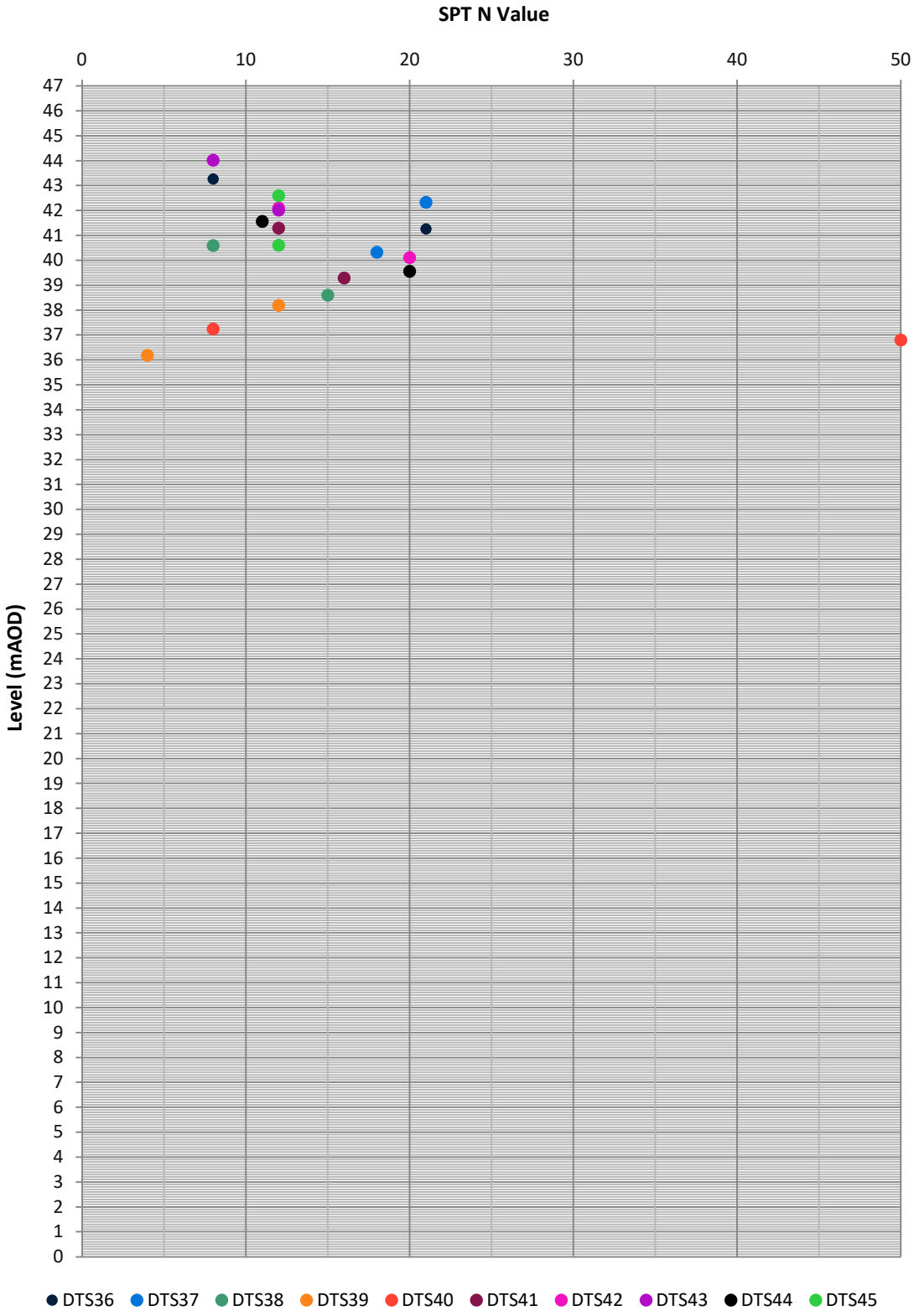
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



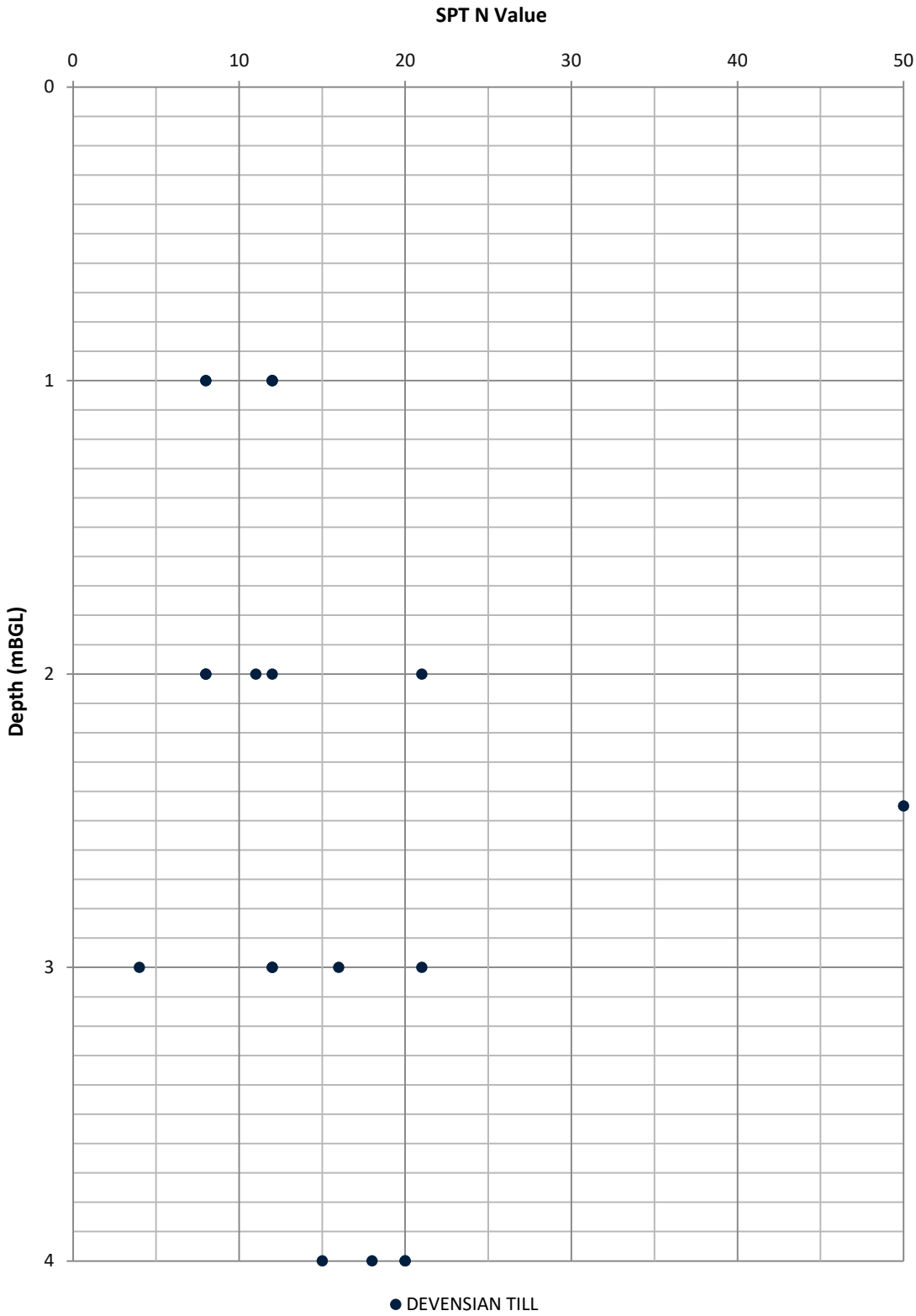
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



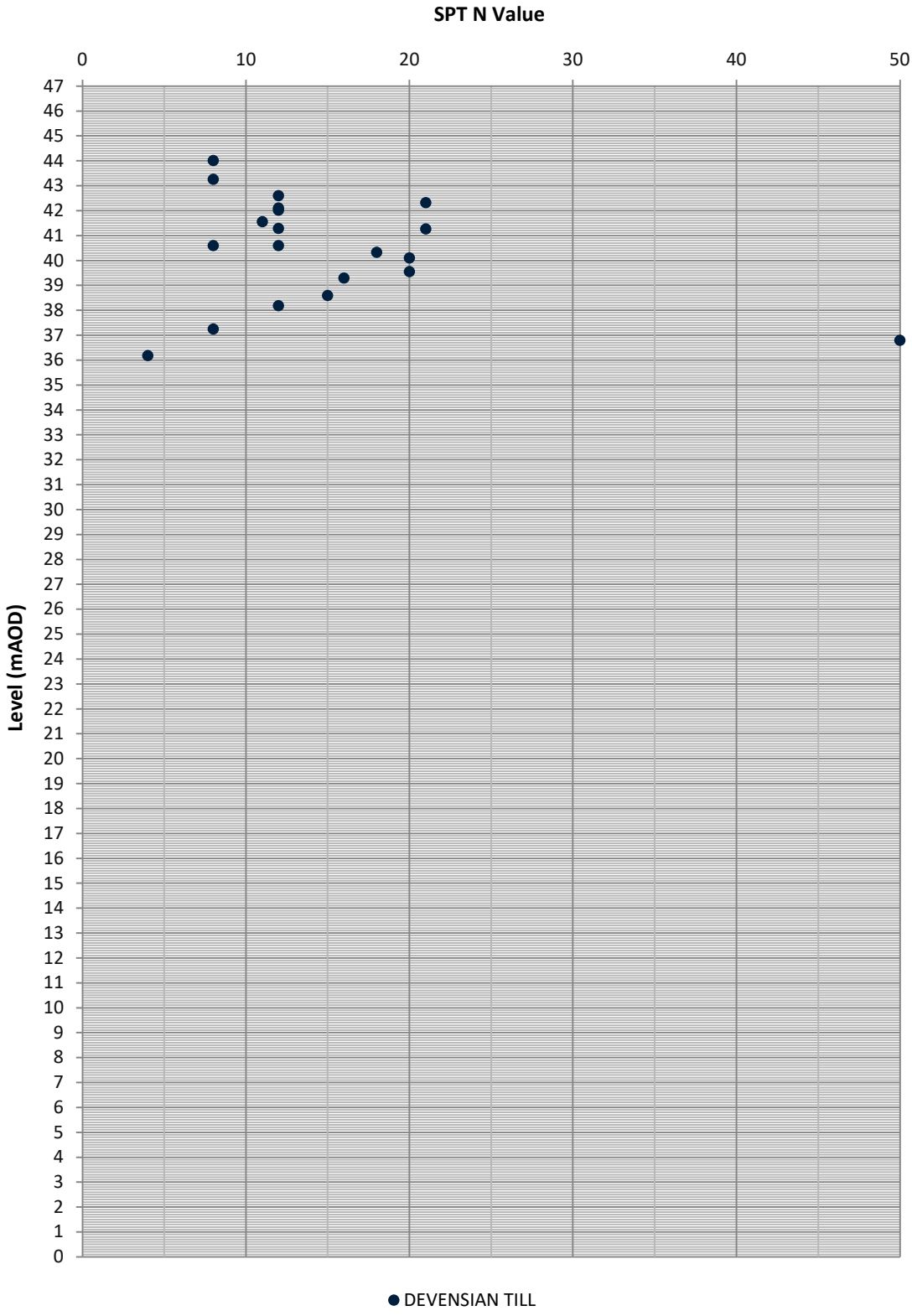
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



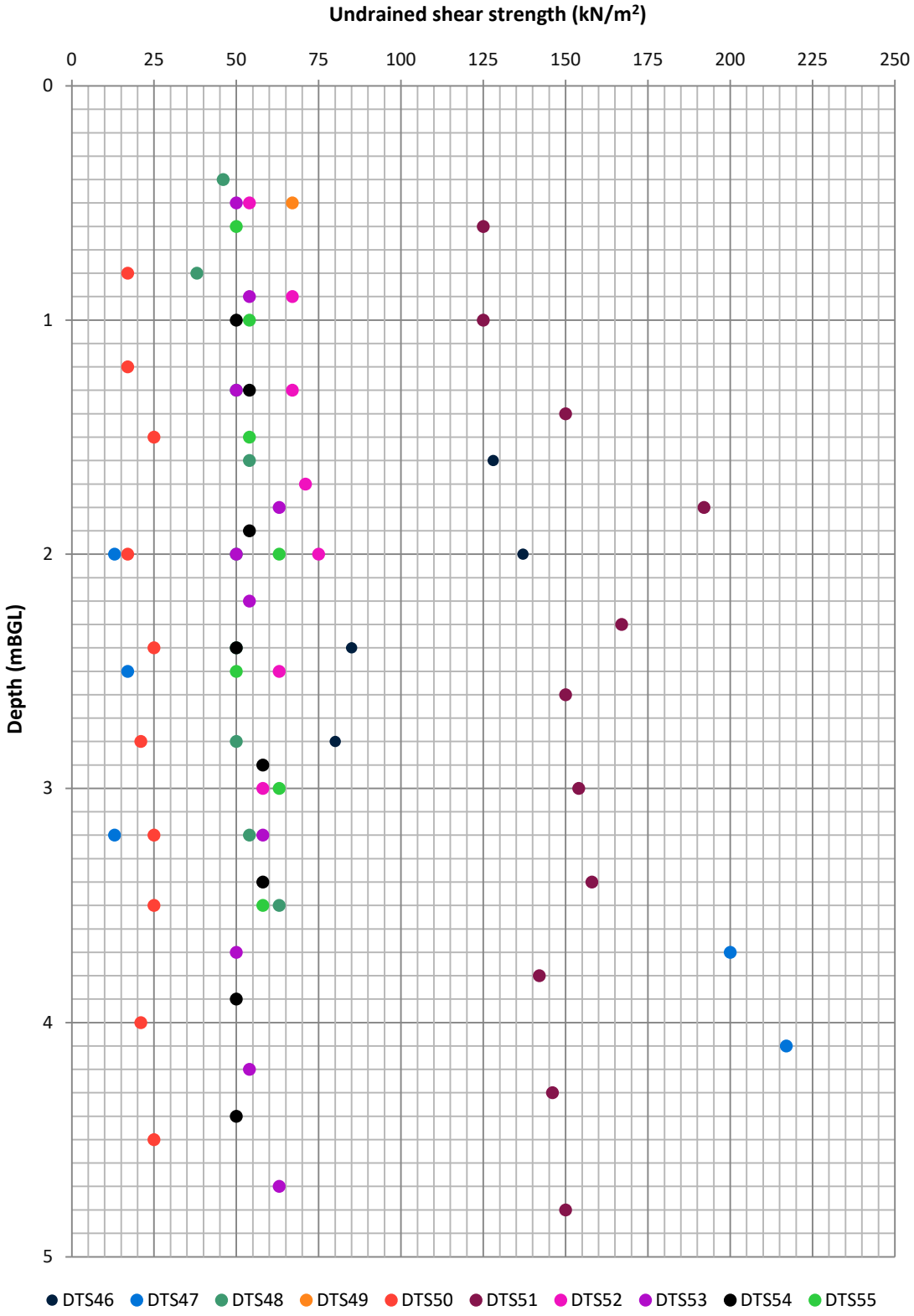
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



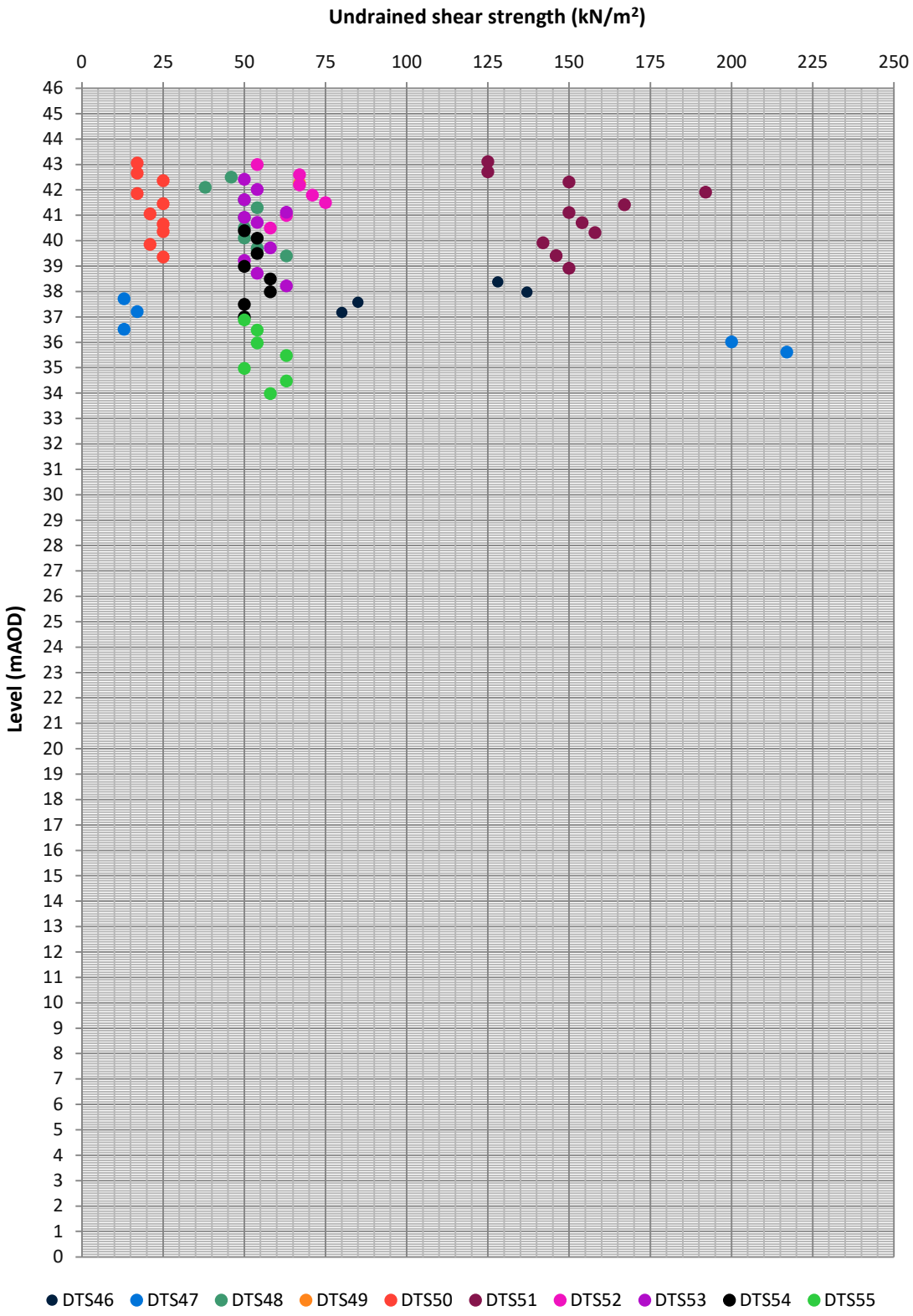
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Plot summarising Pocket Penetrometer results versus depth filtered by location



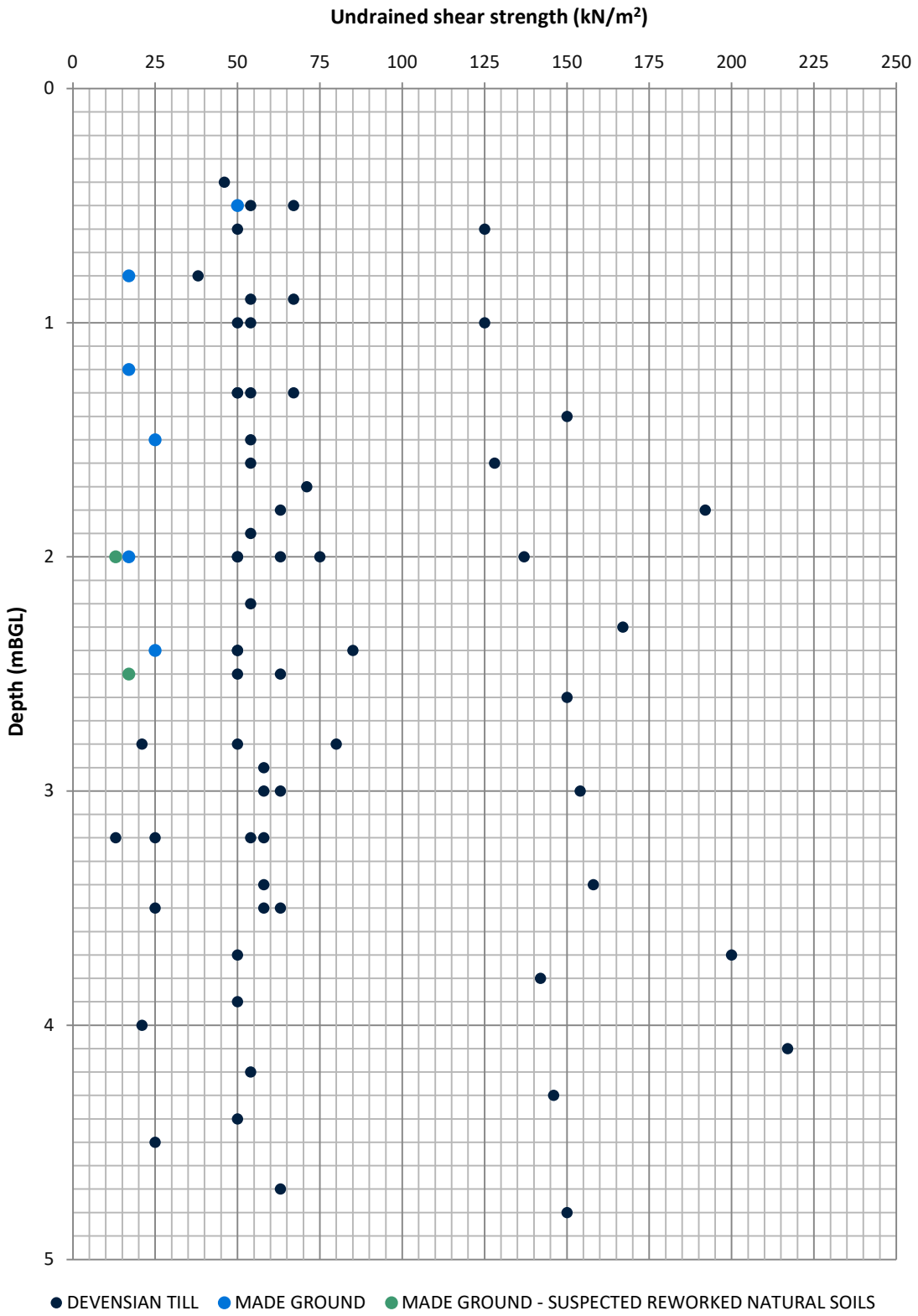
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Plot summarising Pocket Penetrometer results versus level filtered by location



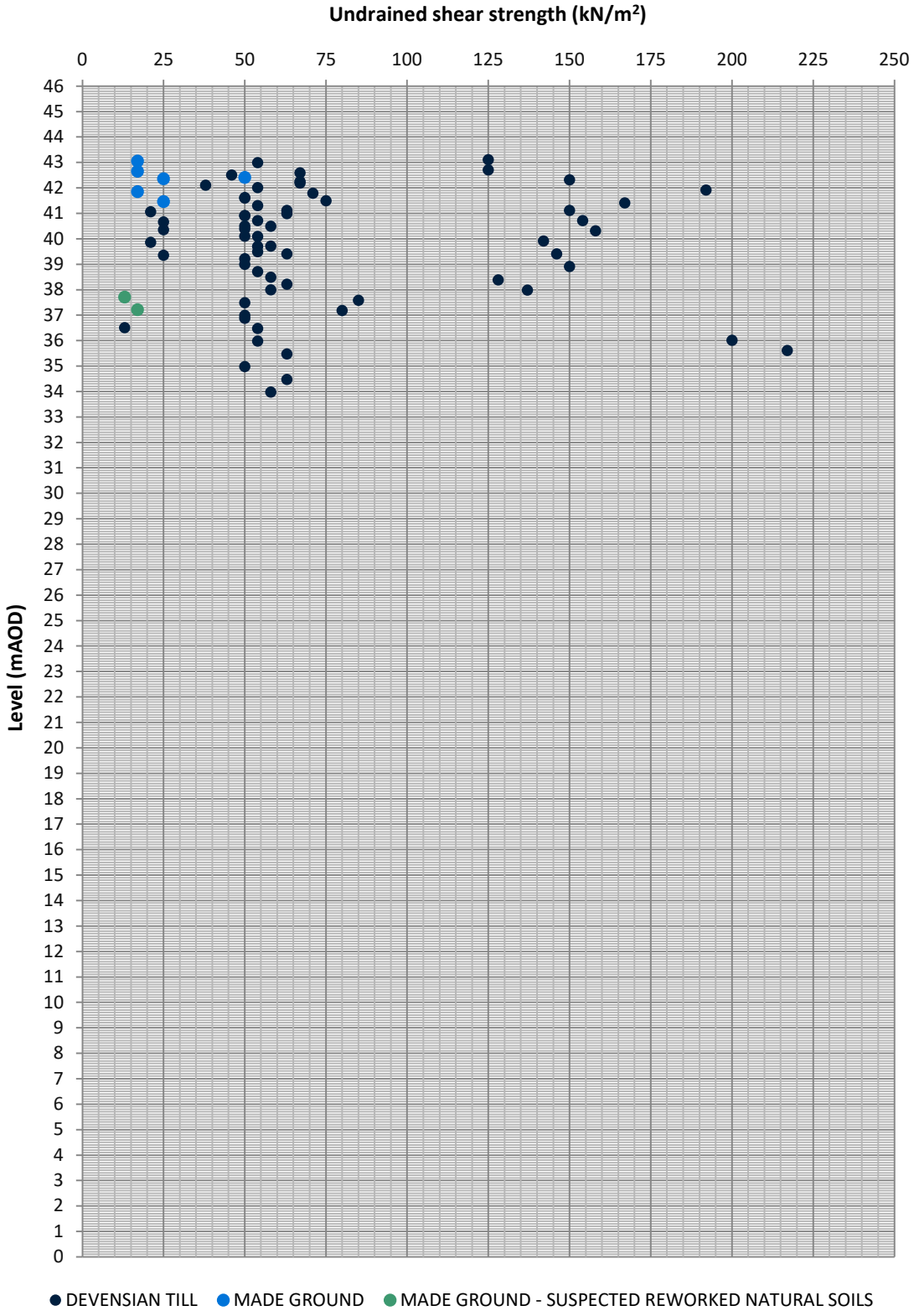
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



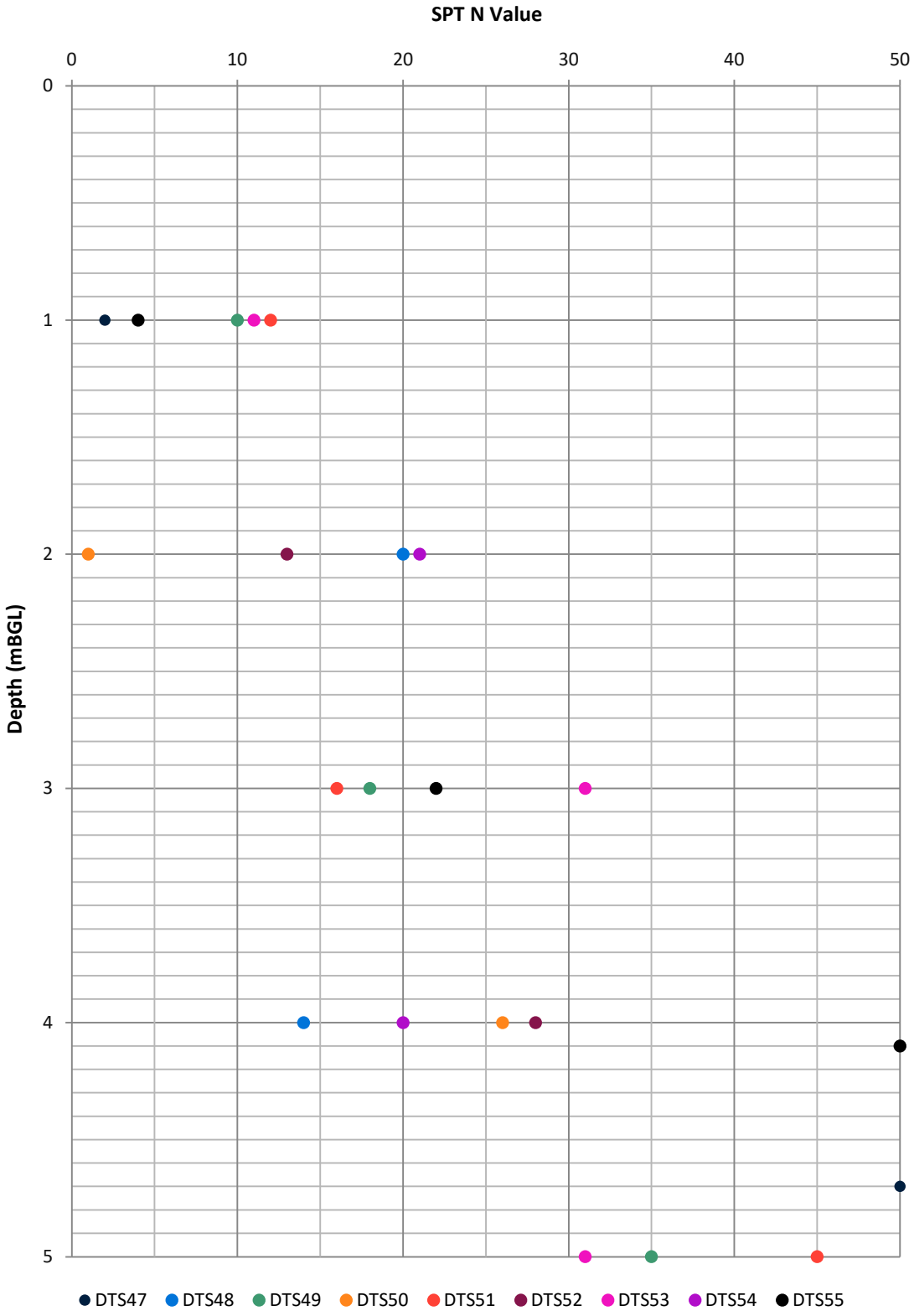
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Plot summarising Pocket Penetrometer results versus level filtered by geology



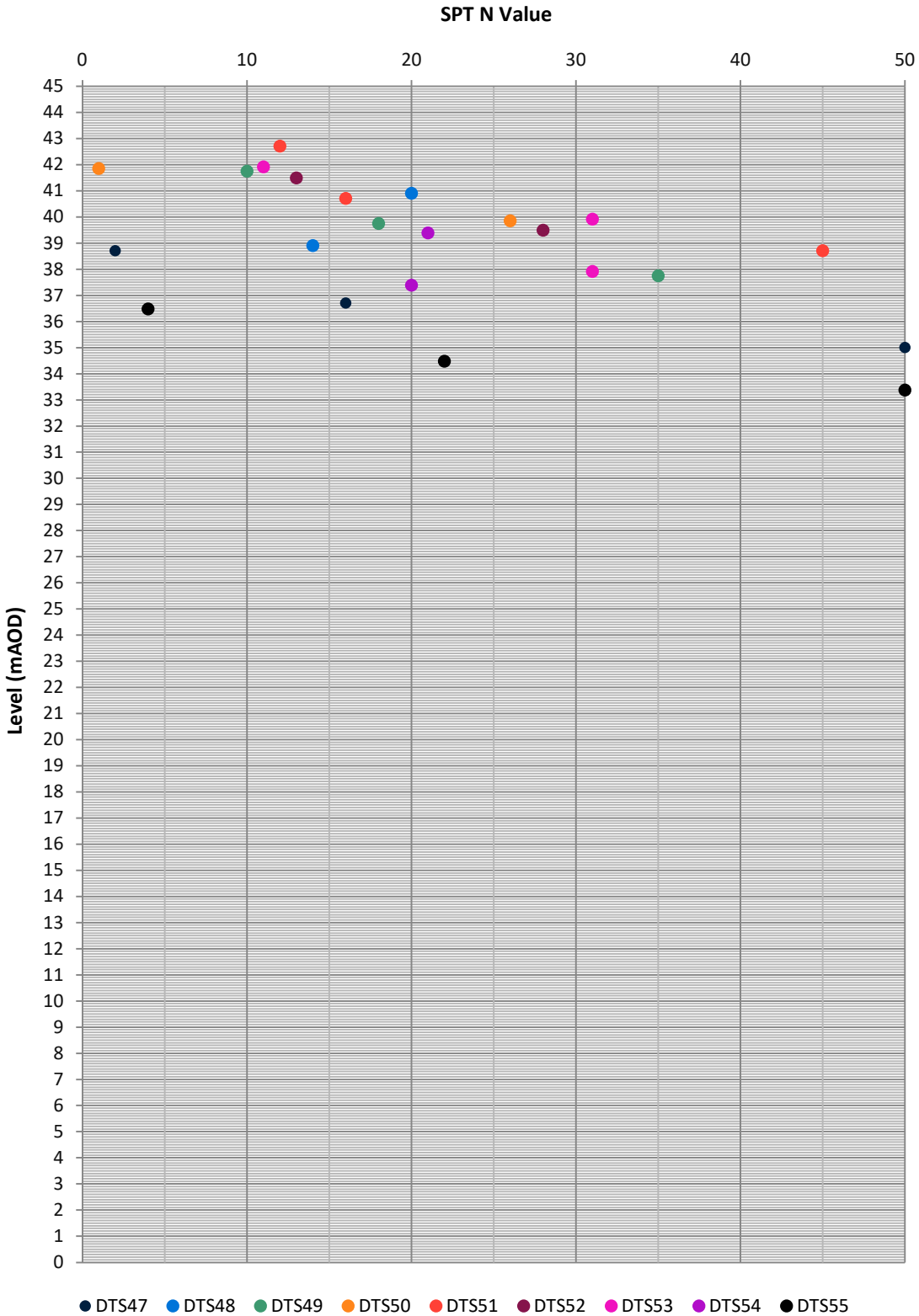
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



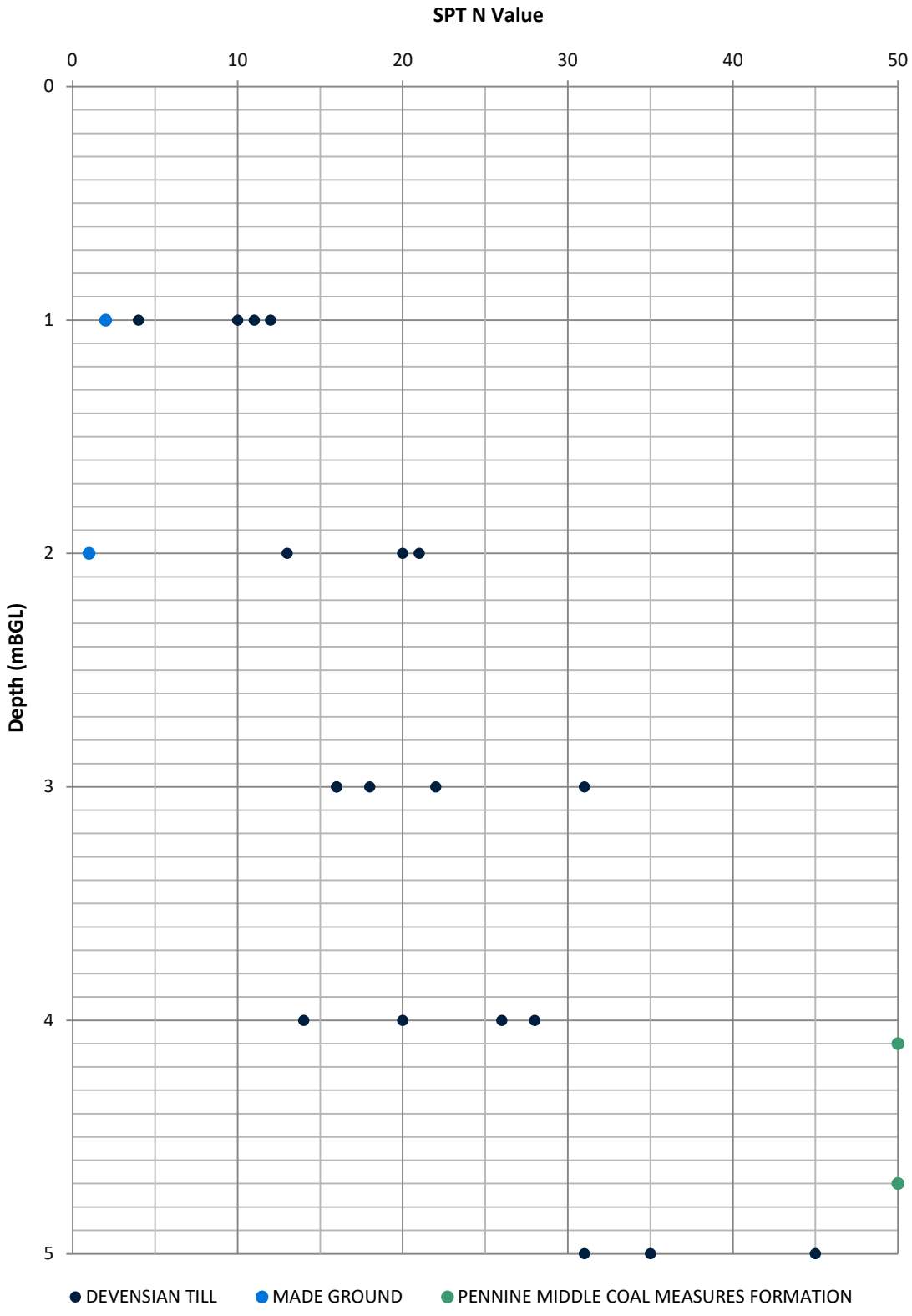
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



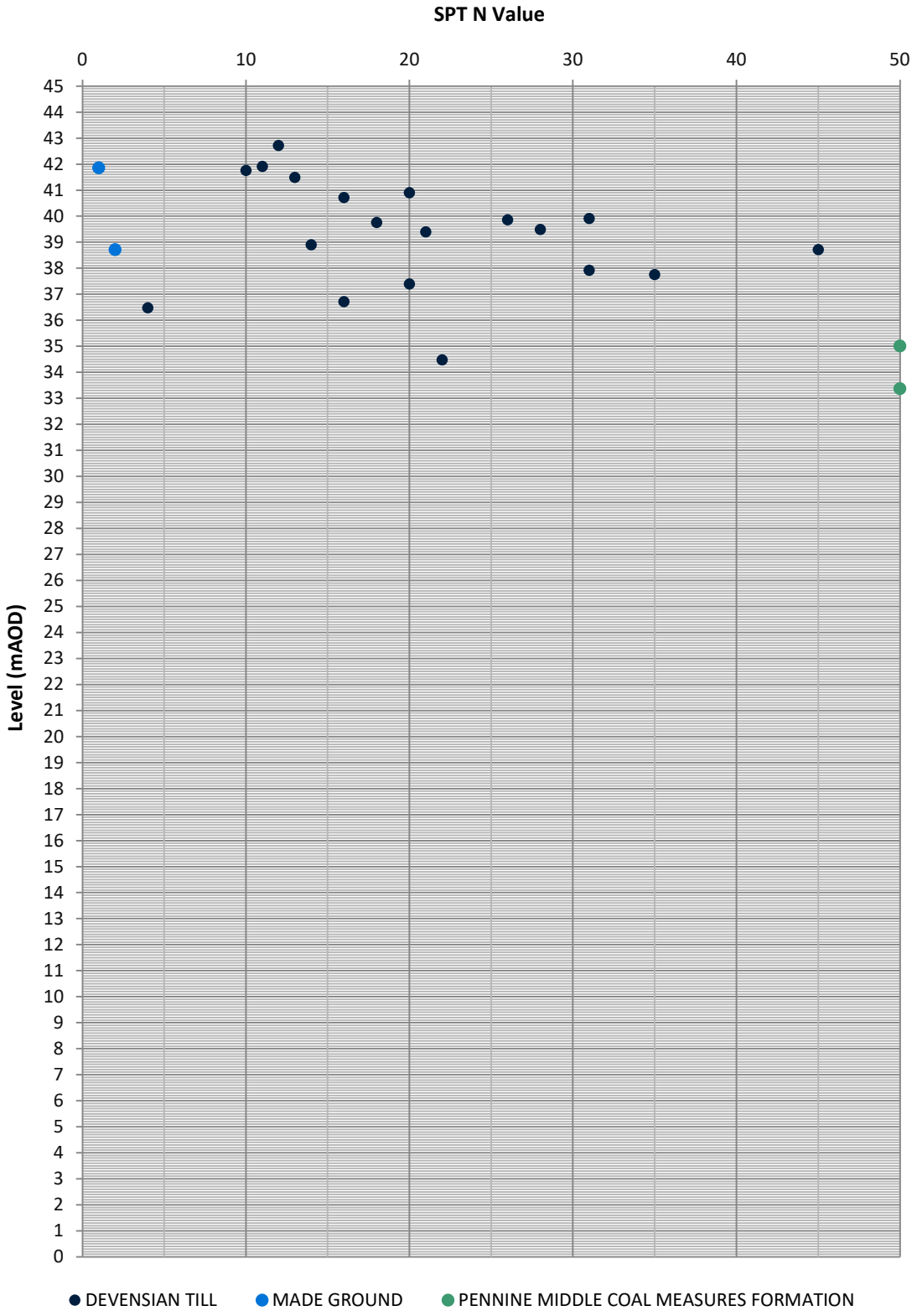
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



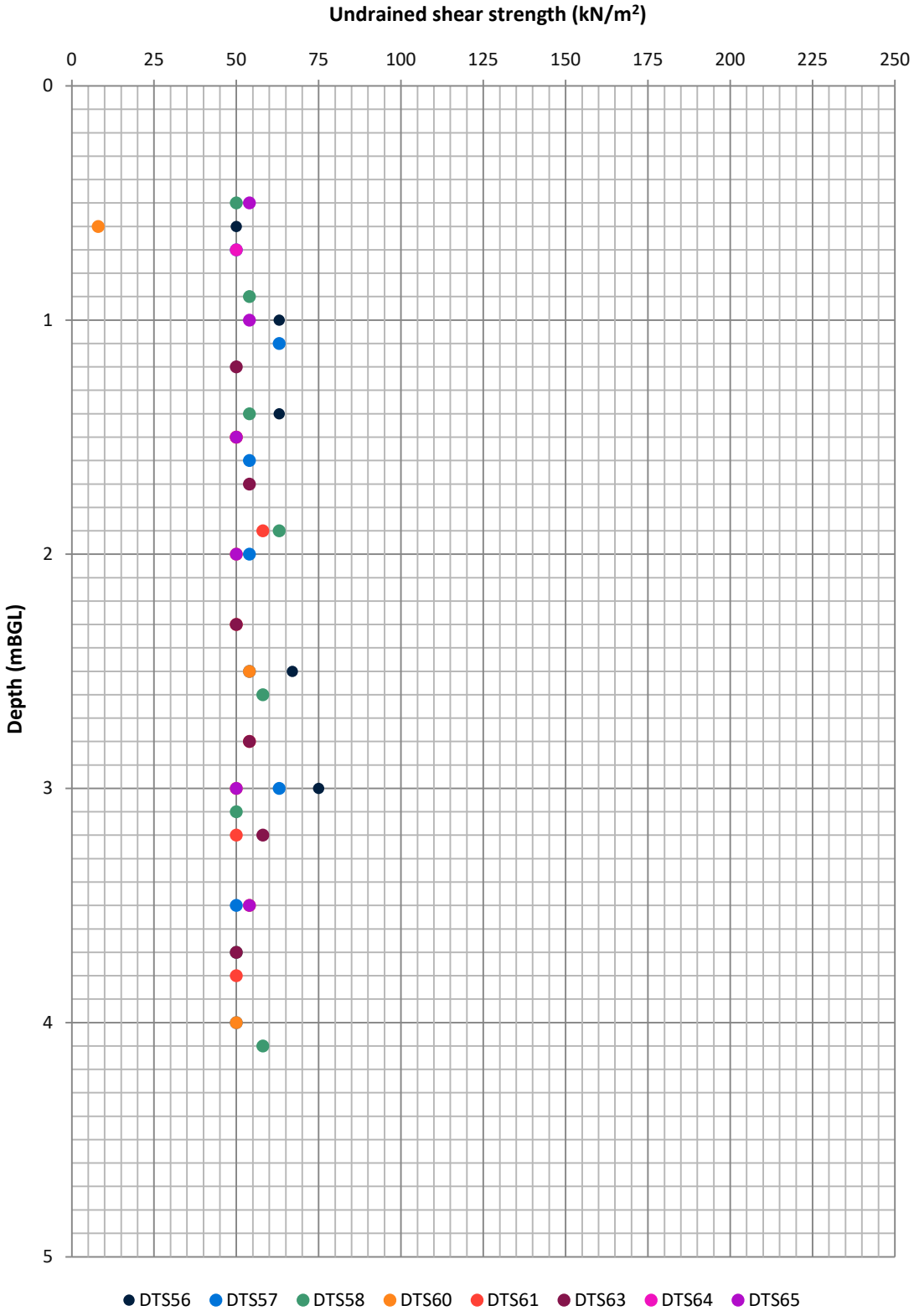
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



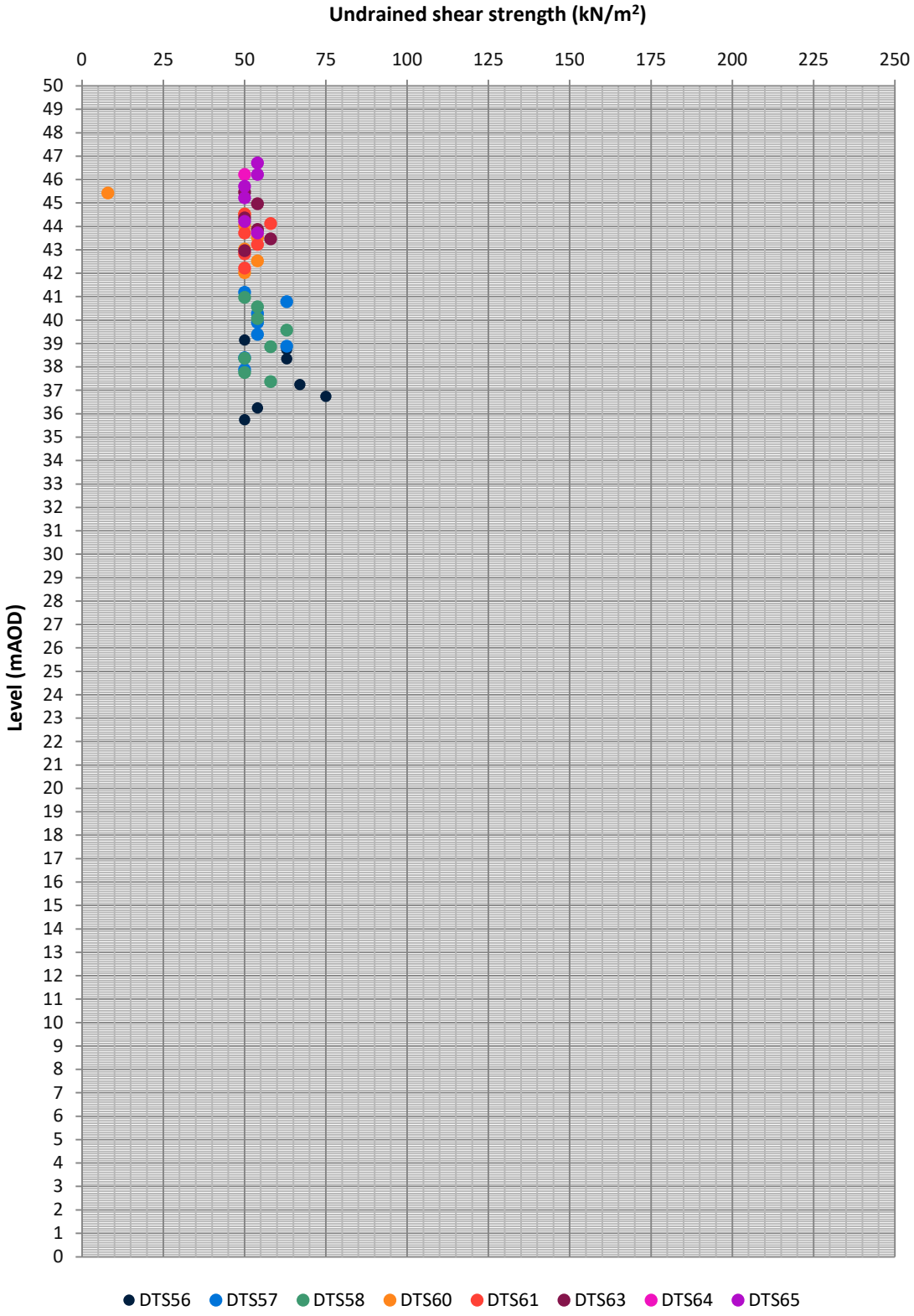
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Plot summarising Pocket Penetrometer results versus depth filtered by location



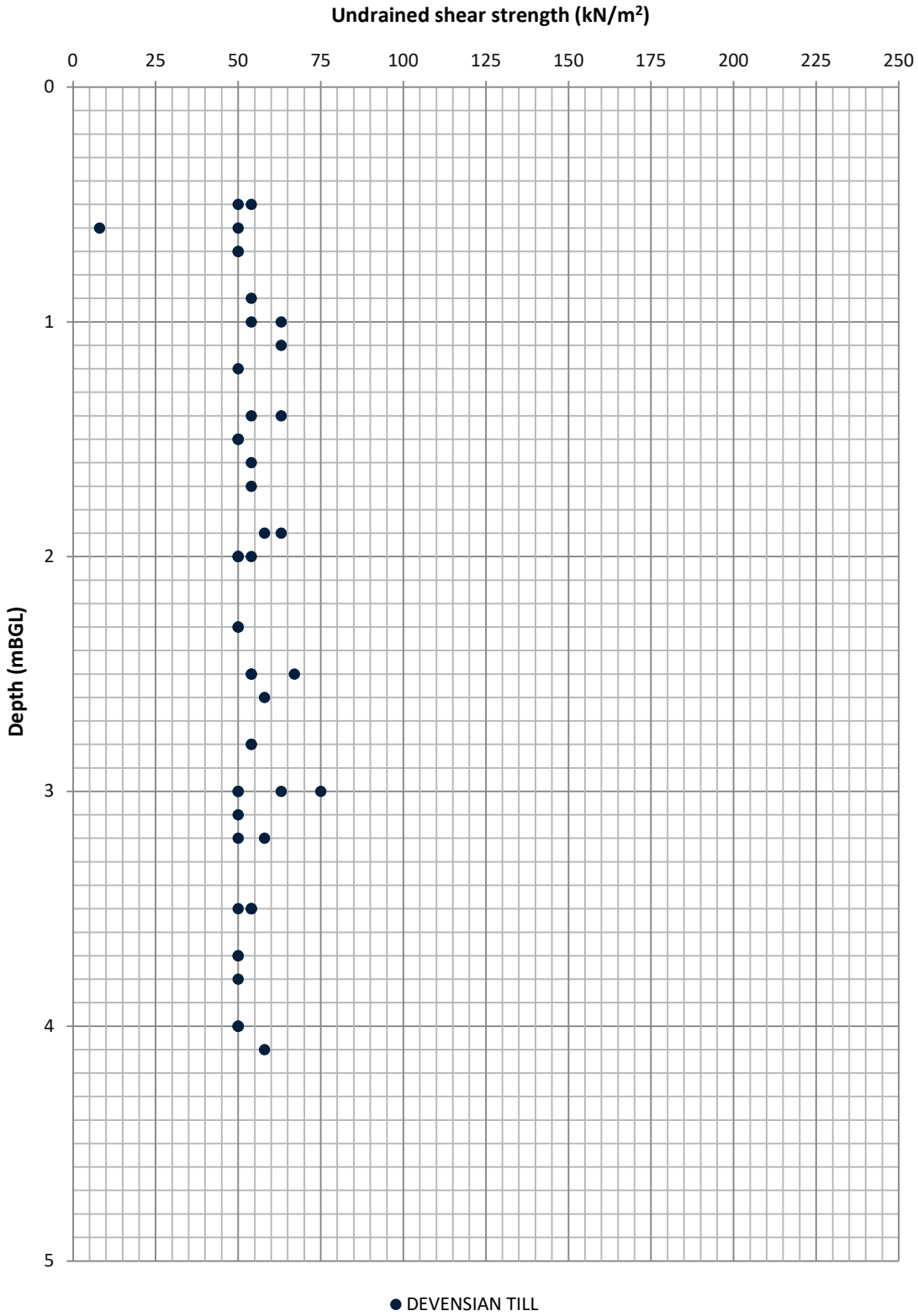
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Plot summarising Pocket Penetrometer results versus level filtered by location



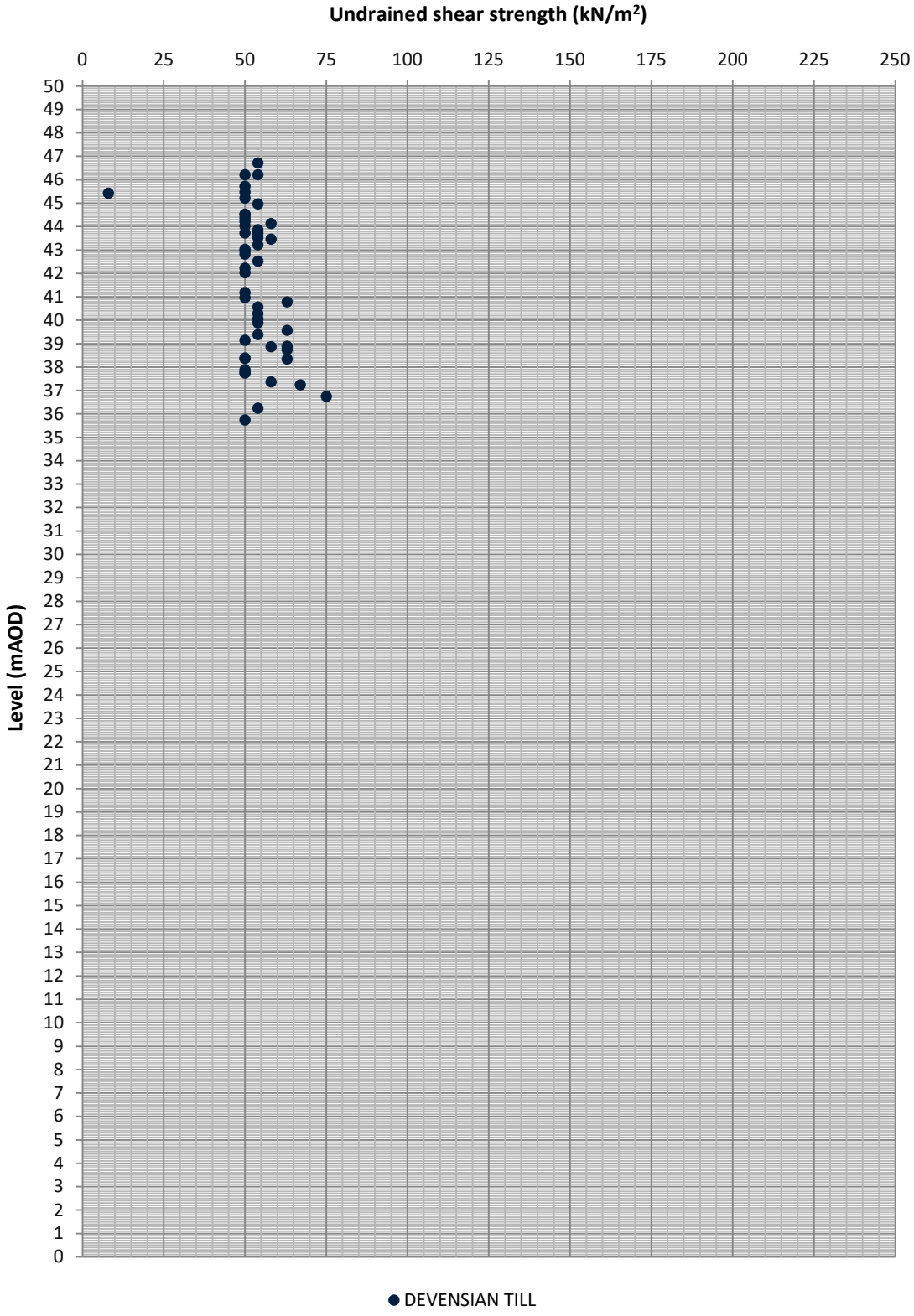
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



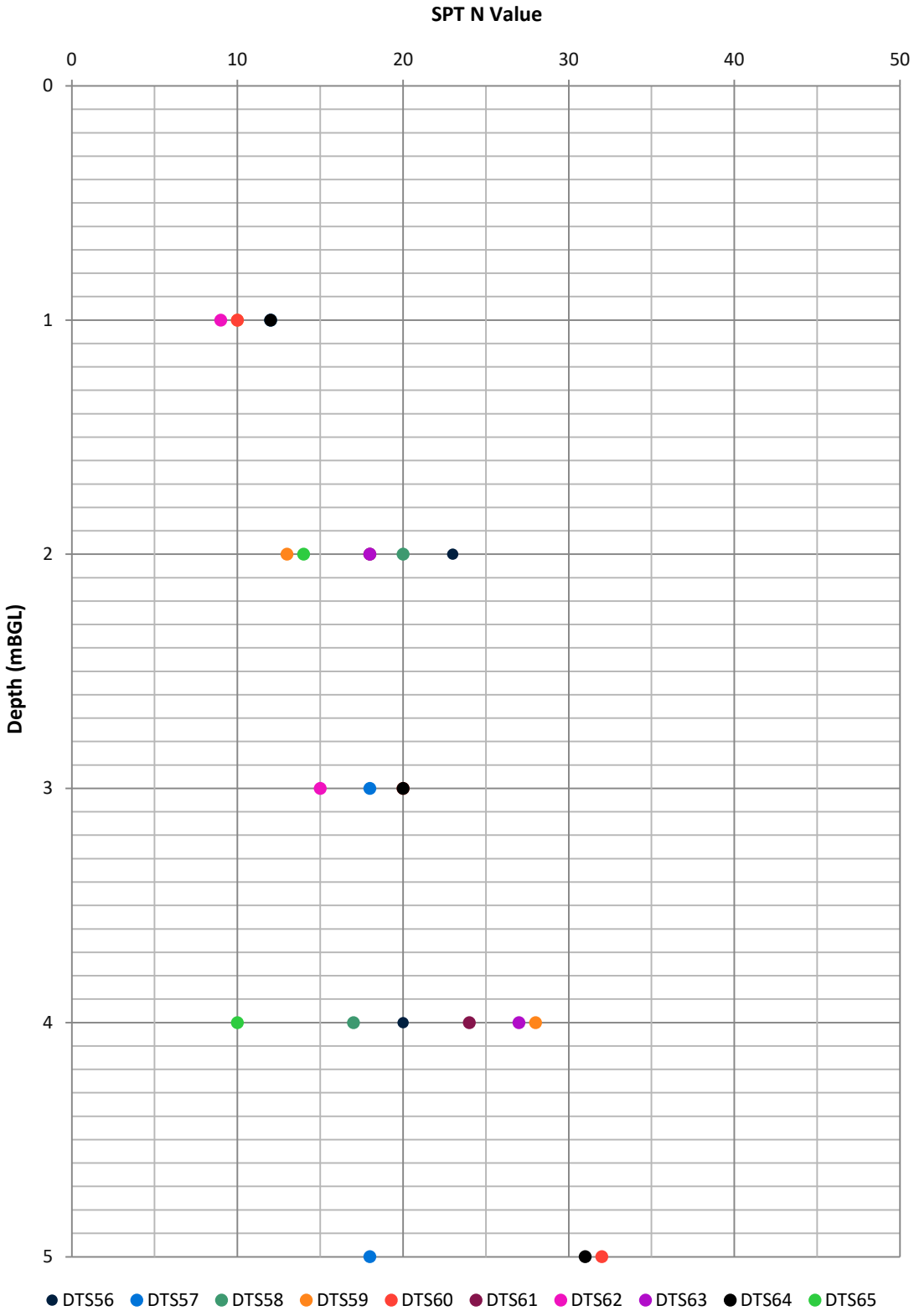
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Plot summarising Pocket Penetrometer results versus level filtered by geology



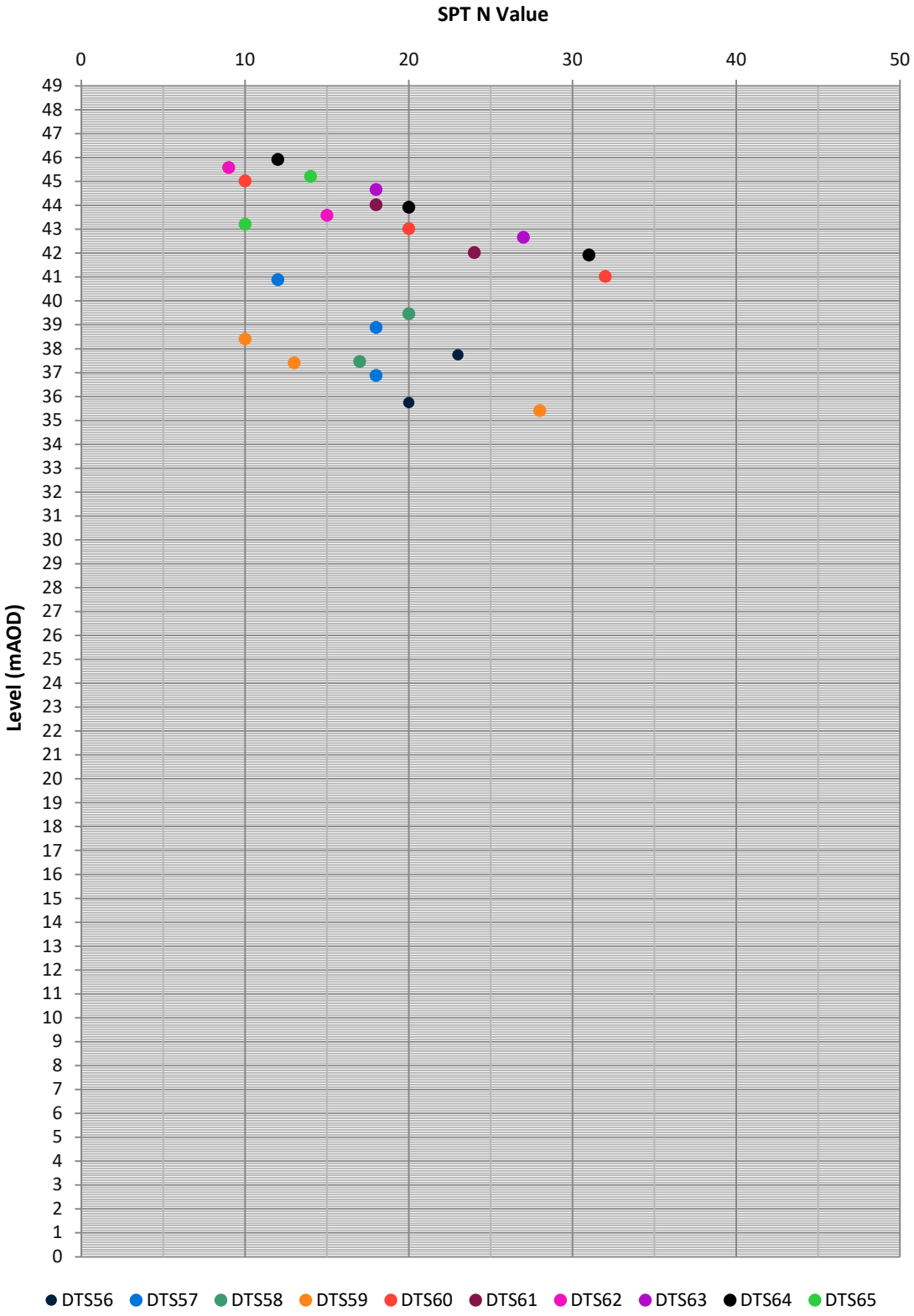
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



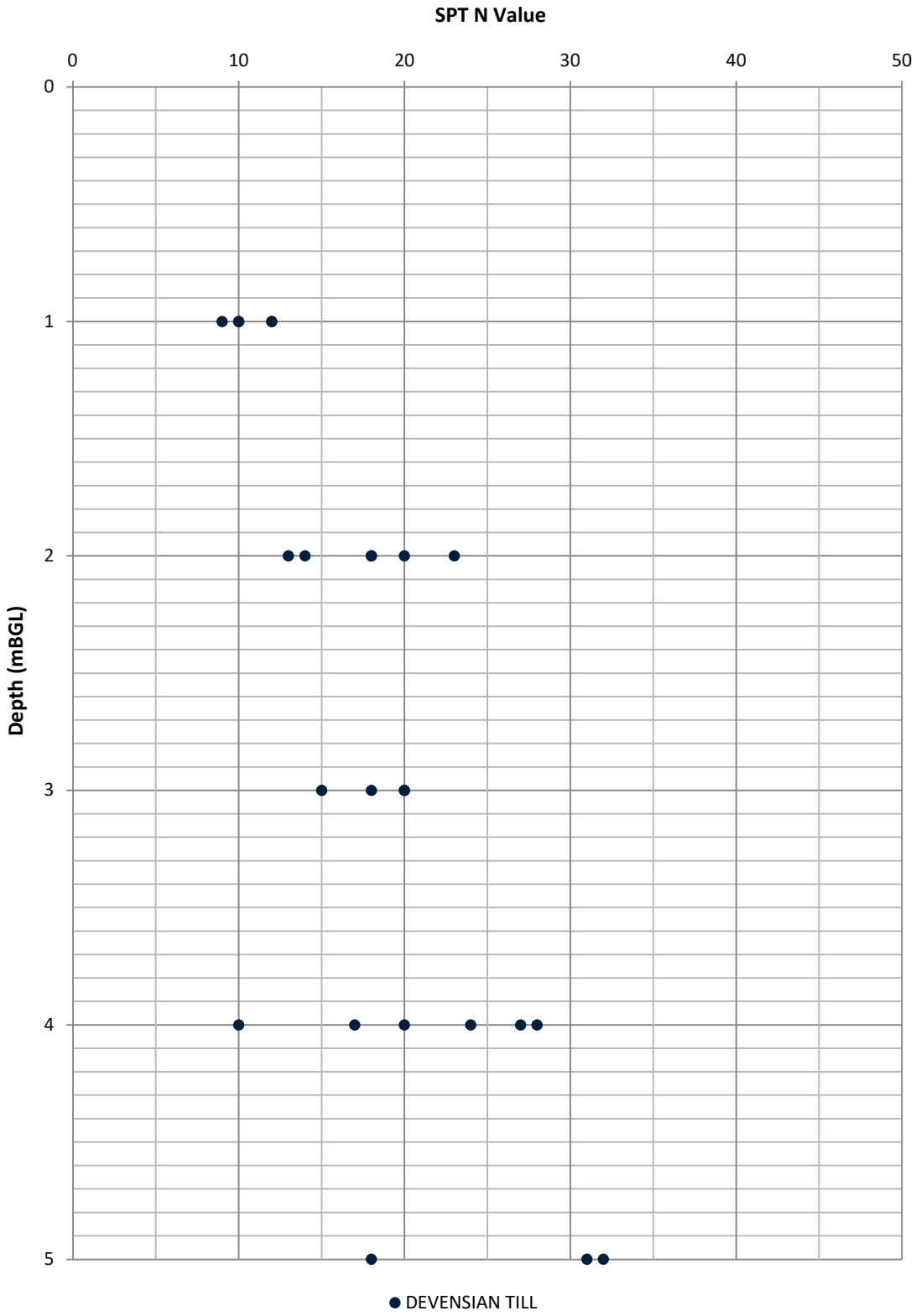
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



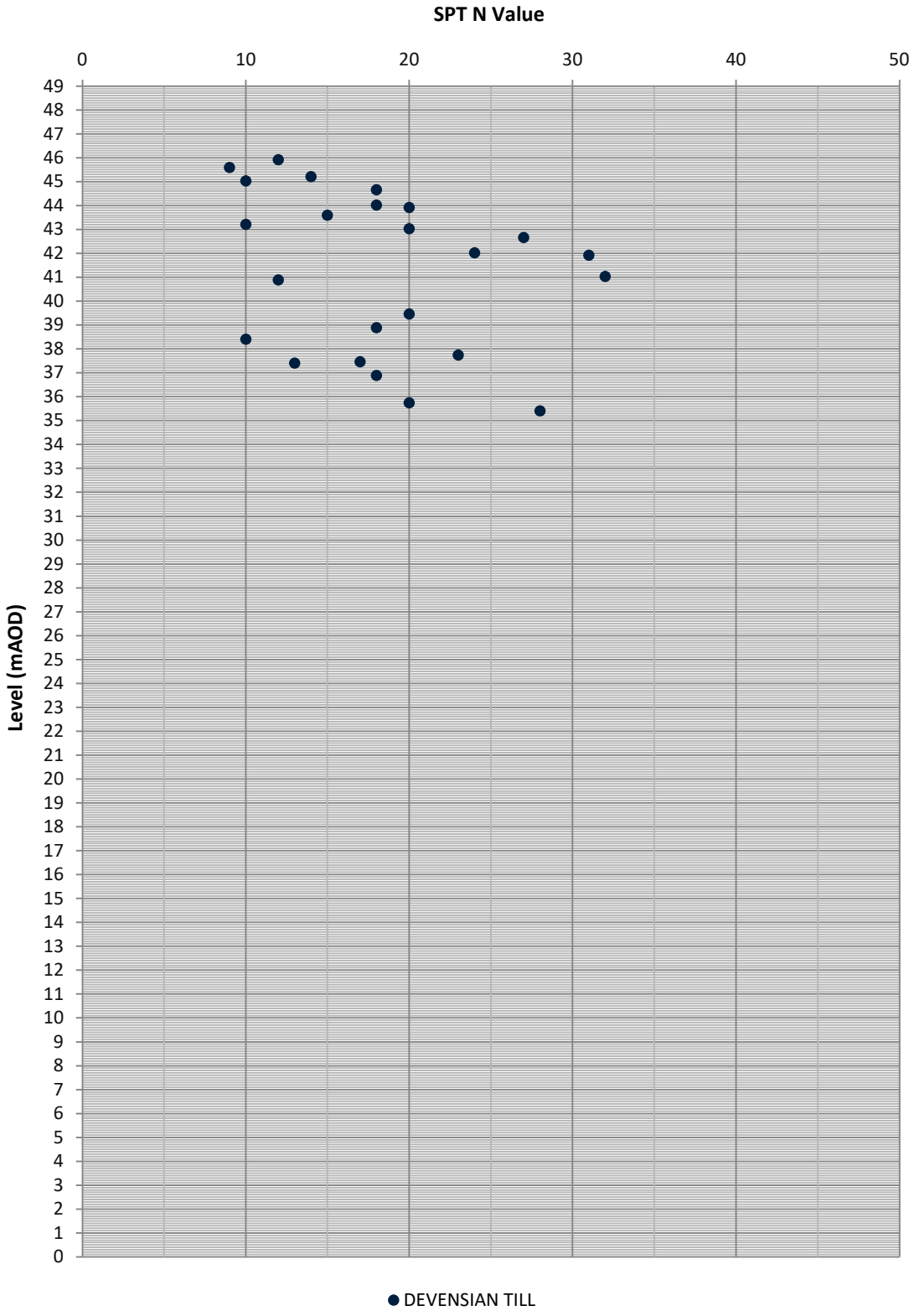
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



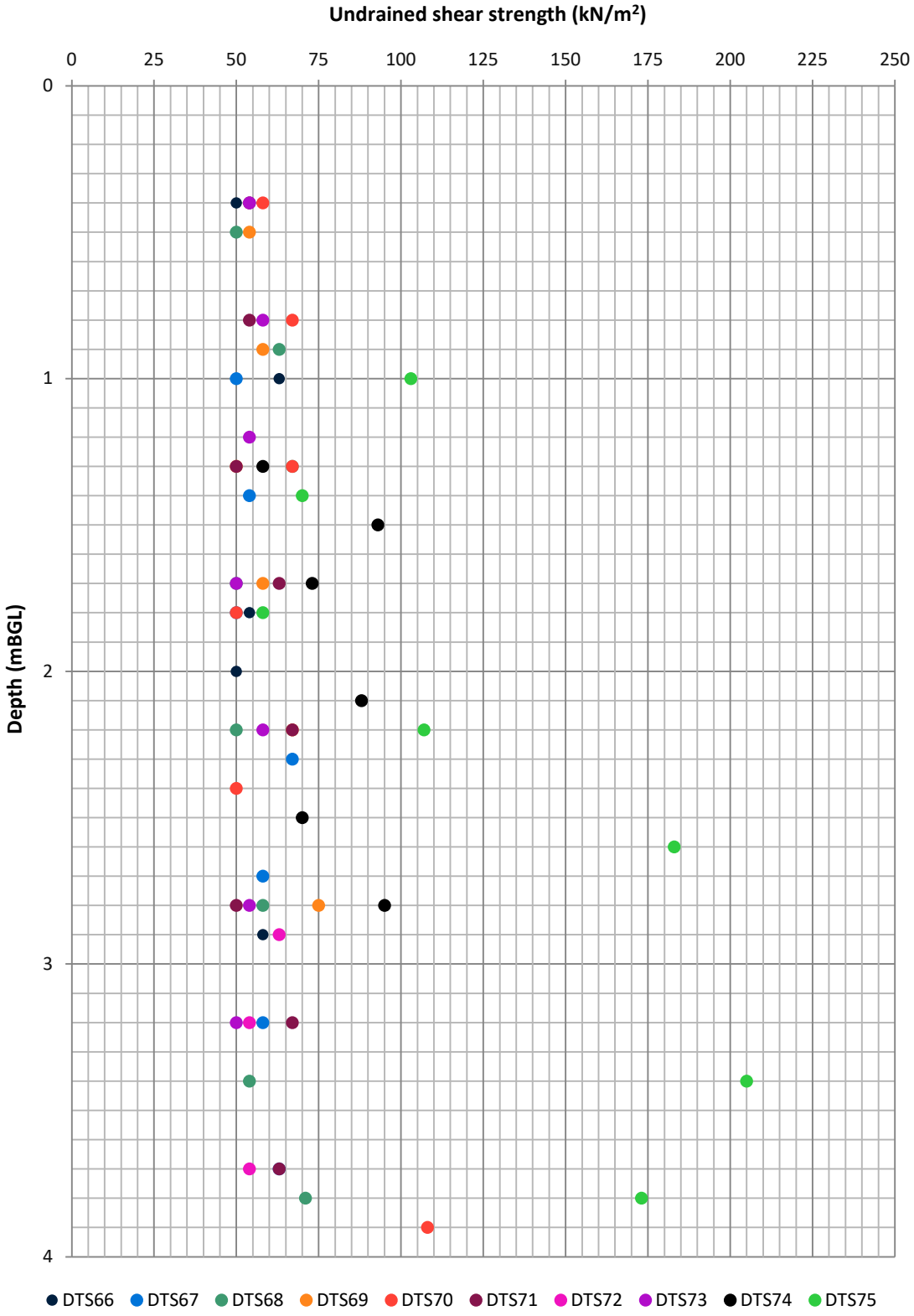
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



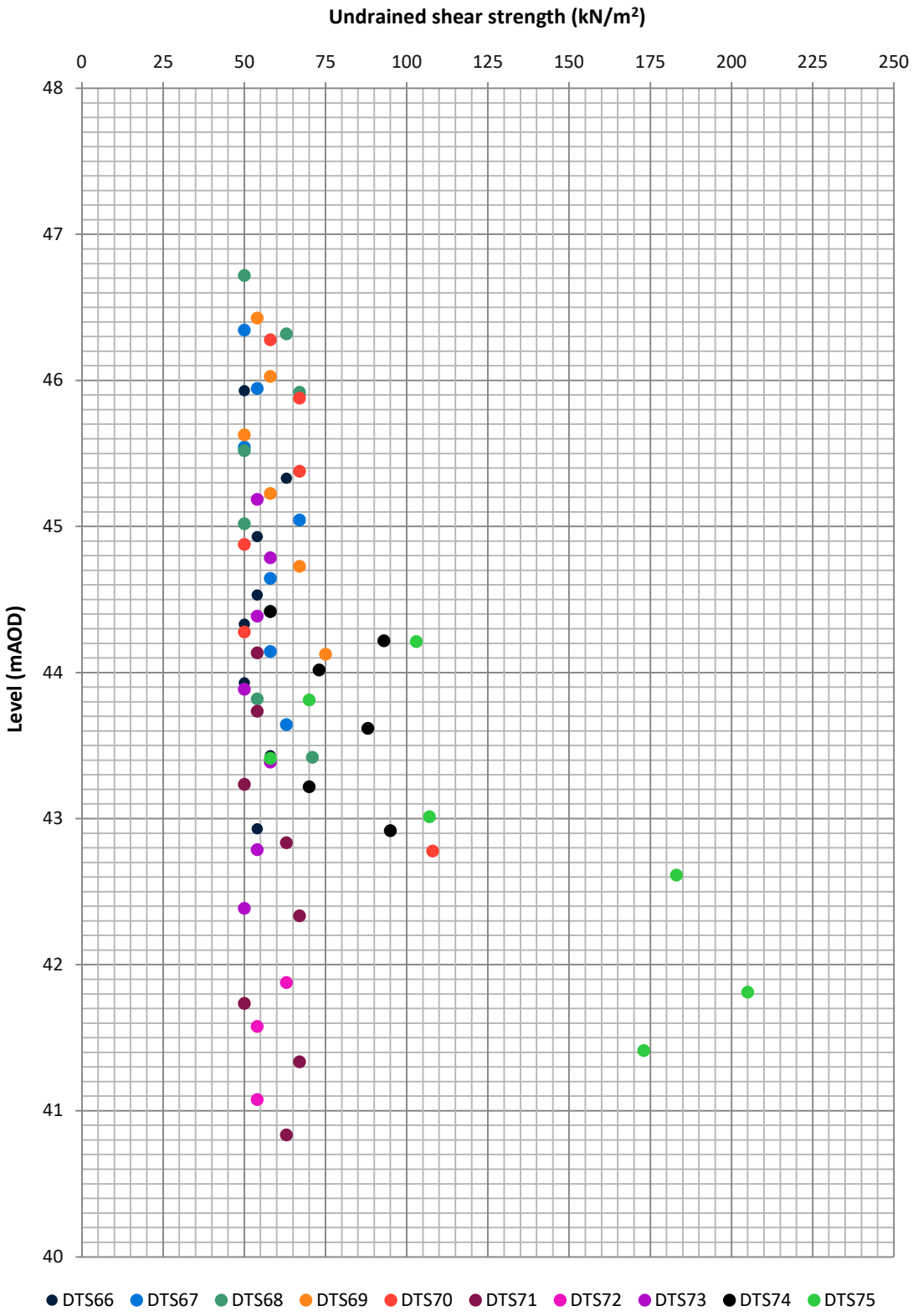
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Plot summarising Pocket Penetrometer results versus depth filtered by location



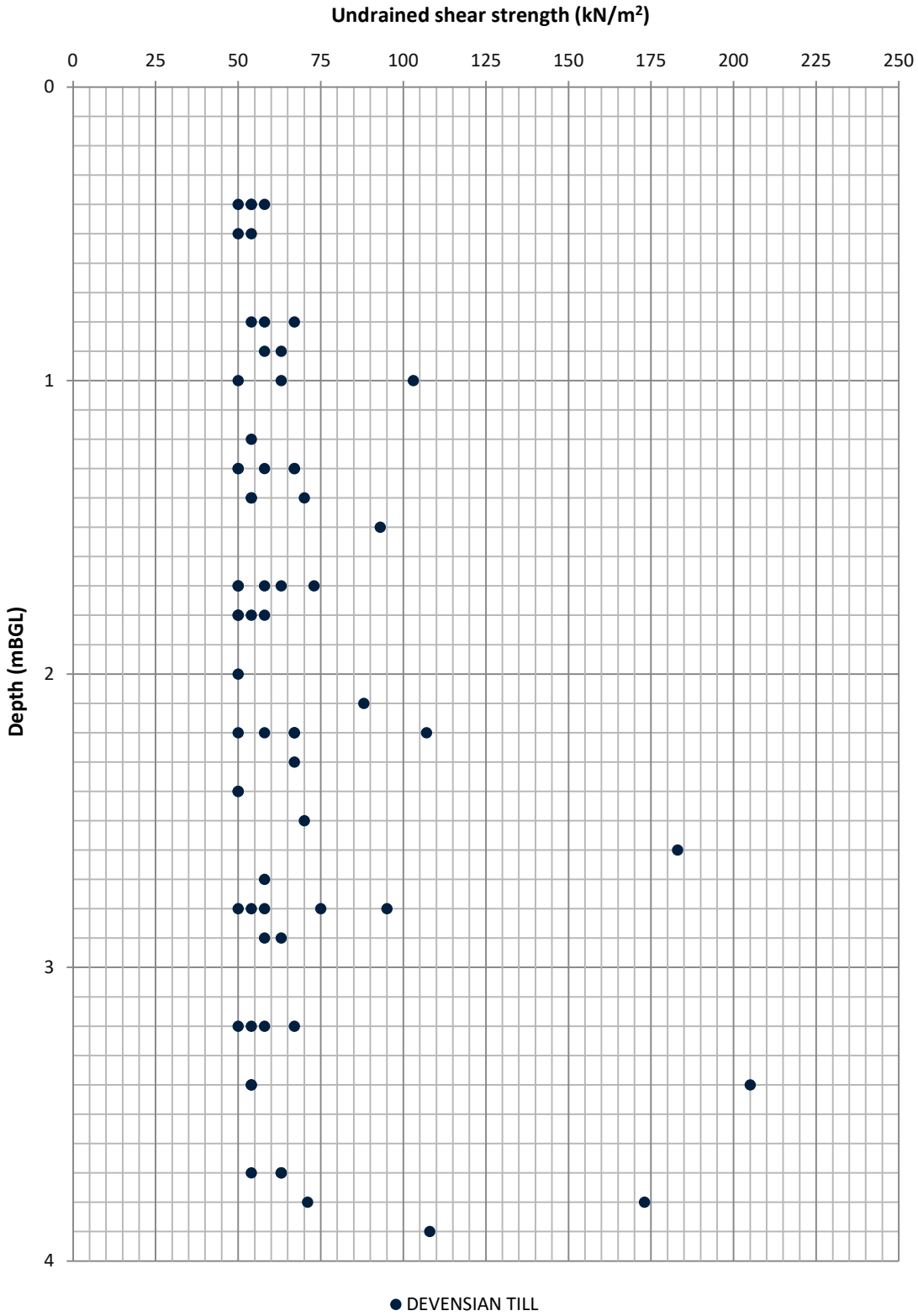
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Plot summarising Pocket Penetrometer results versus level filtered by location



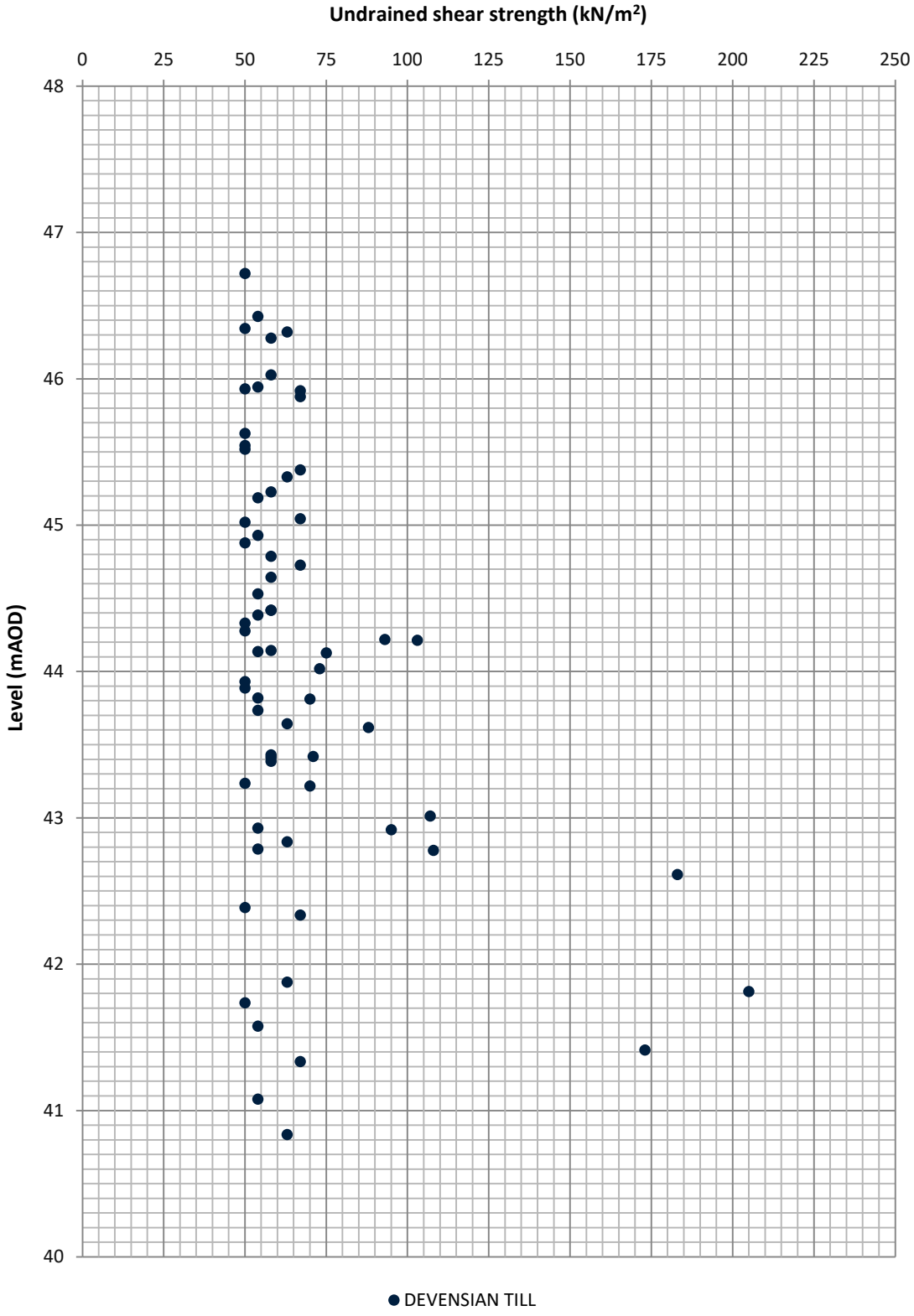
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



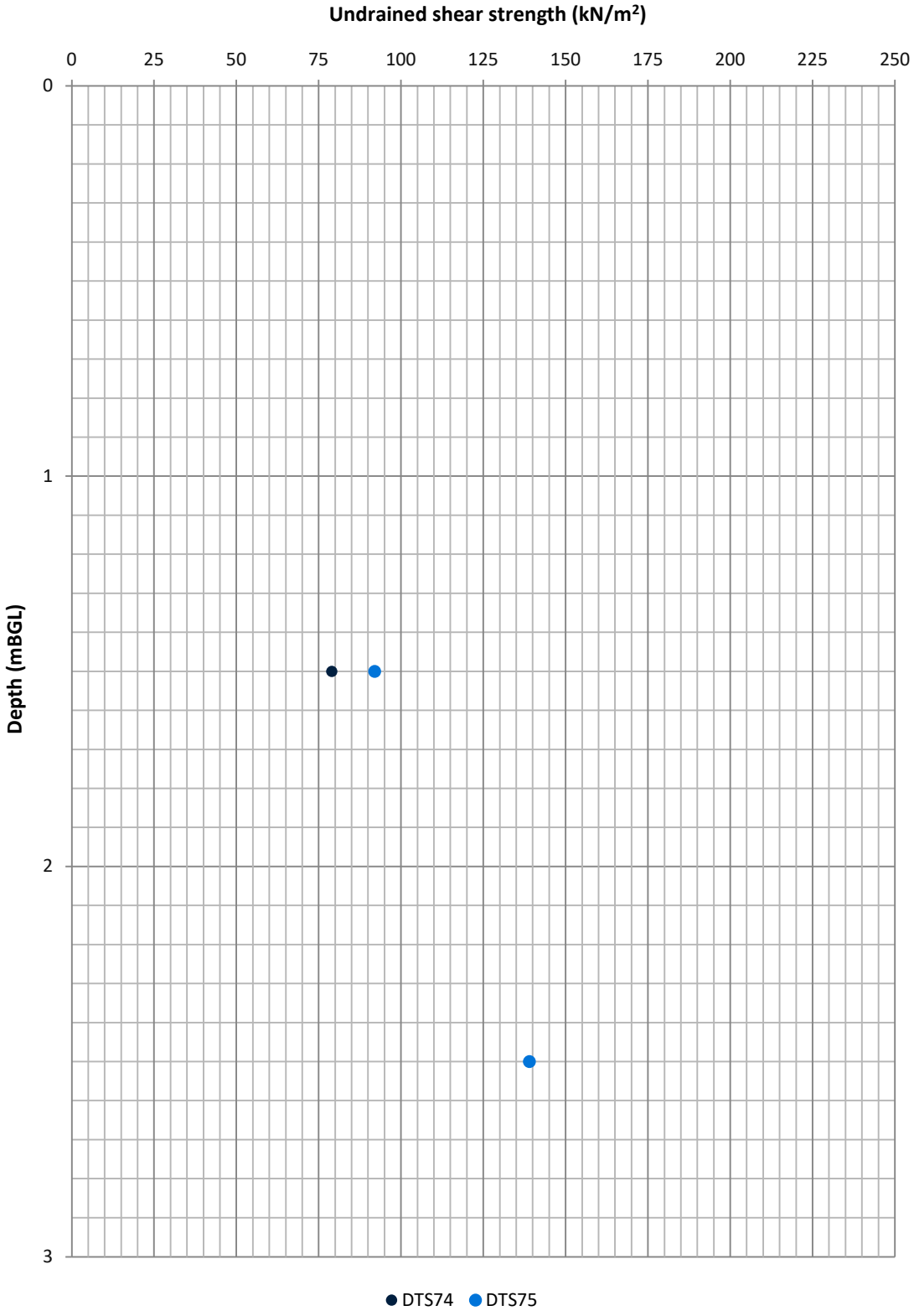
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Plot summarising Pocket Penetrometer results versus level filtered by geology



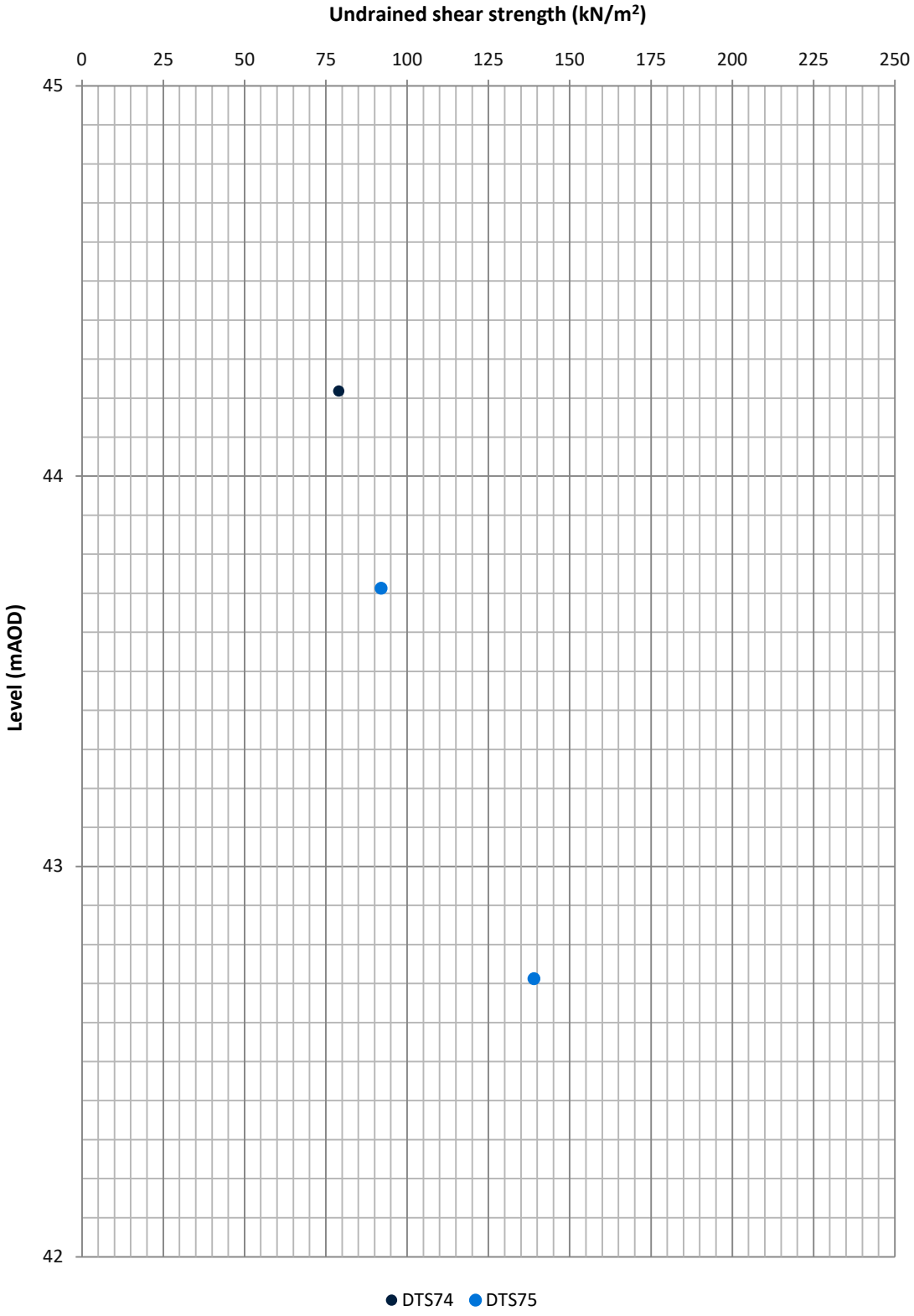
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Plot summarising Shear Vane results versus depth filtered by location



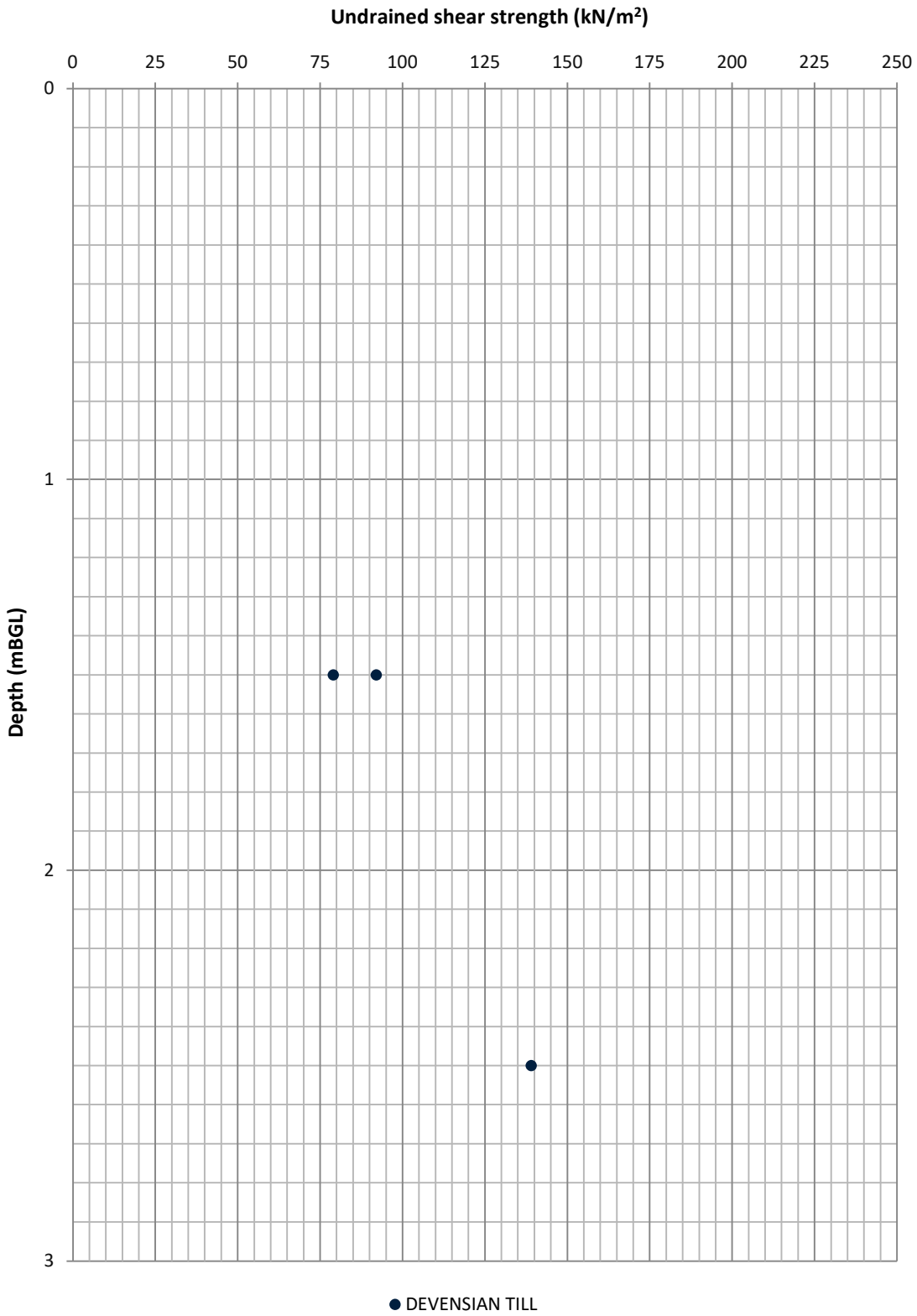
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Plot summarising Shear Vane results versus level filtered by location



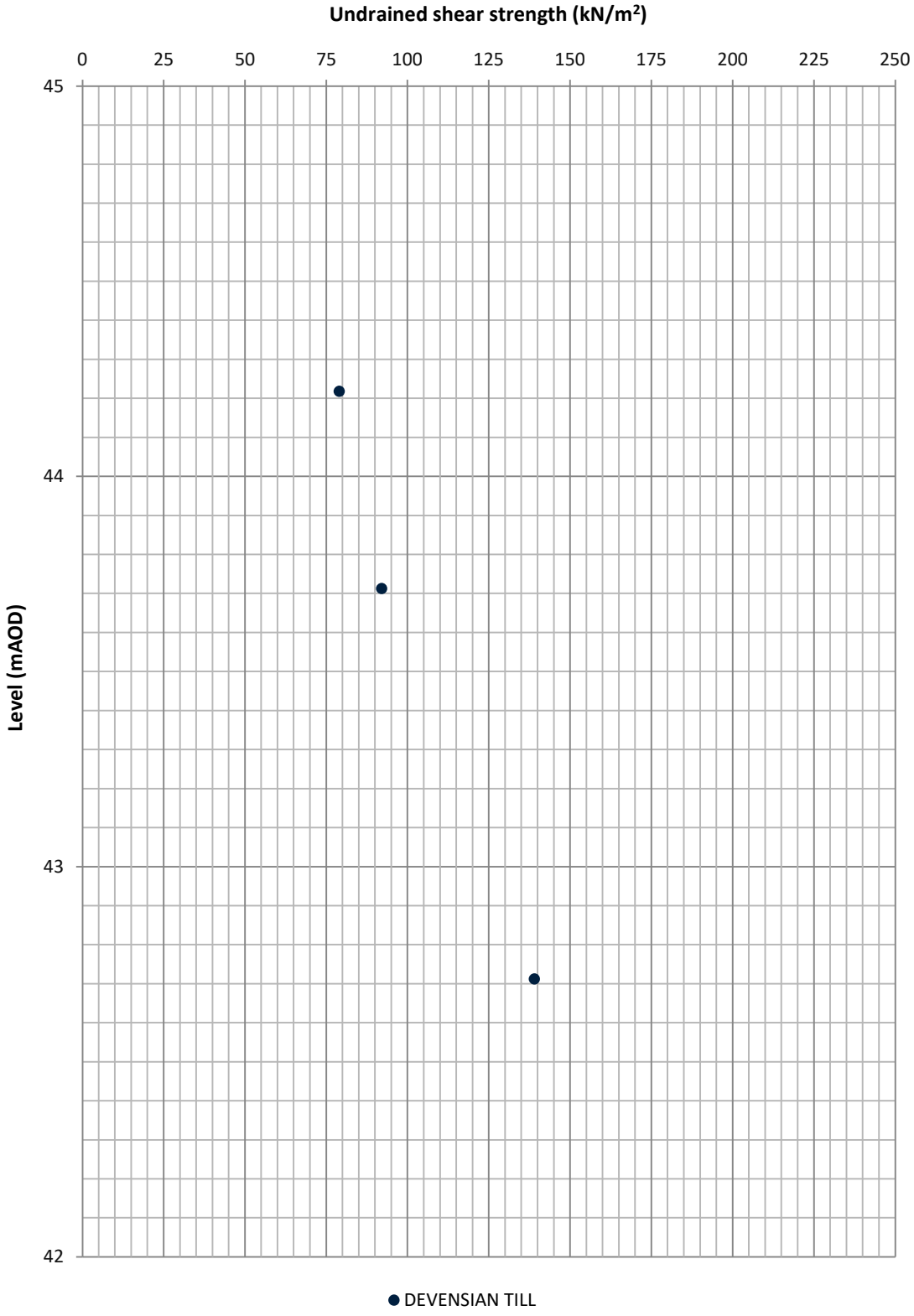
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Plot summarising Shear Vane results versus depth filtered by geology



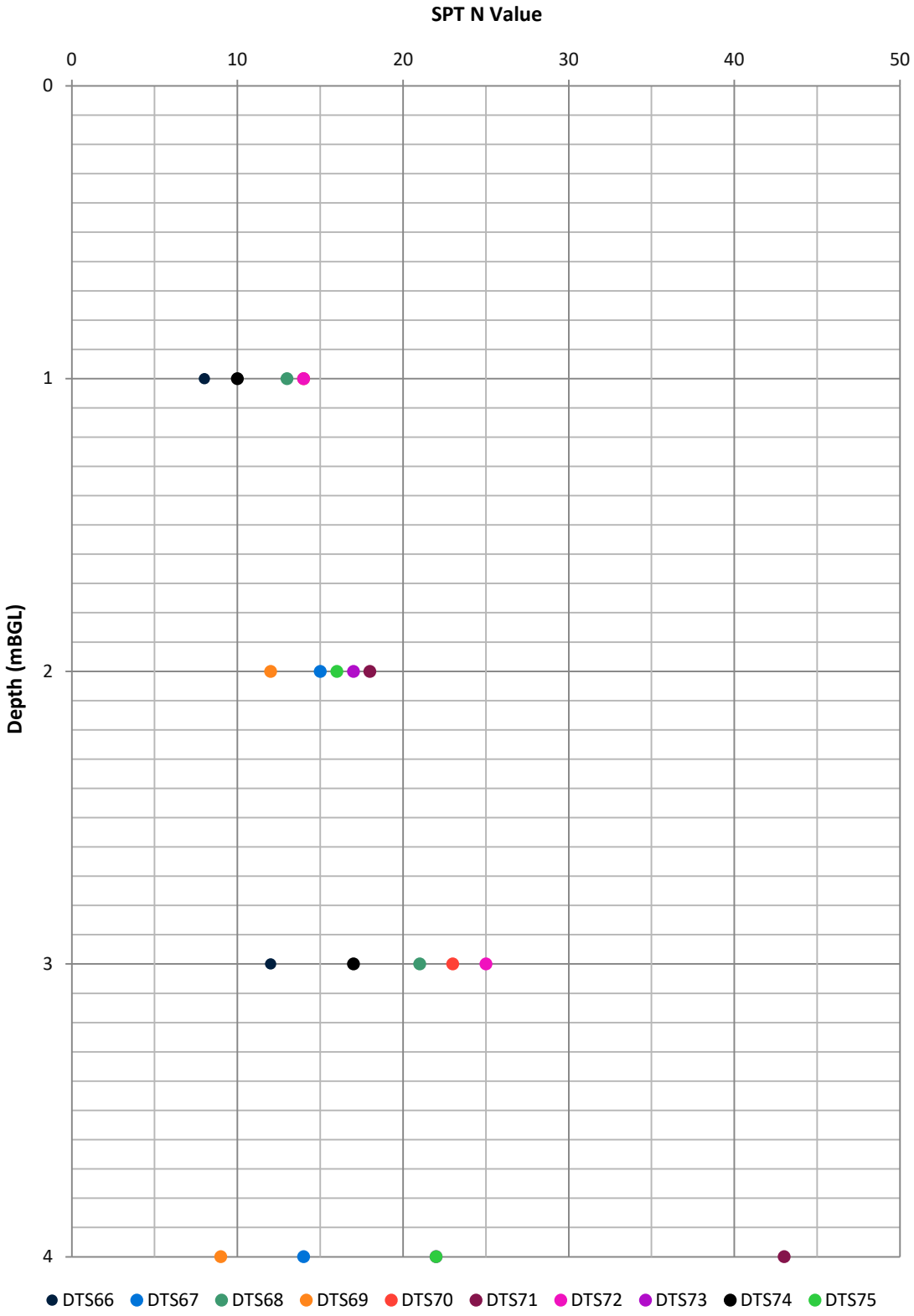
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Plot summarising Shear Vane results versus level filtered by geology



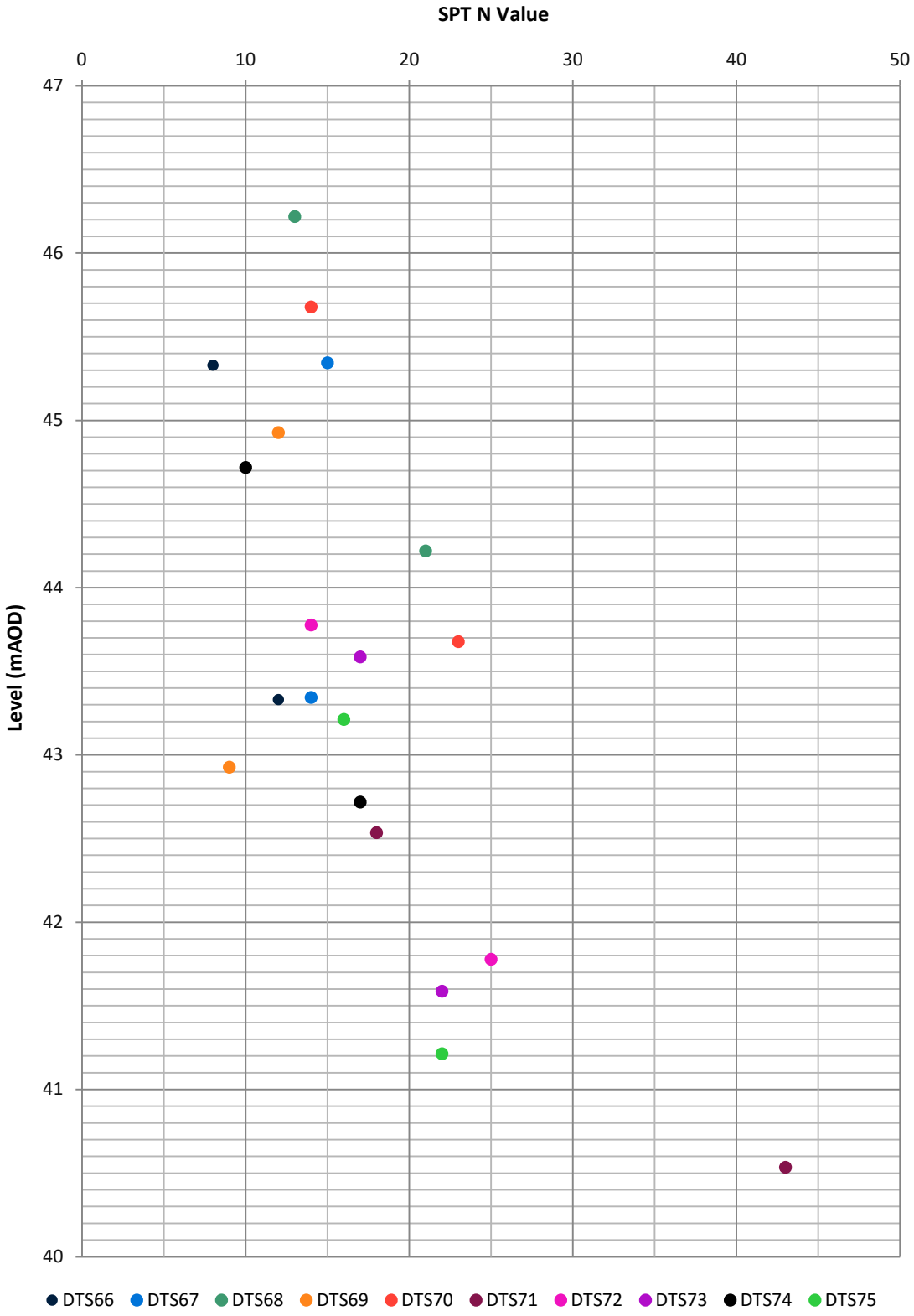
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



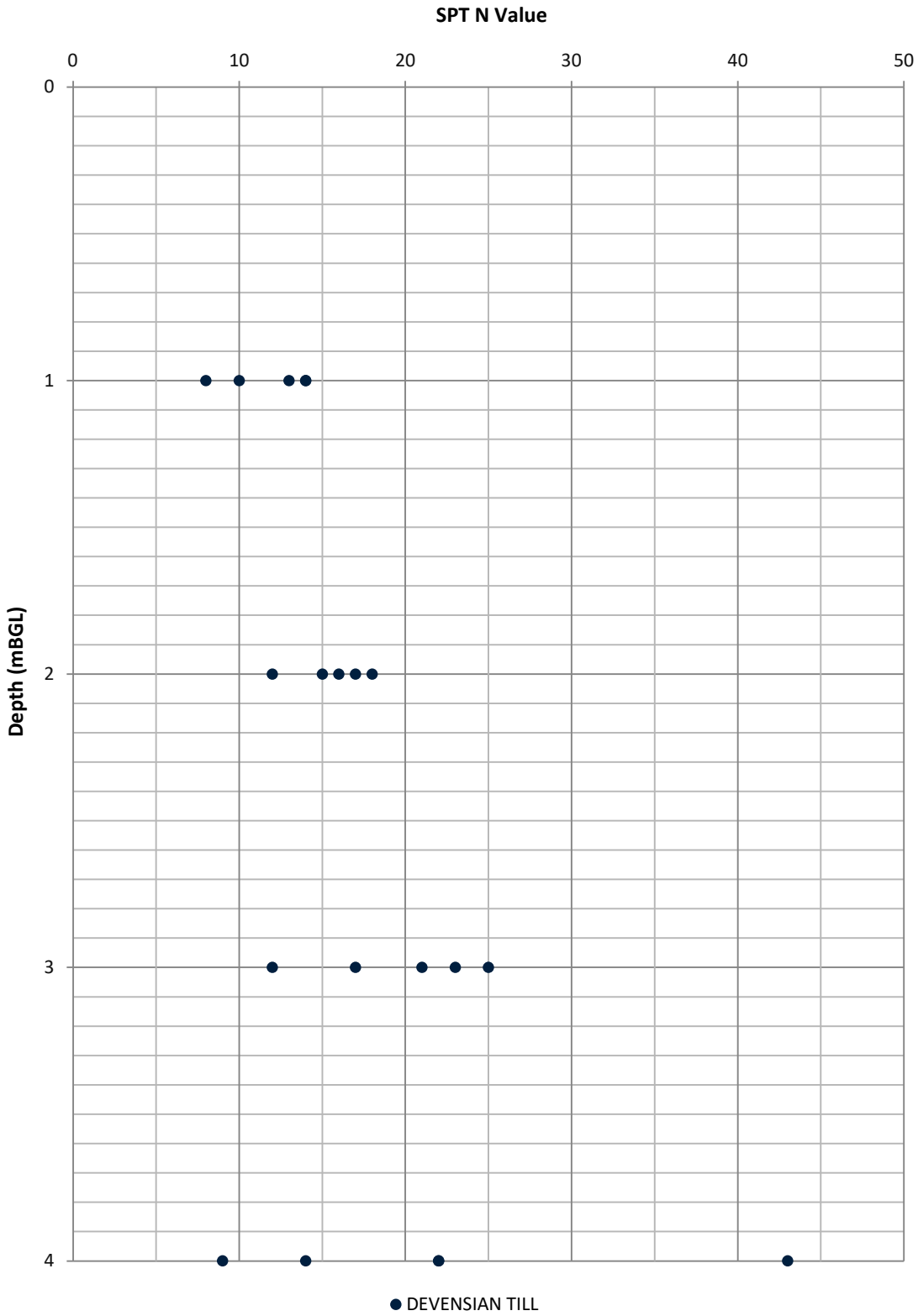
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



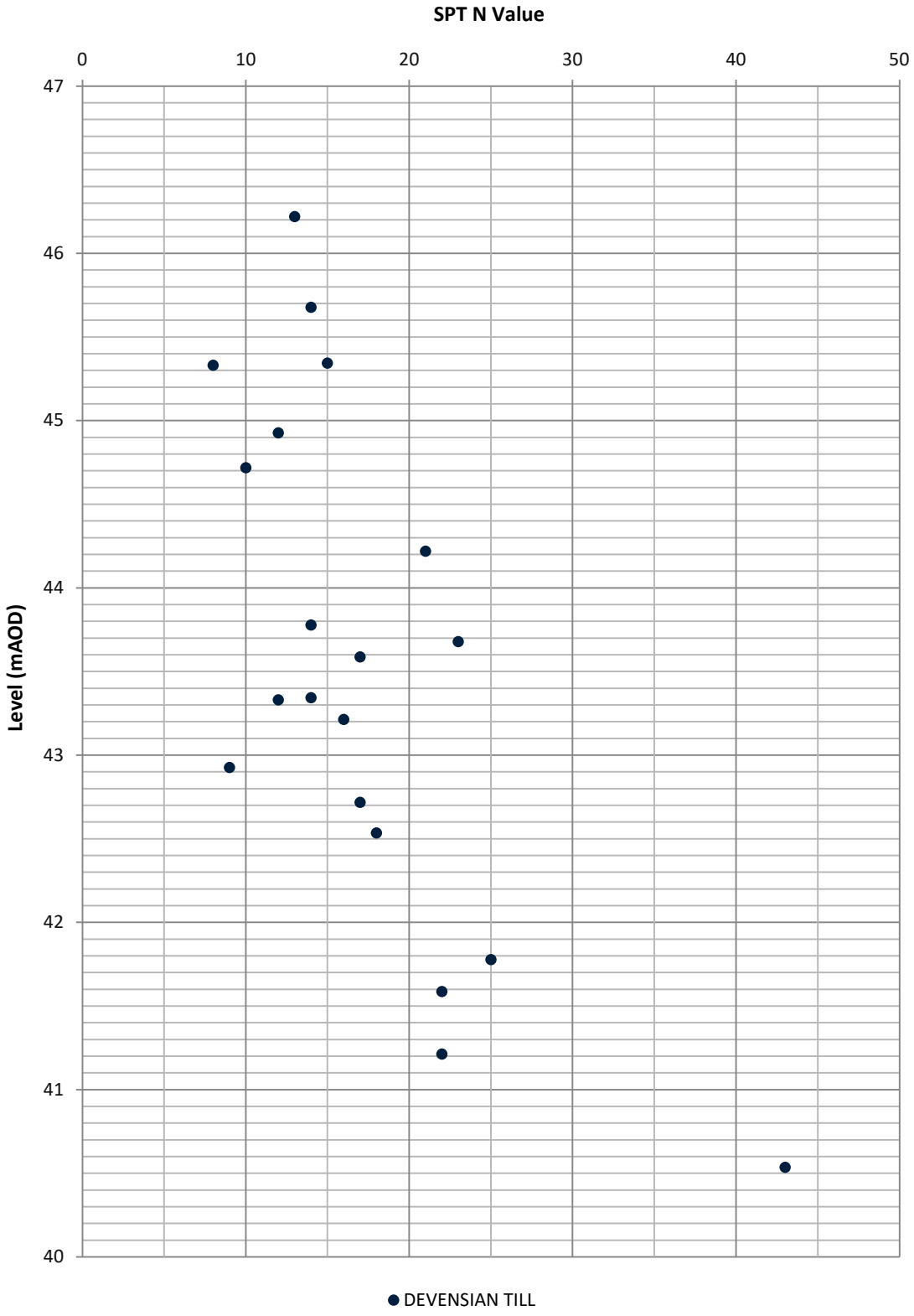
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



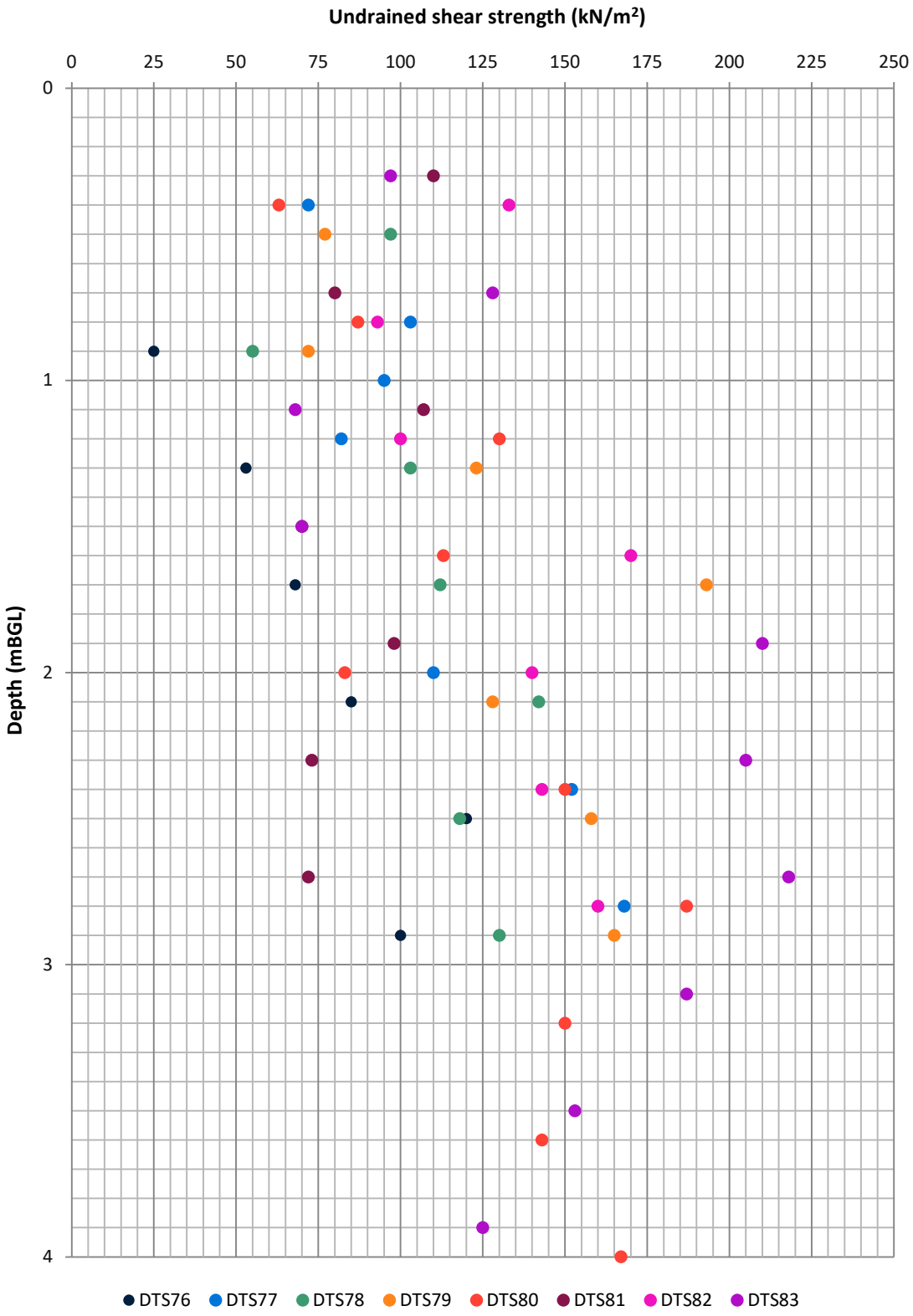
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



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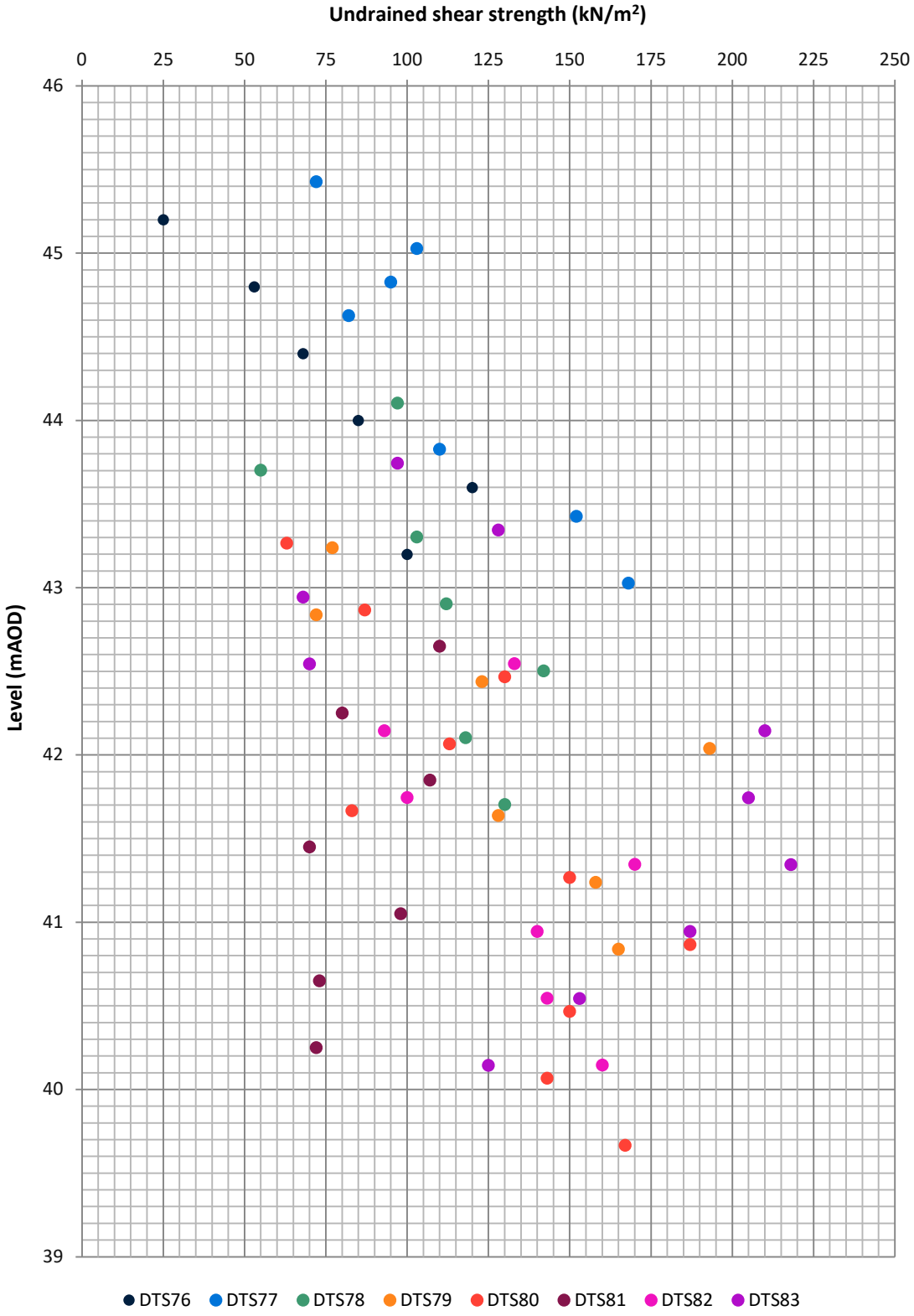
Plot summarising Pocket Penetrometer results versus depth filtered by location



Created: 31/10/2022

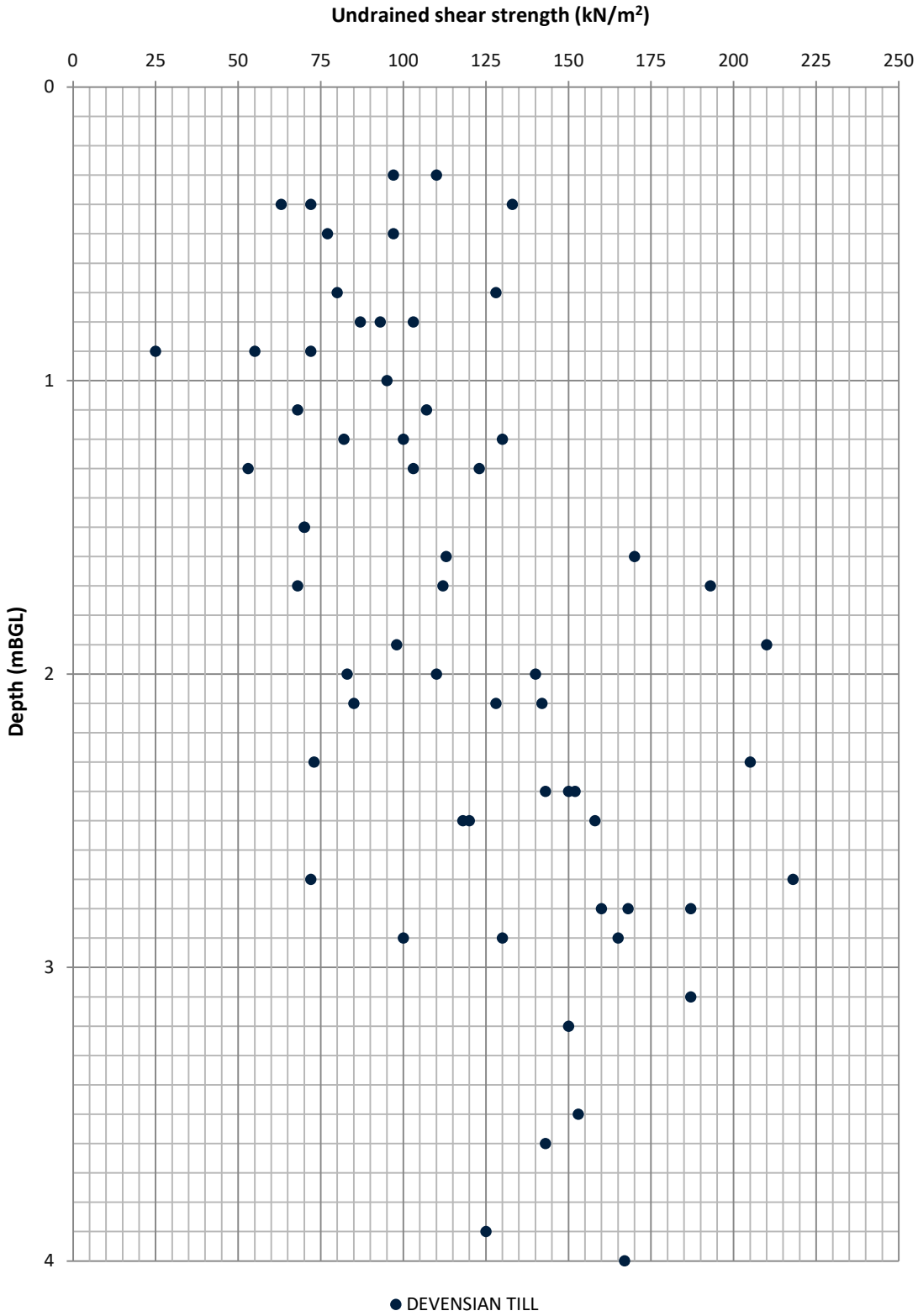
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Plot summarising Pocket Penetrometer results versus level filtered by location



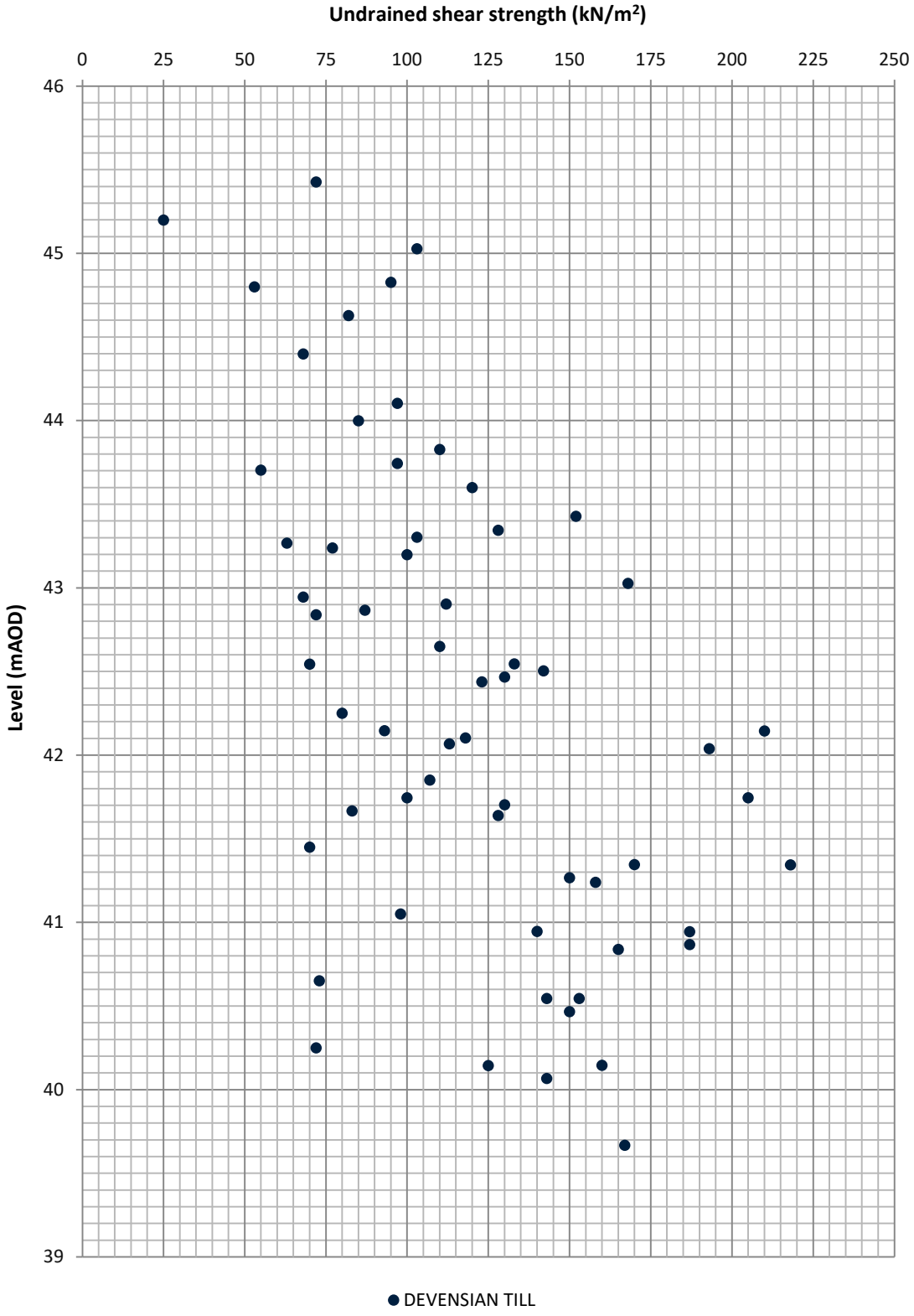
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



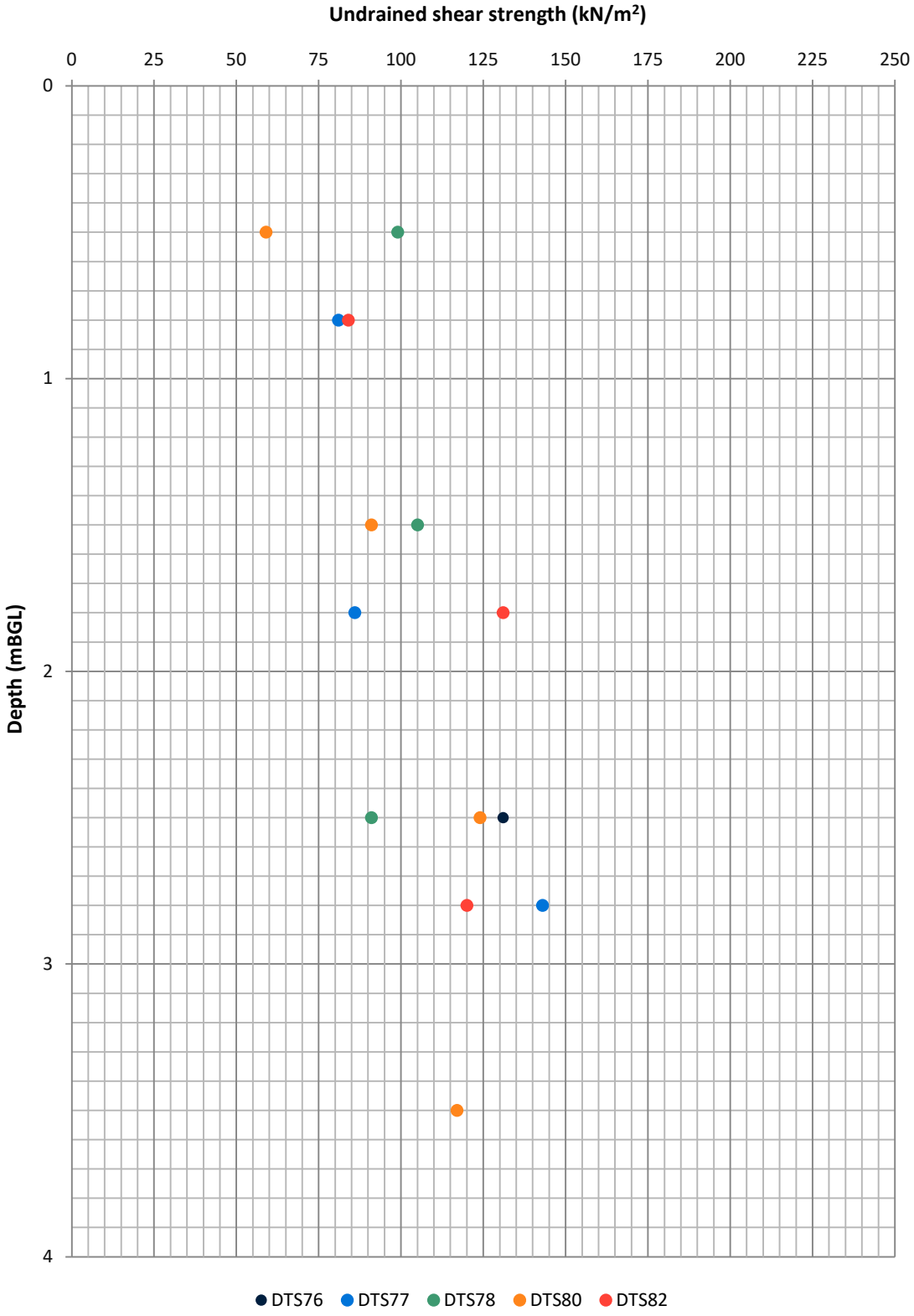
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Plot summarising Pocket Penetrometer results versus level filtered by geology



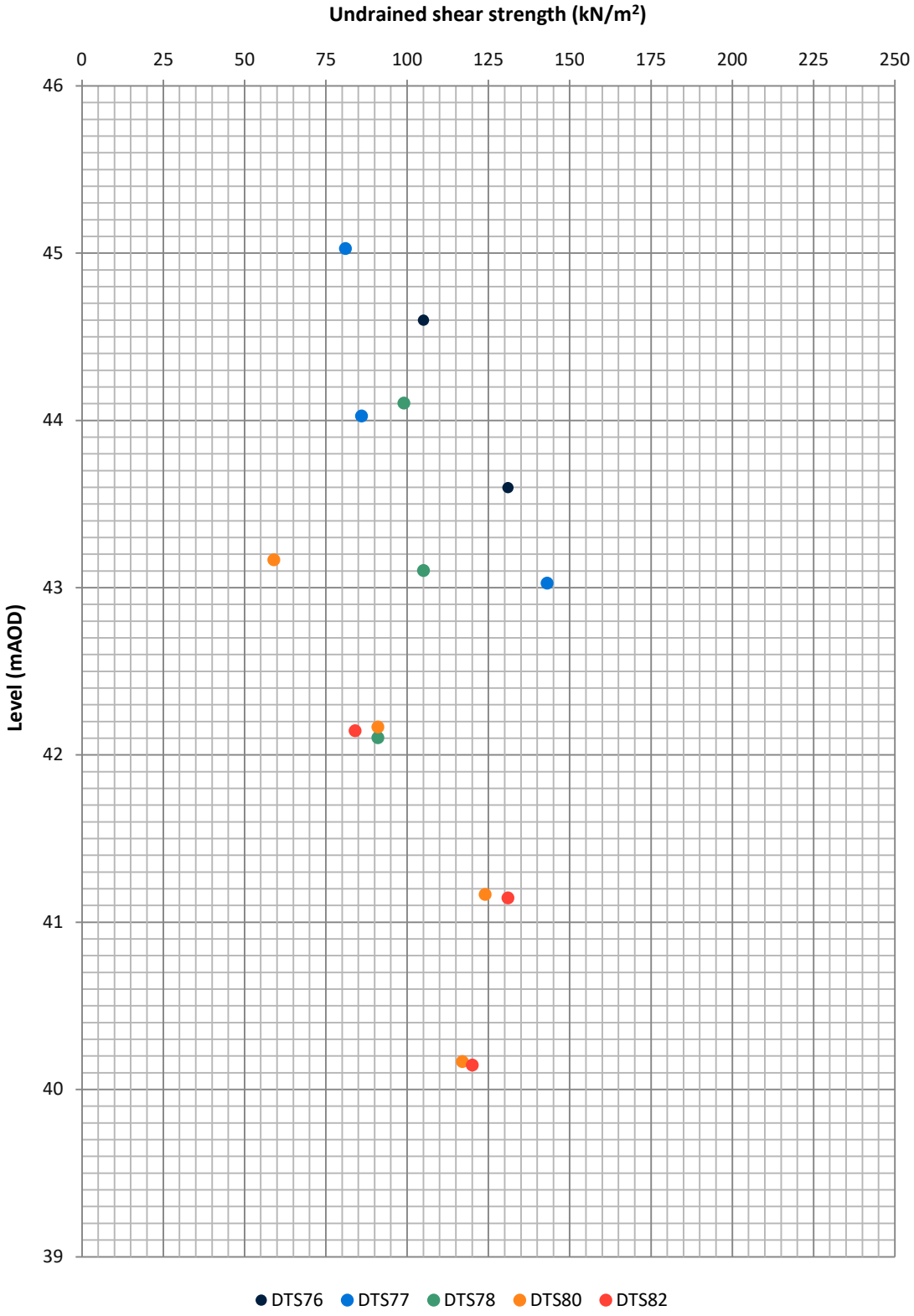
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Plot summarising Shear Vane results versus depth filtered by location



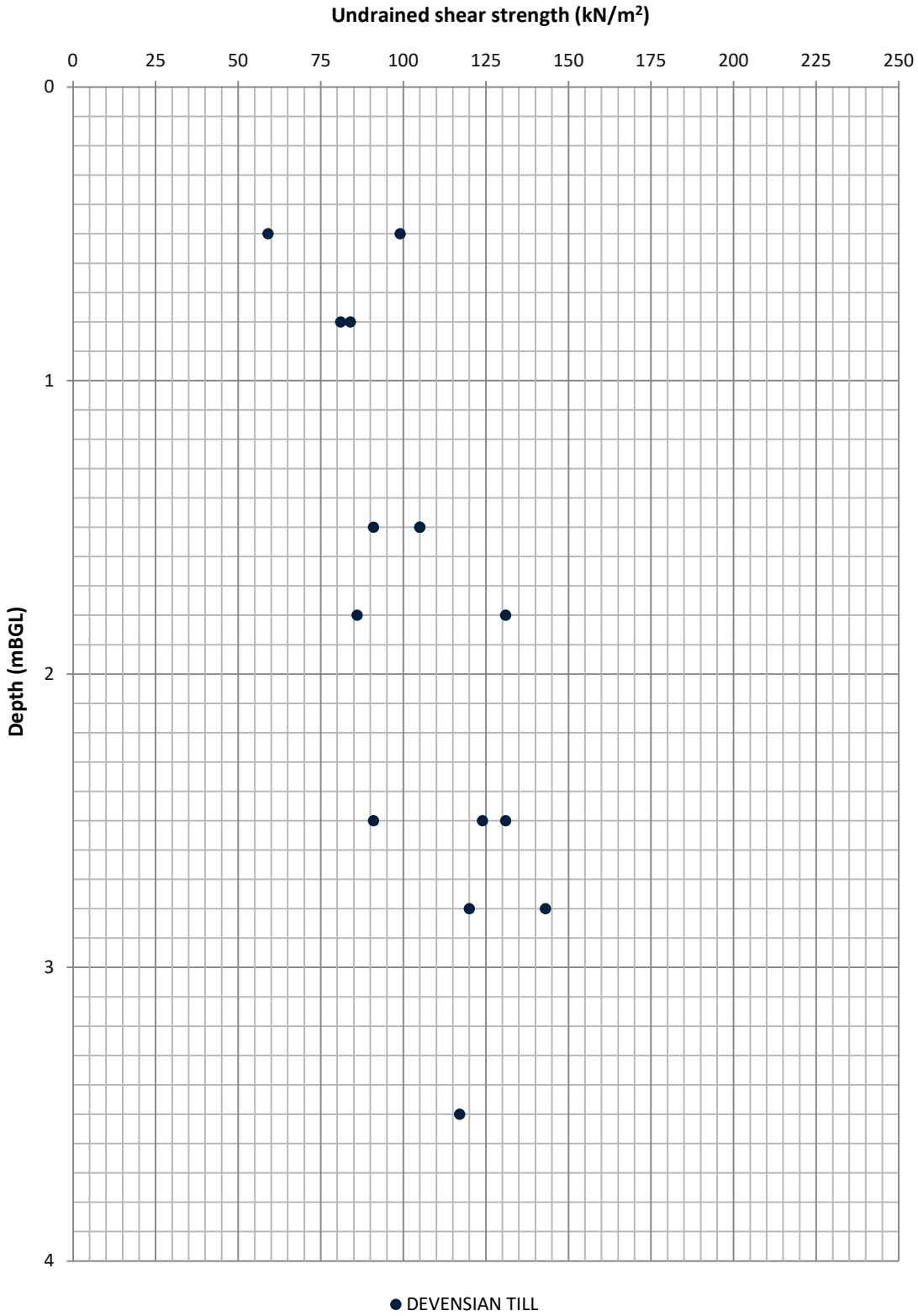
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Plot summarising Shear Vane results versus level filtered by location



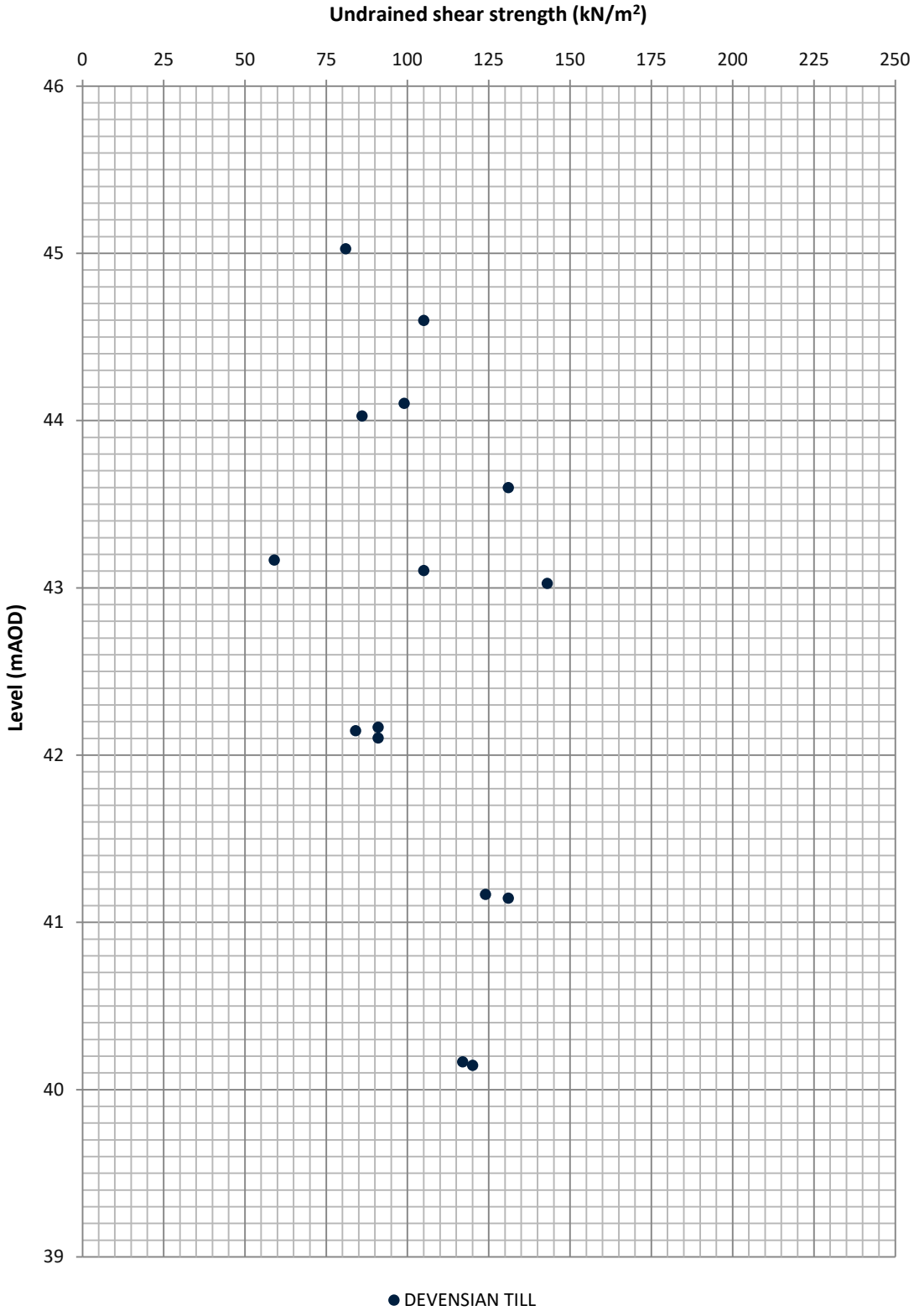
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Plot summarising Shear Vane results versus depth filtered by geology



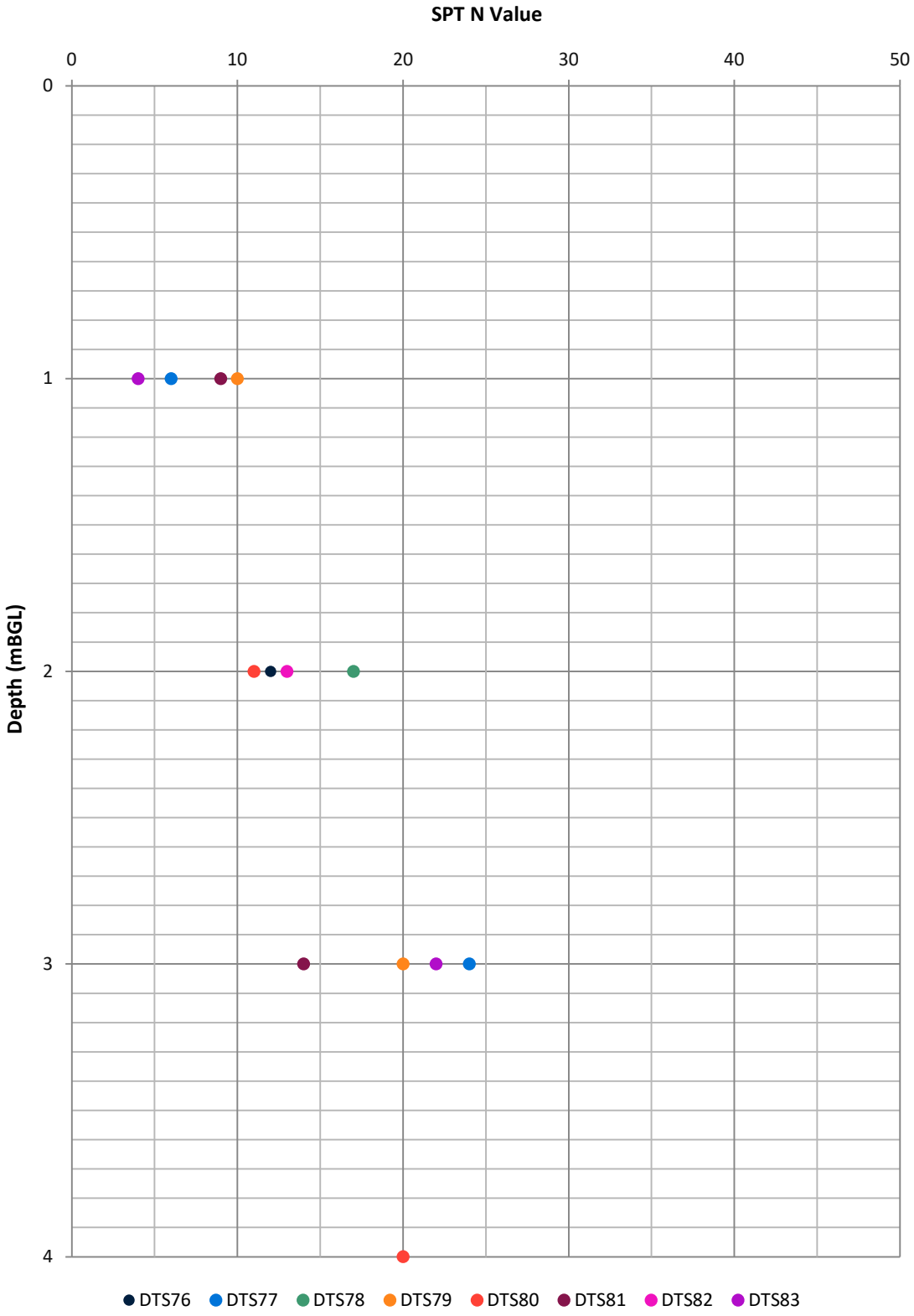
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Plot summarising Shear Vane results versus level filtered by geology



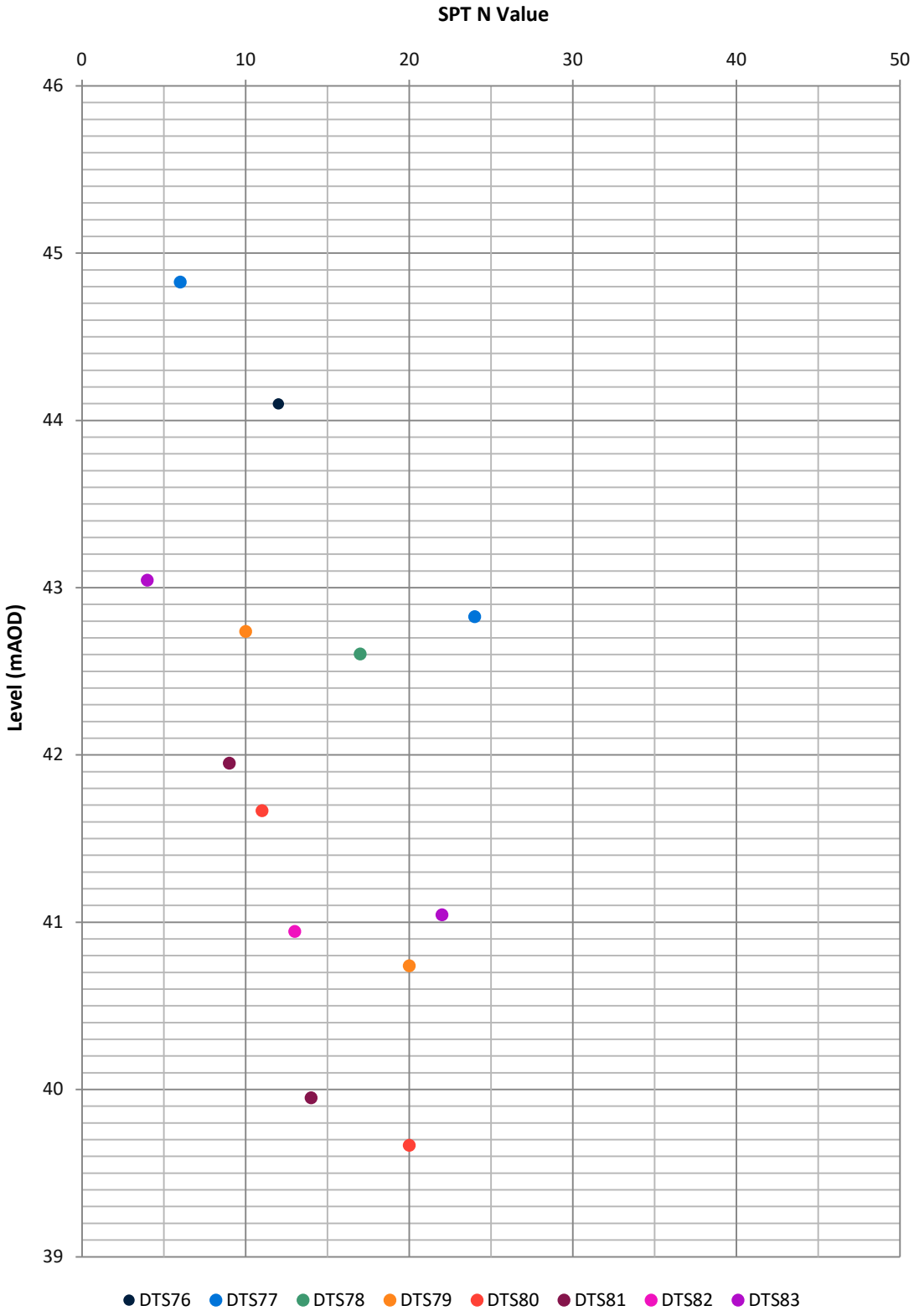
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



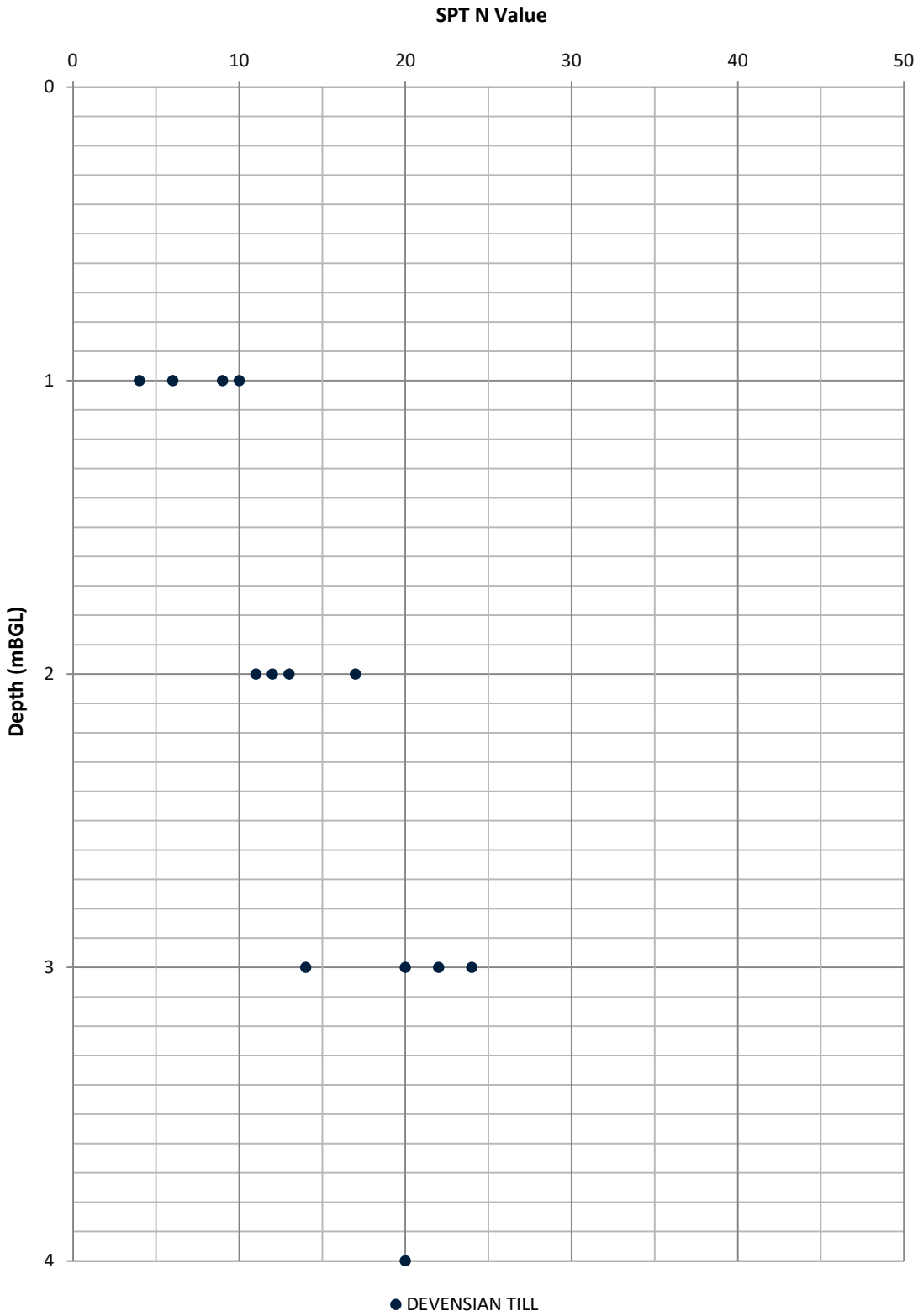
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology

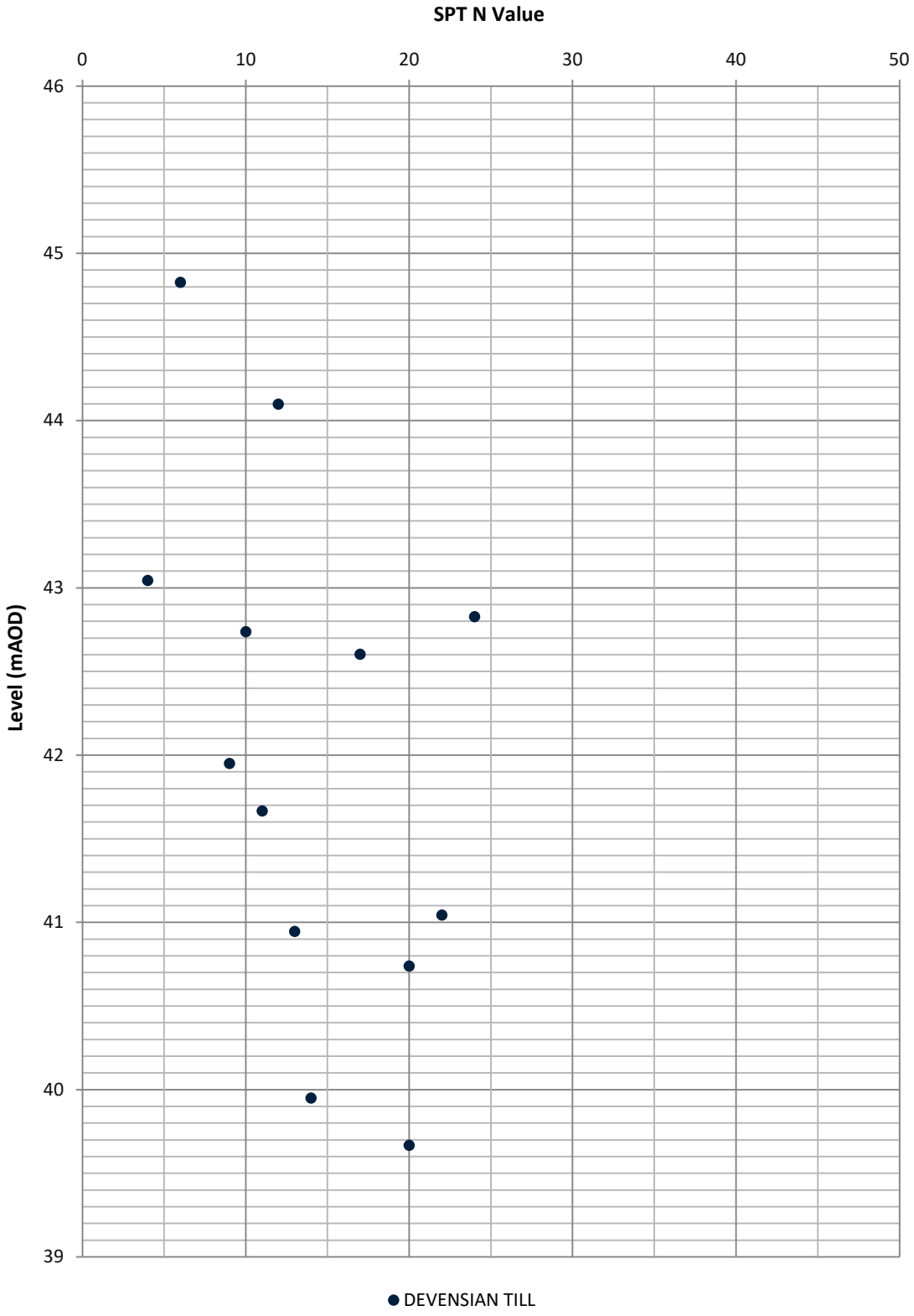


Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
DTS01	1.20	1.3/1.3/1.5	1.37	68
DTS01	1.50	0.5/0.1/0	0.20	10
DTS01	1.60	0/0/0	0.00	0
DTS01	2.00	0.5/0.5/0.2	0.40	20
DTS02	0.40	2/2.5/2	2.17	108
DTS02	0.80	2.2/2/3.5	2.57	128
DTS04	0.90	1.8/2/1.2	1.67	83
DTS04	1.70	4.5/4.5/4.5	4.50	225
DTS05	1.20	4.5/4.5/4.5	4.50	225
DTS05	1.70	4.5/4.5/4.5	4.50	225
WS101	0.60	1/1/1	1.00	50
WS101	0.80	1/1/1	1.00	50
WS101	1.10	1/1/1	1.00	50
WS101	1.30	1.75/1.75/1.75	1.75	88
WS101	1.50	2/2/2	2.00	100
WS103	0.50	2/2/2	2.00	100
WS103	0.70	1.5/1.5/1.25	1.42	71
WS103	0.90	2/2/2.25	2.08	104
WS103	1.50	1/1/1	1.00	50
WS103	1.60	1/1/1	1.00	50
WS104	2.50	1/0.75/1	0.92	46
WS104	2.80	1/0.75/0.75	0.83	42
WS105	2.50	2/2/2.25	2.08	104
WS105	2.70	1.75/2/2	1.92	96
WS105	2.90	1.75/2/1.75	1.83	92

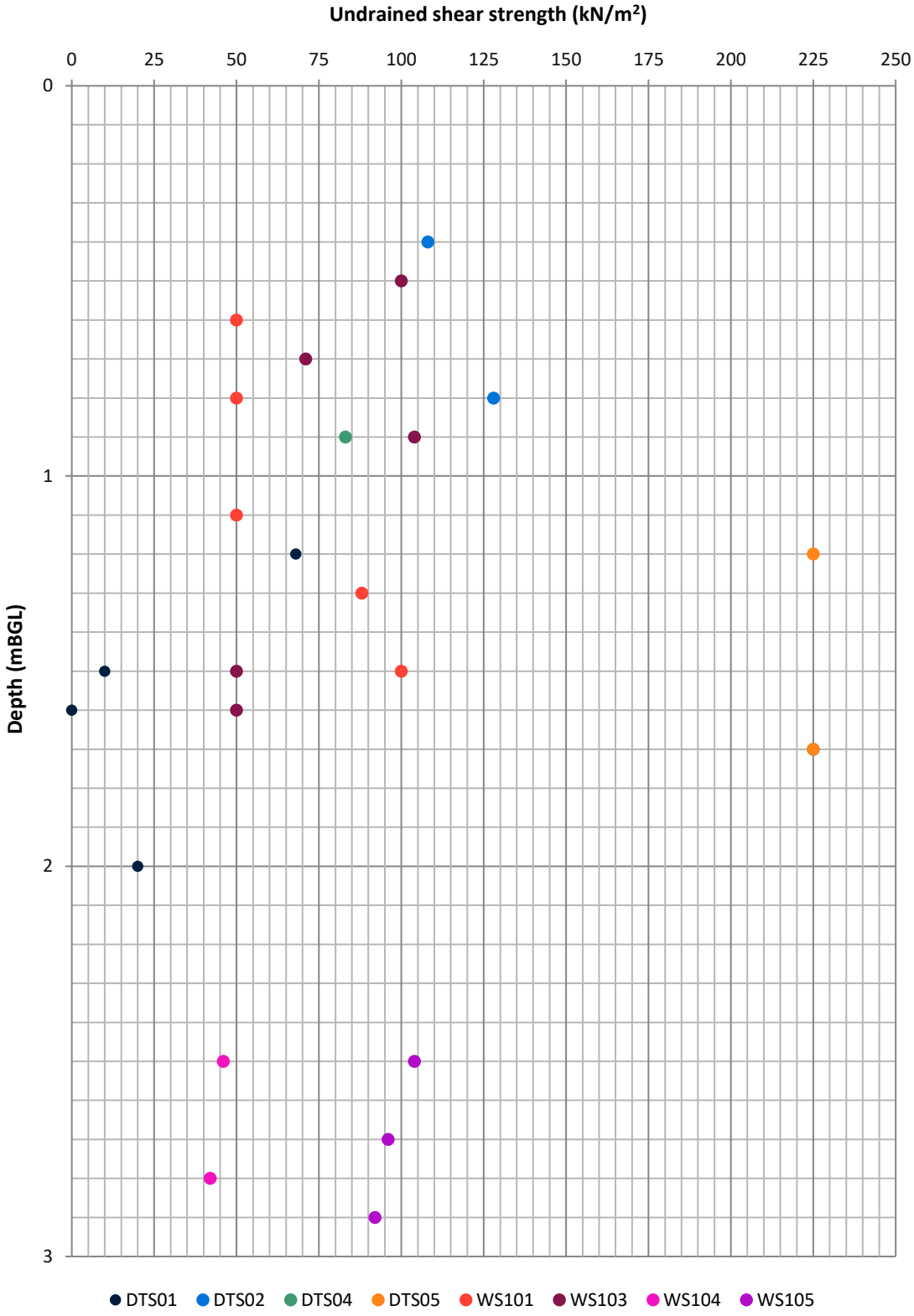
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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
DTS01	1.00	1/0	0/1/0/0	1	1	150	300
DTS01	2.00	1/0	0/1/0/0	1	1	150	300
DTS01	3.00	0/0	1/1/0/0	0	2	150	300
DTS01	4.00	0/0	0/0/0/0	0	0	150	300
DTS01	5.00	0/0	0/0/0/0	0	0	150	300
DTS01	6.00	2/2	2/2/2/2	4	8	150	300
DTS02	1.00	1/1	1/1/1/2	2	5	150	300
DTS02	2.00	7/9	10/30/10	16	50	150	155
DTS03	1.00	2/1	0/1/0/0	3	1	150	300
DTS03	1.80	13/12	22/28	25	50	95	115
DTS04	1.00	0/0	1/0/2/2	0	5	150	300
DTS04	2.00	5/5	10/13/20/7	10	50	150	240
DTS05	1.00	5/6	6/7/10/14	11	37	150	300
DTS05	1.80	10/15	21/29	25	50	150	135
WS101	1.00	2/2	4/3/4/7	4	18	150	300
WS101	1.60	9/11	15/25/10	20	50	150	190
WS102	1.00	4/4	6/8/8/12	8	34	150	300
WS102	1.70	7/13	17/22/11	20	50	150	180
WS103	1.00	4/2	2/1/1/2	6	6	150	300
WS103	1.80	20/5	50	25	50	150	40
WS104	1.00	1/0	1/1/0/1	1	3	150	300
WS104	2.00	0/0	0/0/1/1	0	2	150	300
WS104	3.00	0/0	0/0/0/1	0	1	150	300
WS104	4.00	2/1	1/1/1/2	3	5	150	300
WS104	5.00	1/2	2/2/2/2	3	8	150	300
WS105	1.00	1/0	1/1/1/1	1	4	150	300
WS105	2.00	2/1	2/2/2/3	3	9	150	300
WS105	3.00	1/5	50	6	50	150	30

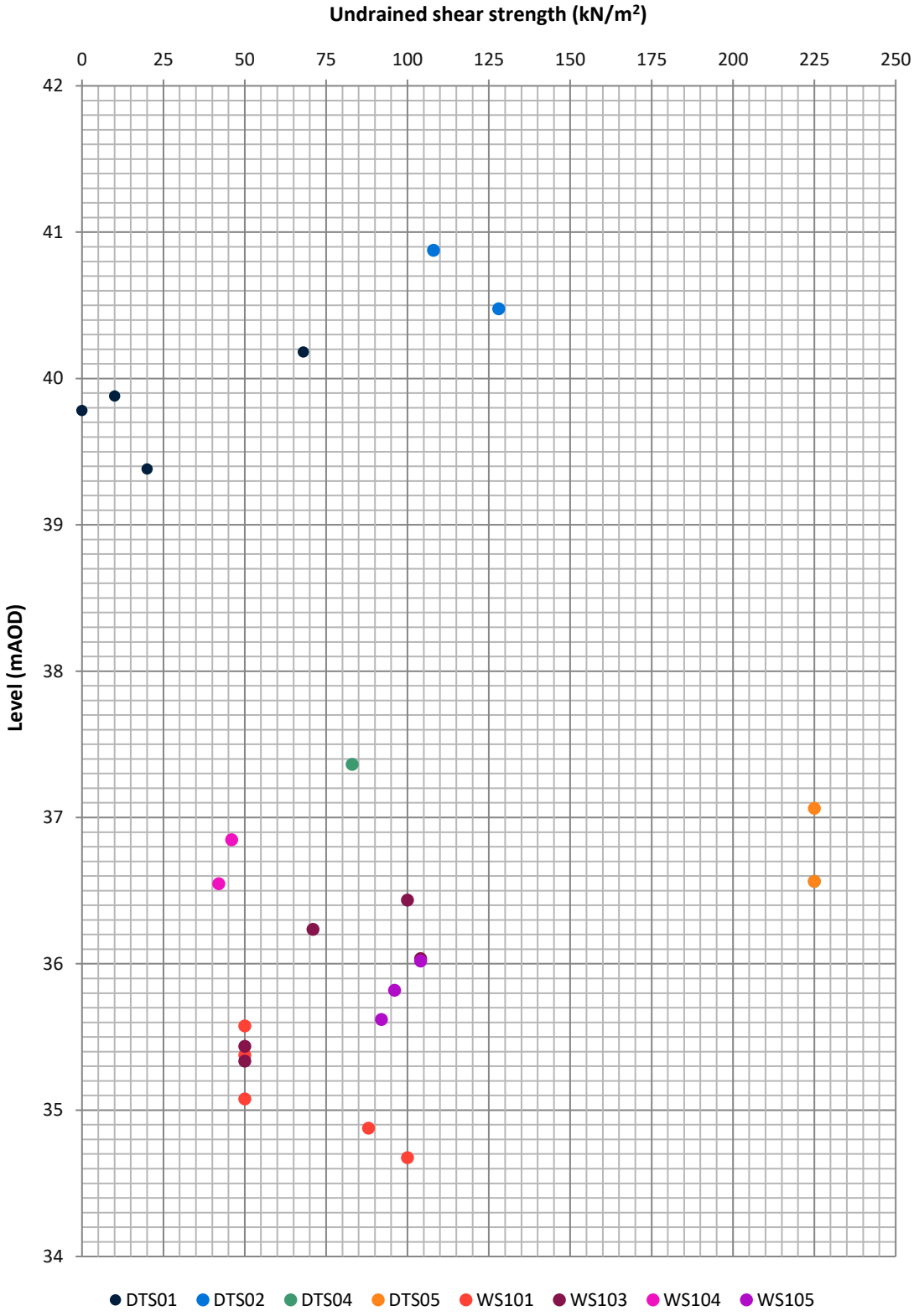
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Plot summarising Pocket Penetrometer results versus depth filtered by location



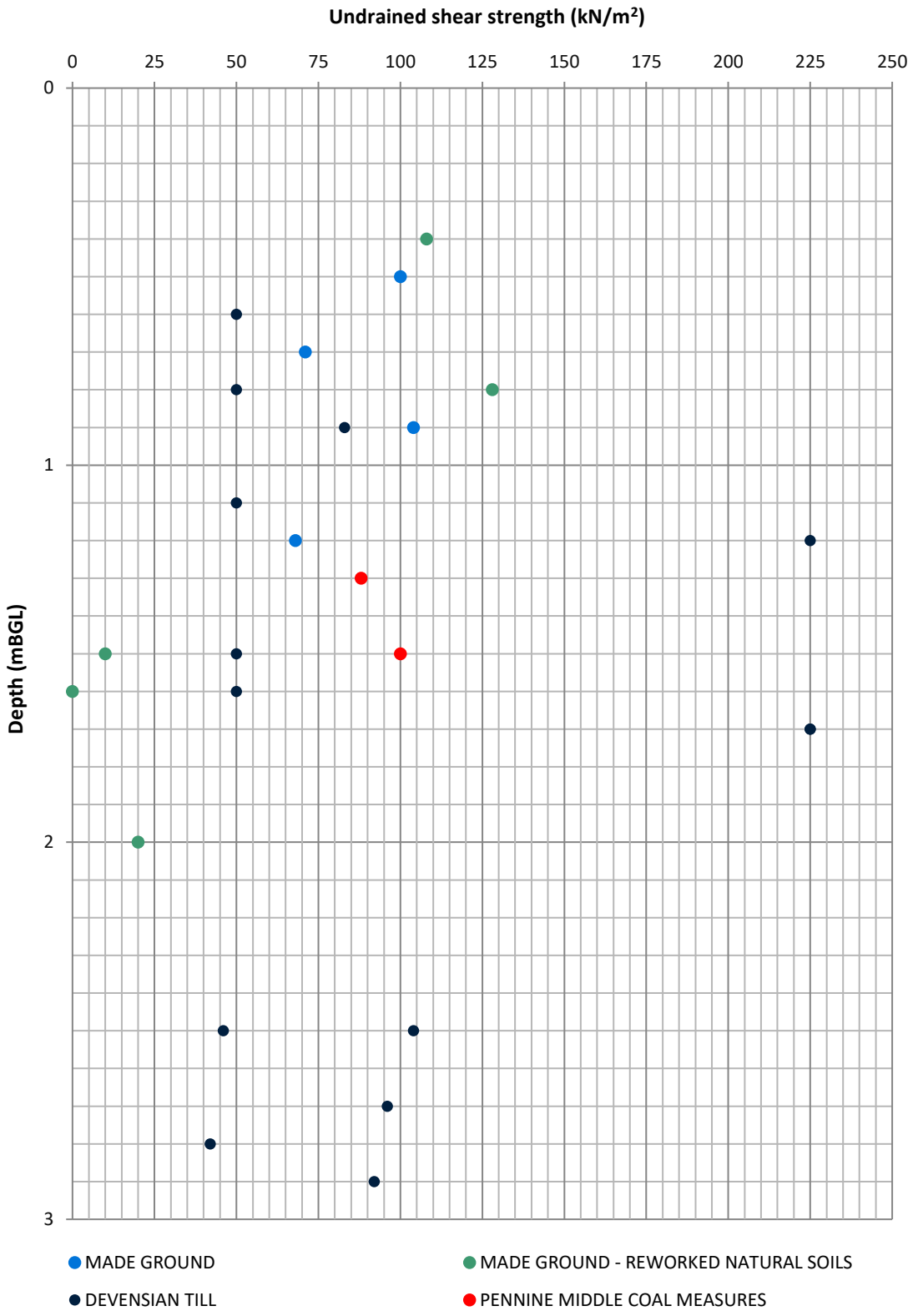
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Plot summarising Pocket Penetrometer results versus level filtered by location



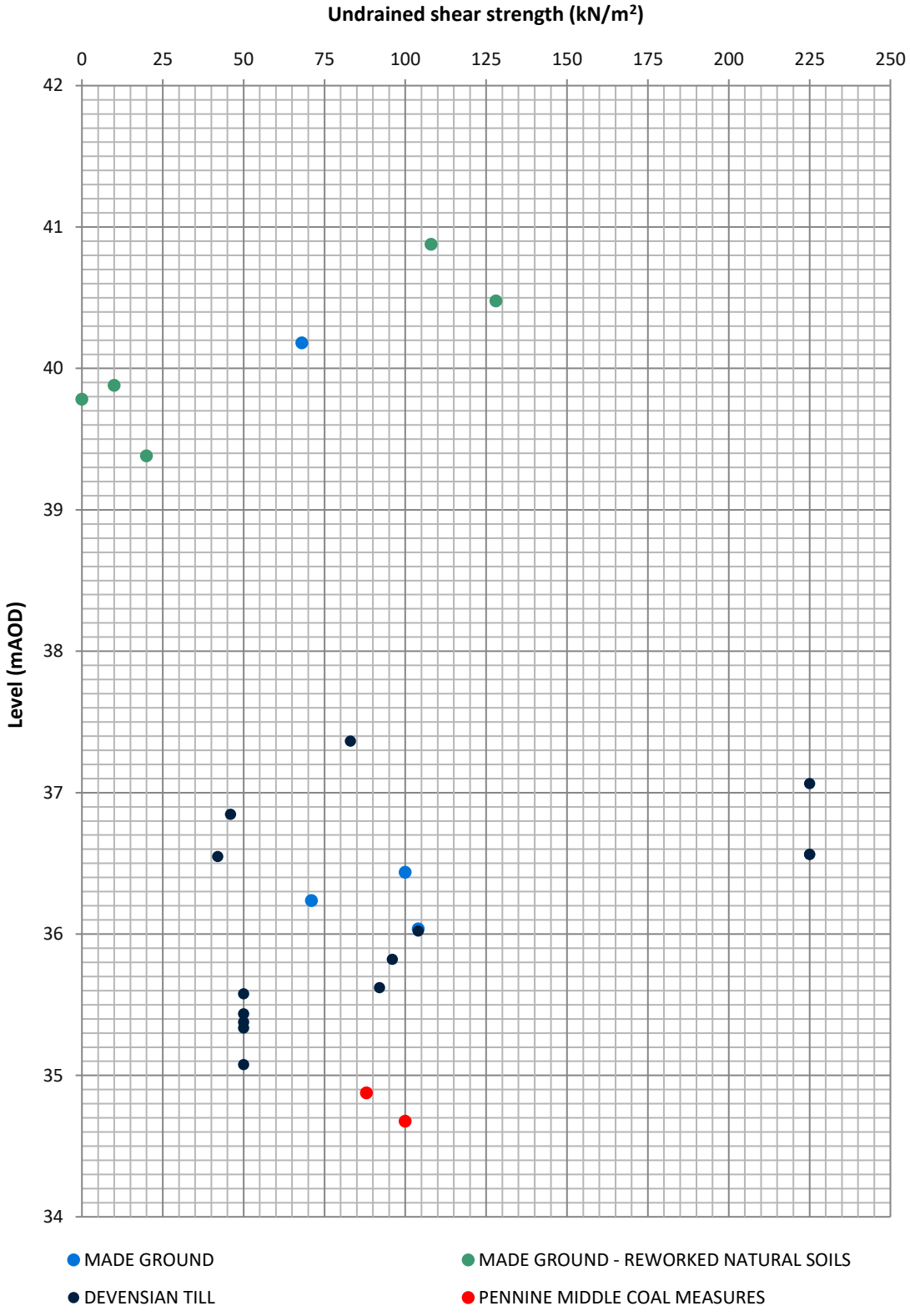
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



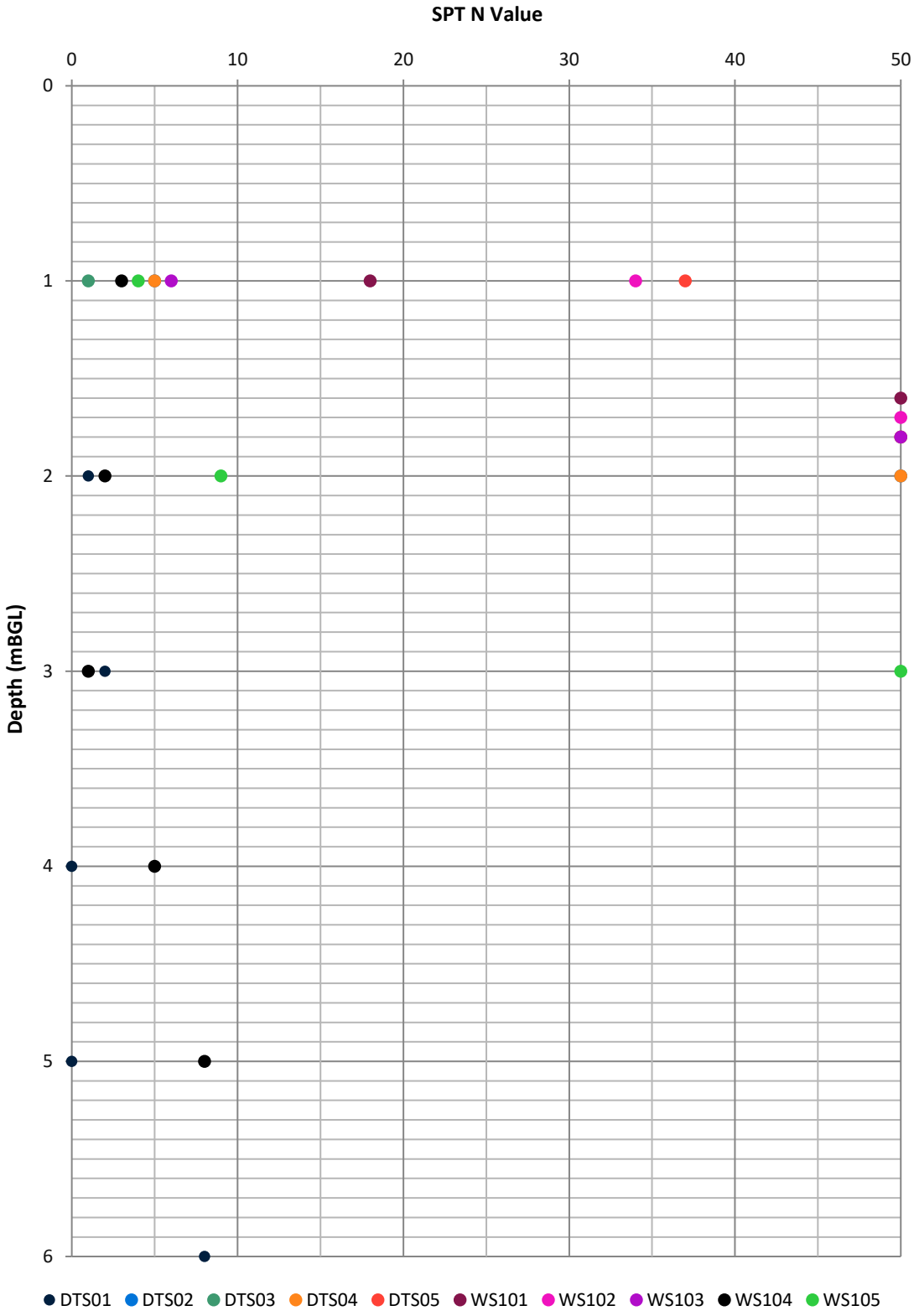
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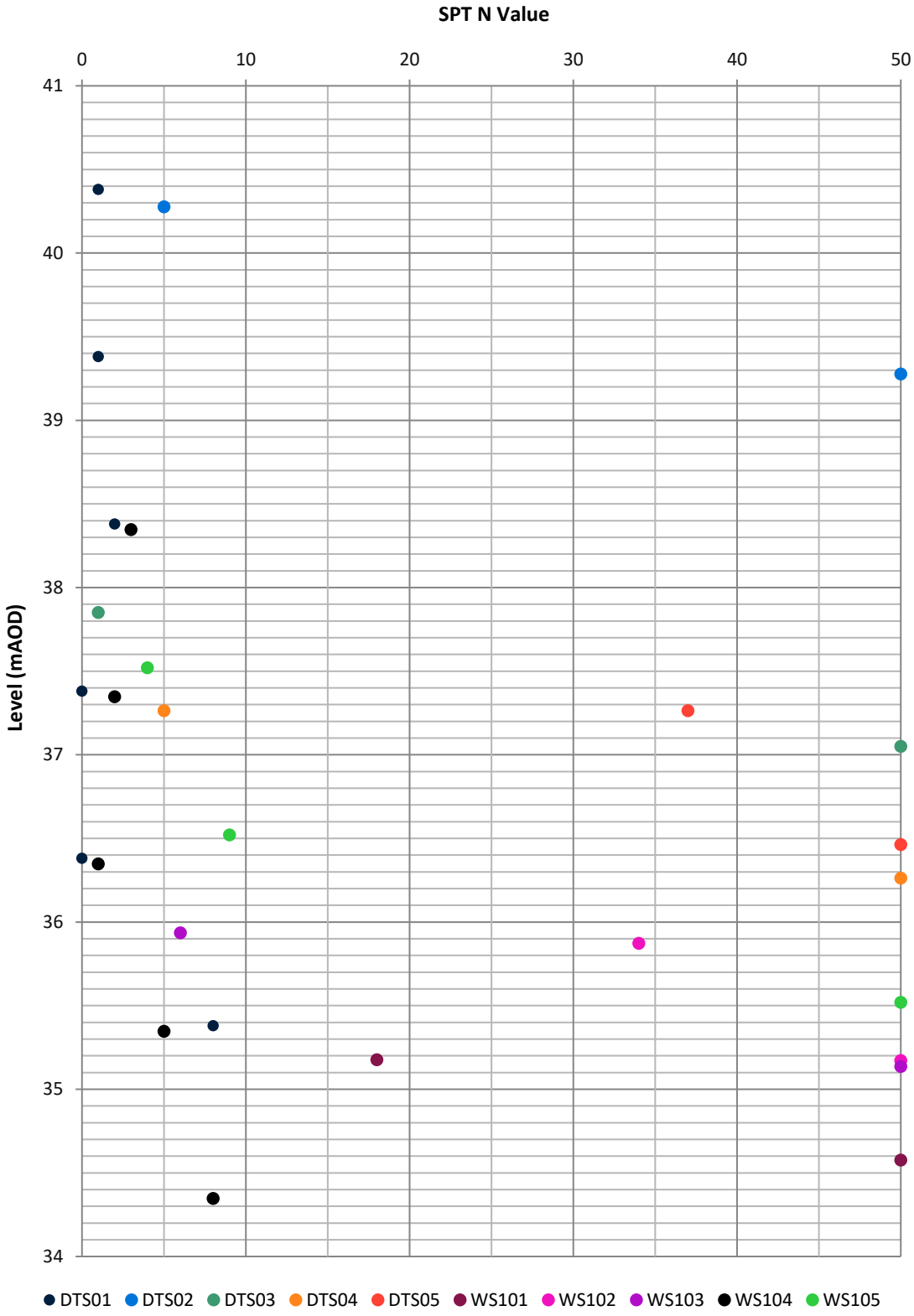
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



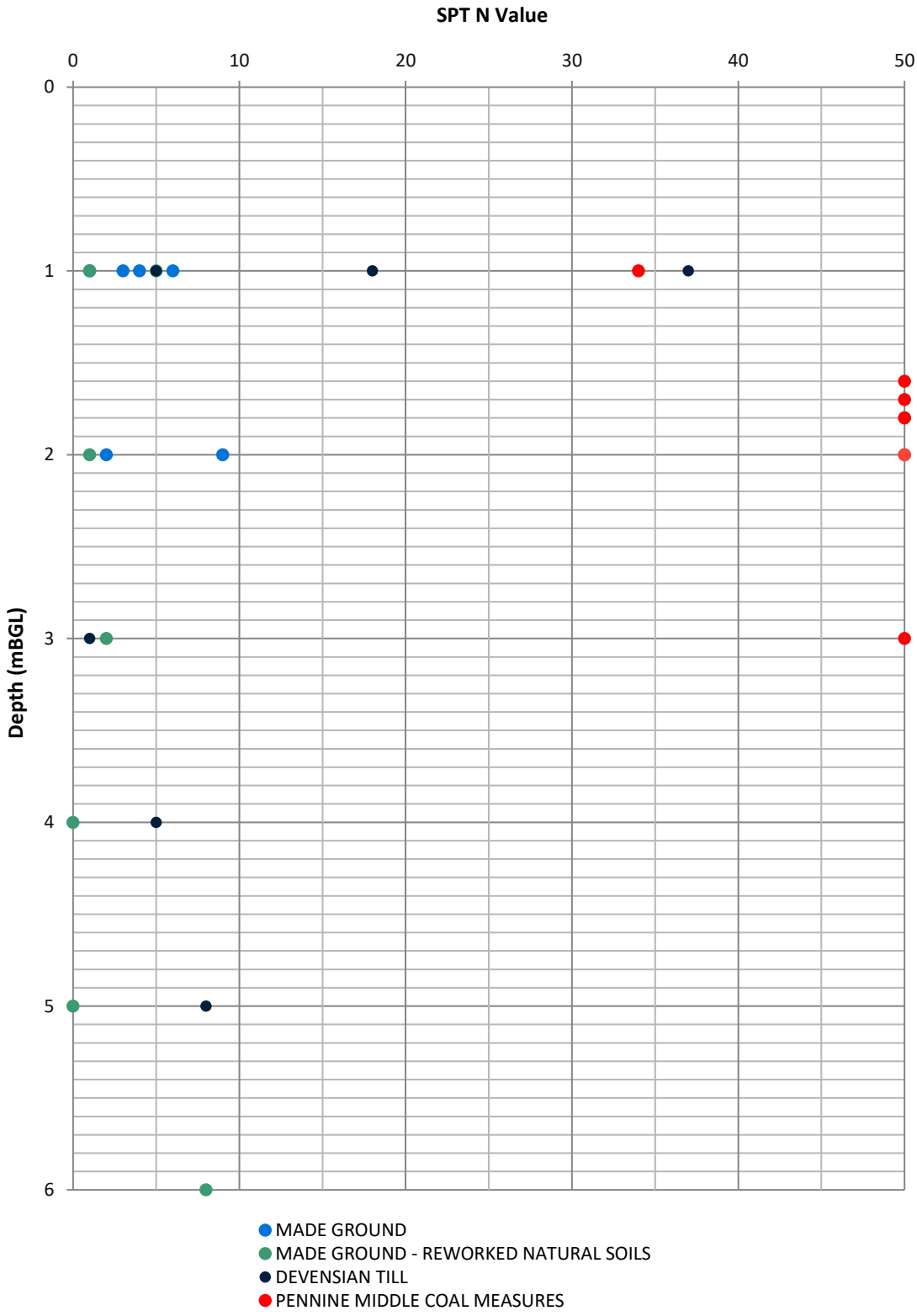
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location



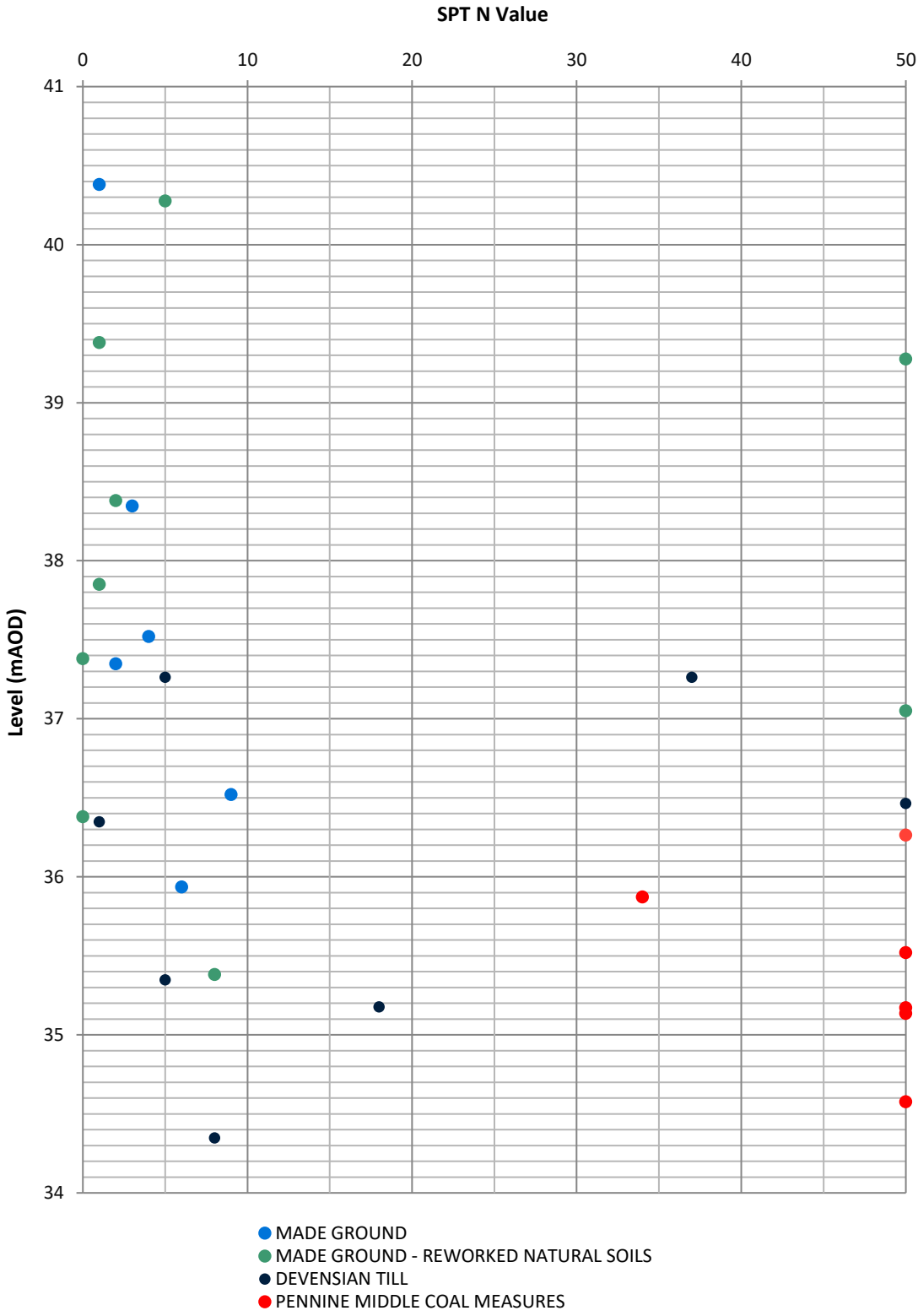
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



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Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



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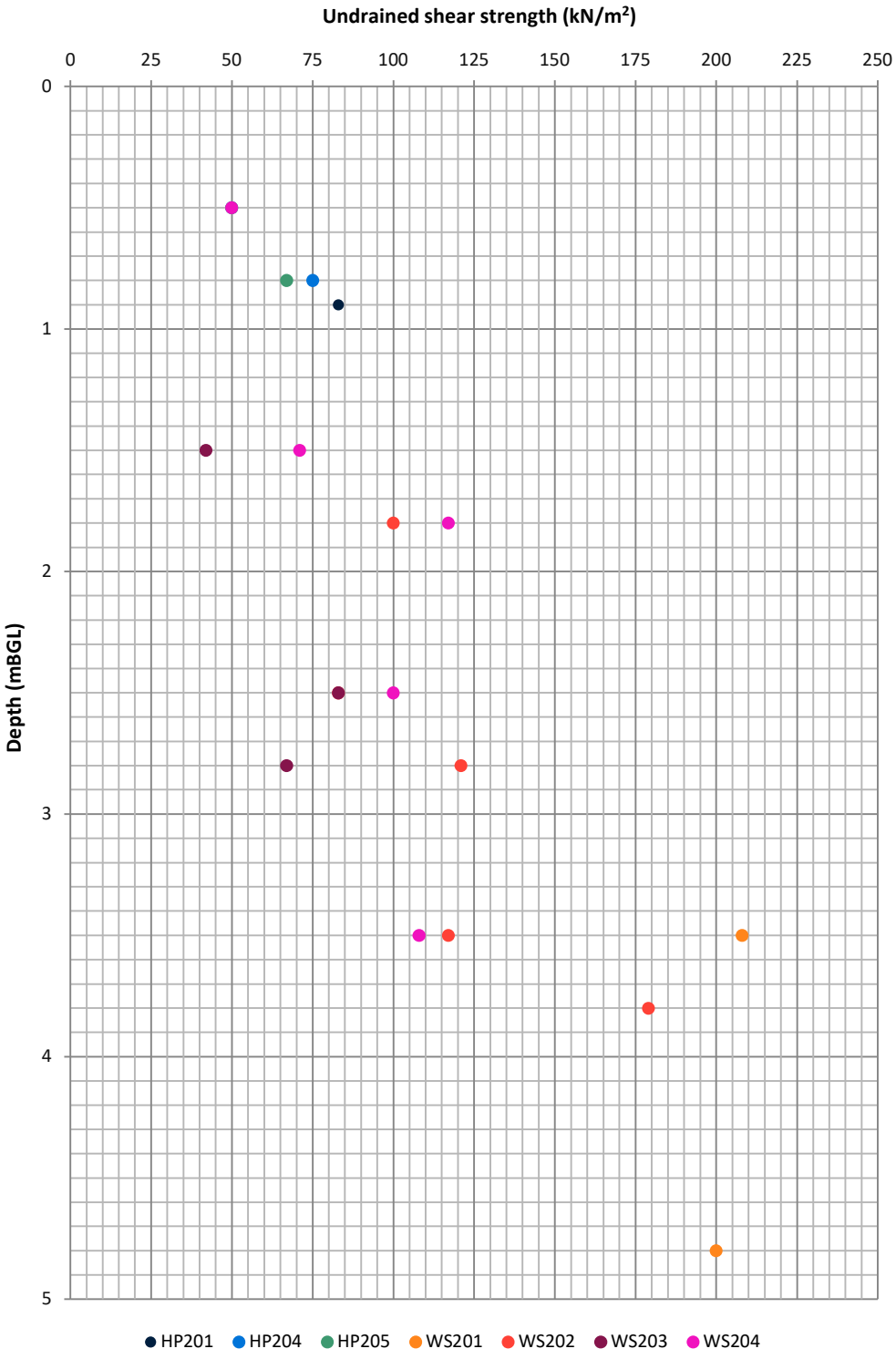
Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
HP201	0.90	1/2/2	1.67	83
HP204	0.50	1/1/1	1.00	50
HP204	0.80	1.5/2/1	1.50	75
HP205	0.50	1/1/1	1.00	50
HP205	0.80	1.5/1.25/1.25	1.33	67
WS201	3.50	4.5/4/4	4.17	208
WS201	4.80	4/4/4	4.00	200
WS202	1.80	2/2/2	2.00	100
WS202	2.50	2/1.5/1.5	1.67	83
WS202	2.80	2.5/2.5/2.25	2.42	121
WS202	3.50	2.5/1.5/3	2.33	117
WS202	3.80	3.75/3/4	3.58	179
WS203	1.50	0.5/1/1	0.83	42
WS203	2.50	1.5/2/1.5	1.67	83
WS203	2.80	2/1/1	1.33	67
WS204	0.50	1/1/1	1.00	50
WS204	1.50	1.5/1.75/1	1.42	71
WS204	1.80	2.5/2/2.5	2.33	117
WS204	2.50	2/2/2	2.00	100
WS204	3.50	2.25/2.5/1.75	2.17	108

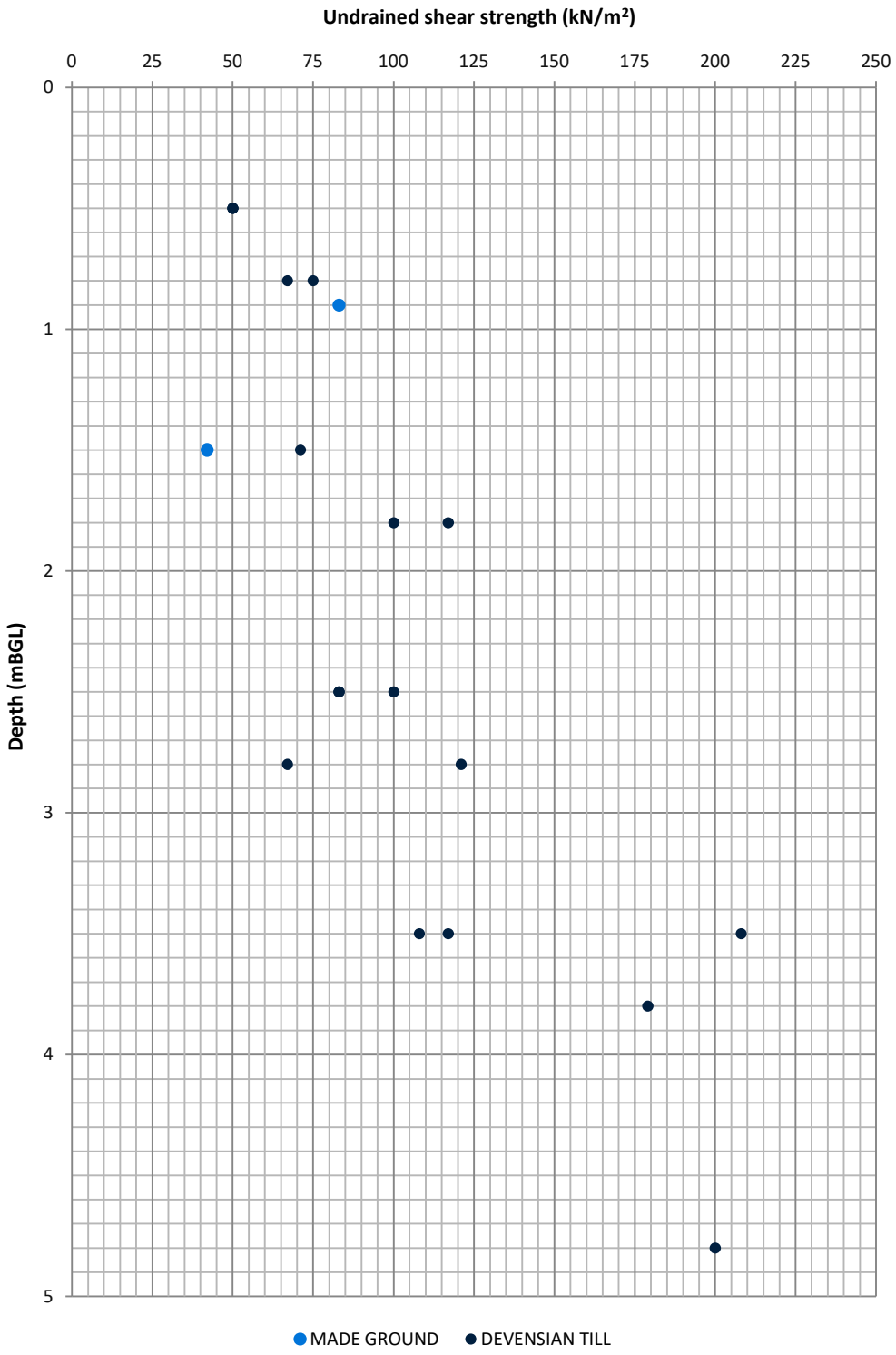
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Plot summarising Pocket Penetrometer results versus depth filtered by location



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Plot summarising Pocket Penetrometer results versus depth filtered by geology



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Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
WS205	1.40	3.5/3/3	3.17	158
WS205	1.80	2.5/3/2.5	2.67	133
WS205	2.50	3/3/2.5	2.83	142
WS205	2.80	3.25/3/3	3.08	154
WS207	0.90	2/1.75/2	1.92	96
WS207	1.50	2.25/3/3	2.75	138
WS207	1.80	4.5/4/4	4.17	208
WS207	2.60	4.5/4.5/4.5	4.50	225
WS208	0.90	0/0/0	0.00	0
WS208	1.60	2/2.25/2	2.08	104
WS208	2.40	1.5/1/2	1.50	75
WS209	0.50	3/3.25/3	3.08	154
WS209	1.50	3.5/3.5/3.75	3.58	179
WS209	2.80	2/2.5/2.25	2.25	113
WS210	0.80	3.75/3.5/3.5	3.58	179
WS210	1.50	3.5/4.5/4	4.00	200
WS210	1.80	4.25/4/4	4.08	204
WS210	2.50	4.5/4/4	4.17	208
WS210	2.80	2/2/2	2.00	100
WS210	4.50	2/2.25/2	2.08	104
WS210	4.80	1/1/1.75	1.25	63
WS211	0.50	4/3/3	3.33	167
WS211	0.80	3.5/4.5/3	3.67	183
WS211	1.50	4/3.75/4	3.92	196
WS211	2.50	3/4.5/4	3.83	192
WS211	2.80	3/3.5/3	3.17	158
WS211	3.80	2/2.25/3	2.42	121
WS212	0.50	2.75/2.25/2.25	2.42	121
WS212	0.80	1/1/1	1.00	50
WS212	1.50	0.5/0.75/0.5	0.58	29
WS212	1.90	0.75/0.75/0.75	0.75	38
WS212	2.50	0.5/0.5/0.5	0.50	25
WS212	2.80	0.5/0.75/0.5	0.58	29
WS212	3.50	3.5/4/3	3.50	175
WS212	3.80	4.5/4.5/4.5	4.50	225
WS213	0.50	0.5/0.75/0.5	0.58	29
WS213	0.90	0.5/0.5/1	0.67	33

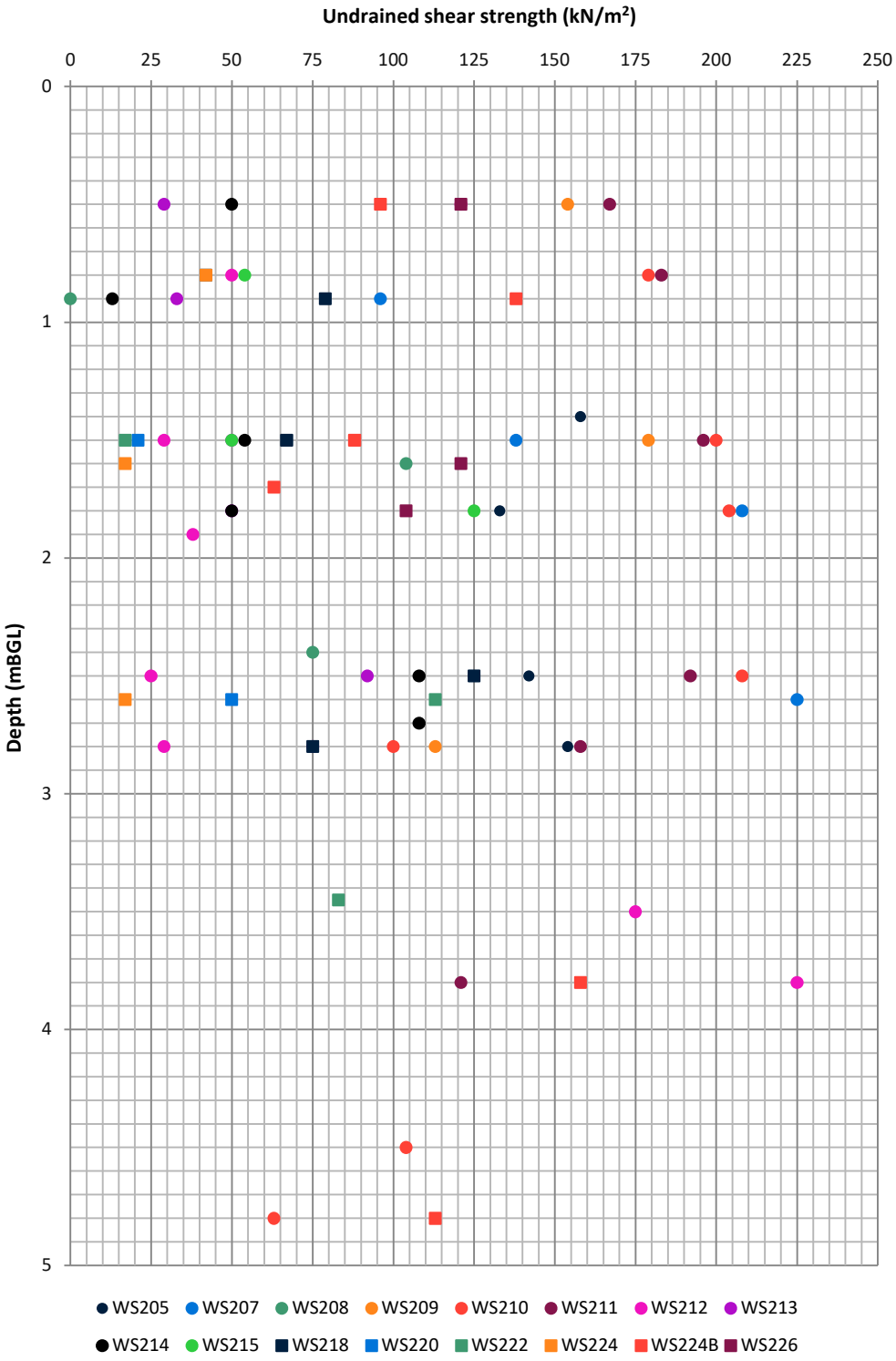
Table summarising Pocket Penetrometer results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
WS213	1.50	1/1/1	1.00	50
WS213	1.80	1/1.25/0.75	1.00	50
WS213	2.50	1.5/2/2	1.83	92
WS213	2.80	2/1/1.5	1.50	75
WS214	0.50	1/1.25/0.75	1.00	50
WS214	0.90	0.25/0.25/0.25	0.25	13
WS214	1.50	1.25/1/1	1.08	54
WS214	1.80	1/1/1	1.00	50
WS214	2.50	2/2.5/2	2.17	108
WS214	2.70	2.5/2/2	2.17	108
WS215	0.80	1/1.5/0.75	1.08	54
WS215	1.50	1/1/1	1.00	50
WS215	1.80	3/2.5/2	2.50	125
WS218	0.90	1.75/1.5/1.5	1.58	79
WS218	1.50	1.5/1/1.5	1.33	67
WS218	2.50	2.5/2.5/2.5	2.50	125
WS218	2.80	2/1/1.5	1.50	75
WS220	0.80	1/0.5/1	0.83	42
WS220	1.50	0/0.5/0.75	0.42	21
WS220	2.60	1/1/1	1.00	50
WS222	1.50	0.25/0.5/0.25	0.33	17
WS222	2.60	2.5/2.25/2	2.25	113
WS222	3.45	2/1.5/1.5	1.67	83
WS224	0.80	1/0.5/1	0.83	42
WS224	1.60	0.25/0.5/0.25	0.33	17
WS224	2.60	0.25/0.5/0.25	0.33	17
WS224B	0.50	2/1.75/2	1.92	96
WS224B	0.90	2.25/3/3	2.75	138
WS224B	1.50	2/1.5/1.75	1.75	88
WS224B	1.70	1.5/1.25/1	1.25	63
WS224B	3.80	3.5/3/3	3.17	158
WS224B	4.80	2.5/2/2.25	2.25	113
WS226	0.50	2.5/2.75/2	2.42	121
WS226	1.60	2.5/2.5/2.25	2.42	121
WS226	1.80	2/2/2.25	2.08	104

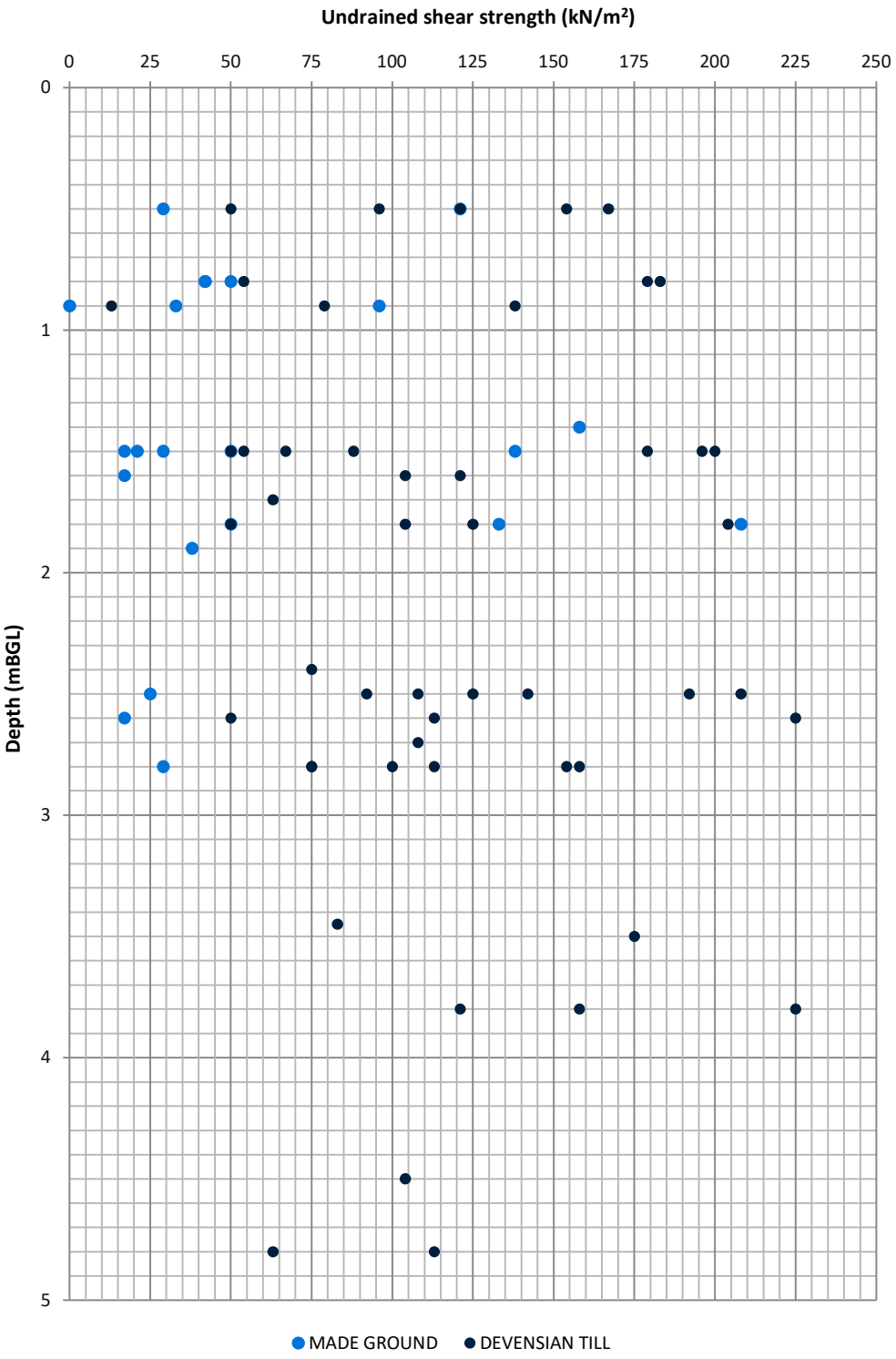
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Plot summarising Pocket Penetrometer results versus depth filtered by location



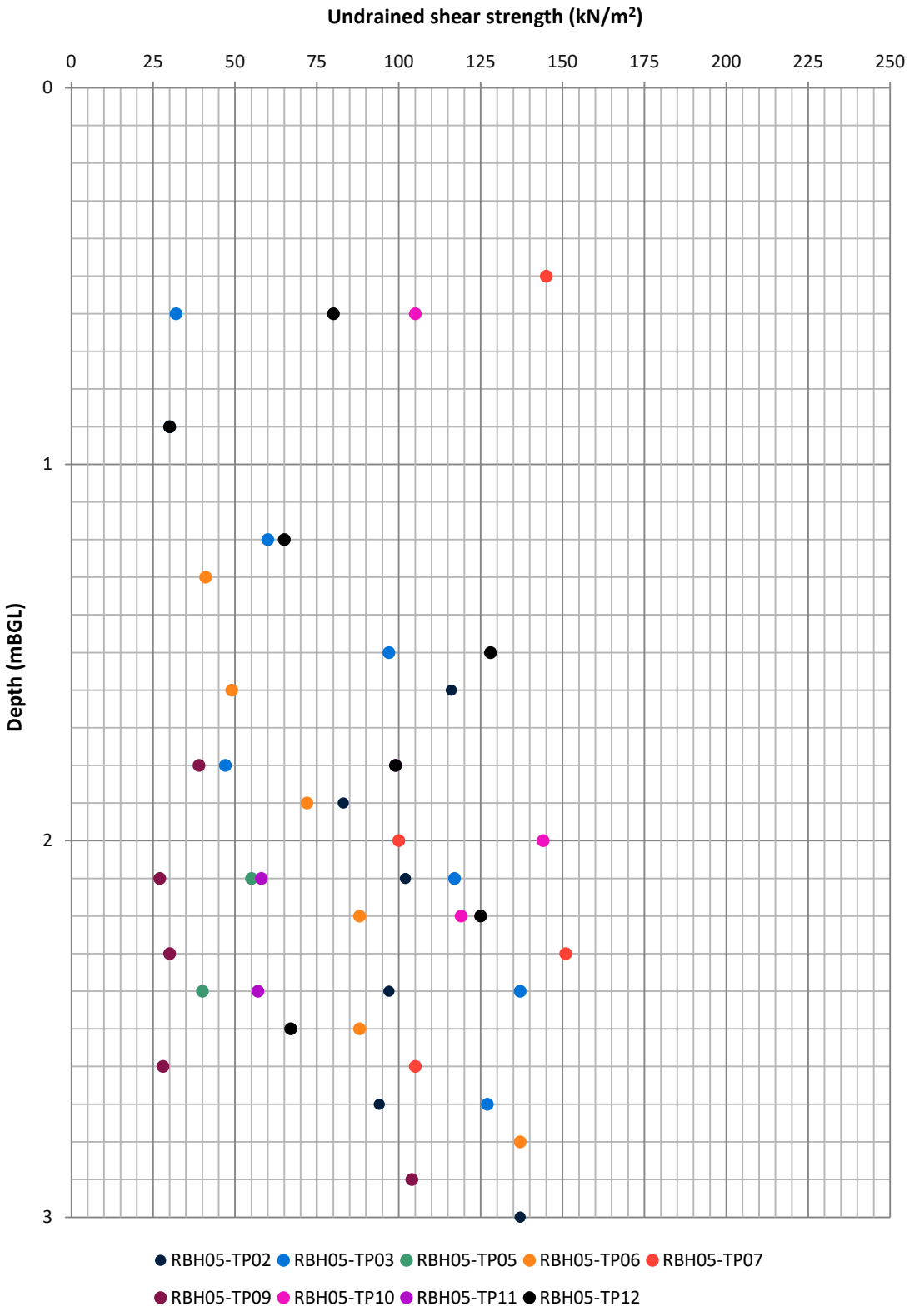
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Plot summarising Pocket Penetrometer results versus depth filtered by geology



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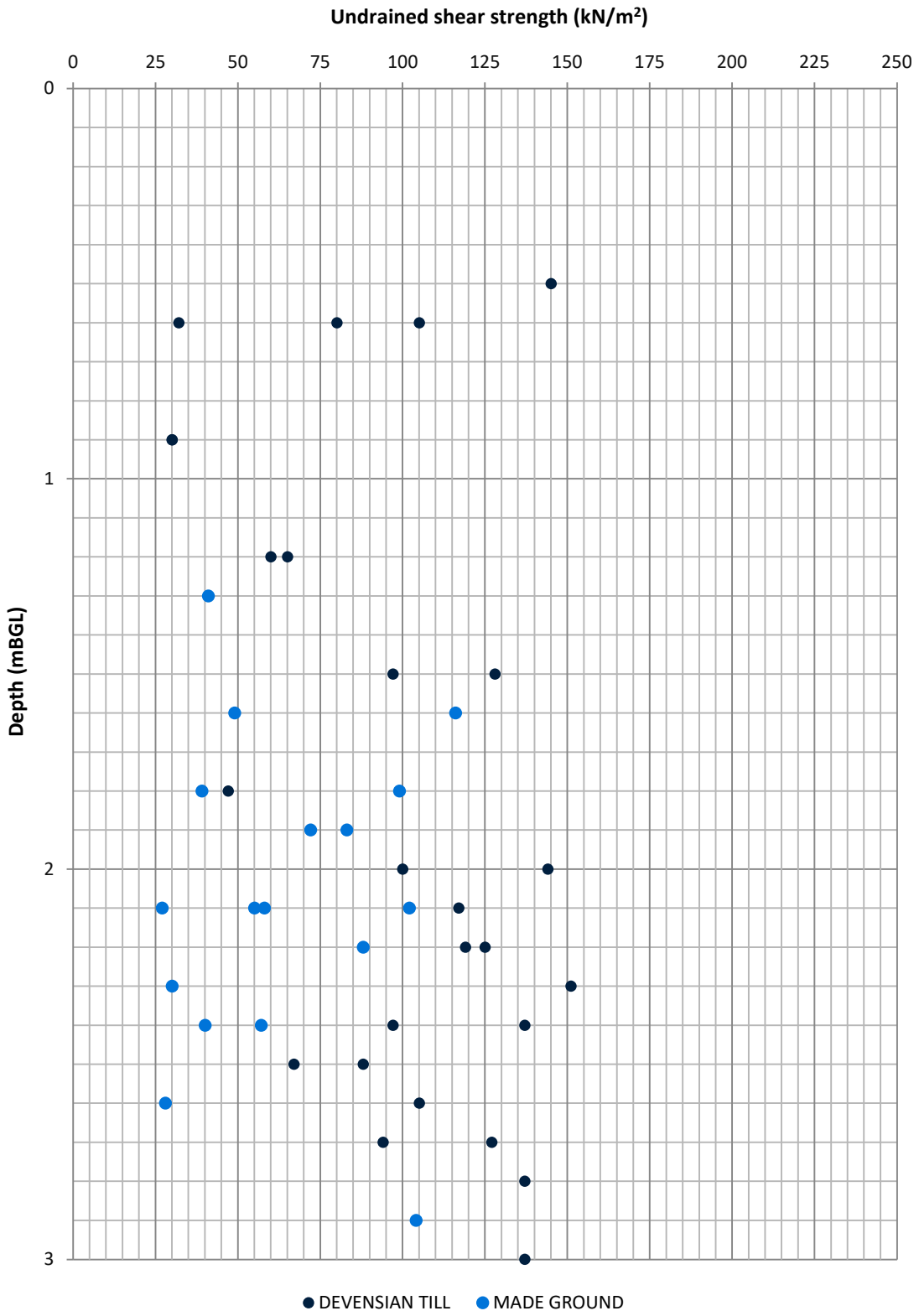
Plot summarising Shear Vane results versus depth filtered by location



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Plot summarising Shear Vane results versus depth filtered by geology



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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH05-TP02	1.60	70/80/82	77.33	116
RBH05-TP02	1.90	44/60/62	55.33	83
RBH05-TP02	2.10	90/44/70	68.00	102
RBH05-TP02	2.40	90/60/44	64.67	97
RBH05-TP02	2.70	55/90/42	62.33	94
RBH05-TP02	3.00	94/90/90	91.33	137
RBH05-TP03	0.60	20/22/22	21.33	32
RBH05-TP03	0.90	20/20/20	20.00	30
RBH05-TP03	1.20	20/20/80	40.00	60
RBH05-TP03	1.50	54/80/60	64.67	97
RBH05-TP03	1.80	22/45/26	31.00	47
RBH05-TP03	2.10	70/84/80	78.00	117
RBH05-TP03	2.40	94/90/90	91.33	137
RBH05-TP03	2.70	90/84/80	84.67	127
RBH05-TP05	2.10	30/40/40	36.67	55
RBH05-TP05	2.40	20/30/30	26.67	40
RBH05-TP06	1.30	22/30/30	27.33	41
RBH05-TP06	1.60	38/40/20	32.67	49
RBH05-TP06	1.90	28/60/56	48.00	72
RBH05-TP06	2.20	60/64/52	58.67	88
RBH05-TP06	2.50	70/50/55	58.33	88
RBH05-TP06	2.80	84/100/90	91.33	137
RBH05-TP07	0.50	90/100/100	96.67	145
RBH05-TP07	2.00	60/70/70	66.67	100
RBH05-TP07	2.30	113/90/98	100.33	151
RBH05-TP07	2.60	70/70/70	70.00	105
RBH05-TP09	1.80	28/30/20	26.00	39
RBH05-TP09	2.10	18/18/18	18.00	27
RBH05-TP09	2.30	20/20/20	20.00	30
RBH05-TP09	2.60	18/18/20	18.67	28
RBH05-TP09	2.90	60/90/58	69.33	104
RBH05-TP10	0.60	60/70/80	70.00	105
RBH05-TP10	2.00	90/100/98	96.00	144
RBH05-TP10	2.20	90/90/58	79.33	119
RBH05-TP11	1.80	68/70/60	66.00	99
RBH05-TP11	2.10	30/45/40	38.33	58
RBH05-TP11	2.40	38/30/45	37.67	57
RBH05-TP12	0.60	40/60/60	53.33	80
RBH05-TP12	0.90	20/20/20	20.00	30

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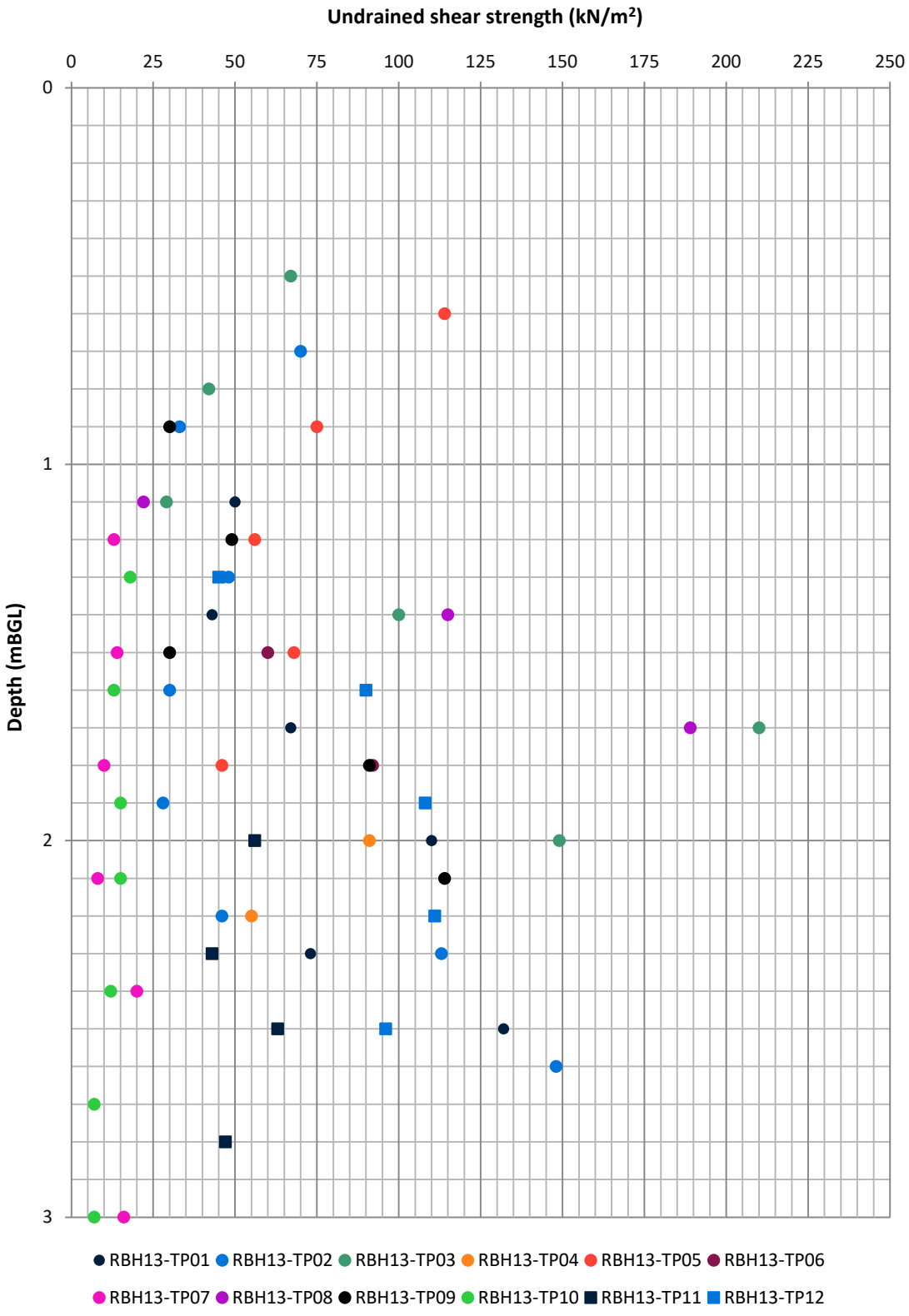
Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH05-TP12	1.20	45/44/40	43.00	65
RBH05-TP12	1.50	86/80/90	85.33	128
RBH05-TP12	1.80	60/70/68	66.00	99
RBH05-TP12	2.20	85/80/85	83.33	125
RBH05-TP12	2.50	48/40/45	44.33	67

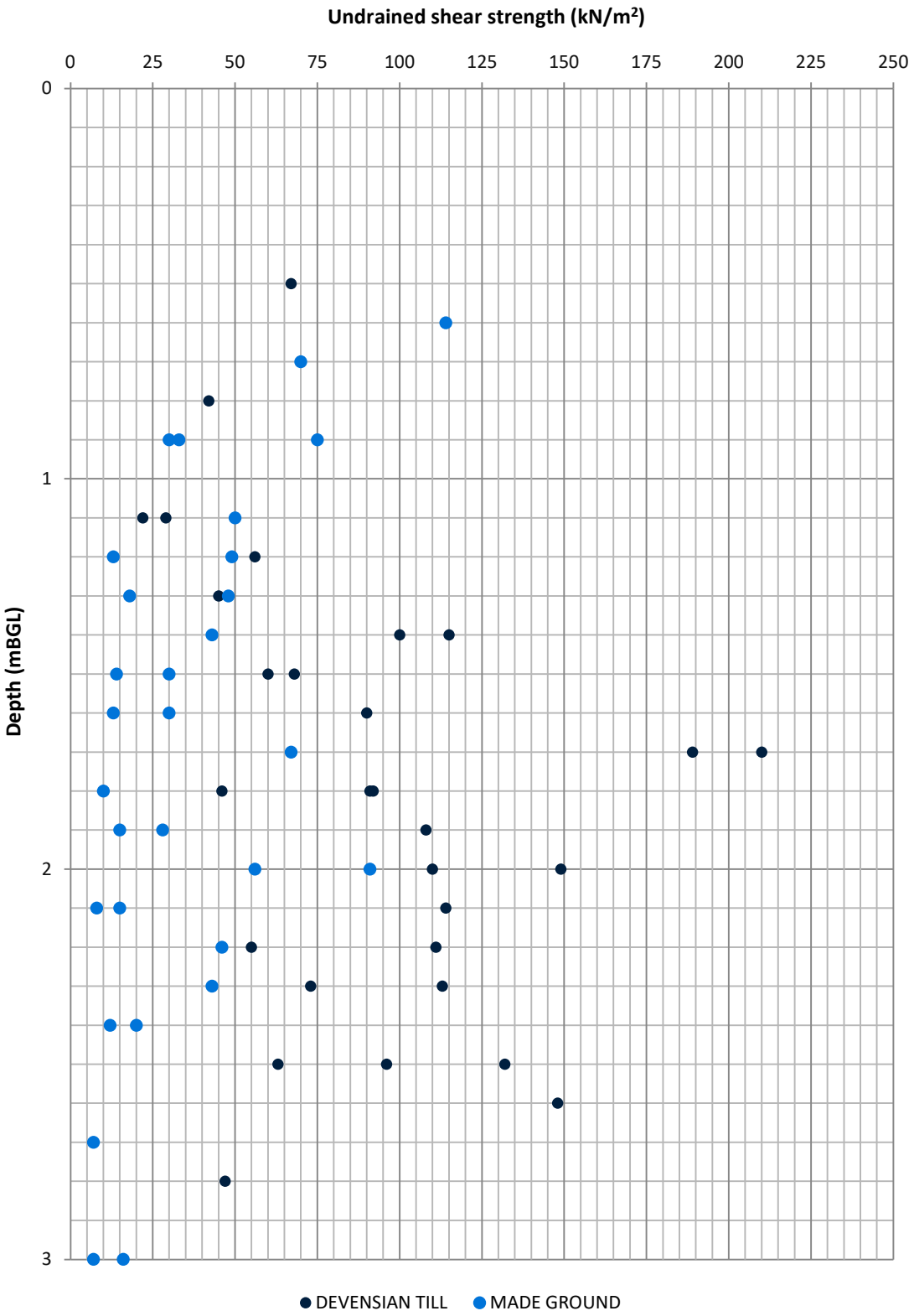
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Plot summarising Shear Vane results versus depth filtered by location



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Plot summarising Shear Vane results versus depth filtered by geology



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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH13-TP01	1.10	30/40/30	33.33	50
RBH13-TP01	1.40	32/28/26	28.67	43
RBH13-TP01	1.70	38/50/45	44.33	67
RBH13-TP01	2.00	80/70/70	73.33	110
RBH13-TP01	2.30	30/58/58	48.67	73
RBH13-TP01	2.50	100/82/82	88.00	132
RBH13-TP02	0.70	34/50/55	46.33	70
RBH13-TP02	0.90	24/22/20	22.00	33
RBH13-TP02	1.30	30/24/42	32.00	48
RBH13-TP02	1.60	20/20/20	20.00	30
RBH13-TP02	1.90	18/18/20	18.67	28
RBH13-TP02	2.20	24/18/50	30.67	46
RBH13-TP02	2.30	76/80/70	75.33	113
RBH13-TP02	2.60	122/80/94	98.67	148
RBH13-TP03	0.50	35/48/50	44.33	67
RBH13-TP03	0.80	25/28/30	27.67	42
RBH13-TP03	1.10	18/20/20	19.33	29
RBH13-TP03	1.40	80/50/70	66.67	100
RBH13-TP03	1.70	140/140/140	140.00	210
RBH13-TP03	2.00	130/90/78	99.33	149
RBH13-TP04	2.00	60/60/61	60.33	91
RBH13-TP04	2.20	30/40/40	36.67	55
RBH13-TP05	0.60	82/80/66	76.00	114
RBH13-TP05	0.90	60/40/50	50.00	75
RBH13-TP05	1.20	44/40/28	37.33	56
RBH13-TP05	1.50	46/40/50	45.33	68
RBH13-TP05	1.80	32/30/30	30.67	46
RBH13-TP06	1.50	58/34/28	40.00	60
RBH13-TP06	1.80	70/60/54	61.33	92
RBH13-TP07	1.20	40/30/70	46.67	13
RBH13-TP07	1.50	45/55/48	49.33	14
RBH13-TP07	1.80	32/34/36	34.00	10
RBH13-TP07	2.10	30/30/30	30.00	8
RBH13-TP07	2.40	70/70/70	70.00	20
RBH13-TP07	3.00	48/60/66	58.00	16
RBH13-TP08	1.10	75/78/80	77.67	22
RBH13-TP08	1.40	90/60/80	76.67	115
RBH13-TP08	1.70	120/130/128	126.00	189
RBH13-TP09	0.90	20/20/20	20.00	30

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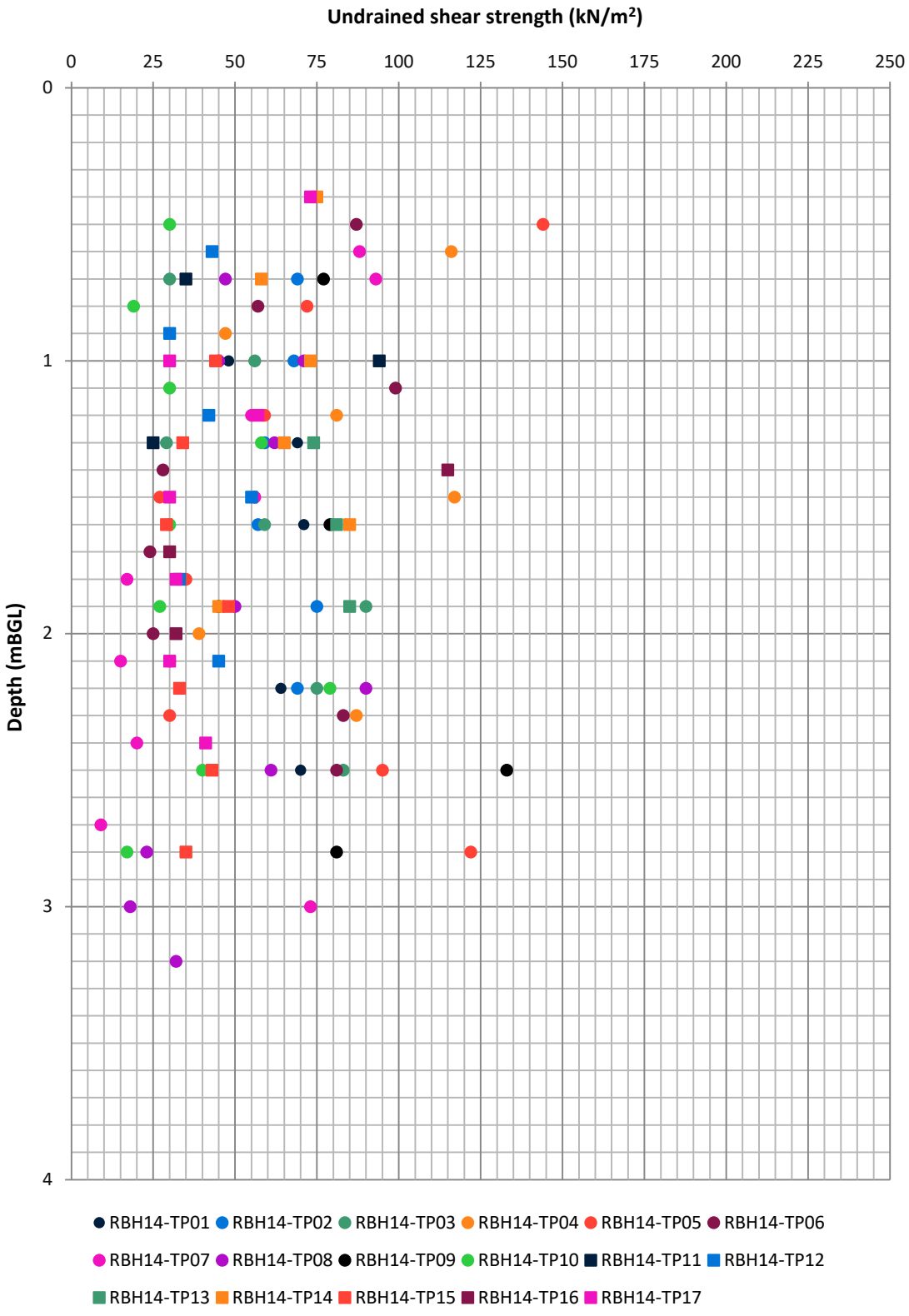
Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH13-TP09	1.20	40/28/30	32.67	49
RBH13-TP09	1.50	20/20/20	20.00	30
RBH13-TP09	1.80	70/60/52	60.67	91
RBH13-TP09	2.10	82/70/76	76.00	114
RBH13-TP10	1.30	60/50/78	62.67	18
RBH13-TP10	1.60	38/60/38	45.33	13
RBH13-TP10	1.90	44/62/60	55.33	15
RBH13-TP10	2.10	70/42/50	54.00	15
RBH13-TP10	2.40	45/45/35	41.67	12
RBH13-TP10	2.70	30/20/30	26.67	7
RBH13-TP10	3.00	30/20/20	23.33	7
RBH13-TP11	2.00	48/42/22	37.33	56
RBH13-TP11	2.30	32/22/32	28.67	43
RBH13-TP11	2.50	40/44/42	42.00	63
RBH13-TP11	2.80	32/32/30	31.33	47
RBH13-TP12	1.30	30/30/30	30.00	45
RBH13-TP12	1.60	72/70/38	60.00	90
RBH13-TP12	1.90	74/70/72	72.00	108
RBH13-TP12	2.20	70/70/82	74.00	111
RBH13-TP12	2.50	54/70/68	64.00	96

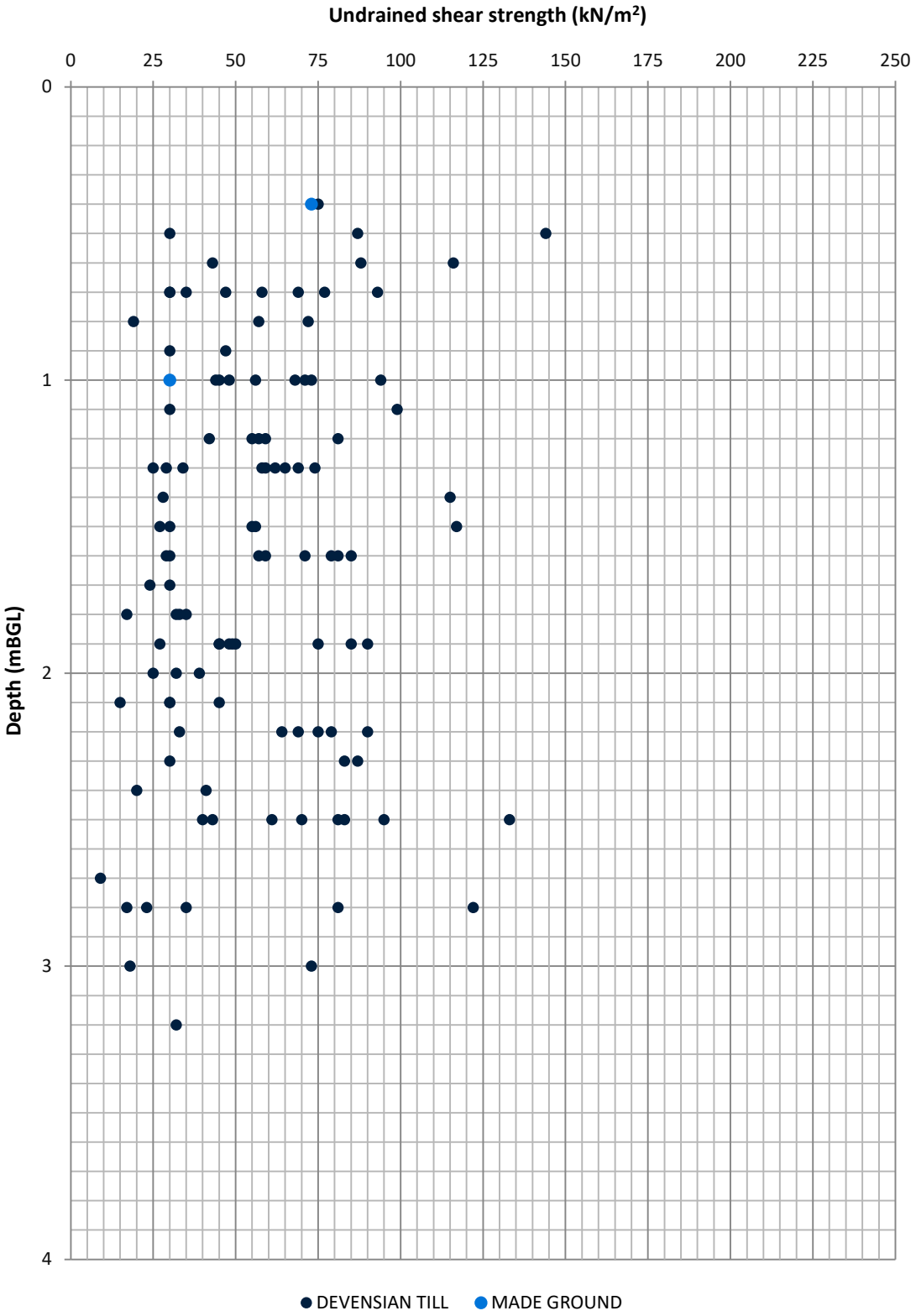
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Plot summarising Shear Vane results versus depth filtered by location



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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH14-TP01	0.70	20/20/20	20.00	30
RBH14-TP01	1.00	35/30/30	31.67	48
RBH14-TP01	1.30	60/40/38	46.00	69
RBH14-TP01	1.60	40/50/52	47.33	71
RBH14-TP01	1.90	30/40/28	32.67	49
RBH14-TP01	2.20	45/40/42	42.33	64
RBH14-TP01	2.50	40/50/50	46.67	70
RBH14-TP02	0.70	40/48/50	46.00	69
RBH14-TP02	1.00	45/40/50	45.00	68
RBH14-TP02	1.30	40/40/38	39.33	59
RBH14-TP02	1.60	50/28/35	37.67	57
RBH14-TP02	1.90	38/60/52	50.00	75
RBH14-TP02	2.20	32/40/65	45.67	69
RBH14-TP03	0.70	20/20/20	20.00	30
RBH14-TP03	1.00	30/40/42	37.33	56
RBH14-TP03	1.30	18/20/20	19.33	29
RBH14-TP03	1.60	40/32/45	39.00	59
RBH14-TP03	1.90	60/60/60	60.00	90
RBH14-TP03	2.20	50/50/50	50.00	75
RBH14-TP03	2.50	60/50/55	55.00	83
RBH14-TP04	0.60	80/80/72	77.33	116
RBH14-TP04	0.90	30/22/42	31.33	47
RBH14-TP04	1.20	60/42/60	54.00	81
RBH14-TP04	1.50	96/70/68	78.00	117
RBH14-TP04	2.00	20/28/30	26.00	39
RBH14-TP04	2.30	50/66/57	57.67	87
RBH14-TP05	0.50	100/90/98	96.00	144
RBH14-TP05	0.80	52/44/48	48.00	72
RBH14-TP05	1.20	30/28/60	39.33	59
RBH14-TP05	1.50	15/20/18	17.67	27
RBH14-TP05	1.80	20/18/32	23.33	35
RBH14-TP05	2.10	22/18/20	20.00	30
RBH14-TP05	2.30	20/20/20	20.00	30
RBH14-TP05	2.50	54/78/58	63.33	95
RBH14-TP05	2.80	64/110/70	81.33	122
RBH14-TP06	0.50	60/54/60	58.00	87
RBH14-TP06	0.80	20/44/50	38.00	57
RBH14-TP06	1.10	80/48/70	66.00	99
RBH14-TP06	1.40	20/18/18	18.67	28

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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH14-TP06	1.70	70/84/104	86.00	24
RBH14-TP06	2.00	84/102/80	88.67	25
RBH14-TP06	2.30	50/54/62	55.33	83
RBH14-TP06	2.50	52/54/56	54.00	81
RBH14-TP07	0.60	60/55/60	58.33	88
RBH14-TP07	0.70	70/50/66	62.00	93
RBH14-TP07	1.20	42/28/40	36.67	55
RBH14-TP07	1.50	28/36/48	37.33	56
RBH14-TP07	1.80	62/55/64	60.33	17
RBH14-TP07	2.10	65/42/58	55.00	15
RBH14-TP07	2.40	78/70/70	72.67	20
RBH14-TP07	2.70	42/20/30	30.67	9
RBH14-TP07	3.00	50/45/50	48.33	73
RBH14-TP08	0.70	30/32/32	31.33	47
RBH14-TP08	1.00	68/30/44	47.33	71
RBH14-TP08	1.00	20/20/50	30.00	45
RBH14-TP08	1.30	48/20/56	41.33	62
RBH14-TP08	1.90	25/40/35	33.33	50
RBH14-TP08	2.20	60/70/50	60.00	90
RBH14-TP08	2.50	40/40/42	40.67	61
RBH14-TP08	2.80	85/78/80	81.00	23
RBH14-TP08	3.00	60/64/70	64.67	18
RBH14-TP08	3.20	78/110/160	116.00	32
RBH14-TP09	0.70	50/50/54	51.33	77
RBH14-TP09	1.60	60/50/48	52.67	79
RBH14-TP09	1.90	20/30/40	30.00	45
RBH14-TP09	2.50	90/90/86	88.67	133
RBH14-TP09	2.80	46/55/60	53.67	81
RBH14-TP10	0.50	20/20/20	20.00	30
RBH14-TP10	0.80	60/90/50	66.67	19
RBH14-TP10	1.10	90/110/120	106.67	30
RBH14-TP10	1.30	30/40/45	38.33	58
RBH14-TP10	1.60	20/20/20	20.00	30
RBH14-TP10	1.90	18/16/20	18.00	27
RBH14-TP10	2.20	38/50/70	52.67	79
RBH14-TP10	2.50	42/20/18	26.67	40
RBH14-TP10	2.80	60/60/60	60.00	17
RBH14-TP11	0.70	20/30/20	23.33	35
RBH14-TP11	1.00	68/62/58	62.67	94

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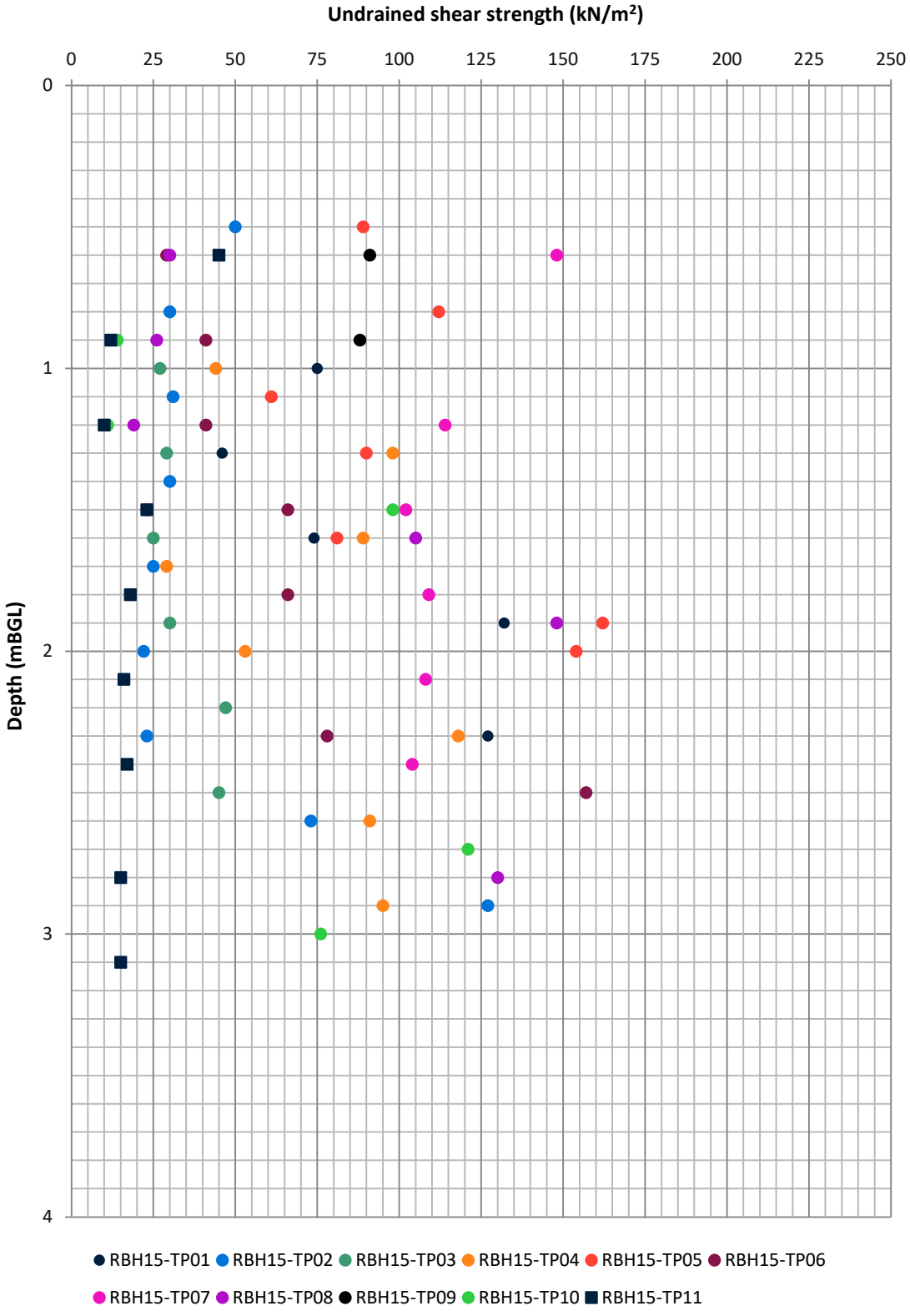
Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH14-TP11	1.30	18/16/16	16.67	25
RBH14-TP12	0.60	22/30/33	28.33	43
RBH14-TP12	0.90	20/20/20	20.00	30
RBH14-TP12	1.20	20/30/34	28.00	42
RBH14-TP12	1.50	30/40/40	36.67	55
RBH14-TP12	1.80	20/22/24	22.00	33
RBH14-TP12	2.10	30/30/30	30.00	45
RBH14-TP13	1.30	52/45/50	49.00	74
RBH14-TP13	1.60	52/54/56	54.00	81
RBH14-TP13	1.90	52/58/60	56.67	85
RBH14-TP14	0.40	50/48/52	50.00	75
RBH14-TP14	0.70	35/40/40	38.33	58
RBH14-TP14	1.00	48/48/50	48.67	73
RBH14-TP14	1.30	50/40/40	43.33	65
RBH14-TP14	1.60	50/60/60	56.67	85
RBH14-TP14	1.90	42/28/20	30.00	45
RBH14-TP15	1.00	28/30/30	29.33	44
RBH14-TP15	1.30	20/22/25	22.33	34
RBH14-TP15	1.60	18/20/20	19.33	29
RBH14-TP15	1.90	35/30/30	31.67	48
RBH14-TP15	2.20	25/20/20	21.67	33
RBH14-TP15	2.50	30/35/20	28.33	43
RBH14-TP15	2.80	15/30/25	23.33	35
RBH14-TP16	1.40	88/72/70	76.67	115
RBH14-TP16	1.70	20/20/20	20.00	30
RBH14-TP16	2.00	20/24/20	21.33	32
RBH14-TP17	0.40	45/50/50	48.33	73
RBH14-TP17	1.00	20/20/20	20.00	30
RBH14-TP17	1.20	30/44/40	38.00	57
RBH14-TP17	1.50	20/20/20	20.00	30
RBH14-TP17	1.80	18/20/25	21.00	32
RBH14-TP17	2.10	35/4/21	20.00	30
RBH14-TP17	2.40	32/22/28	27.33	41

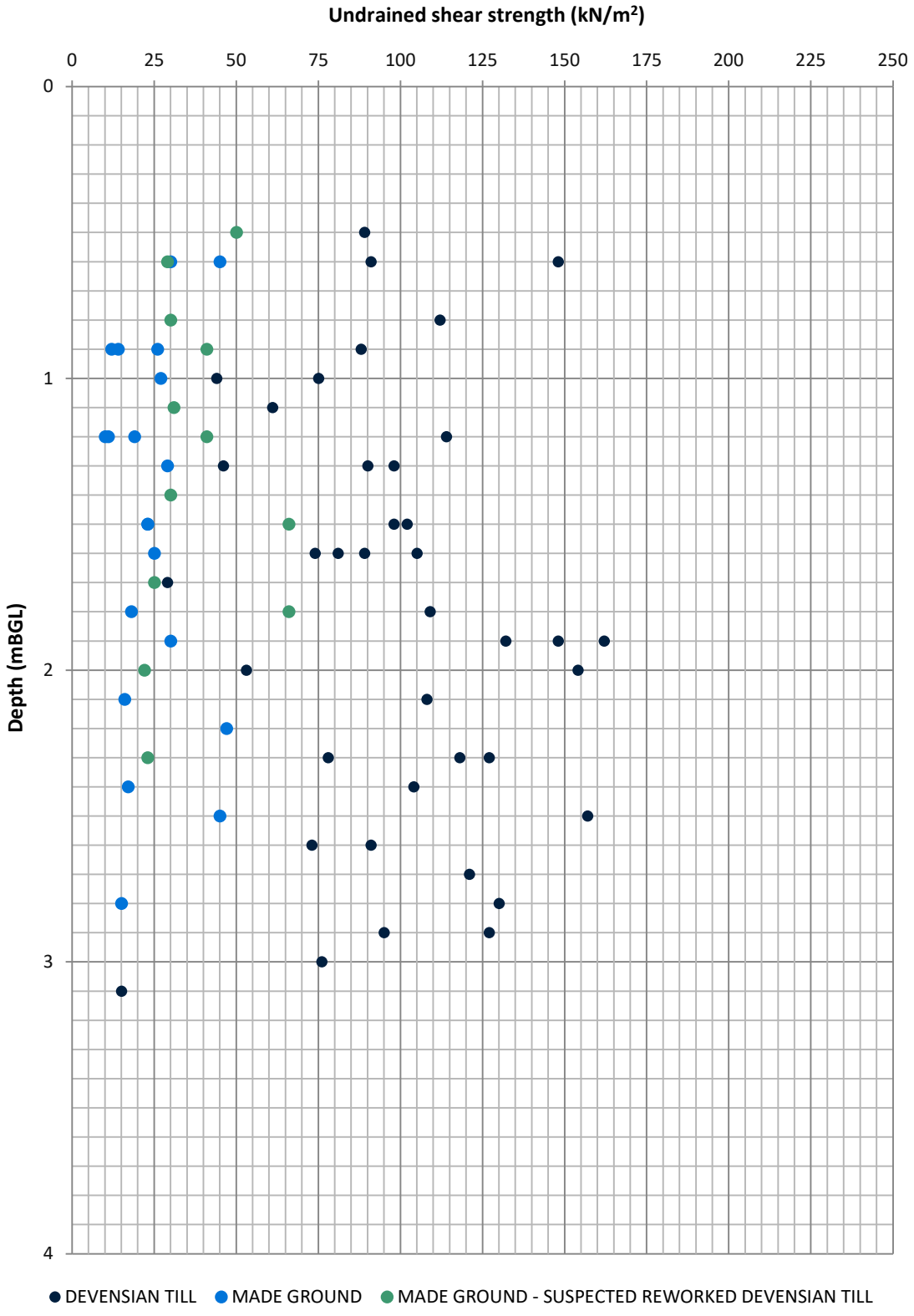
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Plot summarising Shear Vane results versus depth filtered by location



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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH15-TP01	1.00	50/50/50	50.00	75
RBH15-TP01	1.30	30/32/30	30.67	46
RBH15-TP01	1.60	48/30/70	49.33	74
RBH15-TP01	1.90	90/74/100	88.00	132
RBH15-TP01	2.30	84/90/80	84.67	127
RBH15-TP02	0.50	30/40/30	33.33	50
RBH15-TP02	0.80	20/20/20	20.00	30
RBH15-TP02	1.10	22/20/20	20.67	31
RBH15-TP02	1.40	20/20/20	20.00	30
RBH15-TP02	1.70	18/16/15	16.33	25
RBH15-TP02	2.00	15/13/15	14.33	22
RBH15-TP02	2.30	15/15/15	15.00	23
RBH15-TP02	2.60	40/56/50	48.67	73
RBH15-TP02	2.90	84/80/90	84.67	127
RBH15-TP03	1.00	18/18/18	18.00	27
RBH15-TP03	1.30	20/18/20	19.33	29
RBH15-TP03	1.60	18/16/16	16.67	25
RBH15-TP03	1.90	20/20/20	20.00	30
RBH15-TP03	2.20	34/30/30	31.33	47
RBH15-TP03	2.50	30/30/30	30.00	45
RBH15-TP04	1.00	28/30/30	29.33	44
RBH15-TP04	1.30	60/70/65	65.00	98
RBH15-TP04	1.60	80/38/60	59.33	89
RBH15-TP04	1.70	18/20/20	19.33	29
RBH15-TP04	2.00	40/35/30	35.00	53
RBH15-TP04	2.30	80/78/78	78.67	118
RBH15-TP04	2.60	60/52/70	60.67	91
RBH15-TP04	2.90	82/50/58	63.33	95
RBH15-TP05	0.50	58/60/60	59.33	89
RBH15-TP05	0.80	78/70/76	74.67	112
RBH15-TP05	1.10	40/42/40	40.67	61
RBH15-TP05	1.30	48/74/58	60.00	90
RBH15-TP05	1.60	54/54/54	54.00	81
RBH15-TP05	1.90	102/110/112	108.00	162
RBH15-TP05	2.00	98/100/110	102.67	154
RBH15-TP06	0.60	18/20/20	19.33	29
RBH15-TP06	0.90	18/32/32	27.33	41
RBH15-TP06	1.20	40/20/22	27.33	41
RBH15-TP06	1.50	42/50/40	44.00	66

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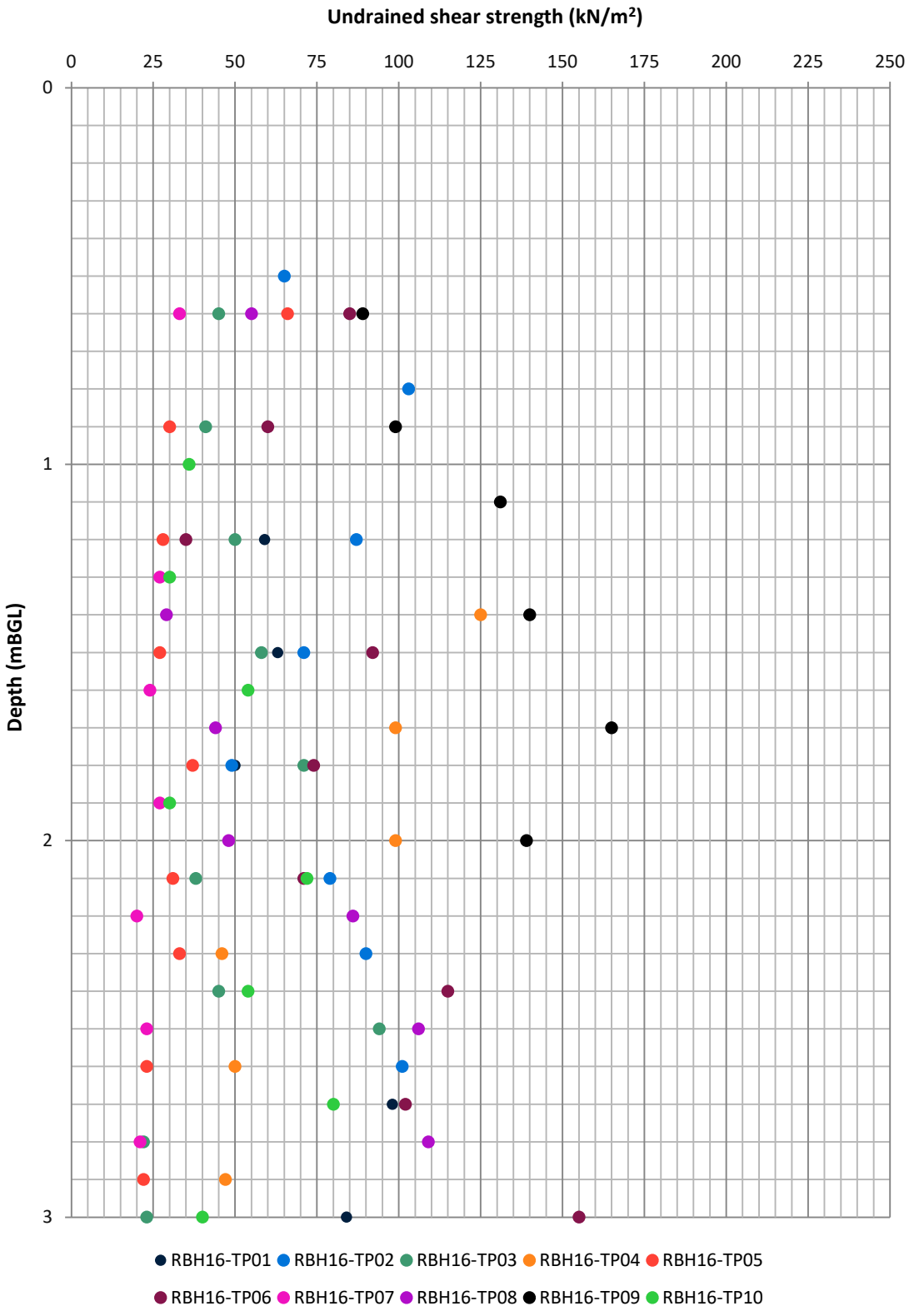
Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH15-TP06	1.80	34/42/56	44.00	66
RBH15-TP06	2.30	52/56/48	52.00	78
RBH15-TP06	2.50	130/90/94	104.67	157
RBH15-TP07	0.60	96/100/100	98.67	148
RBH15-TP07	1.20	100/78/50	76.00	114
RBH15-TP07	1.50	45/80/78	67.67	102
RBH15-TP07	1.80	68/64/86	72.67	109
RBH15-TP07	2.10	90/54/72	72.00	108
RBH15-TP07	2.40	78/60/70	69.33	104
RBH15-TP08	0.60	20/20/20	20.00	30
RBH15-TP08	0.90	18/16/18	17.33	26
RBH15-TP08	1.20	80/45/75	66.67	19
RBH15-TP08	1.50	82/78/90	83.33	23
RBH15-TP08	1.60	44/80/86	70.00	105
RBH15-TP08	1.90	80/105/110	98.33	148
RBH15-TP08	2.80	70/80/110	86.67	130
RBH15-TP09	0.60	80/60/42	60.67	91
RBH15-TP09	0.90	74/52/50	58.67	88
RBH15-TP10	0.90	66/24/58	49.33	14
RBH15-TP10	1.20	42/40/40	40.67	11
RBH15-TP10	1.50	68/80/48	65.33	98
RBH15-TP10	2.70	60/92/90	80.67	121
RBH15-TP10	3.00	54/48/50	50.67	76
RBH15-TP11	0.60	32/30/28	30.00	45
RBH15-TP11	0.90	68/30/32	43.33	12
RBH15-TP11	1.20	30/40/40	36.67	10
RBH15-TP11	1.50	90/80/80	83.33	23
RBH15-TP11	1.80	55/70/70	65.00	18
RBH15-TP11	2.10	44/68/56	56.00	16
RBH15-TP11	2.40	60/50/74	61.33	17
RBH15-TP11	2.80	60/40/56	52.00	15
RBH15-TP11	3.10	40/60/60	53.33	15

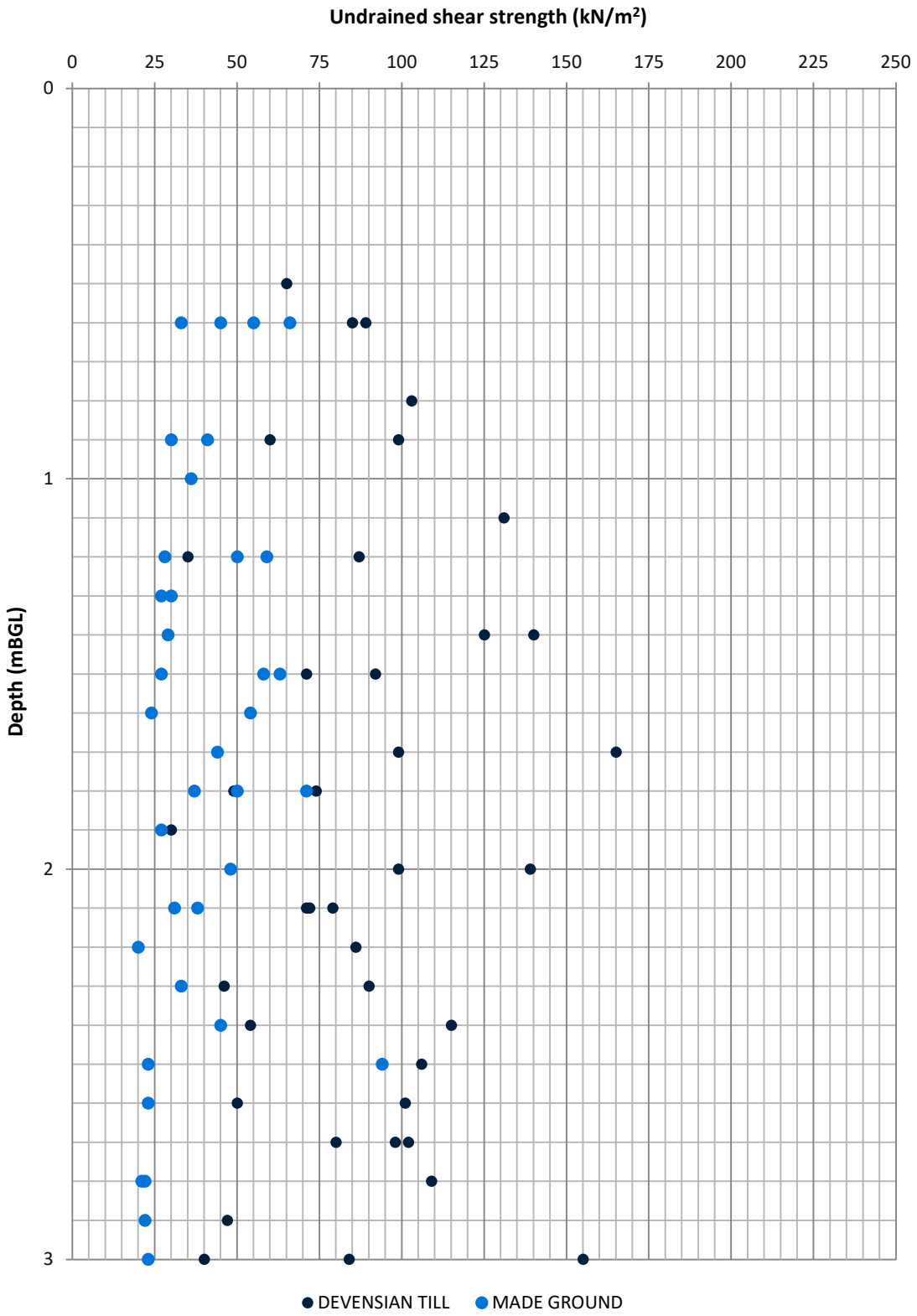
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Plot summarising Shear Vane results versus depth filtered by location



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Plot summarising Shear Vane results versus depth filtered by geology



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Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH16-TP01	1.20	40/38/40	39.33	59
RBH16-TP01	1.50	34/52/40	42.00	63
RBH16-TP01	1.80	40/38/22	33.33	50
RBH16-TP01	2.70	80/45/70	65.00	98
RBH16-TP01	3.00	68/50/50	56.00	84
RBH16-TP02	0.50	40/44/46	43.33	65
RBH16-TP02	0.80	60/60/85	68.33	103
RBH16-TP02	1.20	54/60/60	58.00	87
RBH16-TP02	1.50	60/34/48	47.33	71
RBH16-TP02	1.80	28/32/38	32.67	49
RBH16-TP02	2.10	50/56/52	52.67	79
RBH16-TP02	2.30	50/60/70	60.00	90
RBH16-TP02	2.60	50/82/70	67.33	101
RBH16-TP03	0.60	45/22/22	29.67	45
RBH16-TP03	0.90	20/30/32	27.33	41
RBH16-TP03	1.20	28/40/32	33.33	50
RBH16-TP03	1.50	54/30/32	38.67	58
RBH16-TP03	1.80	50/40/52	47.33	71
RBH16-TP03	2.10	22/34/20	25.33	38
RBH16-TP03	2.40	30/30/30	30.00	45
RBH16-TP03	2.50	105/40/42	62.33	94
RBH16-TP03	2.80	80/80/80	80.00	22
RBH16-TP03	3.00	82/80/82	81.33	23
RBH16-TP04	1.40	90/70/90	83.33	125
RBH16-TP04	1.70	58/80/60	66.00	99
RBH16-TP04	2.00	58/80/60	66.00	99
RBH16-TP04	2.30	34/30/28	30.67	46
RBH16-TP04	2.60	32/32/36	33.33	50
RBH16-TP04	2.90	40/25/28	31.00	47
RBH16-TP05	0.60	42/50/40	44.00	66
RBH16-TP05	0.90	20/20/20	20.00	30
RBH16-TP05	1.20	18/18/20	18.67	28
RBH16-TP05	1.50	18/16/20	18.00	27
RBH16-TP05	1.80	28/26/20	24.67	37
RBH16-TP05	2.10	22/20/20	20.67	31
RBH16-TP05	2.30	26/20/20	22.00	33
RBH16-TP05	2.60	80/86/82	82.67	23
RBH16-TP05	2.90	80/80/80	80.00	22
RBH16-TP06	0.60	76/48/46	56.67	85

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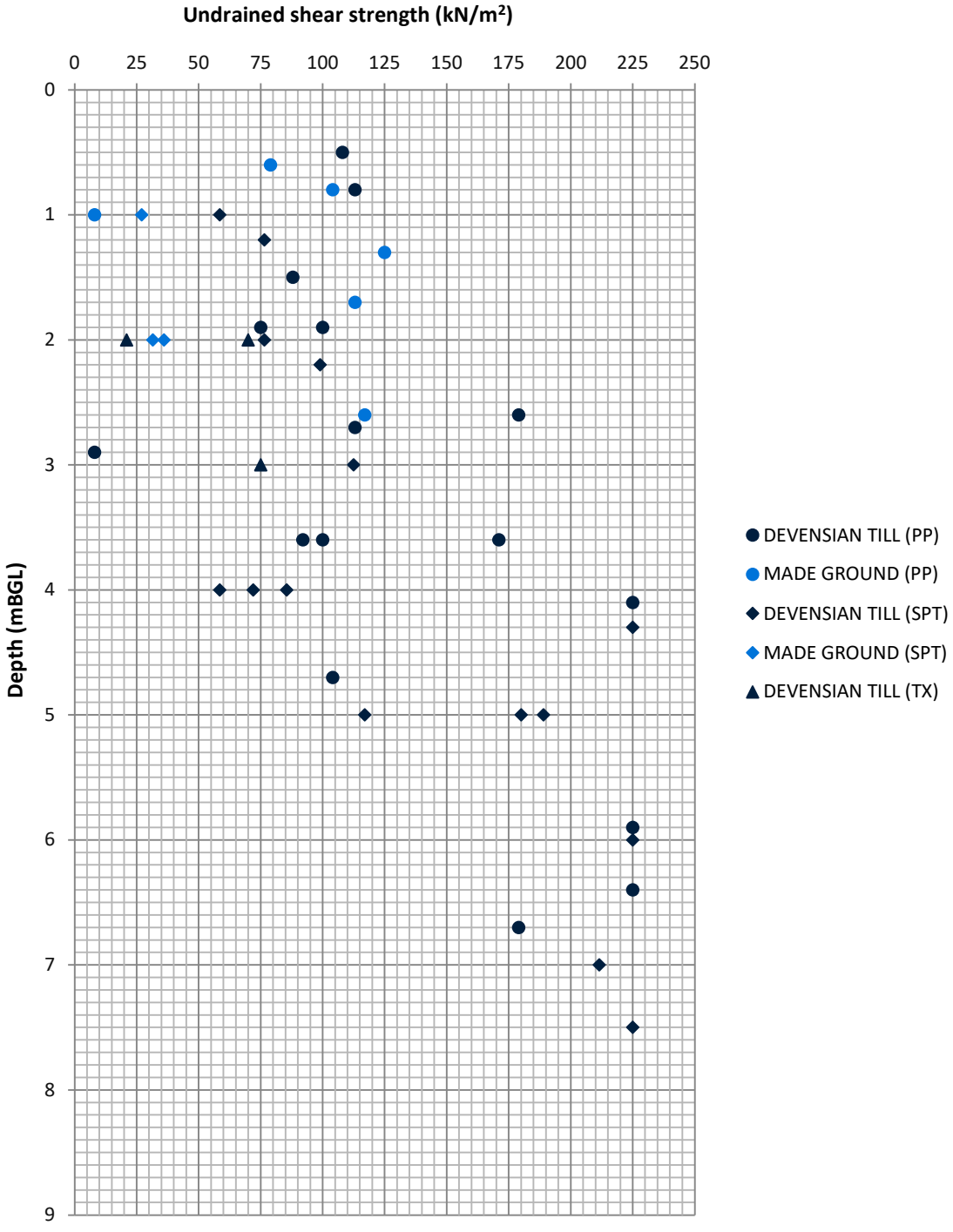
Table summarising Shear Vane results

** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH16-TP06	0.90	40/40/40	40.00	60
RBH16-TP06	1.20	30/20/20	23.33	35
RBH16-TP06	1.50	80/46/58	61.33	92
RBH16-TP06	1.80	48/50/50	49.33	74
RBH16-TP06	2.10	50/34/58	47.33	71
RBH16-TP06	2.40	80/80/70	76.67	115
RBH16-TP06	2.70	74/50/80	68.00	102
RBH16-TP06	3.00	110/100/100	103.33	155
RBH16-TP07	0.60	20/20/26	22.00	33
RBH16-TP07	1.30	18/20/16	18.00	27
RBH16-TP07	1.60	16/16/16	16.00	24
RBH16-TP07	1.90	90/100/96	95.33	27
RBH16-TP07	2.20	80/60/70	70.00	20
RBH16-TP07	2.50	90/80/80	83.33	23
RBH16-TP07	2.80	50/90/90	76.67	21
RBH16-TP08	0.60	40/30/40	36.67	55
RBH16-TP08	1.40	20/18/20	19.33	29
RBH16-TP08	1.70	34/22/32	29.33	44
RBH16-TP08	2.00	36/30/30	32.00	48
RBH16-TP08	2.20	65/52/55	57.33	86
RBH16-TP08	2.50	80/64/68	70.67	106
RBH16-TP08	2.80	74/70/74	72.67	109
RBH16-TP09	0.60	48/64/66	59.33	89
RBH16-TP09	0.90	70/58/70	66.00	99
RBH16-TP09	1.10	84/82/96	87.33	131
RBH16-TP09	1.40	70/98/112	93.33	140
RBH16-TP09	1.70	120/110/100	110.00	165
RBH16-TP09	2.00	88/82/108	92.67	139
RBH16-TP10	1.00	30/20/22	24.00	36
RBH16-TP10	1.30	20/20/20	20.00	30
RBH16-TP10	1.60	18/20/70	36.00	54
RBH16-TP10	1.90	20/20/20	20.00	30
RBH16-TP10	2.10	54/40/50	48.00	72
RBH16-TP10	2.40	44/33/30	35.67	54
RBH16-TP10	2.70	60/58/42	53.33	80
RBH16-TP10	3.00	40/20/20	26.67	40

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Plot summarising results of combined insitu testing data by geology (mBGL)

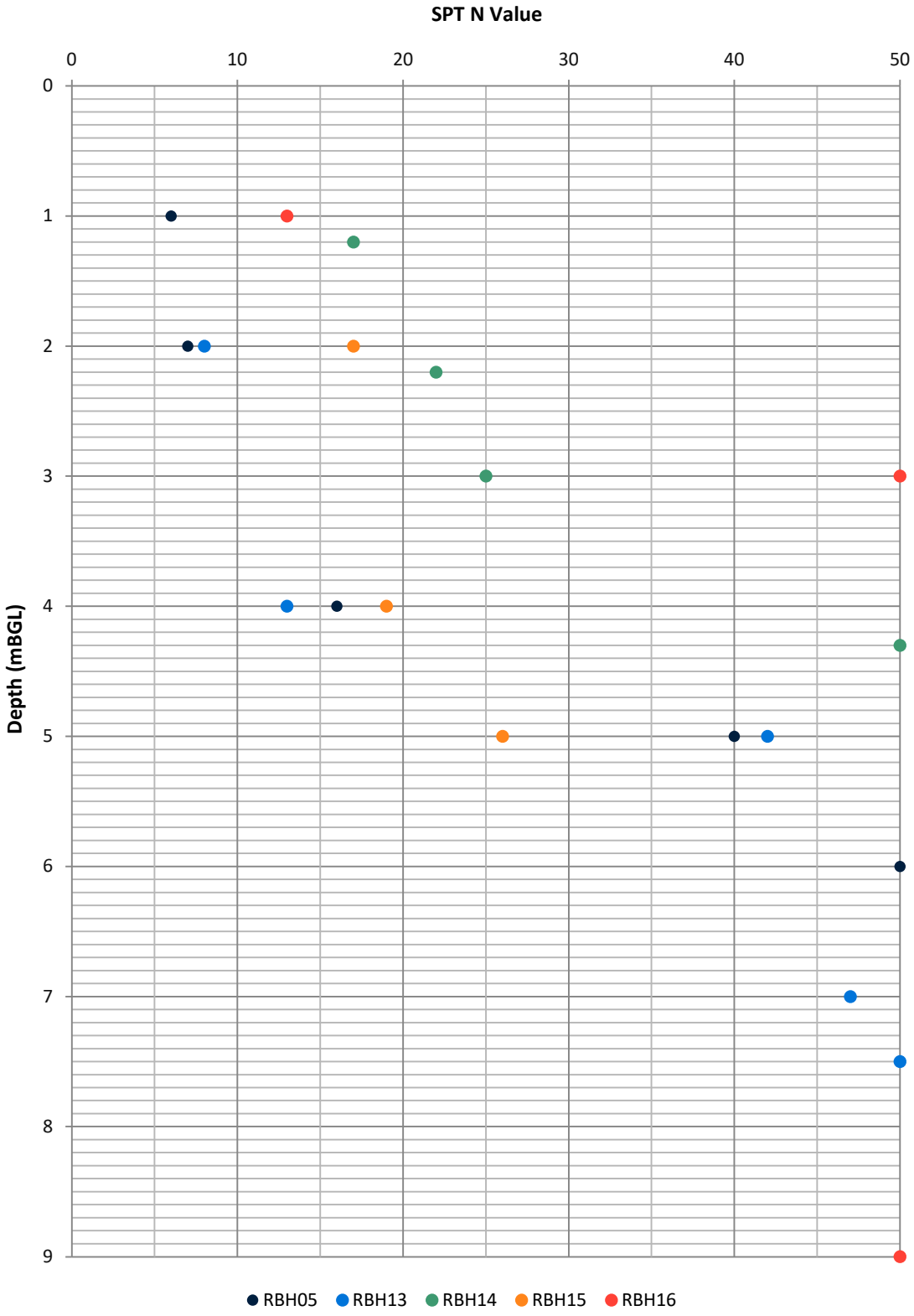


Notes

1) Equivalent undrained shear strength derived by multiplying Pocket Penetrometer (PP) results by 50
2) Correction factor of 4.5 applied to SPT values for Devensian Till and Made Ground following Stroud and Butler method
3) Average shear strength result used for Triaxial results for RBH13 @ 3.0m depth and RBH16 @ 2.0m depth

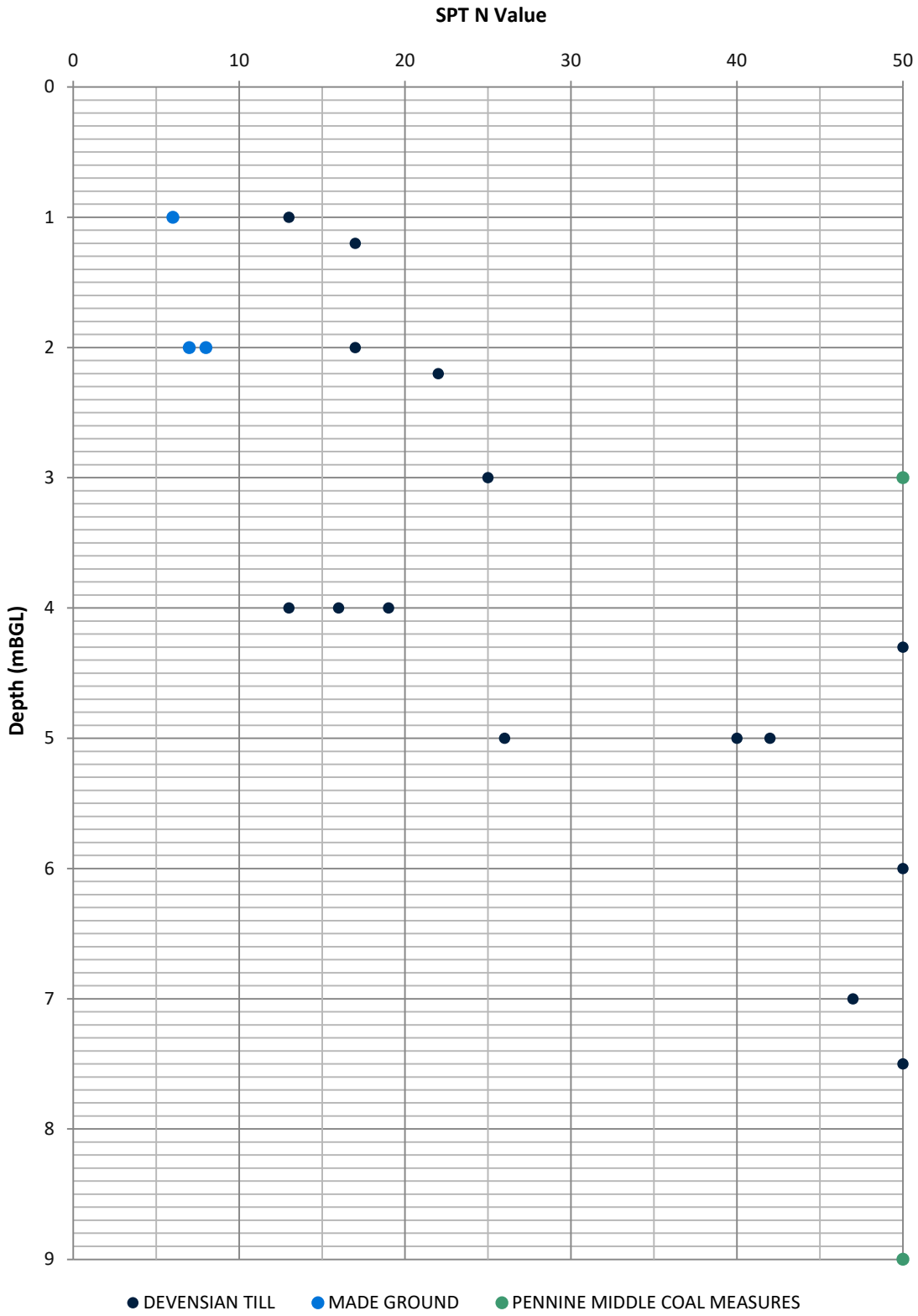
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



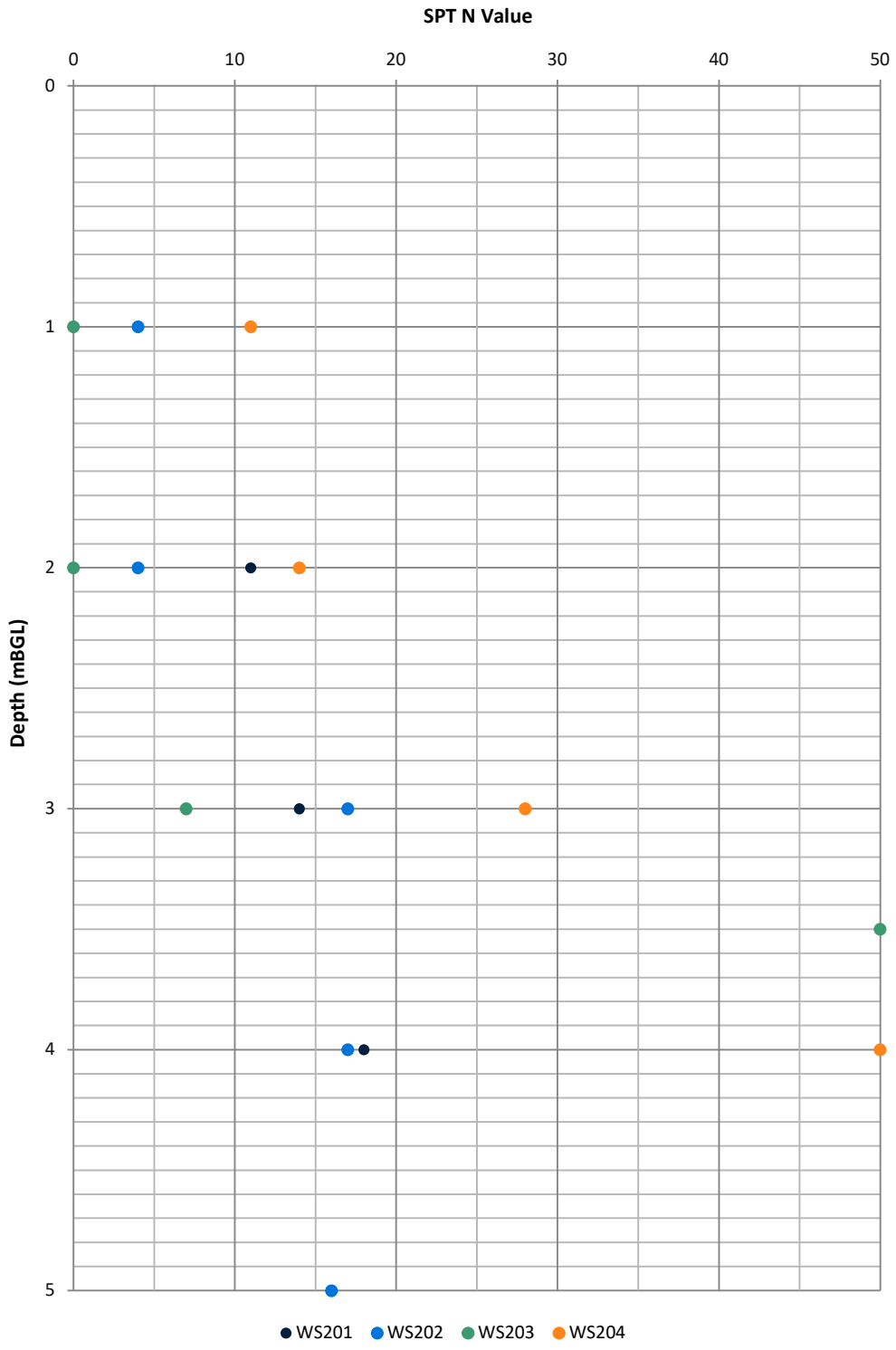
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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WS201	1.00	2/1	1/1/1/1	3	4	150	300
WS201	2.00	1/2	2/3/3/3	3	11	150	300
WS201	3.00	3/3	3/3/4/4	6	14	150	300
WS201	4.00	3/4	4/4/4/6	7	18	150	300
WS201	5.00	3/3	4/4/3/5	6	16	150	300
WS202	1.00	1/1	1/1/1/1	2	4	150	300
WS202	2.00	1/1	1/1/1/1	2	4	150	300
WS202	3.00	3/3	4/4/4/5	6	17	150	300
WS202	4.00	3/3	4/4/4/5	6	17	150	300
WS202	5.00	3/3	3/4/4/5	6	16	150	300
WS203	1.00	1/0	0/0/0/0	1	0	150	300
WS203	2.00	0/0	0/0/0/0	0	0	150	300
WS203	3.00	1/0	0/1/2/4	1	7	150	300
WS203	3.50	3/9	12/13/14/11	12	50	150	265
WS204	1.00	1/2	2/3/2/4	3	11	150	300
WS204	2.00	3/3	3/4/3/4	6	14	150	300
WS204	3.00	6/6	5/6/8/9	12	28	150	300
WS204	4.00	8/8	10/14/14/12	16	50	150	265

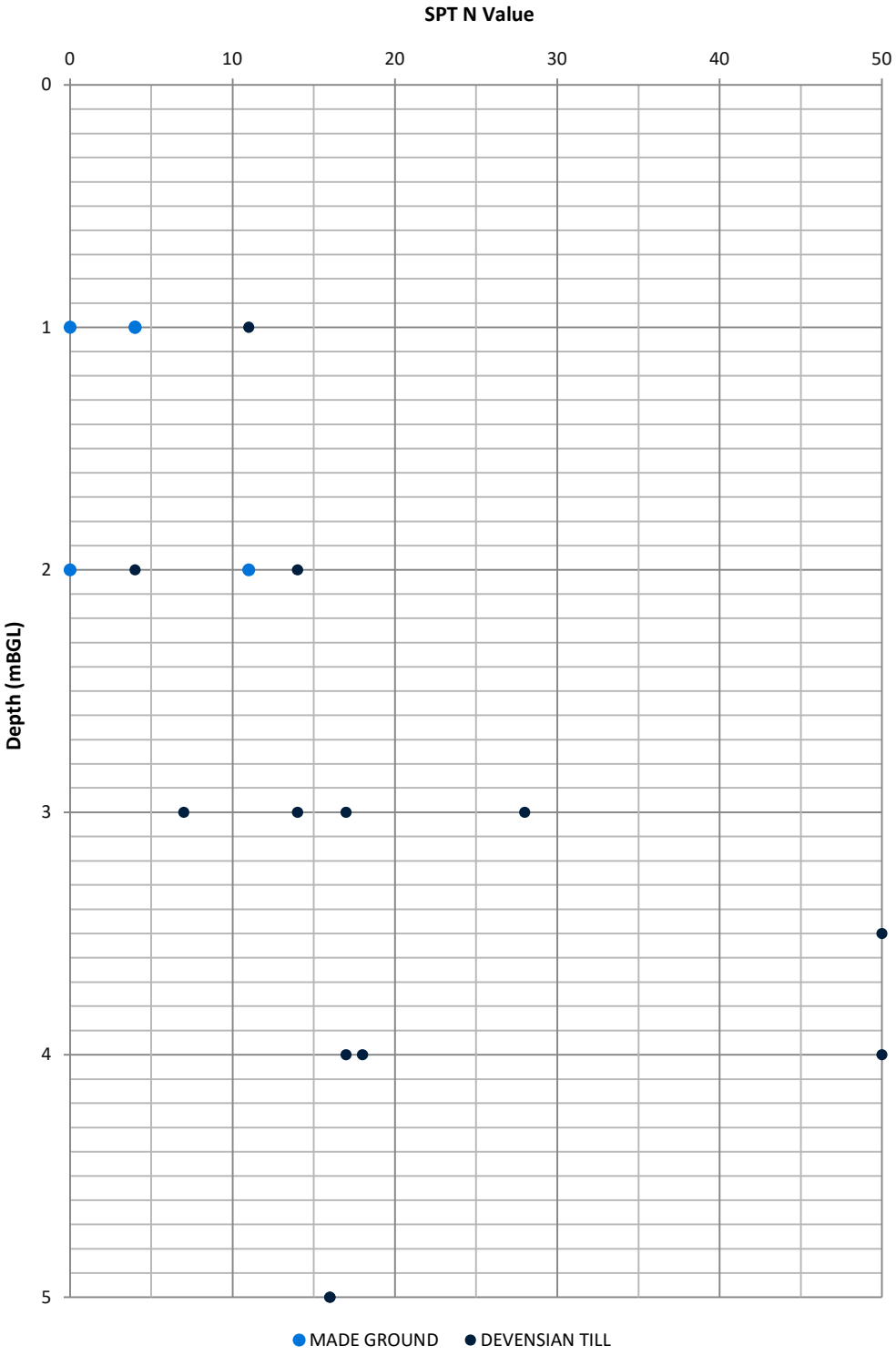
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WS205	1.00	2/3	2/4/3/4	5	13	150	300
WS205	2.00	3/3	5/5/4/7	6	21	150	300
WS205	3.00	4/6	9/13/14/14	10	50	150	275
WS206	1.00	1/2	2/1/0/0	3	3	150	300
WS206	2.00	0/0	0/0/0/0	0	0	150	300
WS206	3.00	1/0	0/1/2/2	1	5	150	300
WS206	4.00	0/0	1/1/0/0	0	2	150	300
WS207	1.00	1/2	2/2/3/4	3	11	150	300
WS207	2.00	3/3	4/4/4/6	6	18	150	300
WS207	3.00	5/6	9/14/14/13	11	50	150	275
WS208	1.00	1/0	0/0/0/0	1	0	150	300
WS208	2.00	0/0	1/2/2/2	0	7	150	300
WS208	3.00	5/9	12/12/13/13	14	50	150	265
WS209	1.00	3/4	3/4/4/4	7	15	150	300
WS209	2.00	5/4	4/4/6/6	9	20	150	300
WS209	3.00	5/5	10/12/13/15	10	50	150	285
WS210	1.00	1/2	2/2/2/2	3	8	150	300
WS210	2.00	2/2	2/3/4/4	4	13	150	300
WS210	3.00	4/4	5/5/6/8	8	24	150	300
WS210	4.00	1/1	1/1/1/2	2	5	150	300
WS210	5.00	1/1	1/1/2/2	2	6	150	300
WS211	1.00	2/2	2/2/3/3	4	10	150	300
WS211	2.00	3/3	4/4/6/6	6	20	150	300
WS211	3.00	3/4	3/4/3/3	7	13	150	300
WS211	4.00	5/10	20/23/7	15	50	150	195
WS212	1.00	1/1	1/1/1/1	2	4	150	300
WS212	2.00	1/1	2/2/2/3	2	9	150	300
WS212	3.00	2/3	4/4/4/5	5	17	150	300
WS212	4.00	25	36/14	25	50	20	135
WS213	1.00	2/2	3/2/2/1	4	8	150	300
WS213	2.00	1/1	1/1/1/1	2	4	150	300
WS213	3.00	5/10	12/13/13/12	15	50	150	265
WS214	1.00	1/2	2/2/2/2	3	8	150	300
WS214	2.00	1/2	2/2/3/3	3	10	150	300
WS214	2.80	20/5	40/10	25	50	145	130
WS215	1.00	1/2	3/4/4/4	3	15	150	300
WS215	2.00	4/6	6/8/8/9	10	31	150	300
WS215	2.60	25	30/25	25	55	70	130

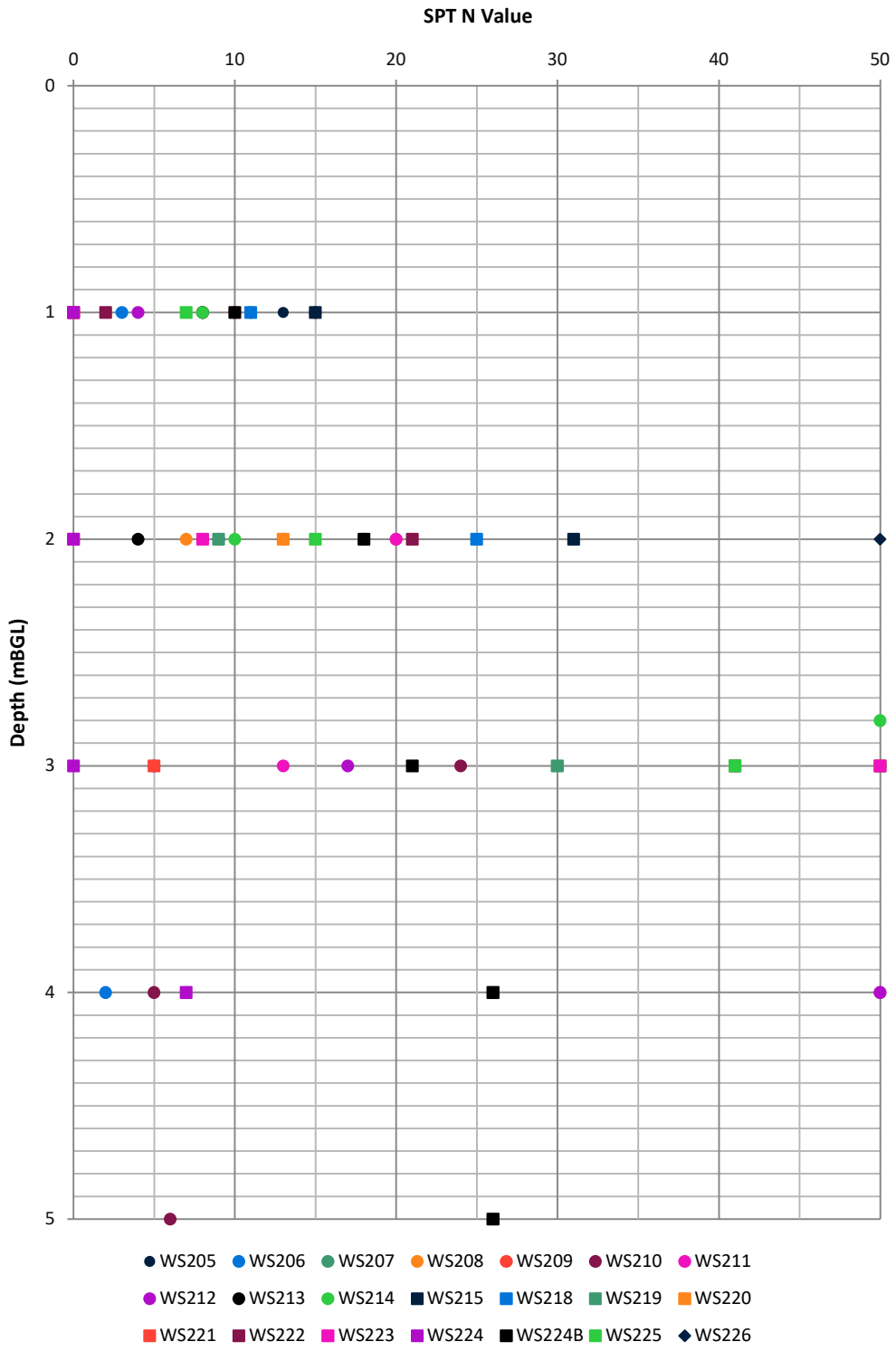
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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WS218	1.00	2/3	2/3/3/3	5	11	150	300
WS218	2.00	3/4	4/6/7/8	7	25	150	300
WS218	3.00	6/8	10/14/14/12	14	50	150	255
WS219	1.00	0/0	0/0/0/0	0	0	150	300
WS219	2.00	0/0	0/2/3/4	0	9	150	300
WS219	3.00	3/5	7/6/7/10	8	30	150	300
WS220	1.00	0/0	0/0/0/0	0	0	150	300
WS220	2.00	0/0	0/3/4/6	0	13	150	300
WS220	3.00	6/8	12/12/14/12	14	50	150	285
WS221	1.00	1/0	0/0/0/0	1	0	150	300
WS221	2.00	0/0	0/0/0/0	0	0	150	300
WS221	3.00	1/0	0/1/2/2	1	5	150	300
WS221	4.00	3/6	10/13/13/15	9	51	150	275
WS222	1.00	3/2	0/0/1/1	5	2	150	300
WS222	2.00	2/3	3/5/5/8	5	21	150	300
WS222	3.00	3/5	9/10/10/12	8	41	150	300
WS223	1.00	1/2	0/0/0/0	3	0	150	300
WS223	2.00	1/0	0/0/3/5	1	8	150	300
WS223	3.00	4/7	9/11/12/18	11	50	150	265
WS224	1.00	0/0	0/0/0/0	0	0	150	300
WS224	2.00	0/0	0/0/0/0	0	0	150	300
WS224	3.00	0/0	0/0/0/0	0	0	150	300
WS224	4.00	0/0	0/2/3/2	0	7	150	300
WS224B	1.00	1/1	2/3/3/2	2	10	150	300
WS224B	2.00	1/3	4/4/5/5	4	18	150	300
WS224B	3.00	3/3	4/4/6/7	6	21	150	300
WS224B	4.00	2/3	4/6/7/8	5	26	150	300
WS224B	5.00	4/5	5/5/6/10	9	26	150	300
WS225	1.00	1/3	3/1/1/2	4	7	150	300
WS225	2.00	2/3	2/4/4/5	5	15	150	300
WS225	3.00	4/4	8/10/10/13	8	41	150	300
WS226	1.00	2/3	2/3/4/6	5	15	150	300
WS226	2.00	5/8	10/14/14/12	13	50	150	255

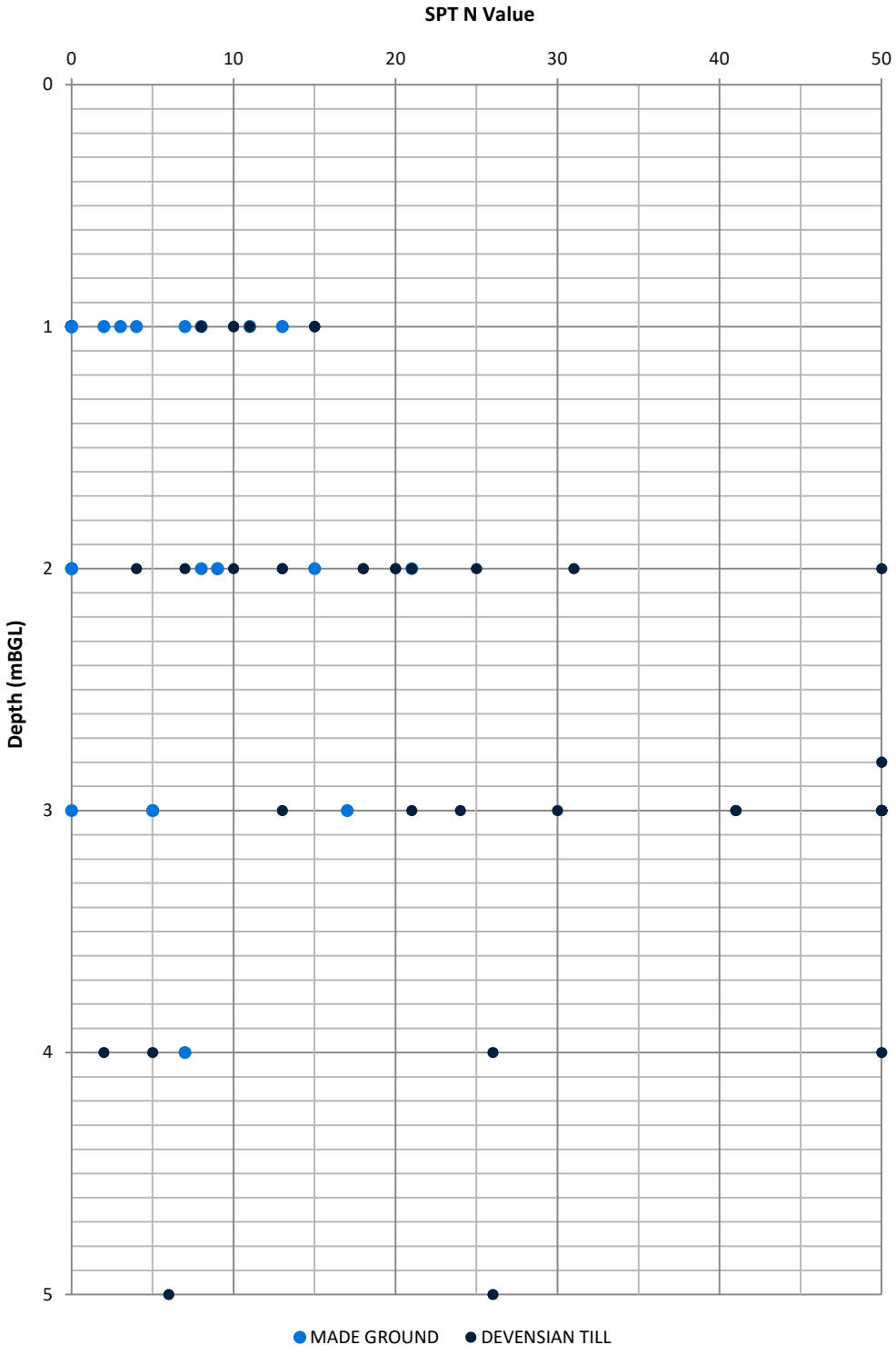
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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



Created: 24/06/2024

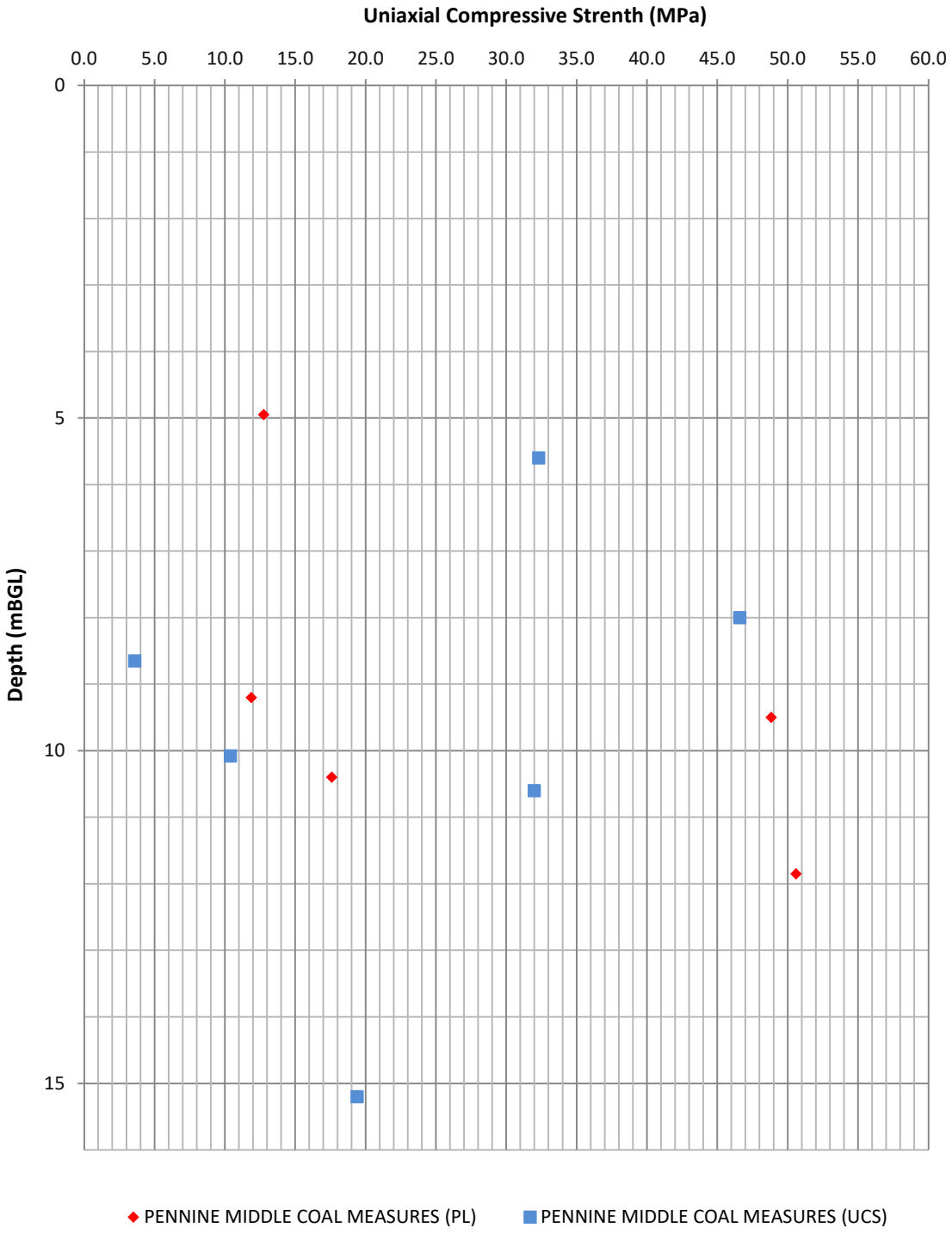
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Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
RBH05	1.00	1/1	1/1/2/2	2	6	150	300
RBH05	2.00	1/1	2/2/1/2	2	7	150	300
RBH05	4.00	2/2	2/4/5/5	4	16	150	300
RBH05	5.00	6/8	9/9/10/12	14	40	150	300
RBH05	6.00	7/10	14/26/10	17	50	150	320
RBH13	2.00	2/2	2/2/2/2	4	8	150	300
RBH13	4.00	2/3	3/3/3/4	5	13	150	300
RBH13	5.00	6/8	8/10/11/13	14	42	150	300
RBH13	7.00	6/7	9/11/13/14	13	47	150	300
RBH13	7.50	25	32/18	25	50	50	50
RBH14	1.20	2/3	4/4/4/5	5	17	150	300
RBH14	2.20	3/4	5/5/6/6	7	22	150	300
RBH14	3.00	4/5	6/6/6/7	9	25	150	300
RBH14	4.30	6/10	19/20/11	16	50	150	200
RBH14	4.80	9/15	41/9/10	24	60	150	200
RBH15	2.00	3/3	3/4/5/5	6	17	150	300
RBH15	4.00	3/4	4/5/5/5	7	19	150	300
RBH15	5.00	5/6	6/6/6/8	11	26	150	300
RBH15	6.00	9/10	12/13/23/12	19	60	150	275
RBH16	1.00	2/3	3/3/4/3	5	13	150	300
RBH16	3.00	25	50	25	50	50	50
RBH16	9.00	3/4	5/5/17/23	7	50	150	235

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Plot summarising results of Uniaxial Compressive Strength (UCS) testing and Point Load Index (PL) testing within bedrock.



Note

Conversion factor of 22 applied to Point Load (PL) Index testing based on correlation with UCS results.

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Key to legends

Composite materials, soils and lithology

Topsoil	Made Ground	Boulders
Chalk	Clay	Coal
Cobbles	Cobbles & Boulders	Concrete
Gravel	Limestone	Mudstone
Peat	Sand	Sand and Gravel
Sandstone	Silt	Silt / Clay
		Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result	
Depth	Records depth that the test was carried out *(i.e.: at 2.10m or between 2.10m and 2.55m)*
Result	PID - Photo Ionisation Detector result (ppm equivalent Isobutylene) PP – Pocket penetrometer result (kN/m^2) HVP – Hand held shear vane result (kN/m^2) *PP result converted to an equivalent undrained shear strength by applying a factor of 50. Where at least 3 results obtained at same depth then an average value may be reported.*
	SPT – Standard Penetration Test result (uncorrected) *SPT(c) – Standard Penetration Test result (solid cone) (uncorrected)*

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	ES	Environmental sample comprising plastic and/or glass container
	W	Water sample
	U (32)	Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ = water level observed after specified delay in drilling

▽ = water strike

Standpipe details

Gravel filter

Arisings

Bentonite

Slotted pipe

Unslotted pipe

Density

Density recorded in brackets inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto very loose grey GRAVEL. Gravel consists of angular fine to coarse sandstone, coal and mudstone. (MADE GROUND)											0.10		D
												0.50		D
												0.50		D
						S 1.00-1.45	(1) 1							
										PP 1.20	PP=68			
	Very soft grey slightly clayey slightly sandy slightly gravelly SILT. Gravel consists of angular fine to medium coal. (MADE GROUND - REWORKED NATURAL SOILS)	1.30	40.08											
										PP 1.50	PP=10	1.50		D
										PP 1.60	PP=0			
	Very loose orange sandy GRAVEL. Gravel consists of angular fine to coarse sandstone. (MADE GROUND - REWORKED NATURAL SOILS)	2.00	39.38			S 2.00-2.45	(1) 1			PP 2.00	PP=20			
												2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	80
2.00 - 4.00	75
4.00 - 5.00	80
5.00 - 6.00	70

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 3
Co-ordinates -	**Checked by** CO	**DTS01**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Very loose orange sandy GRAVEL. Gravel consists of angular fine to coarse sandstone. (MADE GROUND - REWORKED NATURAL SOILS)					S 3.00-3.45	(0) 2							
						S 4.00-4.45	(0) 0							
	Very loose dark grey silty GRAVEL. Gravel consists of angular fine to medium coal. (MADE GROUND - REWORKED NATURAL SOILS)	4.50	36.88			S 5.00-5.45	(0) 0					5.00		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	80
2.00 - 4.00	75
4.00 - 5.00	80
5.00 - 6.00	70

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 3
Co-ordinates -	**Checked by** CO	**DTS01**

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Very loose dark grey silty GRAVEL. Gravel consists of angular fine to medium coal. (MADE GROUND - REWORKED NATURAL SOILS)													
		6.00	35.38			S 6.00-6.45	(4) 8							
	BOREHOLE TERMINATED AT 6.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	80
2.00 - 4.00	75
4.00 - 5.00	80
5.00 - 6.00	70

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 3 of 3
Co-ordinates -	**Checked by** CO	**DTS01**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly gravelly SAND with frequent rootlets. Gravel consists of sub-rounded sandstone and mudstone. (MADE GROUND - REWORKED TOPSOIL)											0.10		D
	Firm high strength greyish brown very sandy gravelly CLAY with occasional rootlets. Gravel consists of fine to coarse sandstone, coal and mudstone. (MADE GROUND - REWORKED NATURAL SOILS)	0.15	41.13							PP 0.40	PP=108	0.50		D
										PP 0.80	PP=128			
	Very soft slightly clayey slightly gravelly very sandy SILT. Gravel consists of sub-angular fine coal and mudstone. (MADE GROUND - REWORKED NATURAL SOILS)	0.90	40.38			S 1.00-1.45	(2) 5					1.50		D
						S 2.00-2.31	(16) then 50 blows for 155mm penetration					2.00		D
	BOREHOLE TERMINATED AT 2.20m	2.20	39.08											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (possible bedrock).

Groundwater observations

Water inflow at 2m depth, rising to 1.8m in 30 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS02**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown very gravelly SAND. Gravel consists of angular fine to coarse sandstone, mudstone and coal. (MADE GROUND - REWORKED NATURAL SOILS)											0.10		D
												0.50		D
	Very loose brown slightly silty slightly gravelly SAND. Gravel consists of fine to coarse coal and mudstone. (MADE GROUND - REWORKED NATURAL SOILS)	0.90	37.95			S 1.00-1.45	(3) 1							
												1.50		D
						S 1.80-2.01	(25 blows for 95mm penetration) then 50 blows for 115mm penetration							
	Weak grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	1.90	36.95											
	BOREHOLE TERMINATED AT 2.00m	2.00	36.85											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	75

Method
Driven tube sampler

Logged by
LR

Date(s)
31/08/2017

Level (m OD)
-

Compiled by
TH

Sheet number
Sheet 1 of 1

Co-ordinates
-

Checked by
CO

DTS03

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Brown slightly gravelly SAND. Gravel consists of fine to medium sandstone. (TOPSOIL)											0.20		D
	Firm high strength brown slightly gravelly very sandy CLAY. Gravel consists of fine to medium mudstone and coal. (DEVENSIAN TILL)	0.50	37.76									0.80		D
										PP 0.90	PP=83			
	Loose orange silty SAND. (DEVENSIAN TILL)	1.00	37.26			S 1.00-1.45	(0) 5					1.20		D
	Stiff very high strength grey slightly silty CLAY. (DEVENSIAN TILL)	1.50	36.76											
										PP 1.70	PP=225	1.70		D
	...from 1.8m depth, becoming very stiff.													
	Weak grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	1.90	36.36											
	BOREHOLE TERMINATED AT 2.00m	2.00	36.26			S 2.00-2.39	(10) then 50 blows for 240mm penetration					2.00		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.
Borehole terminated due to competency of bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS04**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown clayey slightly gravelly SAND with occasional rootlets. Gravel consists of sub-angular fine mudstone and coal. (MADE GROUND - REWORKED TOPSOIL)											0.10		D
	Orange slightly clayey gravelly SAND. Gravel consists of fine to medium mudstone and sandstone. (MADE GROUND - REWORKED NATURAL SOILS)	0.30	37.96									0.50		D
	Stiff very high strength grey CLAY. (DEVENSIAN TILL)	0.90	37.36			S 1.00-1.45	(11) then 37 blows for 225mm penetration			PP 1.20	PP=225	1.50		D
						S 1.80-2.08	(25) then 50 blows for 210mm penetration			PP 1.70	PP=225			
	Weak grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	1.90	36.36											
	BOREHOLE TERMINATED AT 2.00m	2.00	36.26									2.00		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to competency of bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	75
1.00 - 2.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS05**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Crops onto brown clayey SAND with occasional rootlets. (TOPSOIL)											0.10		D
	Stiff medium to high strength orangish brown slightly gravelly silty CLAY. Gravel consists of sub-rounded fine to medium coal and sandstone. (DEVENSIAN TILL)	0.50	45.06							PP 0.60	PP=137			
										SV 0.80	SV=66			
	...from 1m depth, becoming firm and sandy.					S 1.00-1.45	(3) 8			PP 1.00	PP=112			
										PP 1.40	PP=78			
												1.50		D
										PP 1.80	PP=112			
										SV 1.80	SV=82			
	...from 2m depth, becoming soft and very sandy.					S 2.00-2.45	(7) 35							
										PP 2.20	PP=55			
	Orange clayey SAND. (DEVENSIAN TILL)	2.50	43.06									2.60		D
	CONTINUED ON NEXT SHEET	2.90	42.66											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2m in 30 minutes.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	100
2.00 - 3.00	80
3.00 - 5.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS06**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff high strength grey sandy CLAY. (DEVENSIAN TILL)					S 3.00-3.45	(6) 21			PP 3.00	PP=108			
						S 4.00-4.45	(8) 20			PP 4.00	PP=122			
	BOREHOLE TERMINATED AT 5.00m	5.00	40.56			S 5.00-5.45	(8) 25			PP 5.00	PP=150			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2m in 30 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	100
2.00 - 3.00	80
3.00 - 5.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS06**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown clayey SAND with occasional rootlets. (TOPSOIL)													
	Stiff high to medium strength orangish brown slightly gravelly silty CLAY. Gravel consists of sub-rounded fine to medium coal and sandstone. (DEVENSIAN TILL)	0.40	45.08							PP 0.50	PP=147			
	...from 0.7m depth, becoming firm, grey in colour and sandy.											0.80		D
	...from 1m depth, becoming soft.					S 1.00-1.45	(0) 0			PP 0.90	PP=60			
	...from 1.5m depth, becoming firm.									PP 1.30	PP=33			
	...from 1.9m depth, dark grey with very frequent organic matter.									PP 1.70	PP=80			
	Very loose brown clayey SAND with frequent organic matter. (DEVENSIAN TILL)	2.00	43.48			S 2.00-2.45	(0) 0					2.00		D
	Stiff very high strength grey slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of rounded fine to medium sandstone. (DEVENSIAN TILL)	2.60	42.88							PP 2.80	PP=195			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS07**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff very high strength grey slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of rounded fine to medium sandstone. (DEVENSIAN TILL)					S 3.00-3.45	(5) 16					3.00		D
										PP 3.80	PP=158			
						S 4.00-4.45	(6) 17							
										PP 4.80	PP=160			
	BOREHOLE TERMINATED AT 5.00m	5.00	40.48			S 5.00-5.45	(8) 26							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)

Method Driven tube sampler	**Logged by** LR	**Date(s)** 31/08/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS07**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft brown sandy gravelly CLAY. Gravel consists of angular fine to coarse glass, mudstone, coal and slag. (MADE GROUND)											0.10		D
	Orange clayey slightly gravelly SAND. Gravel consists of rounded fine to medium sandstone. (DEVENSIAN TILL)	0.35	43.57									0.50		D
	Stiff high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded to rounded fine to medium mudstone. (DEVENSIAN TILL)	0.70	43.22							PP 0.80	PP=115			
	...from 1m depth, becoming very stiff.					S 1.00-1.45	(4) 12					1.00		D
										PP 1.20	PP=217			
										SV 1.50	SV=106			
										PP 1.60	PP=207			
						S 2.00-2.45	(8) 24			PP 2.00	PP=200			
										PP 2.40	PP=225			
										SV 2.50	SV=146			
										PP 2.80	PP=225			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3.5m depth. Water level remained constant after 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 3.00	80
3.00 - 4.00	75
4.00 - 5.00	85
5.00 - 6.00	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 3
Co-ordinates -	**Checked by** CO	**DTS08**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded to rounded fine to medium mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(11) 32					3.00		D
										PP 3.20	PP=225			
	Firm brown slightly clayey slightly silty very sandy CLAY. (DEVENSIAN TILL)	3.40	40.52											
		3.50	40.42							SV 3.50	SV=138			
	Stiff high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded to rounded fine to medium mudstone. (DEVENSIAN TILL)									PP 3.60	PP=112	3.60		D
						S 4.00-4.45	(11) 29			PP 4.00	PP=188			
										PP 4.40	PP=107			
	...from 4.5m depth, becoming firm and silty.									SV 4.50	SV=106	4.50		D
										PP 4.80	PP=132			
	...from 5m depth, becoming soft and medium strength.					S 5.00-5.45	(12) 24							
										PP 5.20	PP=57			
										SV 5.50	SV=43			
										PP 5.60	PP=62			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3.5m depth. Water level remained constant after 20 minutes.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 3.00	80
3.00 - 4.00	75
4.00 - 5.00	85
5.00 - 6.00	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 3
Co-ordinates -	**Checked by** CO	**DTS08**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded to rounded fine to medium mudstone. (DEVENSIAN TILL)	6.00	37.92							PP 6.00	PP=60	6.00		D
	BOREHOLE TERMINATED AT 6.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3.5m depth. Water level remained constant after 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 3.00	80
3.00 - 4.00	75
4.00 - 5.00	85
5.00 - 6.00	80

Method
Driven tube sampler

Logged by
LR

Date(s)
18/09/2017

Level (m OD)
-

Compiled by
TH

Sheet number
Sheet 3 of 3

Co-ordinates
-

Checked by
CO

DTS08

Report ref: STN3680NM-G01

Revision: 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft brown sandy gravelly CLAY. Gravel consists of angular to sub-rounded fine to coarse sandstone, mudstone and ceramic. (MADE GROUND)											0.10		D
	Firm high strength orangish brown slightly gravelly sandy CLAY. Gravel consists of sub-rounded fine to medium coal and sandstone. (DEVENSIAN TILL)	0.30	46.53							PP 0.50	PP=93	0.60		D
	Firm high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded fine to medium sandstone. (DEVENSIAN TILL)	0.70	46.13							PP 0.90	PP=110			
	...from 1.3m depth, becoming medium strength.									PP 1.30	PP=67			
	Loose brown clayey gravelly SAND. Gravel consists of sub-rounded to rounded sandstone. (DEVENSIAN TILL)	1.60	45.23			S 2.00-2.45	(3) 8					1.50		D
	Firm high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded fine to medium sandstone. (DEVENSIAN TILL)	2.30	44.53							PP 2.50	PP=102	2.50		D
	CONTINUED ON NEXT SHEET									PP 2.90	PP=145			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3m depth, rising to 1m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	65
2.00 - 3.00	100
3.00 - 4.00	65

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS09**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded fine to medium sandstone. (DEVENSIAN TILL)	3.00	43.83											
	Brownish grey slightly clayey sandy GRAVEL. Gravel consists of sub-rounded fine to medium sandstone and coal. (DEVENSIAN TILL)											3.20		D
	Stiff high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded fine to medium sandstone. (DEVENSIAN TILL)	3.50	43.33							PP 3.70	PP=112			
	BOREHOLE TERMINATED AT 4.00m	4.00	42.83			S 4.00-4.45	(4) 13							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3m depth, rising to 1m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	65
2.00 - 3.00	100
3.00 - 4.00	65

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS09**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Soft dark brown sandy gravelly CLAY. Gravel consists of sub-angular medium sandstone. (TOPSOIL)											0.10		D
	Firm high strength orangish brown slightly gravelly sandy CLAY. Gravel consists of sub-rounded fine sandstone and mudstone. (DEVENSIAN TILL)	0.30	48.72							PP 0.40	PP=110	0.50		D
	Stiff high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded fine sandstone and mudstone. (DEVENSIAN TILL)	0.70	48.32							SV 0.70 PP 0.80	SV=95 PP=107	1.00		D
										PP 1.20 SV 1.30	PP=110 SV=120			
	Medium dense brown clayey gravelly SAND. Gravel consists of sub-rounded to rounded sandstone and mudstone. (DEVENSIAN TILL)	1.50	47.52			S 2.00-2.45	(5) 18					2.00		D
	Firm brown slightly silty slightly gravelly very sandy CLAY. Gravel consists of sub-rounded to rounded sandstone and mudstone. (DEVENSIAN TILL)	2.60	46.42											
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth, rising to 1m in 20 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	80
2.00 - 3.00	80
3.00 - 4.00	100

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS10**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm brown slightly silty slightly gravelly very sandy CLAY. Gravel consists of sub-rounded to rounded sandstone and mudstone. (DEVENSIAN TILL)	3.00	46.02									3.00		D
	Very dense brown slightly clayey gravelly SAND. Gravel consists of sub-rounded to rounded sandstone and mudstone. (DEVENSIAN TILL)											3.50		D
	BOREHOLE TERMINATED AT 4.00m	4.00	45.02			S 4.00-4.09	(25 blows for 60mm penetration) then 50 blows for 30mm penetration							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth, rising to 1m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	80
2.00 - 3.00	80
3.00 - 4.00	100

Method
Driven tube sampler

Logged by
LR

Date(s)
18/09/2017

Level (m OD)
-

Compiled by
TH

Sheet number
Sheet 2 of 2

Co-ordinates
-

Checked by
CO

DTS10

Report ref: STN3680NM-G01

Revision: 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone. (TOPSOIL)											0.10		D
												0.20		D
	Stiff high strength orange mottled grey slightly silty slightly sandy CLAY. (DEVENSIAN TILL)	0.35	50.58							PP 0.50	PP=142			
										SV 0.50	SV=99			
										PP 0.90	PP=78			
	...from 1m depth, becoming very stiff slightly gravelly; gravel consists of sub-rounded medium sandstone.					S 1.00-1.45	(4) 12							
										PP 1.30	PP=192			
										SV 1.50	SV=137	1.50		D
	Very stiff very high strength grey mottled brown slightly silty CLAY. (DEVENSIAN TILL)	1.60	49.33							PP 1.70	PP=153			
	...from 2m depth, becoming slightly sandy.									PP 2.10	PP=200			
						S 2.30-2.49	(25 blows for 105mm penetration) then 50 blows for 85mm penetration			PP 2.50	PP=225			
												2.60		D
	BOREHOLE TERMINATED AT 2.70m	2.70	48.23											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed. Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.70	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS11**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of rounded fine to medium sandstone. (TOPSOIL)											0.10		D
	Firm medium strength brown slightly gravelly very sandy CLAY. Gravel consists of sub-rounded medium to coarse sandstone. (DEVENSIAN TILL)	0.40	51.54							PP 0.60	PP=62	0.50		D
	Medium dense yellow clayey gravelly SAND. Gravel consists of sub-rounded medium to coarse sandstone. (DEVENSIAN TILL)	0.75	51.19			S 1.00-1.45	(4) 12							
	...between 1m and 1.3m depth, becoming very gravelly.											1.50		D
	Very stiff very high strength brown sandy CLAY. Gravel consists of sub-rounded fine to coarse sandstone. (DEVENSIAN TILL)	2.00	49.94							PP 2.00	PP=225			
	BOREHOLE TERMINATED AT 2.20m	2.20	49.74			S 2.20-2.24	(25 blows for 30mm penetration) then 50 blows for 10mm penetration					2.20		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	90
2.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS12**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone, mudstone and coal. (TOPSOIL)											0.10		D
	Medium dense becoming very dense orange slightly gravelly clayey SAND. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	0.35	51.43									0.70		D
	...from 1m depth, not clayey.					S 1.00-1.45	(5) 24							
						S 1.50-1.58	(50 blows for 50mm penetration)							
	BOREHOLE TERMINATED AT 1.70m	1.70	50.08									1.70		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.70	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS13**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone and mudstone. (TOPSOIL)											0.10		D
	Firm high strength orangish brown slightly gravelly very sandy CLAY. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	0.30	50.95							PP 0.50	PP=107	0.50		D
						S 1.00-1.45	(3) 10			PP 0.90	PP=77			
										PP 1.30	PP=103			
	Very dense yellow clayey gravelly SAND. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	1.40	49.85									1.50		D
	...from 1.8m depth, becoming very dense.													
	BOREHOLE TERMINATED AT 2.00m	2.00	49.25			S 2.00-2.06	(25 blows for 35mm penetration) then 50 blows for 30mm penetration							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 18/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS14**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft dark grey sandy CLAY with occasional gravels of sub-angular fine sandstone. (TOPSOIL)											0.10		D
	Orangish brown slightly clayey SAND. (DEVENSIAN TILL)	0.40	49.39									0.70		D
	Firm high to very high strength yellow mottled grey very sandy CLAY. Gravel consists of sub-angular to sub-rounded fine to coarse sandstone. (DEVENSIAN TILL)	0.80	48.99							PP 0.90	PP=115			
	...from 1m depth, becoming stiff.					S 1.00-1.45	(3) 17					1.10		D
										PP 1.30	PP=183			
	...from 1.5m depth, becoming very stiff.													
										PP 1.70	PP=225			
	...from 2m depth, becoming brown.											1.90		D
						S 2.00-2.07	(25 blows for 40mm penetration) then 50 blows for 30mm penetration							
	BOREHOLE TERMINATED AT 2.10m	2.10	47.69							PP 2.10	PP=225			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed. Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.10	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS15**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft slightly gravelly sandy CLAY. Gravel consists of sub-angular fine sandstone and mudstone. (TOPSOIL)											0.10		D
	Firm high strength orange sandy CLAY. (DEVENSIAN TILL)	0.35	49.67							PP 0.40	PP=72	0.50		D
	...from 0.7m depth, becoming stiff.									PP 0.80 SV 0.80	PP=125 SV=88			
						S 1.00-1.45	(5) 11							
	Stiff high strength yellowish brown mottled orange slightly silty slightly gravelly sandy CLAY. Gravel consists of sub-rounded medium to coarse mudstone. (DEVENSIAN TILL)	1.10	48.92							PP 1.20 SV 1.20	PP=133 SV=106			
	...from 1.5m depth, becoming very stiff.											1.50		D
										PP 1.60	PP=187			
	Very stiff high strength brown slightly gravelly very sandy CLAY. Gravel consists of sub-angular to sub-rounded fine to coarse mudstone. (DEVENSIAN TILL)	1.80	48.22							SV 1.80	SV=135			
										PP 2.00	PP=225			
										PP 2.40	PP=225			
	BOREHOLE TERMINATED AT 2.50m	2.50	47.52			S 2.50-2.74	(25 blows for 135mm penetration) then 50 blows for 105mm penetration					2.50		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.50	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS16**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft dark brown sandy slightly gravelly CLAY. Gravel consists of sub-rounded fine to medium sandstone. (TOPSOIL)											0.10		D
	Firm high strength yellowish brown mottled orange silty sandy CLAY. (DEVENSIAN TILL)	0.30	49.34							PP 0.40	PP=90	0.50		D
										PP 0.80	PP=93			
	Stiff very high to high strength reddish brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-angular to sub-rounded fine coal and sandstone. (DEVENSIAN TILL)	0.90	48.74			S 1.00-1.45	(3) 11							
										PP 1.20	PP=208	1.20		D
	...from 1.4m depth, becoming firm, silty and very sandy.													
										PP 1.60	PP=85			
	Very stiff very high strength yellowish brown sandy gravelly CLAY. Gravel consists of angular fine to medium mudstone and sandstone. (DEVENSIAN TILL)	1.90	47.74							PP 2.00	PP=197			
												2.20		D
										PP 2.40	PP=225			
	BOREHOLE TERMINATED AT 2.50m	2.50	47.14			S 2.50-2.73	(25 blows for 135mm penetration) then 50 blows for 95mm penetration							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	95
2.00 - 2.50	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS17**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft dark brown slightly gravelly sandy CLAY. Gravel consists of sub-rounded fine to medium sandstone. (TOPSOIL)											0.10		D
	Firm medium strength reddish brown slightly sandy gravelly CLAY. Gravel consists of sub-angular to sub-rounded fine coal and sandstone. (DEVENSIAN TILL)	0.35	48.14									0.70		D
						S 1.00-1.45	(3) 5							
										PP 1.30	PP=93			
	...from 1.5m depth, becoming stiff and silty.									SV 1.50	SV=66			
										PP 1.70	PP=70	1.70		D
										PP 2.10	PP=145			
	Soft low to high strength reddish brown very sandy CLAY. (DEVENSIAN TILL)	2.50	45.99							PP 2.50	PP=28			
	Stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel consists of sub-angular to sub-rounded fine coal and sandstone. (DEVENSIAN TILL)	2.60	45.89							PP 2.70	PP=88			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.
Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS18**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel consists of sub-angular to sub-rounded fine coal and sandstone. (DEVENSIAN TILL)	3.00	45.49			S 3.00-3.35	(8) then 50 blows for 200mm penetration					3.00		D
	BOREHOLE TERMINATED AT 3.00m											3.20		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Borehole terminated due to presence of suspected bedrock.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS18**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium sandstone and mudstone. (TOPSOIL)											0.10		D
	Stiff very high to high strength brown slightly gravelly sandy CLAY. Gravel consists of rounded to sub-rounded medium sandstone and quartzite. (DEVENSIAN TILL)	0.30	45.97							PP 0.40	PP=160			
										PP 0.80	PP=115	0.60		D
										PP 1.20	PP=125			
	Brown slightly clayey gravelly SAND. Gravel consists of rounded medium to coarse sandstone. (DEVENSIAN TILL)	1.25	45.02									1.50		D
	Stiff very high strength brown slightly gravelly very sandy CLAY. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	1.90	44.37			S 2.00-2.45	(3) 10			PP 2.00	PP=187			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 1.1m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	45
1.00 - 2.00	40
2.00 - 3.00	50
3.00 - 4.00	40
4.00 - 5.00	25

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS19**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff very high strength brown slightly gravelly very sandy CLAY. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	3.00	43.27											
	Brown slightly clayey SAND. (DEVENSIAN TILL)	3.70	42.57									3.80		D
	Stiff brown slightly silty sandy CLAY. (DEVENSIAN TILL)	4.10	42.17			S 4.00-4.45	(12) 21			PP 4.00	PP=225			
	Medium dense brown slightly clayey slightly gravelly SAND. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	5.00	41.27											
	BOREHOLE TERMINATED AT 5.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 1.1m in 20 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	45
1.00 - 2.00	40
2.00 - 3.00	50
3.00 - 4.00	40
4.00 - 5.00	25

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS19**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto slightly gravelly very sandy CLAY. Gravel consists of sub-angular to sub-rounded fine to medium sandstone. (TOPSOIL)											0.10		D
	Stiff high strength orangish brown sandy gravelly CLAY. Gravel consists of medium to coarse sandstone and mudstone. (DEVENSIAN TILL)	0.35	43.41							PP 0.40	PP=145			
												0.60		D
										PP 0.80 SV 0.80	PP=147 SV=98			
	Very stiff high becoming very high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of rounded coarse sandstone and mudstone. (DEVENSIAN TILL)	0.90	42.86			S 1.00-1.45	(2) 10							
										PP 1.20	PP=183			
												1.50		D
										PP 1.60	PP=192			
										SV 1.80	SV=133			
										PP 2.00	PP=202			
										PP 2.40	PP=225			
												2.50		D
										PP 2.80 SV 2.80	PP=225 SV=158			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 4.0m depth, rising to 3.2m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 4.00	100
4.00 - 5.00	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS20**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Very stiff high becoming very high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of rounded coarse sandstone and mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(6) 15							
	Brown clayey SAND. (DEVENSIAN TILL)	3.20	40.56									3.50		D
	Very stiff very high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded to rounded medium to coarse sandstone and mudstone. (DEVENSIAN TILL)	3.60	40.16							PP 4.20	PP=200			
										PP 4.60	PP=225			
	BOREHOLE TERMINATED AT 5.00m	5.00	38.76			S 5.00-5.45	(10) 28							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 4.0m depth, rising to 3.2m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 4.00	100
4.00 - 5.00	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS20**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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environmental and geotechnical consultants

WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Firm high to medium strength orangish brown slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	0.35	40.79									0.50		D
										PP 0.60	PP=82			
										PP 1.00	PP=63			
	Stiff medium to very high strength brown slightly silty CLAY with occasional gravels of rounded medium sandstone and coal. (DEVENSIAN TILL)	1.40	39.74							PP 1.40	PP=73	1.50		D
										PP 1.80	PP=92			
	...from 2m depth, becoming very stiff and high to very high strength.					S 2.00-2.45	(6) 13							
										PP 2.20	PP=155			
										PP 2.60	PP=225			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	100
2.00 - 4.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS21**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
										PP 3.00	PP=225			
	...from 3.2m depth, becoming very silty.									PP 3.40	PP=188			
	...from 3.5m depth, becoming slightly silty.									PP 3.80	PP=225			
	BOREHOLE TERMINATED AT 4.00m	4.00	37.14			S 4.00-4.45	(6) 15							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	100
2.00 - 4.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS21**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown sandy slightly gravelly CLAY. Gravel consists of sub-angular fine sandstone. (TOPSOIL)											0.10		D
	Firm high strength orangish brown slightly gravelly sandy CLAY. Gravel consists of sub-rounded fine to medium sandstone. (DEVENSIAN TILL)	0.30	44.99							PP 0.40 SV 0.50	PP=93 SV=77			
										PP 0.80	PP=92			
	Firm medium to high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of fine to coarse coal and sandstone. (DEVENSIAN TILL)	0.90	44.39			S 1.00-1.45	(4) 11							
										PP 1.20	PP=83			
	...from 1.4m depth, becoming soft and very silty.									SV 1.50 PP 1.60	SV=80 PP=32	1.50		D
	...from 1.8m depth, becoming stiff.									PP 2.00	PP=177			
	...from 2.5m depth, becoming very stiff.									PP 2.40	PP=198			
										PP 2.80	PP=193			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed (negligible movement, no rates). Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 4m depth, rising to 2.9m in 20 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	75
2.00 - 3.00	100
3.00 - 4.00	70

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS22**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Firm medium to high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of fine to coarse coal and sandstone. (DEVENSIAN TILL)	3.00	42.29			S 3.00-3.45	(6) 15							
	Medium dense orangish brown clayey SAND. (DEVENSIAN TILL)											3.20		D
	Stiff very high strength brown slightly silty slightly sandy CLAY. (DEVENSIAN TILL)	3.50	41.79							PP 3.80	PP=193			
	BOREHOLE TERMINATED AT 4.00m	4.00	41.29											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed (negligible movement, no rates). Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 4m depth, rising to 2.9m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	75
2.00 - 3.00	100
3.00 - 4.00	70

Method Driven tube sampler	**Logged by** LR	**Date(s)** 19/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS22**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular sandstone. (TOPSOIL)											0.10		D
	Stiff high strength grey slightly sandy slightly gravelly CLAY. Gravel consists of rounded fine to medium sandstone. (DEVENSIAN TILL)	0.30	46.41							PP 0.40	PP=120	0.50		D
	Firm medium and high strength brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of rounded fine to medium sandstone. (DEVENSIAN TILL)	0.60	46.11							PP 0.80	PP=105	1.00		D
	...between 0.9m and 1.15m depth, becoming sandy.									PP 1.20	PP=52	1.20		D
												1.30		D
												1.50		D
										PP 1.60	PP=93	1.60		D
												1.70		D
												1.80		D
	Firm high strength brown very sandy CLAY. (DEVENSIAN TILL)	2.00	44.71			S 2.00-2.45	(5) 14			PP 2.00	PP=153	2.00		D
												2.20		D
												2.30		D
	...from 2.5m depth, becoming very stiff and sandy.									PP 2.40	PP=60	2.50		D
												2.60		D
												2.70		D
										PP 2.80	PP=143	2.80		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2.0m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	95
2.00 - 3.00	90
3.00 - 4.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS23**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						S 3.00-3.45	(14) 45							
	...from 3.1m depth, becoming stiff and slightly sandy.									PP 3.20	PP=125			
										PP 3.60	PP=142			
	Very stiff very high strength grey mottled brown silty CLAY. (DEVENSIAN TILL)	3.80	42.91											
	BOREHOLE TERMINATED AT 4.00m	4.00	42.71							PP 4.00	PP=192	4.00		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2.0m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	95
2.00 - 3.00	90
3.00 - 4.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS23**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Crops onto brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff very high strength orangish brown slightly gravelly sandy CLAY. Gravel consists of fine to medium coal and sandstone. (DEVENSIAN TILL)	0.30	47.25							PP 0.50	PP=163	0.50		D
	Firm high becoming medium strength brown mottled grey slightly gravelly silty sandy CLAY. Gravel consists of fine to coarse sandstone and mudstone. (DEVENSIAN TILL)	0.80	46.75			S 1.00-1.45	(3) 15			SV 0.80 PP 0.90	SV=88 PP=107	1.00 1.10		D D
	...between 1.3m and 1.7m depth, becoming very gravelly.									PP 1.30	PP=68	1.50		D
	Brown clayey SAND. (DEVENSIAN TILL)	1.90	45.65							SV 1.80 PP 1.90	SV=74 PP=113	2.00		D
	...from 2.1m depth, sub-angular coarse mudstone.											2.30		D
	Very stiff high strength grey slightly sandy silty CLAY. Gravel consists of sub-angular medium to coarse mudstone. (DEVENSIAN TILL)	2.70	44.85							PP 2.80 SV 2.80	PP=225 SV=119	2.80		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2.2m in 20 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 2.00	100
2.00 - 3.00	75

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS24**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Very stiff high strength grey slightly sandy silty CLAY. Gravel consists of sub-angular medium to coarse mudstone. (DEVENSIAN TILL)	3.00	44.55			S 3.00-3.45	(6) 27							
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2.2m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	100
2.00 - 3.00	75

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS24**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine sandstone. (TOPSOIL)											0.10		D
	Stiff high strength orangish brown mottled grey slightly silty slightly sandy CLAY. (DEVENSIAN TILL)	0.30	46.90							PP 0.40	PP=93	0.50		D
										PP 0.80	PP=98	0.70		D
	Very stiff very high strength brown mottled grey slightly silty slightly sandy CLAY. (DEVENSIAN TILL)	1.00	46.20							PP 1.20	PP=217			
										PP 1.60	PP=147	1.50		D
	Very dense brown clayey SAND. (DEVENSIAN TILL)	2.00	45.20			S 2.00-2.45	(14) 59					2.10		D
	Very stiff very high strength brown slightly silty slightly gravelly CLAY. Gravel consists of sub-angular medium to coarse mudstone. (DEVENSIAN TILL)	2.20	45.00							PP 2.40	PP=225	2.50		D
	BOREHOLE TERMINATED AT 2.60m	2.60	44.60											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (suspected bedrock).

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	100
2.00 - 2.60	65

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS25**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto brown sandy CLAY. (TOPSOIL)											0.10		D
	Firm medium strength greyish brown slightly silty slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium coal and sandstone. (DEVENSIAN TILL)	0.30	45.92							PP 0.50 SV 0.50	PP=93 SV=63			
	Firm medium strength brown slightly silty slightly gravelly CLAY. Gravel consists of sub-rounded to sub-angular fine to medium coal and sandstone. (DEVENSIAN TILL)	0.90	45.32			S 1.00-1.45	(2) 4			PP 0.90	PP=77	0.80		D
	...from 1.4m depth, becoming silty.									PP 1.30	PP=57			
										SV 1.50	SV=44	1.50		D
	...from 1.8m depth, becoming grey.									PP 1.70	PP=47			
						S 2.00-2.02	(25 blows for 10mm penetration) then 50 blows for 10mm penetration			PP 2.10	PP=110			
	Dense orange sandy GRAVEL. Gravel consists of sub-angular coarse sandstone and mudstone. (DEVENSIAN TILL)	2.20	44.02									2.50		D
	BOREHOLE TERMINATED AT 2.65m	2.65	43.57											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (suspected bedrock).

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	100
2.00 - 2.65	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS26**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Crops onto dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff very high strength orangish brown slightly silty sandy gravelly CLAY. Gravel consists of sub-angular fine to coarse sandstone and mudstone. (DEVENSIAN TILL)	0.25	43.61							PP 0.30	PP=170			
												0.60		D
	Stiff high strength brown silty slightly gravelly CLAY. Gravel consists of sub-rounded fine to medium sandstone and coal. (DEVENSIAN TILL)	0.70	43.16							PP 0.70	PP=95			
										PP 1.10	PP=130			
	...from 1.5m depth, becoming gravelly.									PP 1.50	PP=140			
	Brownish grey clayey gravelly SAND. Gravel consists of sub-rounded medium mudstone. (DEVENSIAN TILL)	1.70	42.16											
	Stiff very high strength brown mottled grey silty gravelly CLAY. Gravel consists of sub-rounded medium mudstone. (DEVENSIAN TILL)	1.80	42.06							PP 1.90	PP=175	1.90		D
	...from 2m depth, becoming soft and very silty.					S 2.00-2.45	(11) 40							
												2.20		D
	Very stiff very high strength grey slightly silty sandy gravelly CLAY. Gravel consists of sub-angular fine to coarse mudstone. (DEVENSIAN TILL)	2.40	41.46									2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (suspected bedrock).

Groundwater observations

No groundwater encountered.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	90
2.00 - 3.00	40

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS27**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Very stiff very high strength grey slightly silty sandy gravelly CLAY. Gravel consists of sub-angular fine to coarse mudstone. (DEVENSIAN TILL)	3.00	40.86			S 3.00-3.01	(25 blows for 5mm penetration) then 50 blows for 5mm penetration			PP 3.00	PP=225			
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (suspected bedrock).

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	90
2.00 - 3.00	40

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS27**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff high strength brown slightly gravely silty CLAY. Gravel consists of sub-angular fine sandstone and coal. (DEVENSIAN TILL)	0.25	43.65									0.40		D
										PP 0.50	PP=97			
										PP 0.90	PP=112			
						S 1.00-1.45	(2) 4			PP 1.00	PP=47			
										PP 1.30	PP=97	1.20		D
	Firm medium to very high strength grey mottled brown slightly gravelly silty sandy CLAY. Gravel consists of sub-angular medium to coarse mudstone. (DEVENSIAN TILL)	1.90	42.00											
										PP 2.10	PP=135			
										PP 2.50	PP=110			
	Very stiff light grey mottled brown sandy gravelly CLAY. Gravel consists of angular fine to medium sandstone and mudstone. (DEVENSIAN TILL) *...from 2.6m depth, becoming very stiff.*	2.60	41.30											
										PP 2.90	PP=200			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	75
2.00 - 3.00	90
3.00 - 4.00	65

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS28**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Very stiff light grey mottled brown sandy gravelly CLAY. Gravel consists of angular fine to medium sandstone and mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(2) 4							
										PP 3.30	PP=170	3.50		D
										PP 3.70	PP=225			
	BOREHOLE TERMINATED AT 4.00m	4.00	39.90											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	75
2.00 - 3.00	90
3.00 - 4.00	65

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS28**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff high strength orangish brown slightly gravelly sandy CLAY. Gravel consists of sub-rounded to sub-angular fine to medium coal and sandstone. (DEVENSIAN TILL)	0.30	42.84							PP 0.40	PP=128	0.50		D
	Firm high strength brown slightly silty slightly sandy CLAY. Gravel consists of sub-rounded to sub-angular fine to coarse sandstone and coal. (DEVENSIAN TILL)	0.80	42.34							PP 0.80	PP=118			
	...from 1.5m depth, becoming silty and sandy.									PP 1.20	PP=95	1.50		D
										PP 1.60	PP=77			
	BOREHOLE TERMINATED AT 2.00m	2.00	41.14			S 2.00-2.05	(25 blows for 30mm penetration) then 50 blows for 20mm penetration			PP 2.00	PP=75	2.00		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (suspected bedrock).

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS29**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Crops onto dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff high strength orange sandy gravelly CLAY. Gravel consists of sub-angular fine to coarse sandstone. (DEVENSIAN TILL)	0.35	40.11											
	Stiff high to very high strength brown slightly sandy slightly gravelly silty CLAY. Gravel consists of sub-angular to sub-rounded fine to medium sandstone and coal. (DEVENSIAN TILL)	0.65	39.81							PP 0.60	PP=90			
												0.70		D
						S 1.00-1.45	(2) 4			PP 1.00	PP=95	1.00		D
												1.10		D
												1.20		D
												1.30		D
										PP 1.40	PP=113			
	...from 1.5m depth, becoming very stiff.											1.50		D
												1.60		D
												1.70		D
										PP 1.80	PP=205	1.80		D
	...from 2m depth, becoming slightly gravelly.											2.00		D
												2.10		D
										PP 2.20	PP=183	2.20		D
												2.30		D
												2.50		D
	Brown clayey SAND. (DEVENSIAN TILL)	2.60	37.86									2.60		D
	Very stiff very high strength greyish brown slightly gravelly silty CLAY. Gravel consists of sub-angular fine to medium coal and sandstone.	2.70	37.76									2.70		D
												2.80		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (suspected bedrock).

Groundwater observations

No groundwater encountered.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	95
2.00 - 3.00	90
3.00 - 3.60	60

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS30**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	(DEVENSIAN TILL)					S 3.00-3.45	(6) 29			PP 3.00	PP=225			
										PP 3.40	PP=225			
	BOREHOLE TERMINATED AT 3.60m	3.60	36.86											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to competency of soils (suspected bedrock).

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
2.00 - 3.00	90
3.00 - 3.60	60

Method Driven tube sampler	**Logged by** LR	**Date(s)** 20/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS30**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft greyish brown sandy CLAY. (TOPSOIL)											0.10		D
	Firm high strength brown sandy CLAY. (DEVENSIAN TILL)	0.40	44.24							PP 0.50	PP=87			
												0.70		D
										PP 0.90	PP=82			
	...from 1m depth, becoming soft and silty.					S 1.00-1.45	(2) 8							
										PP 1.30	PP=35			
	Loose brown slightly clayey coarse SAND. (DEVENSIAN TILL)	1.40	43.24											
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.0m depth, rising to 0.5m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	50
2.00 - 3.00	45
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS31**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Loose brown slightly clayey coarse SAND. (DEVENSIAN TILL)					S 3.00-3.45	(4) 7					3.00		D
	Firm high strength brown slightly gravelly silty CLAY. Gravel consists of sub-angular fine sandstone. (DEVENSIAN TILL)	3.60	41.04									3.80		D
	BOREHOLE TERMINATED AT 4.00m	4.00	40.64							PP 4.00	PP=88			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.0m depth, rising to 0.5m in 20 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	50
2.00 - 3.00	45
3.00 - 4.00	100

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS31**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium sandstone. (TOPSOIL)											0.10		D
	Stiff medium to high strength brown silty gravelly CLAY. Gravel consists of sub-rounded medium mudstone and sandstone. (DEVENSIAN TILL)	0.30	42.94							PP 0.40	PP=100			
										SV 0.50	SV=74	0.50		D
										PP 0.80	PP=95			
	...from 1m depth, becoming firm.													
										PP 1.20	PP=58			
	...from 1.4m depth, becoming stiff and high strength.													
										SV 1.50	SV=81			
										PP 1.60	PP=125			
						S 2.00-2.45	(6) 19			PP 2.00	PP=177			
										PP 2.40	PP=148			
												2.50		D
										PP 2.80	PP=115			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed (negligible movement, no rates). Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to obstruction (cobble) pushed down to 4m depth.

Groundwater observations

No groundwater encountered.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	95
2.00 - 3.20	100
3.20 - 4.00	0

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS32**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium to high strength brown silty gravelly CLAY. Gravel consists of sub-rounded medium mudstone and sandstone. (DEVENSIAN TILL)													
	SANDSTONE COBBLE. (DEVENSIAN TILL)	3.10	40.14											
	NO RECOVERY.	3.20	40.04											
	BOREHOLE TERMINATED AT 4.00m	4.00	39.24			S 4.00-4.45	(6) 19							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed (negligible movement, no rates). Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to obstruction (cobble) pushed down to 4m depth.

Groundwater observations

No groundwater encountered.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	95
2.00 - 3.20	100
3.20 - 4.00	0

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS32**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto soft dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium sandstone. (TOPSOIL)											0.10		D
	Firm high strength orangish brown sandy CLAY. (DEVENSIAN TILL)	0.40	39.58							PP 0.50	PP=78	0.50		D
	Brown clayey SAND. (DEVENSIAN TILL)	0.90	39.08			S 1.00-1.45	(4) 10							
	Firm medium strength brown slightly gravelly silty CLAY. Gravel consists of sub-rounded medium sandstone. (DEVENSIAN TILL)	1.10	38.88							PP 1.30	PP=65	1.50		D
										PP 1.70	PP=62			
	Loose brown clayey SAND. (DEVENSIAN TILL)	2.30	37.68									2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.2m depth, rising to 1.1m in 20 minutes.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	90
2.00 - 3.00	100
3.00 - 4.00	10

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS33**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Loose brown clayey SAND. (DEVENSIAN TILL)					S 3.00-3.45	(4) 8							
	BOREHOLE TERMINATED AT 4.00m	4.00	35.98											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.2m depth, rising to 1.1m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	90
2.00 - 3.00	100
3.00 - 4.00	10

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS33**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly silty slightly sandy CLAY. (TOPSOIL)											0.10		D
	Brown medium dense clayey coarse SAND. (DEVENSIAN TILL)	0.50	38.89									0.80		D
						S 1.00-1.45	(7) 23							
	...from 2m depth, becoming slightly gravelly clayey; gravels of sub-angular coal and sandstone.											2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.0m depth, rising to 1.0m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	100
2.00 - 3.00	95
3.00 - 4.00	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS34**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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environmental and geotechnical consultants

WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...below 3m depth, becoming loose.					S 3.00-3.45	(2) 9							
	BOREHOLE TERMINATED AT 4.00m	4.00	35.39											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.0m depth, rising to 1.0m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	100
2.00 - 3.00	95
3.00 - 4.00	80

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS34**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly silty slightly sandy CLAY. (TOPSOIL)											0.10		D
	Firm high strength orangish brown slightly silty sandy CLAY. (DEVENSIAN TILL)	0.35	41.90							PP 0.40	PP=87	0.50		D
	Stiff high to very high strength greyish brown slightly gravelly silty CLAY. Gravel consists of sub-rounded to rounded medium to coarse sandstone. (DEVENSIAN TILL)	0.75	41.50							PP 0.80 SV 0.80	PP=193 SV=110	1.10		D
										PP 1.20 SV 1.20	PP=107 SV=119			
										PP 1.60	PP=168			
	...from 1.8m depth, becoming very stiff and brown.									SV 1.80	SV=132			
						S 2.00-2.45	(6) 26			PP 2.00	PP=225			
										SV 2.20	SV=172			
										PP 2.40	PP=225	2.50		D
										PP 2.80 SV 2.80	PP=137 SV=146			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	90
2.00 - 3.00	100
3.00 - 4.00	75

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS35**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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environmental and geotechnical consultants

WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...from 3m depth, becoming mottled dark grey.									PP 3.20	PP=190	3.40		D
	...from 3.5m depth, becoming stiff.									PP 3.60	PP=138			
	BOREHOLE TERMINATED AT 4.00m	4.00	38.25			S 4.00-4.45	(5) 16			PP 4.00	PP=167			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	90
2.00 - 3.00	100
3.00 - 4.00	75

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS35**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium sandstone. (TOPSOIL)											0.10		D
	Firm medium strength brown orangish slightly sandy slightly gravelly CLAY. Gravel consists of sub-rounded fine to coarse limestone, mudstone and coal. (DEVENSIAN TILL)	0.35	43.91							PP 0.40	PP=75	0.50		D
	Firm medium to high strength brown slightly silty slightly gravelly CLAY. Gravel consists of sub-rounded medium sandstone. (DEVENSIAN TILL)	0.60	43.66							PP 0.80	PP=62			
						S 1.00-1.45	(4) 8					1.00		D
	...from 1.5m depth, becoming stiff.									PP 2.50	PP=123			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 3.00	40
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS36**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						S 3.00-3.45	(5) 21							
										PP 3.30	PP=100	3.40		D
	...from 3.5m depth, becoming slightly sandy.													
										PP 3.70	PP=118			
	BOREHOLE TERMINATED AT 4.00m	4.00	40.26											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 3.00	40
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS36**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto dark brown slightly gravelly sandy CLAY. Gravel consists of sub-rounded fine sandstone. (TOPSOIL)											0.10		D
	Firm medium to high strength brown orangish slightly gravelly sandy CLAY. Gravel consists of sub-rounded medium to coarse sandstone and mudstone. (DEVENSIAN TILL)	0.40	43.93							PP 0.50 SV 0.50	PP=97 SV=54			
	Firm medium to high strength brown slightly silty slightly gravelly CLAY. Gravel consists of sub-rounded to rounded medium to coarse sandstone. (DEVENSIAN TILL)	0.70	43.63							PP 0.90	PP=55	1.00		D
												1.10		D
												1.20		D
										PP 1.30	PP=65	1.30		D
	...from 1.5m depth, becoming stiff.									SV 1.50	SV=91	1.50		D
												1.60		D
										PP 1.70	PP=83	1.70		D
												1.80		D
						S 2.00-2.45	(6) 21					2.00		D
										PP 2.10	PP=150	2.10		D
												2.20		D
												2.30		D
	...from 2.5m depth, becoming very stiff.									PP 2.50	PP=200	2.50		D
												2.60		D
												2.70		D
												2.80		D
	CONTINUED ON NEXT SHEET									PP 2.90	PP=198			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS37**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...from 3m depth, becoming stiff.									PP 3.30	PP=125	3.50		D
										PP 3.70	PP=110			
	BOREHOLE TERMINATED AT 4.00m	4.00	40.33			S 4.00-4.45	(5) 18							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 21/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS37**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Crops onto dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff high strength orangish brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine coal. (DEVENSIAN TILL)	0.30	42.29							PP 0.40	PP=113	0.50		D
										PP 0.80	PP=122			
	Firm medium strength brown slightly silty slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium sandstone and mudstone. (DEVENSIAN TILL)	0.90	41.69							PP 1.20	PP=42			
	...from 1.5m depth, becoming stiff and high strength.									PP 1.60	PP=98	1.50		D
	...from 2m depth, becoming slightly sandy.					S 2.00-2.45	(4) 8			PP 2.00	PP=122			
										PP 2.40	PP=97	2.50		D
										PP 2.80	PP=98			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	85
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS38**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
										PP 3.20	PP=83	3.50		D
	...from 3.6m depth, becoming very stiff.									PP 3.60	PP=103			
	BOREHOLE TERMINATED AT 4.00m	4.00	38.59			S 4.00-4.45	(6) 15			PP 4.00	PP=153			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	85
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS38**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff medium strength orangish brown sandy CLAY. (DEVENSIAN TILL)	0.40	38.79							PP 0.50 SV 0.50	PP=83 SV=52	0.70		D
						S 1.00-1.45	(4) 12			PP 0.80	PP=93			
	Loose brown slightly gravelly coarse SAND. Gravel consists of sub-angular fine sandstone. (DEVENSIAN TILL)	1.20	37.99											
	...from 1.5m depth, becoming very sandy.											2.00		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.0m depth, rising to 1.5m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	90
2.00 - 4.00	20

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS39**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Loose brown slightly gravelly coarse SAND. Gravel consists of sub-angular fine sandstone. (DEVENSIAN TILL)					S 3.00-3.45	(3) 4							
	BOREHOLE TERMINATED AT 4.00m	4.00	35.19											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.0m depth, rising to 1.5m in 20 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	90
2.00 - 4.00	20

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS39**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto firm brown slightly gravelly sandy CLAY. Gravel consists of fine to medium sandstone and slag. (MADE GROUND)											0.10		D
	Orangish brown clayey SAND. (DEVENSIAN TILL)	0.30	38.94									0.50		D
	Firm medium strength orangish brown mottled grey slightly silty CLAY. (DEVENSIAN TILL)	0.75	38.49							PP 0.80	PP=70			
	...from 2m depth, becoming very sandy.					S 2.00-2.45	(4) 8					1.80		D
	...from 2.3m depth, becoming slightly sandy slightly gravelly; gravels of sub-angular medium mudstone.					S 2.45-2.47	(25 blows for 10mm penetration) then 50 blows for 10mm penetration			PP 2.30	PP=102	2.20		D
	BOREHOLE TERMINATED AT 2.65m	2.65	36.60									2.65		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to possible cobble.

Groundwater observations

Water inflow at 2.3m depth, rising to 2.0m in 20 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	40
2.00 - 2.65	65

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 1
Co-ordinates -	**Checked by** CO	**DTS40**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto firm dark brown slightly gravelly sandy CLAY. Gravel consists sub-rounded fine to medium coal and sandstone. (MADE GROUND)											0.10		D
	Brown clayey gravelly SAND. Gravel consists of sub-angular to angular fine to medium coal and bituminous bound material. (MADE GROUND)	0.30	41.99									0.40		D
	Orangish brown slightly clayey slightly gravelly SAND. Gravel consists of sub-rounded to rounded fine to medium sandstone and mudstone. (DEVENSIAN TILL)	0.45	41.84									0.70		D
	Stiff medium to high strength brown slightly sandy slightly gravelly silty CLAY. Gravel consists of fine to medium mudstone and sandstone. (DEVENSIAN TILL)	0.80	41.49			S 1.00-1.45	(5) 12			SV 0.80 PP 0.90 SV 1.20 PP 1.30	SV=72 PP=105 SV=98 PP=103			
	...at 1.5m depth, no gravels.											1.50		D
										PP 1.70 SV 1.80 PP 2.10 PP 2.50 SV 2.50	PP=125 SV=135 PP=200 PP=132 SV=122			
	CONTINUED ON NEXT SHEET									PP 2.90	PP=113			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 4.00	100
4.00 - 5.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS41**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						S 3.00-3.45	(6) 16							
										PP 3.30	PP=100			
	...from 3.5m depth, becoming very stiff and gravelly.											3.50		D
										PP 3.70	PP=153			
										SV 3.80	SV=145			
										PP 4.10	PP=140			
										PP 4.50	PP=120	4.50		D
										SV 4.50	SV=105			
										PP 4.90	PP=122			
	BOREHOLE TERMINATED AT 5.00m	5.00	37.29											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 4.00	100
4.00 - 5.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS41**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto firm dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Firm high to medium strength orangish brown slightly silty sandy CLAY. (DEVENSIAN TILL)	0.35	43.75							PP 0.40	PP=110			
										PP 0.80	PP=73	0.80		D
	Firm medium strength brown mottled grey silty CLAY. (DEVENSIAN TILL)	0.90	43.20											
										PP 1.20	PP=62			
	...from 1.5m depth, becoming stiff and high and very high strength.											1.50		D
										PP 1.60	PP=85			
	...from 2m depth, becoming very stiff.					S 2.00-2.45	(6) 12			PP 2.00	PP=92			
										PP 2.40	PP=193			
	...from 2.5m depth, becoming slightly gravelly; gravels of rounded sandstone.											2.50		D
										PP 2.80	PP=217			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS42**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...from 3m depth, becoming stiff.									PP 3.20	PP=142			
										PP 3.60	PP=148			
	BOREHOLE TERMINATED AT 4.00m	4.00	40.10			S 4.00-4.45	(8) 20			PP 4.00	PP=127			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS42**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto firm dark brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff high strength orangish brown sandy gravelly CLAY. Gravel consists of sub-rounded to rounded medium to coarse mudstone and coal. (DEVENSIAN TILL)	0.25	44.77							PP 0.30	PP=127			
												0.50		D
										PP 0.70	PP=125			
	Stiff very high strength brown slightly gravelly silty CLAY. Gravel consists of sub-rounded to rounded mudstone. (DEVENSIAN TILL)	1.00	44.02			S 1.00-1.45	(4) 8							
	...from 2m depth, becoming very stiff.									PP 2.10	PP=192			
										PP 2.50	PP=203	2.50		D
	CONTINUED ON NEXT SHEET									PP 2.90	PP=180			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed. Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to possible cobble.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	0
2.00 - 3.00	100
3.00 - 3.90	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS43**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...from 3m depth, becoming stiff.					S 3.00-3.45	(6) 12							
										PP 3.30	PP=118	3.50		D
										PP 3.70	PP=148			
	BOREHOLE TERMINATED AT 3.90m	3.90	41.12											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed. Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to possible cobble.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	0
2.00 - 3.00	100
3.00 - 3.90	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS43**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto firm dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular fine to medium sandstone. (MADE GROUND)											0.10		D
	Black very clayey GRAVEL. Gravel consists of fine to medium coal. (MADE GROUND)	0.35	43.21									0.50		D
	Stiff very high strength brown slightly gravelly silty CLAY. Gravel consists of sub-rounded medium to coarse sandstone. (DEVENSIAN TILL)	0.90	42.66							PP 1.40	PP=127			
	...from 1.5m depth, becoming very stiff.									SV 1.50	SV=150			
										PP 1.80	PP=225			
						S 2.00-2.45	(4) 11							
										PP 2.20	PP=225			
	...from 2.5m depth, becoming stiff.									SV 2.50	SV=166			
										PP 2.60	PP=200			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	80
2.00 - 3.00	95
3.00 - 4.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS44**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff very high strength brown slightly gravelly silty CLAY. Gravel consists of sub-rounded medium to coarse sandstone. (DEVENSIAN TILL)									PP 3.00	PP=152			
	BOREHOLE TERMINATED AT 4.00m	4.00	39.56			S 4.00-4.45	(8) 20							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	80
2.00 - 3.00	95
3.00 - 4.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS44**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto firm dark brown slightly gravelly sandy CLAY. Gravel consists of sub-angular to sub-rounded fine to medium sandstone. (TOPSOIL)											0.10		D
	Orangish brown slightly clayey slightly gravelly SAND. Gravel consists of sub-rounded to rounded medium sandstone. (DEVENSIAN TILL)	0.25	43.35									0.50		D
						S 1.00-1.45	(5) 12							
	Stiff high strength brown slightly silty slightly gravelly sandy CLAY. Gravel consists of rounded medium to coarse mudstone and coal. (DEVENSIAN TILL)	1.10	42.50							PP 1.30	PP=88			
										SV 1.50	SV=76	1.50		D
										PP 1.70	PP=102			
	...from 2m depth, becoming very stiff.													
										PP 2.10	PP=205			
										PP 2.50	PP=217	2.50		D
										SV 2.50	SV=141			
	CONTINUED ON NEXT SHEET									PP 2.90	PP=223			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	100
2.00 - 3.00	80
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS45**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...from 3m depth, becoming stiff.					S 3.00-3.45	(6) 12							
										PP 3.30	PP=150			
										SV 3.50	SV=99	3.50		D
										PP 3.70	PP=148			
	BOREHOLE TERMINATED AT 4.00m	4.00	39.60											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	100
2.00 - 3.00	80
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS45**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Crops onto firm dark brown sandy CLAY with occasional gravels of sub-angular fine to medium sandstone and mudstone. (TOPSOIL)											0.10		D
	Orangish brown slightly clayey gravelly SAND. Gravel consists of sub-rounded to rounded medium sandstone. (DEVENSIAN TILL)	0.30	39.68											
	Stiff high strength brown slightly silty slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	1.25	38.73									1.50		D
										PP 1.60	PP=128			
	...from 1.8m depth, becoming very stiff.													
										PP 2.00	PP=137			
										PP 2.40	PP=85			
	...from 2.5m depth, becoming stiff.													
										PP 2.80	PP=80			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	100
2.00 - 3.00	70

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS46**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff high strength brown slightly silty slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	3.00	36.98											
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	100
2.00 - 3.00	70

Method Driven tube sampler	**Logged by** LR	**Date(s)** 22/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS46**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown highly organic slightly clayey SAND. (MADE GROUND)											0.20		D
		0.30	39.41									0.30	1.00	D
	Very loose dark blackish brown sandy GRAVEL. Gravel consists of angular fine coal and slag. (MADE GROUND)					S 1.00-1.45	(1) 2					1.00	1.15	D
												1.15	1.30	D
												1.30	1.60	D
	Firm very dark greenish grey brown slightly gravelly CLAY. Gravel consists of angular fine coal. (MADE GROUND - SUSPECTED REWORKED NATURAL SOILS)	1.35	38.36											
												1.60	1.75	D
	Firm very low strength brown CLAY. (MADE GROUND - SUSPECTED REWORKED NATURAL SOILS)	1.65	38.06									1.75	1.80	D
												1.80	2.00	D
										PP 2.00	PP=13	2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.50	PP=17	2.45	2.60	D
												2.60	2.75	D
												2.75	2.80	D
	Medium dense brown very clayey fine SAND.	2.80	36.91									2.80	3.00	D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to presence of bedrock.

Groundwater observations

Water inflow at 3.2m depth, rising to 1.2m in 20 minutes.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 3.00	80
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS47**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	(DEVENSIAN TILL)					S 3.00-3.45	(4) 16							
	Soft brown CLAY.	3.20	36.51							PP 3.20	PP=13			
	(DEVENSIAN TILL)	3.30	36.41											
	Medium dense brown very clayey fine SAND.	3.40	36.31											
	(DEVENSIAN TILL)											3.50		D
	Stiff very high strength brown CLAY.													
	(DEVENSIAN TILL)									PP 3.70	PP=200			
	Stiff very high strength grey slightly gravelly CLAY. Gravel consists of angular fine mudstone.	3.80	35.91											
	(DEVENSIAN TILL)											4.00		D
										PP 4.10	PP=217			
	Weak dark grey MUDSTONE.	4.70	35.01			S 4.70-4.73	(25 blows for 20mm penetration) then 50 blows for 10mm penetration					4.70		D
	(PENNINE MIDDLE COAL MEASURES FORMATION)	4.80	34.91											
	BOREHOLE TERMINATED AT 4.80m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to presence of bedrock.

Groundwater observations

Water inflow at 3.2m depth, rising to 1.2m in 20 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 3.00	80
3.00 - 4.00	100

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS47**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly silty clayey SAND. (TOPSOIL)											0.20		D
	Stiff medium strength orangish brown mottled grey slightly silty CLAY. (DEVENSIAN TILL)	0.30	42.60							PP 0.40	PP=46			
												0.60		D
										PP 0.80	PP=38			
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular fine to medium mudstone. (DEVENSIAN TILL)	0.90	42.00									1.00	1.15	D
												1.15	1.30	D
										PP 1.30	PP=50	1.30	1.45	D
												1.45	1.60	D
										PP 1.60	PP=54	1.60	1.75	D
												1.75	1.80	D
												1.80	2.00	D
						S 2.00-2.45	(6) 20			PP 2.00	PP=50	2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.40	PP=50	2.45	2.50	D
												2.50	2.75	D
												2.75	2.80	D
										PP 2.80	PP=50	2.80	3.00	D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS48**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.20	PP=54			
										PP 3.50	PP=63	3.50		D
						S 4.00-4.45	(8) 14							
												4.50		D
	BOREHOLE TERMINATED AT 5.00m	5.00	37.90											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS48**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown organic slightly clayey SAND. (TOPSOIL)											0.20		D
	Stiff orangish brown mottled grey slightly silty CLAY. (DEVENSIAN TILL)	0.30	42.45							PP 0.50	PP=67	0.70		D
	Stiff brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel consists of angular fine mudstone. (DEVENSIAN TILL)	0.80	41.95			S 1.00-1.45	(3) 10					1.00	1.15	D
												1.15	1.30	D
												1.30	1.45	D
												1.45	1.60	D
												1.60	1.75	D
												1.75	1.90	D
												1.90	2.00	D
												2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
												2.45	2.60	D
												2.60	2.75	D
												2.75	2.90	D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS49**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel consists of angular fine mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(7) 18					3.50		D
												4.50		D
	BOREHOLE TERMINATED AT 5.00m	5.00	37.75			S 5.00-5.45	(7) 35							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS49**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly silty clayey SAND. (MADE GROUND - REWORKED TOPSOIL)											0.20		D
	Dark brown mottled greyish orange clayey slightly gravelly SAND. Gravel consists of angular sandstone. (MADE GROUND)	0.30	43.56											
	Dark brown GRAVEL. Gravel consists of angular fine coal and brick. (MADE GROUND)	0.50	43.36											
	Soft dark brown sandy gravelly CLAY. Gravel consists of angular medium to coarse sandstone and brick. (MADE GROUND)	0.70	43.16							PP 0.80	PP=17	0.70		D
												1.00	1.15	D
										PP 1.20	PP=17	1.15	1.30	D
												1.30	1.45	D
										PP 1.50	PP=25	1.45	1.60	D
												1.60	1.75	D
												1.75	1.90	D
												1.90	2.00	D
						S 2.00-2.45	(3) 1			PP 2.00	PP=17	2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.40	PP=25	2.45	2.60	D
												2.60	2.75	D
	Firm low strength brown silty CLAY. (DEVENSIAN TILL)	2.70	41.16							PP 2.80	PP=21	2.75	2.90	D
												2.90	3.00	D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.1m depth, rising to 0.4m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	60
2.00 - 3.00	80
3.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS50**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm low strength brown silty CLAY. (DEVENSIAN TILL)									PP 3.20	PP=25			
										PP 3.50	PP=25	3.50		D
						S 4.00-4.45	(7) 26			PP 4.00	PP=21			
										PP 4.50	PP=25	4.50		D
	BOREHOLE TERMINATED AT 5.00m	5.00	38.86											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.1m depth, rising to 0.4m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 2.00	60
2.00 - 3.00	80
3.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS50**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Dark brown sandy CLAY. (TOPSOIL)											0.20		D
	Stiff high strength brown slightly silty slightly sandy CLAY. (DEVENSIAN TILL)	0.30	43.41							PP 0.60	PP=125	0.60		D
						S 1.00-1.45	(4) 12			PP 1.00	PP=125	1.00	1.15	D
												1.15	1.30	D
												1.30	1.45	D
	...below 1.4m depth, becoming very high strength.									PP 1.40	PP=150	1.45	1.60	D
												1.60	1.75	D
										PP 1.80	PP=192	1.75	1.90	D
												1.90	2.00	D
												2.00	2.15	D
												2.15	2.30	D
										PP 2.30	PP=167	2.30	2.45	D
												2.45	2.60	D
										PP 2.60	PP=150	2.60	2.75	D
												2.75	2.90	D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3m depth, rising to 2.4m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS51**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff high strength brown slightly silty slightly sandy CLAY. (DEVENSIAN TILL)					S 3.00-3.45	(6) 16			PP 3.00	PP=154			
										PP 3.40	PP=158	3.50		D
										PP 3.80	PP=142			
										PP 4.30	PP=146			
												4.50		D
										PP 4.80	PP=150			
	BOREHOLE TERMINATED AT 5.00m	5.00	38.71			S 5.00-5.45	(8) 45							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3m depth, rising to 2.4m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS51**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly clayey SAND. (TOPSOIL)											0.20		D
	Stiff medium strength orangish brown slightly silty slightly sandy CLAY. (DEVENSIAN TILL)	0.30	43.19							PP 0.50	PP=54	0.60		D
	Stiff medium to high strength brown slightly gravelly sandy CLAY. Gravel consists of angular fine to medium mudstone. (DEVENSIAN TILL)	0.80	42.69							PP 0.90	PP=67	1.00	1.15	D
												1.15	1.30	D
										PP 1.30	PP=67	1.30	1.45	D
												1.45	1.60	D
												1.60	1.75	D
										PP 1.70	PP=71	1.75	1.90	D
												1.90	2.00	D
						S 2.00-2.45	(7) 13			PP 2.00	PP=75	2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.50	PP=63	2.45	2.60	D
												2.60	2.75	D
												2.75	2.90	D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to continued water inflow.

Groundwater observations

Water inflow at 2m depth, rising to 1.6m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS52**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium to high strength brown slightly gravelly sandy CLAY. Gravel consists of angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.00	PP=58	3.50		D
	BOREHOLE TERMINATED AT 4.00m	4.00	39.49			S 4.00-4.45	(8) 28							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered. Unable to excavate further due to continued water inflow.

Groundwater observations

Water inflow at 2m depth, rising to 1.6m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 25/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS52**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown clayey SAND. (MADE GROUND)											0.20		D
	Stiff medium strength light brown slightly sandy slightly gravelly CLAY. Gravel consists angular to sub-angular mudstone. (MADE GROUND)	0.35	42.57							PP 0.50	PP=50	0.50		D
	Red and grey GRAVEL. Gravel consists of angular fine brick and concrete. (MADE GROUND)	0.75	42.17											
	Stiff medium strength brown CLAY. (DEVENSIAN TILL)	0.85	42.07			S 1.00-1.45	(3) 11			PP 0.90	PP=54	1.00	1.15	D
	Stiff medium strength brown mottled grey slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	1.10	41.82							PP 1.30	PP=50	1.15 1.30 1.45	1.30 1.45 1.60	D D D
										PP 1.80	PP=63	1.60 1.75 1.90	1.75 1.90 2.00	D D D
										PP 2.00 PP 2.20	PP=50 PP=54	2.00 2.15 2.30	2.15 2.30 2.45	D D D
												2.45 2.60 2.75	2.60 2.75 2.90	D D D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Slight inflow at 0.8m depth. Insufficient to fill hole.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS53**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown mottled grey slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(9) 31			PP 3.20	PP=58	3.50		D
										PP 3.70	PP=50			
										PP 4.20	PP=54			
										PP 4.70	PP=63			
	BOREHOLE TERMINATED AT 5.00m	5.00	37.92			S 5.00-5.45	(10) 31							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Slight inflow at 0.8m depth. Insufficient to fill hole.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS53**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown clayey SAND with organic matter. (TOPSOIL)											0.20		D
	Stiff orangish brown slightly sandy CLAY. (DEVENSIAN TILL)	0.30	41.09									0.30		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.80	40.59							PP 1.00	PP=50	1.00	1.15	D
												1.15	1.30	D
										PP 1.30	PP=54	1.30	1.45	D
												1.45	1.60	D
												1.60	1.75	D
												1.75	1.90	D
										PP 1.90	PP=54	1.90	2.00	D
						S 2.00-2.45	(7) 21					2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.40	PP=50	2.45	2.60	D
												2.60	2.75	D
												2.75	2.90	D
										PP 2.90	PP=58	2.90	3.00	D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS54**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.40	PP=58	3.50		D
						S 4.00-4.45	(7) 20			PP 3.90	PP=50			
										PP 4.40	PP=50	4.50		D
	BOREHOLE TERMINATED AT 5.00m	5.00	36.39											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS54**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto firm greyish brown very sandy CLAY. (TOPSOIL)											0.10		D
	Dark brown gravelly very sandy CLAY. Gravel consists of angular fine coal. (SUBSOIL)	0.15	37.33									0.30		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.40	37.08							PP 0.60	PP=50			
						S 1.00-1.45	(6) 4			PP 1.00	PP=54	1.00	1.15	D
												1.15	1.30	D
												1.30	1.45	D
										PP 1.50	PP=54	1.45	1.60	D
												1.60	1.75	D
												1.75	1.90	D
												1.90	2.00	D
										PP 2.00	PP=63	2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.50	PP=50	2.45	2.60	D
												2.60	2.75	D
												2.75	2.90	D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.6m depth, falling to 3m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS55**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(6) 22			PP 3.00	PP=63			
										PP 3.50	PP=58	3.50		D
	Weak dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	4.00	33.48											
	BOREHOLE TERMINATED AT 4.10m	4.10	33.38			S 4.10-4.10	(25 blows for 0mm penetration) then 50 blows for 0mm penetration							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.6m depth, falling to 3m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS55**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass ono dark brown clayey SAND. (TOPSOIL)											0.20		D
	Brown very clayey SAND. (DEVENSIAN TILL)	0.30	39.44											
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular mudstone. (DEVENSIAN TILL)	0.50	39.24							PP 0.60	PP=50	0.60		D
	Reddish brown fine to medium SAND. (DEVENSIAN TILL)	0.80	38.94											
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular mudstone. (DEVENSIAN TILL)	0.90	38.84							PP 1.00	PP=63	1.00	1.15	D
												1.15	1.30	D
												1.30	1.45	D
										PP 1.40	PP=63	1.45	1.60	D
	Reddish brown fine to medium SAND. (DEVENSIAN TILL)	1.60	38.14									1.60	1.75	D
												1.75	1.90	D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular mudstone. (DEVENSIAN TILL)	1.90	37.84			S 2.00-2.45	(7) 23			PP 2.00	PP=50	1.90	2.00	D
												2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.50	PP=67	2.45	2.60	D
												2.60	2.75	D
												2.75	2.90	D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 1.0m depth, rising to 0.9m in 15 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 2.00	80
2.00 - 5.00	100

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS56**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular mudstone. (DEVENSIAN TILL)									PP 3.00	PP=75			
										PP 3.50	PP=54	3.50		D
						S 4.00-4.45	(5) 20			PP 4.00	PP=50			
												4.50		D
	BOREHOLE TERMINATED AT 5.00m	5.00	34.74											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 1.0m depth, rising to 0.9m in 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 2.00	80
2.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS56**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown organic very sandy CLAY. (TOPSOIL)											0.20		D
	Reddish brown medium SAND. (DEVENSIAN TILL)	0.30	41.59									0.50		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.60	41.29							PP 0.70	PP=50			
						S 1.00-1.45	(5) 12					1.00	1.15	D
										PP 1.10	PP=63	1.15	1.30	D
												1.30	1.45	D
												1.45	1.60	D
										PP 1.60	PP=54	1.60	1.75	D
												1.75	1.90	D
												1.90	2.00	D
										PP 2.00	PP=54	2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
										PP 2.50	PP=54	2.45	2.60	D
												2.60	2.75	D
												2.75	2.90	D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3.0m depth. Water level remained constant after 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS57**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
					▼	S 3.00-3.45	(6) 18			PP 3.00	PP=63			
	...between 3.1m and 3.2m depth, very sandy.									PP 3.50	PP=50	3.50		D
										PP 4.00	PP=50			
												4.50		D
	BOREHOLE TERMINATED AT 5.00m	5.00	36.89			S 5.00-5.45	(7) 18							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3.0m depth. Water level remained constant after 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS57**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown organic very sandy CLAY. (TOPSOIL)											0.20		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.30	41.17							PP 0.50	PP=50	0.60		D
										PP 0.90	PP=54	1.00	1.15	D
												1.15	1.30	D
												1.30	1.45	D
										PP 1.40	PP=54	1.45	1.60	D
												1.60	1.75	D
												1.75	1.90	D
										PP 1.90	PP=63	1.90	2.00	D
						S 2.00-2.45	(6) 20					2.00	2.15	D
												2.15	2.30	D
												2.30	2.45	D
												2.45	2.60	D
										PP 2.60	PP=58	2.60	2.75	D
												2.75	2.90	D
	CONTINUED ON NEXT SHEET											2.90	3.00	D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 4.2m depth, falling to 4.6m in 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS58**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.10	PP=50			
												3.50		D
										PP 3.70	PP=50			
						S 4.00-4.45	(7) 17							
										PP 4.10	PP=58			
	Stiff brown very silty CLAY. (DEVENSIAN TILL)	4.20	37.27											
												4.50	5.00	D
	BOREHOLE TERMINATED AT 5.00m	5.00	36.47											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 4.2m depth, falling to 4.6m in 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS58**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown silty CLAY. (TOPSOIL)											0.20		D
	Stiff brown slightly sandy gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.35	39.06									0.60		D
						S 1.00-1.45	(5) 10					1.20		D
						S 2.00-2.45	(4) 13							
												2.80		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS59**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff brown slightly sandy gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)											3.50		D
	BOREHOLE TERMINATED AT 4.00m	4.00	35.41			S 4.00-4.45	(7) 28							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 26/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS59**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly clayey SAND. (MADE GROUND)											0.20		D
		0.30	45.73									0.30		D
	Dark brown GRAVEL. Gravel consists of angular fine coal and slag. (MADE GROUND)													
		0.45	45.58											
	Firm very low strength brown slightly silty sandy CLAY. (DEVENSIAN TILL)									PP 0.60	PP=8	0.60		D
		0.90	45.13											
	Medium dense brown slightly silty clayey SAND. (DEVENSIAN TILL)					S 1.00-1.45	(4) 10							
		1.20	44.83											
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)											1.30		D
										PP 1.50	PP=50			
	...between 1.7m and 1.8m depth, very sandy.													
										PP 2.00	PP=50			
	...between 2.2m and 2.3m depth, very sandy.													
										PP 2.50	PP=54	2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.2m depth, rising to 1.0m in 30 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 2.00	90
2.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS60**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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environmental and geotechnical consultants

WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(6) 20			PP 3.00	PP=50			
										PP 3.50	PP=54	3.70		D
										PP 4.00	PP=50			
												4.50		D
	BOREHOLE TERMINATED AT 5.00m	5.00	41.03			S 5.00-5.45	(9) 32							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.2m depth, rising to 1.0m in 30 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 2.00	90
2.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS60**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark grey slightly clayey medium SAND. (MADE GROUND)											0.20		D
	Very dark greyish brown slightly clayey GRAVEL. Gravel consists of angular fine coal. (MADE GROUND)	0.35	45.67									0.60		D
	Dark brown clayey fine to medium SAND. (DEVENSIAN TILL)	0.90	45.12									1.00		D
	Stiff medium strength brown mottled grey slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular mudstone. (DEVENSIAN TILL)	1.30	44.72			S 2.00-2.45	(5) 18			PP 1.50 PP 1.90	PP=50 PP=58	1.70		D
	Stiff medium strength brown slightly gravelly very sandy CLAY. Gravel consists of sub-angular to angular fine to medium mudstone. (DEVENSIAN TILL)	2.10	43.92							PP 2.30 PP 2.80	PP=50 PP=54	2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 5 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 2.00	80
2.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS61**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly gravelly very sandy CLAY. Gravel consists of sub-angular to angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.20	PP=50	3.50		D
										PP 3.80	PP=50			
	BOREHOLE TERMINATED AT 4.00m	4.00	42.02			S 4.00-4.45	(7) 24							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 5 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 2.00	80
2.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS61**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown clayey SAND. (TOPSOIL)											0.20		D
	Grey slightly gravelly medium SAND. Gravel consists of sub-rounded medium quartzite. (DEVENSIAN TILL)	0.35	46.24											
	Light brown medium SAND. (DEVENSIAN TILL)	0.45	46.14											
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.55	46.04									0.60		D
						S 1.00-1.45	(1) 9							
												1.30		D
												2.20		D
	Medium dense brown slightly silty medium to coarse SAND. (DEVENSIAN TILL)	2.60	43.99									2.80		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.6m depth, rising to 1.5m in 3 minutes.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 4.00	80

Method
Driven tube sampler

Logged by
TO

Date(s)
27/09/2017

Level (m OD)
-

Compiled by
TH

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Sheet 1 of 2

Co-ordinates
-

Checked by
CO

DTS62

Report ref: STN3680NM-G01

Revision: 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Medium dense brown slightly silty medium to coarse SAND. (DEVENSIAN TILL)					S 3.00-3.45	(4) 15							
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	3.70	42.89									3.70		D
	BOREHOLE TERMINATED AT 4.00m	4.00	42.59											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.6m depth, rising to 1.5m in 3 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 4.00	80

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS62**

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Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly clayey SAND. (TOPSOIL)											0.20		D
	Orangish brown slightly clayey slightly gravelly SAND. Gravel consists of angular and sub-angular mudstone. (DEVENSIAN TILL)	0.35	46.32									0.60		D
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	1.00	45.67							PP 1.20	PP=50			
												1.50		D
										PP 1.70	PP=54			
						S 2.00-2.45	(7) 18							
										PP 2.30	PP=50			
												2.50		D
										PP 2.80	PP=54			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS63**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.20	PP=58	3.50		D
										PP 3.70	PP=50			
	BOREHOLE TERMINATED AT 4.00m	4.00	42.67			S 4.00-4.45	(8) 27							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS63**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly clayey SAND. (MADE GROUND)											0.20		D
	Dark blackish brown GRAVEL. Gravel consists of angular fine to medium coal. (MADE GROUND)	0.35 0.40	46.57 46.52											
	Stiff medium strength orangish brown slightly gravelly sandy CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)					S 1.00-1.45	(5) 12			PP 0.70	PP=50	0.60		D
	Medium dense brown slightly silty medium SAND. Becoming dense at 5m depth. (DEVENSIAN TILL)	1.10	45.82									2.00	2.50	D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 5 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS64**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Medium dense brown slightly silty medium SAND. Becoming dense at 5m depth. (DEVENSIAN TILL)					S 3.00-3.45	(5) 20					3.00	3.50	D
												4.00	4.50	D
	BOREHOLE TERMINATED AT 5.00m	5.00	41.92			S 5.00-5.45	(6) 31							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 5 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 5.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS64**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly clayey SAND. (TOPSOIL)											0.20		D
	Stiff medium strength orangish brown slightly gravelly sandy CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.30	46.92							PP 0.50	PP=54	0.60		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.90	46.32							PP 1.00	PP=54			
										PP 1.50	PP=50	1.50		D
						S 2.00-2.45	(5) 14			PP 2.00	PP=50			
												2.50		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS65**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.00	PP=50			
										PP 3.50	PP=54	3.50		D
	BOREHOLE TERMINATED AT 4.00m	4.00	43.22			S 4.00-4.45	(4) 10							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 27/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS65**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown clayey SAND. (TOPSOIL)											0.20		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular medium mudstone. (DEVENSIAN TILL)	0.30	46.03							PP 0.40	PP=50			
												0.70		D
						S 1.00-1.45	(2) 8			PP 1.00	PP=63			
	...between 1.4m and 1.5m depth, very sandy.									PP 1.40	PP=54			
												1.70		D
										PP 1.80	PP=54			
										PP 2.00	PP=50			
										PP 2.40	PP=50			
												2.50		D
	CONTINUED ON NEXT SHEET									PP 2.90	PP=58			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS66**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular medium mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(5) 12			PP 3.40	PP=54	3.50		D
	BOREHOLE TERMINATED AT 4.00m	4.00	42.33											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS66**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown clayey SAND. (MADE GROUND - REWORKED TOPSOIL)											0.20		D
	Light grey sandy GRAVEL. Gravel consists of angular medium mudstone. (MADE GROUND)	0.40	46.94											
	Dark greyish brown GRAVEL. Gravel consists of angular fine coal. (MADE GROUND)	0.60	46.74									0.70		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.90	46.44							PP 1.00	PP=50			
										PP 1.40	PP=54	1.40		D
										PP 1.80	PP=50			
						S 2.00-2.45	(5) 15							
										PP 2.30	PP=67			
										PP 2.70	PP=58	2.60		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS67**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.20	PP=58	3.50		D
										PP 3.70	PP=63			
	BOREHOLE TERMINATED AT 4.00m	4.00	43.34			S 4.00-4.45	(5) 14							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS67**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown very sandy CLAY. (TOPSOIL)											0.20		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.30	46.92							PP 0.50	PP=50	0.50		D
						S 1.00-1.45	(5) 13			PP 0.90	PP=63			
										PP 1.30	PP=67	1.40		D
										PP 1.70	PP=50			
										PP 2.20	PP=50			
										PP 2.80	PP=58	2.60		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3.1m depth, rising to 2.1m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS68**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...between 3.1m and 3.3m depth, very sandy.					S 3.00-3.45	(5) 21			PP 3.40	PP=54	3.50		D
										PP 3.80	PP=71			
	BOREHOLE TERMINATED AT 4.00m	4.00	43.22											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 3.1m depth, rising to 2.1m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS68**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Dark brown very sandy CLAY. (TOPSOIL)											0.20		D
	Stiff medium to high strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.30	46.63							PP 0.50	PP=54			
	...between 0.5m and 0.6m depth, very gravelly.											0.70		D
										PP 0.90	PP=58			
										PP 1.30	PP=50			
												1.50		D
										PP 1.70	PP=58			
						S 2.00-2.45	(5) 12							
										PP 2.20	PP=67			
	...between 2.3m and 2.4m depth, very gravelly.											2.50		D
										PP 2.80	PP=75			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS69**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
												3.50		D
	...between 3.8m and 3.9m depth, very silty.													
	BOREHOLE TERMINATED AT 4.00m	4.00	42.93			S 4.00-4.45	(6) 9							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS69**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown very sandy CLAY. (TOPSOIL)													
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.20	46.48									0.20		D
										PP 0.40	PP=58			
												0.70		D
										PP 0.80	PP=67			
						S 1.00-1.45	(4) 14							
										PP 1.30	PP=67			
												1.50		D
										PP 1.80	PP=50			
	...between 2.5m and 2.6m depth, very sandy and very silty.													
										PP 2.40	PP=50			
												2.70		D
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 3.00	100
3.00 - 4.00	60

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS70**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	3.00	43.68			S 3.00-3.45	(5) 23							
	Medium dense brown medium SAND. (DEVENSIAN TILL)											3.30		D
	...between 3.5m and 3.6m depth, clayey.													
	Stiff high strength dark grey silty CLAY with rare gravels of angular fine mudstone. (DEVENSIAN TILL)	3.70	42.98									3.80		D
										PP 3.90	PP=108			
	BOREHOLE TERMINATED AT 4.00m	4.00	42.68											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.5m depth, rising to 2m in 10 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 3.00	100
3.00 - 4.00	60

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS70**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown very sandy CLAY. (TOPSOIL)													
	Stiff medium strength brown slightly gravelly sandy CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.20	44.34									0.20		D
										PP 0.40	PP=54			
												0.70		D
										PP 0.80	PP=54			
										PP 1.30	PP=50	1.30		D
										PP 1.70	PP=63			
						S 2.00-2.45	(6) 18							
										PP 2.20	PP=67			
												2.50		D
										PP 2.80	PP=50			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.8m depth, rising to 0.6m in 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS71**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
										PP 3.20	PP=67	3.50		D
	...between 3.7m and 3.9m depth, very silty.									PP 3.70	PP=63			
	BOREHOLE TERMINATED AT 4.00m	4.00	40.54			S 4.00-4.45	(21) 43							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2.8m depth, rising to 0.6m in 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS71**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark greyish brown very sandy CLAY. (MADE GROUND - REWORKED TOPSOIL)											0.20		D
	Stiff brown mottled grey slightly gravelly very sandy CLAY. Gravel consists of angular igneous rock and brick. (MADE GROUND)	0.30	44.48											
	Medium dense brown medium SAND. (DEVENSIAN TILL)	0.60	44.18									0.60		D
	...from 0.8m depth, becoming grey.											0.80		D
					▼	S 1.00-1.45	(5) 14							
	Brown mottled grey medium SAND. (DEVENSIAN TILL)	2.00	42.78											
	...between 2.3m and 2.4m depth, becoming clayey.											2.30		D
	CONTINUED ON NEXT SHEET	2.90	41.88							PP 2.90	PP=63			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 1m depth. Water level remained constant after 15 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 2.00	10
2.00 - 3.00	70
3.00 - 4.00	100

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS72**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly gravelly sandy CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)					S 3.00-3.45	(11) 25			PP 3.20	PP=54	3.50		D
										PP 3.70	PP=54			
	BOREHOLE TERMINATED AT 4.00m	4.00	40.78											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 1m depth. Water level remained constant after 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 2.00	10
2.00 - 3.00	70
3.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS72**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown very sandy CLAY. (TOPSOIL)											0.20		D
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)	0.30	45.29							PP 0.40	PP=54	0.50		D
										PP 0.80	PP=58			
										PP 1.20	PP=54	1.20		D
										PP 1.70	PP=50	1.80		D
						S 2.00-2.45	(5) 17							
										PP 2.20	PP=58			
												2.50		D
										PP 2.80	PP=54			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS73**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff medium strength brown slightly sandy slightly gravelly CLAY. Gravel consists of angular to sub-angular fine to medium mudstone. (DEVENSIAN TILL)									PP 3.20	PP=50	3.50		D
	BOREHOLE TERMINATED AT 4.00m	4.00	41.59			S 4.00-4.45	(10) 22							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** TO	**Date(s)** 28/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS73**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark grey clayey sandy GRAVEL. Gravel consists of angular to sub-rounded fine to coarse limestone and sandstone. (MADE GROUND)											0.10		D
	Grey slightly clayey sandy GRAVEL. Gravel consists of fine to coarse sandstone. (MADE GROUND)	0.30	45.42									0.50		D
	Firm medium and high strength greyish brown slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone. (DEVENSIAN TILL)	0.80	44.92			S 1.00-1.45	(4) 10							
	...from 1.2m depth, becoming brown in colour.									PP 1.30	PP=58			
										PP 1.50 SV 1.50	PP=93 SV=79	1.50		D
										PP 1.70	PP=73			
										PP 2.10	PP=88			
	...from 2.5m depth, becoming very sandy.									PP 2.50	PP=70	2.50		D
	Medium dense orangish brown slightly clayey coarse SAND.	2.80	42.92							PP 2.80	PP=95			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 15 minutes.

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	90
3.00 - 4.00	50

Title

Driven tube sampler record

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS74**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	(DEVENSIAN TILL)					S 3.00-3.45	(5) 17					3.50		D
	BOREHOLE TERMINATED AT 4.00m	4.00	41.72											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 2m depth. Water level remained constant after 15 minutes.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	90
3.00 - 4.00	50

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS74**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grey sandy GRAVEL. Gravel consists of sub-angular fine to coarse limestone, sandstone and slag. (MADE GROUND)											0.10		D
	Firm brown slightly sandy gravelly CLAY. Gravel consists of sub-angular medium to coarse sandstone, bituminous material and brick. (MADE GROUND)	0.20	45.01									0.50		D
	...from 0.7m depth, becoming soft.													
	Firm high strength brown slightly silty CLAY with occasional gravels of sandstone. (DEVENSIAN TILL)	0.90	44.31							PP 1.00	PP=103			
										PP 1.40	PP=70			
										SV 1.50	SV=92	1.50		D
										PP 1.80	PP=58			
	...from 2m depth, becoming stiff and high to very high strength.					S 2.00-2.45	(5) 16							
										PP 2.20	PP=107			
										SV 2.50	SV=139			
										PP 2.60	PP=183			
	CONTINUED ON NEXT SHEET	2.90	42.31											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 4.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS75**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Brown slightly clayey SAND. (DEVENSIAN TILL)													
	Stiff very high strength brown slightly silty CLAY with occasional gravels of rounded medium sandstone. (DEVENSIAN TILL)	3.10	42.11							PP 3.40	PP=205	3.50		D
										PP 3.80	PP=173			
	BOREHOLE TERMINATED AT 4.00m	4.00	41.21			S 4.00-4.45	(9) 22							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 4.00	90

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS75**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly silty slightly gravelly CLAY. Gravel consists of rounded medium sandstone. (MADE GROUND - REWORKED TOPSOIL)											0.10		D
	Grey slightly clayey slightly sandy GRAVEL. Gravel consists of sub-angular to angular fine to coarse coal and slag. (MADE GROUND)	0.35	45.75									0.60		D
	Firm low to high strength brown slightly silty slightly gravelly CLAY. Gravel consists of fine to medium sandstone and mudstone. (DEVENSIAN TILL)	0.85	45.25							PP 0.90	PP=25			
										PP 1.30	PP=53			
										SV 1.50	SV=105	1.50		D
										PP 1.70	PP=68			
	...from 2m depth, becoming stiff.					S 2.00-2.45	(4) 12							
										PP 2.10	PP=85			
										PP 2.50 SV 2.50	PP=120 SV=131	2.50		D
	CONTINUED ON NEXT SHEET									PP 2.90	PP=100			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed (negligible movement, no rates). Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS76**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm low to high strength brown slightly silty slightly gravelly CLAY. Gravel consists of fine to medium sandstone and mudstone. (DEVENSIAN TILL)	3.00	43.10											
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Infiltration testing performed (negligible movement, no rates). Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS76**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly gravelly slightly silty CLAY. Gravel consists of medium to fine sandstone. (TOPSOIL)											0.10		D
	Firm high strength brown slightly silty slightly gravelly CLAY. Gravel consists of rounded medium to coarse sandstone and mudstone. (DEVENSIAN TILL)	0.35	45.48							PP 0.40	PP=72			
										PP 0.80 SV 0.80	PP=103 SV=81	0.80		D
	...from 1m depth, becoming stiff slightly clayey.					S 1.00-1.45	(2) 6			PP 1.00	PP=95			
										PP 1.20	PP=82			
										SV 1.80	SV=86	1.80		D
	...from 2m depth, becoming very stiff and occasionally very high strength and no sand.									PP 2.00	PP=110			
										PP 2.40	PP=152			
										PP 2.80 SV 2.80	PP=168 SV=143			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS77**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm high strength brown slightly silty slightly gravelly CLAY. Gravel consists of rounded medium to coarse sandstone and mudstone. (DEVENSIAN TILL)	3.00	42.83			S 3.00-3.45	(7) 24							
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS77**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown sandy gravelly CLAY. Gravel consists of sub-angular fine to medium sandstone and coal. (TOPSOIL)											0.10 0.10		D D
	Firm high strength orangish brown slightly sandy slightly gravelly silty CLAY. Gravel consists of sub-rounded to rounded medium coal and sandstone. (DEVENSIAN TILL)	0.35	44.25							PP 0.50 SV 0.50	PP=97 SV=99	0.50		D
	Stiff high strength brown slightly gravelly silty CLAY. Gravel consists of rounded medium coal, sandstone and mudstone. (DEVENSIAN TILL)	0.80	43.80							PP 0.90	PP=55			
										PP 1.30	PP=103			
										SV 1.50	SV=105	1.50 1.50		D D
										PP 1.70	PP=112			
						S 2.00-2.45	(5) 17							
										PP 2.10	PP=142			
										PP 2.50 SV 2.50	PP=118 SV=91	2.50		D
										PP 2.90	PP=130			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 3.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS78**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff high strength brown slightly gravelly silty CLAY. Gravel consists of rounded medium coal, sandstone and mudstone. (DEVENSIAN TILL)	3.00	41.60									3.50		D
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 3.00	100

Method
Driven tube sampler

Logged by
LR

Date(s)
29/09/2017

Level (m OD)
-

Compiled by
TH

Sheet number
Sheet 2 of 2

Co-ordinates
-

Checked by
CO

DTS78

Report ref: STN3680NM-G01

Revision: 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown slightly gravelly sandy CLAY. Gravel consists of sub-rounded fine coal and sandstone. (TOPSOIL)											0.10		D
	Firm medium to very high strength brown mottled grey slightly gravelly silty CLAY. Gravel consists of sub-angular to sub-rounded medium coal, sandstone and mudstone. (DEVENSIAN TILL)	0.45	43.29							PP 0.50	PP=77			
										PP 0.90	PP=72	0.80		D
	...from 1m depth, becoming stiff.					S 1.00-1.45	(3) 10							
										PP 1.30	PP=123			
										PP 1.70	PP=193			
												1.80		D
										PP 2.10	PP=128			
	...from 2.5m depth, becoming very stiff.									PP 2.50	PP=158			
												2.80		D
	CONTINUED ON NEXT SHEET									PP 2.90	PP=165			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS79**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm medium to very high strength brown mottled grey slightly gravelly silty CLAY. Gravel consists of sub-angular to sub-rounded medium coal, sandstone and mudstone. (DEVENSIAN TILL)	3.00	40.74			S 3.00-3.45	(6) 20							
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations
No groundwater encountered.

Title
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS79**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown very sandy CLAY with occasional gravels of sub-angular fine sandstone. (TOPSOIL)											0.10		D
	Firm medium to high strength brown slightly sandy slightly gravelly silty CLAY. Gravel consists of sub-rounded to sub-angular fine to medium sandstone, coal and mudstone. (DEVENSIAN TILL)	0.20	43.47							PP 0.40	PP=63			
										SV 0.50	SV=59	0.50		D
										PP 0.80	PP=87			
	Stiff high strength orangish brown silty gravelly very sandy CLAY. Gravel consists of sub-angular to sub-rounded fine to medium sandstone and mudstone. (DEVENSIAN TILL)	0.90	42.77							PP 1.20	PP=130			
										SV 1.50	SV=91			
										PP 1.60	PP=113			
	Stiff high to very high strength brown slightly silty slightly gravelly sandy CLAY. Gravel consists of sub-rounded fine to medium sandstone and mudstone. (DEVENSIAN TILL)	2.00	41.67			S 2.00-2.45	(3) 11			PP 2.00	PP=83			
										PP 2.40	PP=150			
										SV 2.50	SV=124			
										PP 2.80	PP=187			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS80**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...from 3m depth, becoming very stiff.									PP 3.20	PP=150			
										SV 3.50	SV=117	3.50		D
										PP 3.60	PP=143			
	BOREHOLE TERMINATED AT 4.00m	4.00	39.67			S 4.00-4.45	(7) 20			PP 4.00	PP=167			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 4.00	100

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS80**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
Florida Farm, St Helens

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly gravelly very sandy CLAY. Gravel consists of sub-angular fine sandstone. (TOPSOIL)											0.10		D
	Firm high to medium to high strength brown slightly gravelly silty CLAY. Gravel consists of rounded fine to medium sandstone and mudstone. (DEVENSIAN TILL)	0.25	42.70							PP 0.30	PP=110			
										PP 0.70	PP=80			
						S 1.00-1.45	(3) 9							
										PP 1.10	PP=107			
	...from 1.5m depth, becoming stiff with rare cobbles of sandstone.									PP 1.50	PP=70	1.50		D
										PP 1.90	PP=98			
										PP 2.30	PP=73			
	...from 2.5m depth, becoming firm.											2.50		D
										PP 2.70	PP=72			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 0.3m depth. Water level remained constant. Borehole in close proximity to standing water.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 3.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS81**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm high to medium to high strength brown slightly gravelly silty CLAY. Gravel consists of rounded fine to medium sandstone and mudstone. (DEVENSIAN TILL)	3.00	39.95			S 3.00-3.45	(4) 14							
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

Water inflow at 0.3m depth. Water level remained constant. Borehole in close proximity to standing water.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 3.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS81**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Brown sandy CLAY. (TOPSOIL)											0.10		D
	Stiff high strength orangish brown slightly gravelly sandy CLAY. Gravel consists of rounded medium sandstone and mudstone. (DEVENSIAN TILL)	0.30	42.65							PP 0.40	PP=133			
										PP 0.80 SV 0.80	PP=93 SV=84			
	Stiff high to very high strength brown slightly silty slightly gravelly CLAY. Gravel consists of sub-rounded to rounded medium sandstone. (DEVENSIAN TILL)	1.20	41.75							PP 1.20	PP=100			
												1.50		D
										PP 1.60	PP=170			
										SV 1.80	SV=131			
						S 2.00-2.45	(5) 13			PP 2.00	PP=140			
										PP 2.40	PP=143			
										PP 2.80 SV 2.80	PP=160 SV=120			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS82**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Stiff high to very high strength brown slightly silty slightly gravelly CLAY. Gravel consists of sub-rounded to rounded medium sandstone. (DEVENSIAN TILL)	3.00	39.95											
	BOREHOLE TERMINATED AT 3.00m													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS82**

Report ref: STN3680NM-G01 **Revision:** 0

Proposed residential development
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Brown very sandy CLAY. (TOPSOIL)											0.10		D
	Firm high strength orangish brown slightly silty slightly sandy slightly gravelly CLAY. Gravel consists of sub-angular to sub-rounded fine to medium coal and sandstone. (DEVENSIAN TILL)	0.25	43.79							PP 0.30	PP=97			
												0.50		D
										PP 0.70	PP=128			
	Stiff medium to very high strength brown slightly gravelly silty sandy CLAY. Gravel consists of sub-rounded to rounded medium sandstone. (DEVENSIAN TILL)	0.90	43.14			S 1.00-1.45	(1) 4							
										PP 1.10	PP=68			
										PP 1.50	PP=70	1.50		D
										PP 1.90	PP=210			
	...from 2m depth, becoming very stiff and slightly sandy.													
										PP 2.30	PP=205			
										PP 2.70	PP=218			
	CONTINUED ON NEXT SHEET													

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	100
2.00 - 4.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 1 of 2
Co-ordinates -	**Checked by** CO	**DTS83**

Report ref: STN3680NM-G01 **Revision:** 0

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WELL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	...from 3m depth, becoming stiff.					S 3.00-3.45	(8) 22			PP 3.10	PP=187			
										PP 3.50	PP=153	3.50		D
										PP 3.90	PP=125			
	BOREHOLE TERMINATED AT 4.00m	4.00	40.04											

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Backfilled with arisings. Unless otherwise stated, no visual or olfactory evidence of contamination encountered.

Groundwater observations

No groundwater encountered.

Title

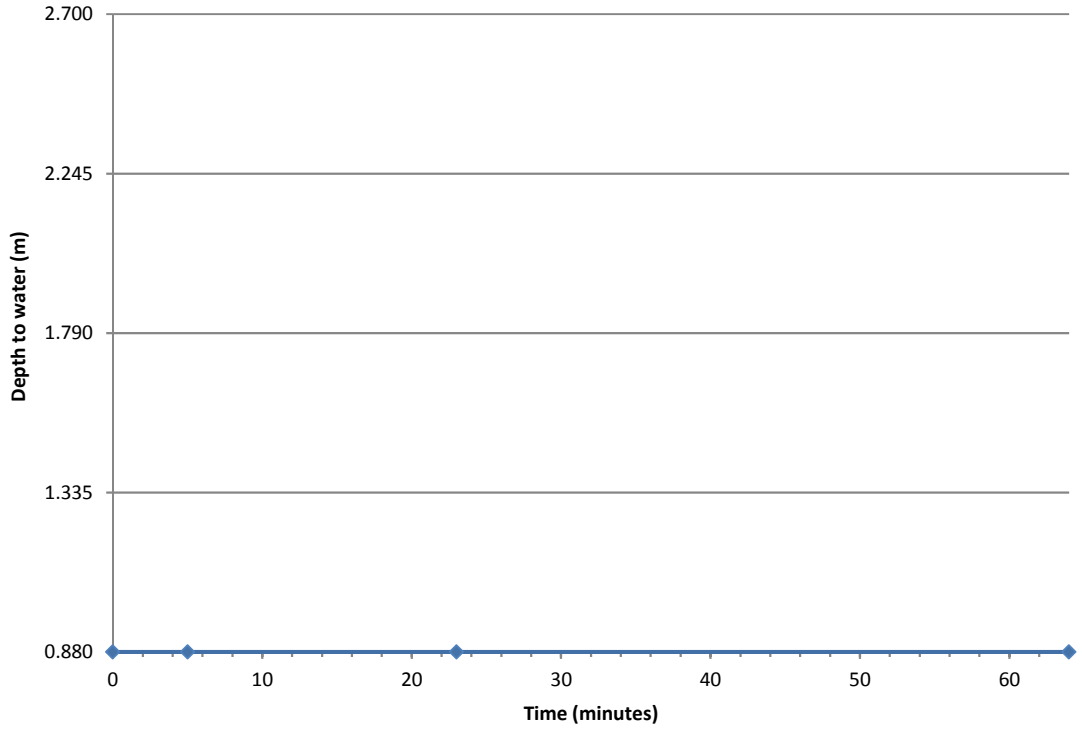
Driven tube sampler record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	85
1.00 - 2.00	100
2.00 - 4.00	95

Method Driven tube sampler	**Logged by** LR	**Date(s)** 29/09/2017
Level (m OD) -	**Compiled by** TH	**Sheet number** Sheet 2 of 2
Co-ordinates -	**Checked by** CO	**DTS83**

Report ref: STN3680NM-G01 **Revision:** 0

Plot showing time against depth to water:



Test observations:

TIME (mins)	DEPTH TO WATER (m)	TIME (mins)	DEPTH TO WATER (m)
0	0.88		
5	0.88		
23	0.88		
64	0.88		

Calculations:

No movement in water level over 64 minutes of monitoring therefore unable to calculate soil infiltration rate.

Groundwater observations
No groundwater encountered.

Borehole diameter
0.1m

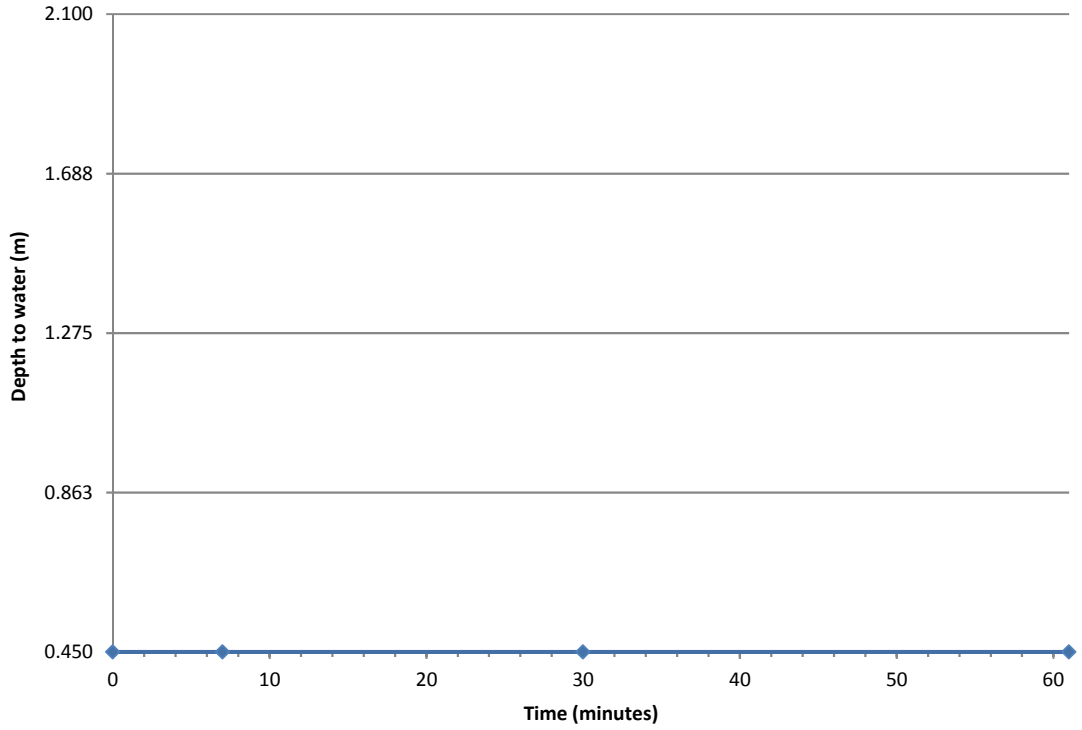
Depth of borehole at start of test (m)
2.7

Title
Soil infiltration test (following principles of BRE Digest 365 2007)

Co-ordinates	Ground level	
-	N/A	
Borehole number	**Cycle number**	**Date of excavation**
DTS11	1	18/09/2017

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Plot showing time against depth to water:



Test observations:

TIME (mins)	DEPTH TO WATER (m)	TIME (mins)	DEPTH TO WATER (m)
0	0.45		
7	0.45		
30	0.45		
61	0.45		

Calculations:

No movement in water level over 61 minutes of monitoring therefore unable to calculate soil infiltration rate.

Groundwater observations
No groundwater encountered.

Borehole diameter
0.1m

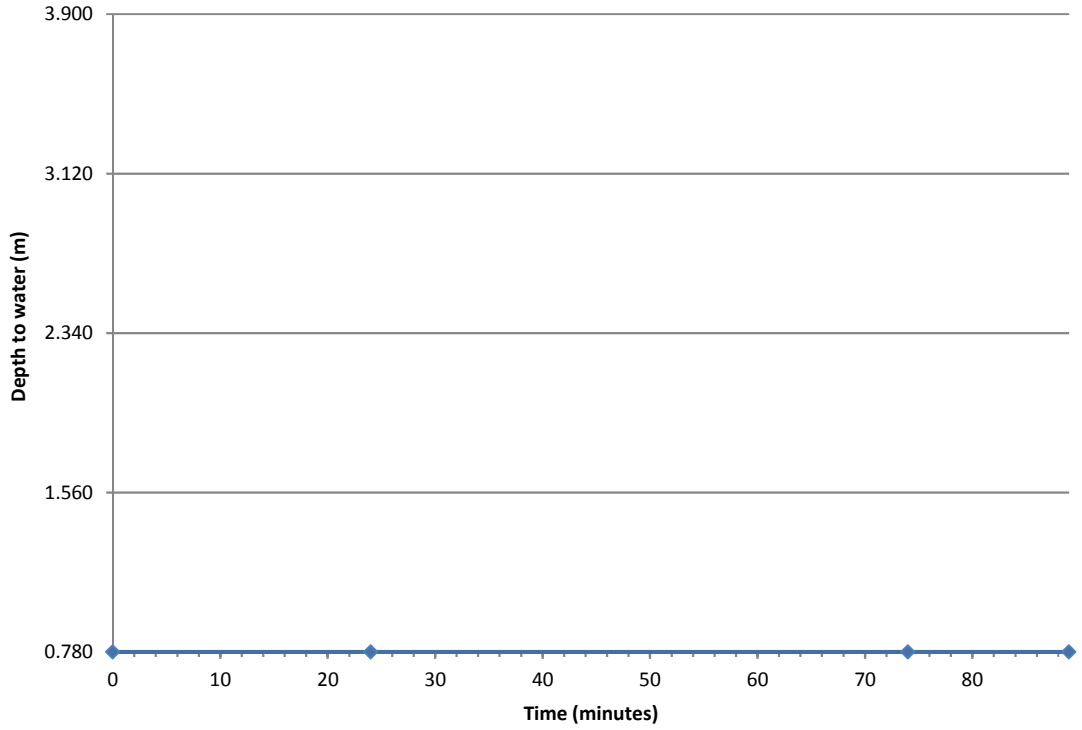
Depth of borehole at start of test (m)
2.1

Title
Soil infiltration test (following principles of BRE Digest 365 2007)

Co-ordinates	Ground level	
-	N/A	
Borehole number	**Cycle number**	**Date of excavation**
DTS15	1	19/09/2017

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Plot showing time against depth to water:



Test observations:

TIME (mins)	DEPTH TO WATER (m)	TIME (mins)	DEPTH TO WATER (m)
0	0.78		
24	0.78		
74	0.78		
89	0.78		

Calculations:

No movement in water level over 89 minutes of monitoring therefore unable to calculate soil infiltration rate.

Groundwater observations
No groundwater encountered.

Borehole diameter
0.1m

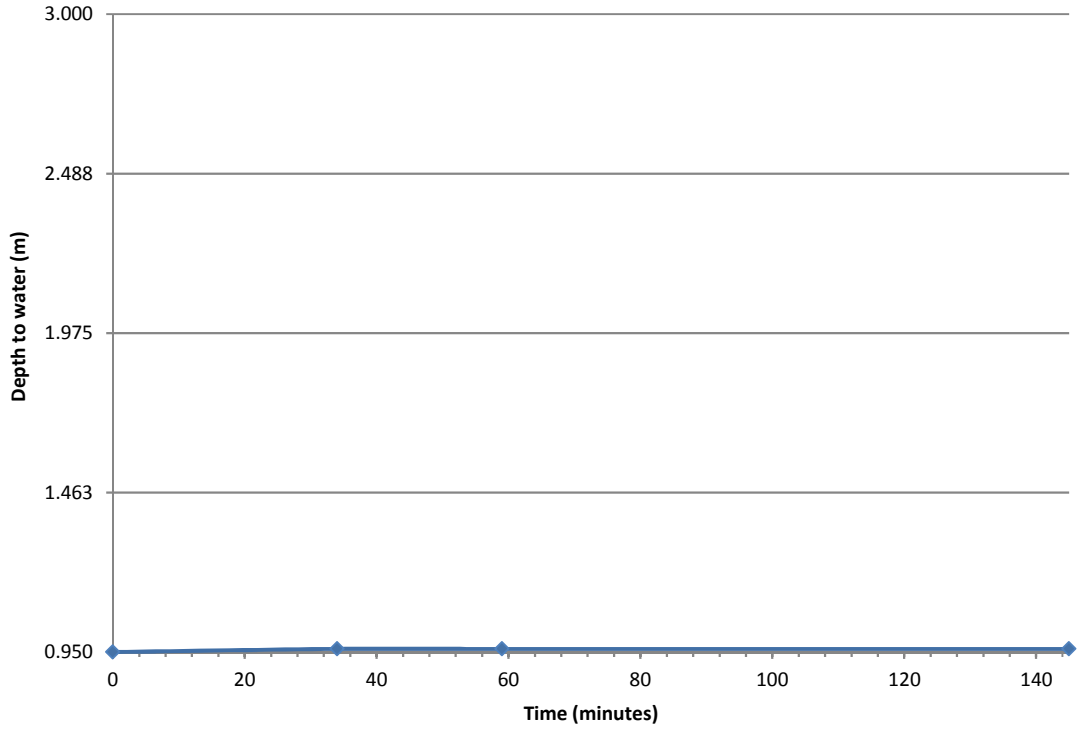
Depth of borehole at start of test (m)
3.9

Title
Soil infiltration test (following principles of BRE Digest 365 2007)

Co-ordinates	Ground level	
-	N/A	
Borehole number	**Cycle number**	**Date of excavation**
DTS43	1	22/09/2017

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Plot showing time against depth to water:



Test observations:

TIME (mins)	DEPTH TO WATER (m)	TIME (mins)	DEPTH TO WATER (m)
0	0.95		
34	0.96		
59	0.96		
145	0.96		

Calculations:

Insufficient infiltration over 145 minutes of monitoring therefore unable to calculate soil infiltration rate.

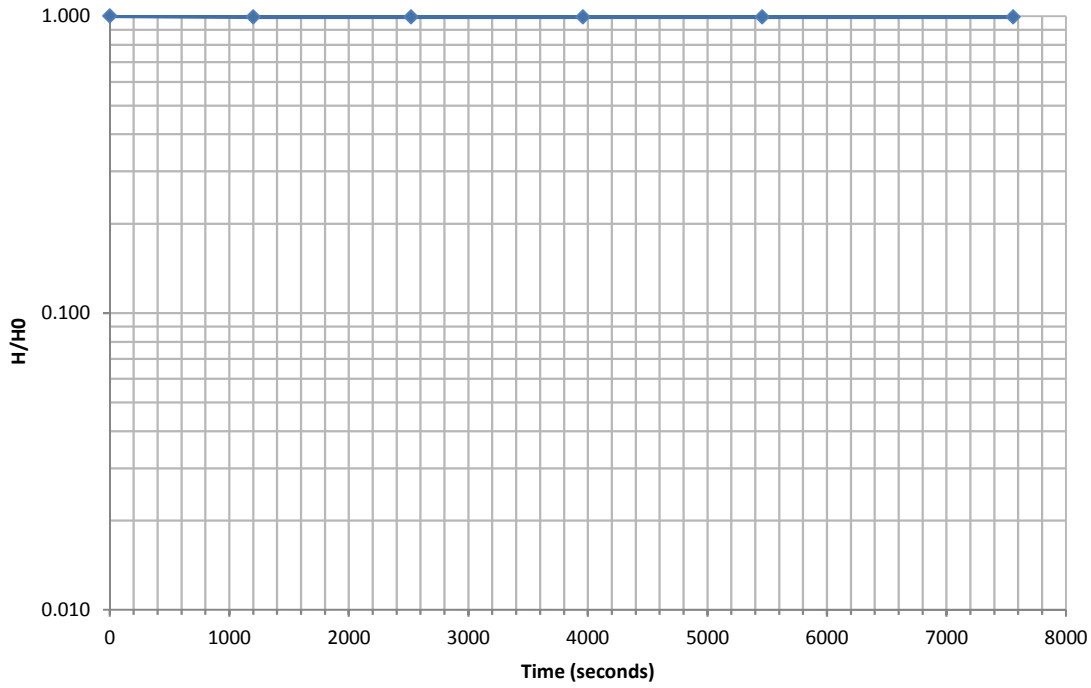
Groundwater observations
No groundwater encountered.

Borehole diameter
0.1m

Depth of borehole at start of test (m)
3

Title
Soil infiltration test (following principles of BRE Digest 365 2016)

Co-ordinates	Ground level	
355040,397449	46.0987	
Borehole number	**Cycle number**	**Date of excavation**
DTS76	1	29/09/2017



Representation of the time-dependent correct hydraulic head *hcor(t)*, ratio chart

Test observations:

TIME (mins)	DEPTH TO WATER (m)	TIME (mins)	DEPTH TO WATER (m)
0	1.2		
20	1.21		
42	1.21		
66	1.21		
91	1.21		
126	1.21		

Calculations:

Insufficient infiltration over 126 minutes of monitoring therefore unable to calculate rate.

Groundwater observations
Water inflow at 4m depth, rising to 2.9m in 20 minutes.

Borehole depth (m)	Borehole diameter (m)
4	0.1

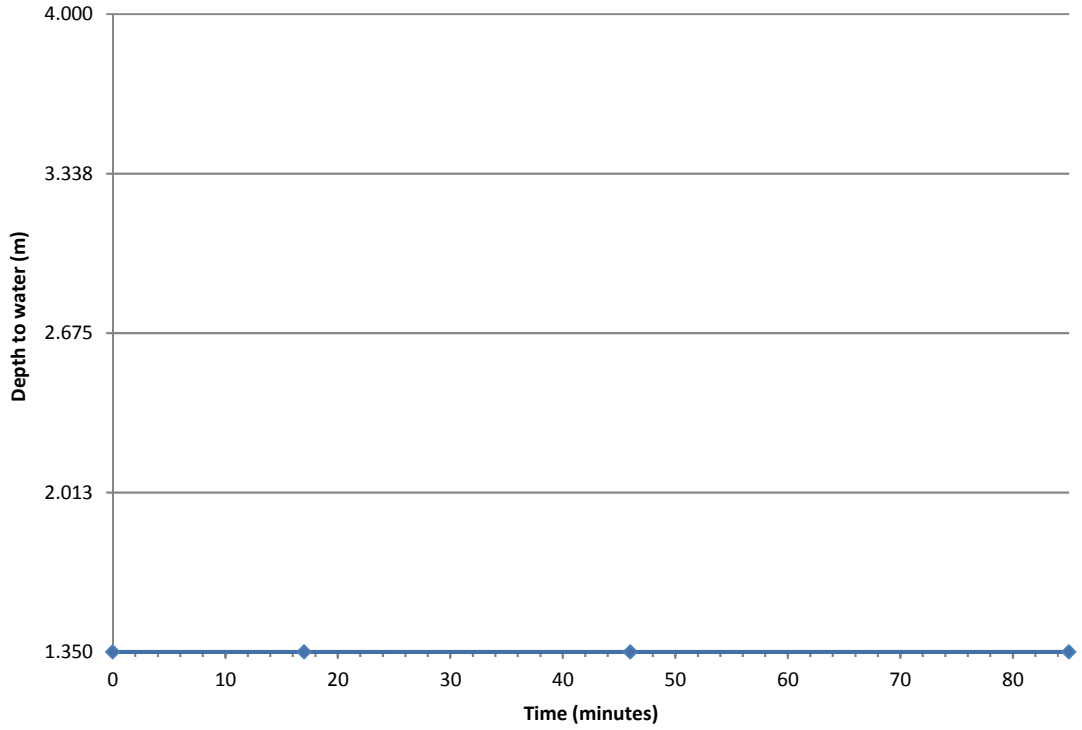
Title
Hvorslev method in accordance with BS EN ISO 22282-2:2012.

Co-ordinates	Cycle number
354575mE, 397379mN	1

Date	Ground level	Borehole number
19/09/2017	45.2935 (m OD)	DTS22

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Plot showing time against depth to water:



Test observations:

TIME (mins)	DEPTH TO WATER (m)	TIME (mins)	DEPTH TO WATER (m)
0	1.35		
17	1.35		
46	1.35		
85	1.35		

Calculations:

No movement in water level over 85 minutes of monitoring therefore unable to calculate soil infiltration rate.

Groundwater observations
No groundwater encountered.

Borehole diameter
0.1m

Depth of borehole at start of test (m)
4

Title
Soil infiltration test (following principles of BRE Digest 365 2016)

Co-ordinates	Ground level	
355034,397276	43.2375	
Borehole number	**Cycle number**	**Date of excavation**
DTS32	1	21/09/2017

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto brown slightly sandy CLAY with some rootlets. (MADE GROUND - TOPSOIL)											0.10		ES
		0.30	35.88											
	Firm dark brown sandy slightly gravelly CLAY. Gravel is fine to medium angular to subangular sandstone and coal. (MADE GROUND)											0.40		ES
		0.55	35.63											
	Firm brown slightly sandy CLAY. (DEVENSIAN TILL)									PP 0.60	PP=50			
										PP 0.80	PP=50			
						S 1.00 - 1.45	(4) 18					1.00		D
										PP 1.10	PP=50			
										PP 1.30	PP=88			
	Weathered MUDSTONE recovered as stiff light brown and light grey gravelly CLAY. Gravel is fine to medium angular to subangular mudstone. (PENNINE MIDDLE COAL MEASURES)	1.25	34.93							PP 1.50	PP=100	1.40		D
						S 1.60 - 1.94	(20) 50/190mm					1.60		D
	BOREHOLE TERMINATED AT 1.94m	1.94	34.24											

Notes
Borehole terminated on bedrock.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
12/09/2022

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 1.60	100

Method
Windowless sampler

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
36.18

Compiled by
SA

Revision
0

Co-ordinates
354514mE, 397249mN

Checked by
JP

WS101

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA					WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND			TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown slightly sandy CLAY. (TOPSOIL)												0.20		ES
	Orangish brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded sandstone. (DEVENSIAN TILL)	0.40	36.47										0.50		D
	Weathered MUDSTONE recovered as light brown and light grey sandy angular to subangular gravel. (PENNINE MIDDLE COAL MEASURES)	0.60	36.27				S 1.00 - 1.45	(8) 34					0.80		D
							S 1.70 - 2.03	(20) 50/180mm					1.50		D
	BOREHOLE TERMINATED AT 2.03m	2.03	34.84												

Notes
Borehole terminated on bedrock.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
12/09/2022

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 1.70	100

Method
Windowless sampler

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
36.87

Compiled by
SA

Revision
0

Co-ordinates
354484mE, 397244mN

Checked by
JP

WS102

Florida Farm, East Lancashire Road, Merseyside

STN3680NM

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular to subangular sandstone and brick. (MADE GROUND - TOPSOIL)											0.10		ES
	Firm to stiff light and dark brown gravelly CLAY. Gravel is fine to medium angular to subangular sandstone, mudstone and coal. (MADE GROUND)	0.30	36.64							PP 0.50 PP 0.70 PP 0.90	PP=100 PP=71 PP=104	0.80		ES
						S 1.00 - 1.45	(6) 6							
	Firm brown slightly sandy CLAY. (DEVENSIAN TILL)	1.30	35.64							PP 1.50 PP 1.60	PP=50 PP=50	1.40		D
	Weathered MUDSTONE recovered as light brownish grey sandy angular to subangular gravel. (PENNINE MIDDLE COAL MEASURES)	1.70	35.24			S 1.80 - 1.99	(25) 50/40mm							
	BOREHOLE TERMINATED AT 1.99m	1.99	34.95											

Notes
Borehole terminated on bedrock.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
12/09/2022

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 1.80	100

Method
Windowless sampler

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
36.94

Compiled by
SA

Revision
0

Co-ordinates
354411mE, 397263mN

Checked by
JP

WS103

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to subangular sandstone, brick and coal. (MADE GROUND)					S 1.00 - 1.45	(1) 3					0.90		D
						S 2.00 - 2.45	(0) 2							
	Firm brown slightly sandy CLAY. (DEVENSIAN TILL)	2.40	36.95							PP 2.50	PP=46			
										PP 2.80	PP=42	2.90		D
	...between 3.0m to 4.0m no recovery.					S 3.00 - 3.45	(0) 1							
						S 4.00 - 4.45	(3) 5							
	Soft to firm brown slightly gravelly slightly sandy CLAY. Gravel is fine angular to subangular sandstone and mudstone. (DEVENSIAN TILL)	4.50	34.85									4.80		D
						S 5.00 - 5.45	(3) 8							
	BOREHOLE TERMINATED AT 5.45m	5.45	33.90											

Notes

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
12/09/2022

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	80
2.00 - 3.00	85
3.00 - 4.00	0
4.00 - 5.00	90

Method
Windowless sampler

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
39.35

Compiled by
SA

Revision
0

Co-ordinates
354313mE, 397215mN

Checked by
JP

WS104

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Black bituminous bound material. (MADE GROUND)	0.02	38.50											
	Light brownish grey slightly gravelly fine to coarse SAND. Gravel is fine to medium angular to subangular sandstone. (MADE GROUND)	0.30	38.22											
	Dark brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to subangular sandstone, brick and coal. (MADE GROUND)					S 1.00 - 1.45	(1) 4					1.00		ES
	Firm to stiff light and dark brown gravelly CLAY. Gravel is fine to medium angular to subangular sandstone, mudstone and coal. (MADE GROUND)	1.80	36.72			S 2.00 - 2.45	(3) 9							
	Firm dark grey and brown sandy CLAY. (DEVENSIAN TILL)	2.40	36.12							PP 2.50	PP=104	2.50		D
	Firm light brown sandy SILT. (DEVENSIAN TILL)	2.60	35.92							PP 2.70 PP 2.90	PP=96 PP=92	2.80		D
	Weathered MUDSTONE recovered as light brown and light grey sandy angular to subangular gravel. (PENNINE MIDDLE COAL MEASURES)	3.00	35.52			S 3.00 - 3.18	(6) 50/30mm							
	BOREHOLE TERMINATED AT 3.18m	3.18	35.34											

Notes
Borehole terminated on bedrock.

Groundwater observations
No groundwater encountered.

Title
Dynamic windowless sampling record

Date(s)
12/09/2022

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	100
2.00 - 3.00	100

Method
Windowless sampler

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
38.52

Compiled by
SA

Revision
0

Co-ordinates
354336mE, 397199mN

Checked by
JP

WS105

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.30	48.55																
	Brown sandy CLAY. (DEVENSIAN TILL)																		
	Light brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.30	46.55																
		8.70	40.15																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
48.85

Compiled by
SA

Revision
0

Co-ordinates
354422mE, 397411mN

Checked by
JP

RBH01

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)																		
	Assumed MUDSTONE/COAL (loss of flush). (PENNINE MIDDLE COAL MEASURES)	12.50	36.35																
	Assumed MUDSTONE/SANDSTONE (hard drilling no flush returned). (PENNINE MIDDLE COAL MEASURES)	13.70	35.15																
	Assumed MUDSTONE/SANDSTONE (soft broken ground). (PENNINE MIDDLE COAL MEASURES)	14.60	34.25																
	Assumed MUDSTONE/SANDSTONE (hard drilling no flush returned). (PENNINE MIDDLE COAL MEASURES)	15.00	33.85																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
48.85

Compiled by
SA

Revision
0

Co-ordinates
354422mE, 397411mN

Checked by
JP

RBH01

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
48.85

Compiled by
SA

Revision
0

Co-ordinates
354422mE, 397411mN

Checked by
JP

RBH01

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	18.85																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 48.85	**Compiled by** SA	**Revision** 0
	Co-ordinates 354422mE, 397411mN	**Checked by** JP	**RBH01**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.30	48.55																
	Brown sandy CLAY. (DEVENSIAN TILL)																		
	Light brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.30	46.55																
		8.70	40.15																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 10.0m depth, rotary cored to 16.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
30/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 2

Level (m OD)
48.85

Compiled by
SA

Revision
0

Co-ordinates
354422mE, 397411mN

Checked by
JP

RBH01A

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)																		
	Strong light grey fine grained thinly laminated SANDSTONE. Discontinuities are horizontal medium spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	10.00	38.85			10.00 - 11.50	87	83	83	NI 6									
	Assumed SANDSTONE (soft broken ground). (PENNINE MIDDLE COAL MEASURES FORMATION)	11.60	37.25							2									
	COAL. (PENNINE MIDDLE COAL MEASURES) *...at 12.2m depth, no recovery coal assumed to have been washed away.*	12.10	36.75			11.50 - 13.00	44	33	33	NI									
	Weak light and dark grey thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	13.20	35.65			13.00 - 14.50	76	17	17	NI 5 NI 10									
	...between 14.8m and 14.95m depth, vertical discontinuities. *...between 15.3m and 15.46m depth, vertical discontinuities.*					14.50 - 16.00	65	27	27	13									
	BOREHOLE TERMINATED AT 16.00m	16.00	32.85																

Notes
Rotary open hole drilling from 0.0 to 10.0m depth, rotary cored to 16.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
No groundwater encountered.

Title Borehole record		**Date(s)** 30/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 2 of 2
Level (m OD) 48.85	**Compiled by** SA	**Revision** 0
Co-ordinates 354422mE, 397411mN	**Checked by** JP	**RBH01A**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)																		
	Brown sandy CLAY. (DEVENSIAN TILL)	0.80	44.68																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.00	43.48																
	Light grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES)	2.70	42.78																
	Light grey SANDSTONE with mudstone bands. (PENNINE MIDDLE COAL MEASURES)	7.90	37.58																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
45.48

Compiled by
SA

Revision
0

Co-ordinates
354473mE, 397344mN

Checked by
JP

RBH02

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	14.60	30.88																

CONTINUED ON NEXT SHEET

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 2 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 45.48	**Compiled by** SA	**Revision** 0
	Co-ordinates 354473mE, 397344mN	**Checked by** JP	**RBH02**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	20.20	25.28																
	COAL. (PENNINE MIDDLE COAL MEASURES)	20.40	25.08																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	21.70	23.78																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
45.48

Compiled by
SA

Revision
0

Co-ordinates
354473mE, 397344mN

Checked by
JP

RBH02

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	15.48																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 45.48	**Compiled by** SA	**Revision** 0
	Co-ordinates 354473mE, 397344mN	**Checked by** JP	**RBH02**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.30	48.92																
	Brown sandy CLAY. (DEVENSIAN TILL)																		
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.10	47.12																
	COAL. (PENNINE MIDDLE COAL MEASURES)	2.40	46.82																
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.90	46.32																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	3.40	45.82																
	Light grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	7.90	41.32																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
49.22

Compiled by
SA

Revision
0

Co-ordinates
354582mE, 397453mN

Checked by
JP

RBH03

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	13.60	35.62																
	Brown SANDSTONE (broken ground recorded, losing flush returns). (PENNINE MIDDLE COAL MEASURES)	15.40	33.82																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
49.22

Compiled by
SA

Revision
0

Co-ordinates
354582mE, 397453mN

Checked by
JP

RBH03

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Assumed light grey MUDSTONE (minimal flush returned). (PENNINE MIDDLE COAL MEASURES)	21.30	27.92																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
49.22

Compiled by
SA

Revision
0

Co-ordinates
354582mE, 397453mN

Checked by
JP

RBH03

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	19.22																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record	**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ
		Sheet number Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 49.22	**Compiled by** SA
		Revision 0
	Co-ordinates 354582mE, 397453mN	**Checked by** JP
		RBH03

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.20	39.00																
	Black ash fill. (MADE GROUND)	0.60	38.60																
	Brown CLAY. (DEVENSIAN TILL)																		
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	1.90	37.30																
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	6.20	33.00																
	COAL. (PENNINE MIDDLE COAL MEASURES)	6.40	32.80																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	7.10	32.10																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
39.20

Compiled by
SA

Revision
0

Co-ordinates
354578mE, 397314mN

Checked by
JP

RBH04

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Extremely weak grey SANDSTONE.	13.30	25.90																
	(PENNINE MIDDLE COAL MEASURES)	13.50	25.70																
	Assumed SANDSTONE (broken ground loss of flush returns). (PENNINE MIDDLE COAL MEASURES)																		
	Assumed SANDSTONE/MUDSTONE (hard drilling no flush returned). (PENNINE MIDDLE COAL MEASURES)	14.80	24.40																
	Light grey MUDSTONE (flush returned).	15.60	23.60																
	(PENNINE MIDDLE COAL MEASURES)	15.90	23.30																
	Dark grey MUDSTONE.	16.20	23.00																
	(PENNINE MIDDLE COAL MEASURES)																		
	Extremely weak MUDSTONE (broken ground loss of flush returns). (PENNINE MIDDLE COAL MEASURES)																		

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
39.20

Compiled by
SA

Revision
0

Co-ordinates
354578mE, 397314mN

Checked by
JP

RBH04

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Assumed MUDSTONE (hard drilling no flush returned). (PENNINE MIDDLE COAL MEASURES)	17.70	21.50																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
39.20

Compiled by
SA

Revision
0

Co-ordinates
354578mE, 397314mN

Checked by
JP

RBH04

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	9.20																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record	**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 39.20	**Compiled by** SA	**Revision** 0
	Co-ordinates 354578mE, 397314mN	**Checked by** JP	**RBH04**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.20	39.00																
	Black ash fill. (MADE GROUND)	0.50	38.70																
	Brown CLAY. (DEVENSIAN TILL)																		
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.10	37.10																
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	6.40	32.80																
	COAL. (PENNINE MIDDLE COAL MEASURES)	6.60	32.60																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	7.30	31.90																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 13.0m depth, rotary cored to 19.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
31/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 3

Level (m OD)
39.20

Compiled by
SA

Revision
0

Co-ordinates
354578mE, 397314mN

Checked by
JP

RBH04A

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	11.40	27.80																
	Assumed MUDSTONE (broken ground, loss of flush). (PENNINE MIDDLE COAL MEASURES)	13.40	25.80			13.00 - 14.50	33	33	0	NI									
	Assumed MUDSTONE. (hard drilling, no flush returned). (PENNINE MIDDLE COAL MEASURES)	15.30	23.90			14.50 - 16.00	87	66	50	6									
	Weak black thinly laminated MUDSTONE. Discontinuities horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	16.40	22.80																
	NO RECOVERY. (PENNINE MIDDLE COAL MEASURES)	16.60	22.60			16.00 - 17.50	91	33	9	20									
	Weak light grey thinly laminated MUDSTONE. Discontinuities horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	17.30	21.90																
		17.50	21.70																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 13.0m depth, rotary cored to 19.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
No groundwater encountered.

Title Borehole record		**Date(s)** 31/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 2 of 3
Level (m OD) 39.20	**Compiled by** SA	**Revision** 0
Co-ordinates 354578mE, 397314mN	**Checked by** JP	**RBH04A**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	COAL. (PENNINE MIDDLE COAL MEASURES)																		
	Firm to stiff grey slightly gravelly CLAY. Gravel is fine to medium angular subangular mudstone. (PENNINE MIDDLE COAL MEASURES)	18.10 18.10	21.10 21.10			17.50 - 19.00	90	87	23	6									
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	19.00	20.20																
	BOREHOLE TERMINATED AT 19.00m																		

Notes Rotary open hole drilling from 0.0 to 13.0m depth, rotary cored to 19.0m depth. Soils described from returned cuttings during open hole drilling.	**Title** Borehole record		**Date(s)** 31/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 3 of 3
Groundwater observations No groundwater encountered.	**Level (m OD)** 39.20	**Compiled by** SA	**Revision** 0
	Co-ordinates 354578mE, 397314mN	**Checked by** JP	**RBH04A**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown and brown slightly sandy slightly gravelly CLAY with rootlets. Gravel is fine to medium angular to subangular sandstone and brick. (MADE GROUND)																		
	Reddish brown slightly clayey fine to medium angular to subangular GRAVEL of brick and weathered coal. (MADE GROUND)	0.60	42.30								S 1.00 - 1.45	(2) 6					1.00	1.45	D
	...between 0.8m and 0.9m depth, becoming brown gravelly clay.										S 2.00 - 2.45	(2) 7							
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded sandstone and mudstone. (DEVENSIAN TILL)	2.70	40.20		▼														
	...from 3.7m depth, becoming stiff.										S 4.00 - 4.45	(4) 16							
											S 5.00 - 5.45	(14) 40							
											S 6.00 - 6.47	(17) 50/320mm							
	Extremely weak grey MUDSTONE recorded as clayey fine to medium angular to subangular GRAVEL. (PENNINE MIDDLE COAL MEASURES)	6.40	36.50			6.50 - 8.00	73	73	13	1							7.00		D
	Very weak dark grey thickly laminated MUDSTONE. Discontinuities are horizontal and very closely spaced planer and rough. (PENNINE MIDDLE COAL MEASURES)	7.75	35.15			8.00 - 9.50	90	60	14	11							8.65	8.78	C

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 6.4m depth, rotary cored to 12.5m depth, rotary open hole drilling to 30.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
Groundwater encountered at 3.7m depth.

Title
Borehole record

Date(s)
24/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
42.90

Compiled by
SA

Revision
0

Co-ordinates
354718mE, 397465mN

Checked by
JP

RBH05

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
										11									
	Weak dark grey thickly laminated MUDSTONE. Discontinuities are horizontal very closely spaced planer and rough. (PENNINE MIDDLE COAL MEASURES)	9.50	33.40			9.50 - 11.00	100	92	50	13							10.08	10.38	C
						11.00 - 12.50	100	100	75	5									
	Light grey MUDSTONE (heavily fractured). (PENNINE MIDDLE COAL MEASURES)	12.50	30.40																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	13.20	29.70																

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 6.4m depth, rotary cored to 12.5m depth, rotary open hole drilling to 30.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
Groundwater encountered at 3.7m depth.

Title Borehole record		**Date(s)** 24/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 2 of 4
Level (m OD) 42.90	**Compiled by** SA	**Revision** 0
Co-ordinates 354718mE, 397465mN	**Checked by** JP	**RBH05**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	19.50	23.40																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	20.30	22.60																
	Light grey SANDSTONE (fractured). (PENNINE MIDDLE COAL MEASURES)	21.20	21.70																
	VOID. (PENNINE MIDDLE COAL MEASURES)	22.90	20.00																
	Assumed SANDSTONE/MUDSTONE (hard drilling no flush returned). (PENNINE MIDDLE COAL MEASURES)	24.20	18.70																

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 6.4m depth, rotary cored to 12.5m depth, rotary open hole drilling to 30.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
Groundwater encountered at 3.7m depth.

Title Borehole record		**Date(s)** 24/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 3 of 4
Level (m OD) 42.90	**Compiled by** SA	**Revision** 0
Co-ordinates 354718mE, 397465mN	**Checked by** JP	**RBH05**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	12.90																

Notes Dynamic sampled from 0.0m to 6.4m depth, rotary cored to 12.5m depth, rotary open hole drilling to 30.0m depth. Soils described from returned cuttings during open hole drilling.	**Title** Borehole record	**Date(s)** 24/08/2022
	Method Rotary drilling rig	**Logged by** FQ
		Sheet number Sheet 4 of 4
Groundwater observations Groundwater encountered at 3.7m depth.	**Level (m OD)** 42.90	**Compiled by** SA
		Revision 0
	Co-ordinates 354718mE, 397465mN	**Checked by** JP
		RBH05

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL) Black ash fill. (MADE GROUND)	0.20	42.34																
	Brown CLAY. (DEVENSIAN TILL)	1.00	41.54																
	Brown SAND. (DEVENSIAN TILL)	4.70	37.84																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
42.54

Compiled by
SA

Revision
0

Co-ordinates
354716mE, 397361mN

Checked by
JP

RBH06

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	10.90	31.64																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	11.30	31.24																
	Dark grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES)	11.80	30.74																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	12.30	30.24																
	Assumed MUDSTONE (broken/soft ground loss of flush). (PENNINE MIDDLE COAL MEASURES)	12.80	29.74																
	Assumed MUDSTONE (hard ground no flush returned). (PENNINE MIDDLE COAL MEASURES)	14.70	27.84																
	Assumed MUDSTONE (broken/soft ground loss of flush). (PENNINE MIDDLE COAL MEASURES)	15.20	27.34																
	Assumed MUDSTONE (hard ground no flush returned). (PENNINE MIDDLE COAL MEASURES)	16.10	26.44																
	Assumed MUDSTONE (broken/soft ground loss of flush). (PENNINE MIDDLE COAL MEASURES)	16.40	26.14																
	Assumed MUDSTONE (hard ground no flush returned). (PENNINE MIDDLE COAL MEASURES)	17.00	25.54																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
42.54

Compiled by
SA

Revision
0

Co-ordinates
354716mE, 397361mN

Checked by
JP

RBH06

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
		17.80	24.74																
	Assumed MUDSTONE (broken/soft ground loss of flush). (PENNINE MIDDLE COAL MEASURES)	18.10	24.44																
	Assumed MUDSTONE (hard ground no flush returned). (PENNINE MIDDLE COAL MEASURES)																		

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
42.54

Compiled by
SA

Revision
0

Co-ordinates
354716mE, 397361mN

Checked by
JP

RBH06

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	12.54																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 42.54	**Compiled by** SA	**Revision** 0
	Co-ordinates 354716mE, 397361mN	**Checked by** JP	**RBH06**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL) Black ash fill. (MADE GROUND)	0.20	42.40																
	Brown CLAY. (DEVENSIAN TILL)	1.00	41.60																
	Brown SAND. (DEVENSIAN TILL)	4.70	37.90																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 11.0m depth, rotary cored to 20.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
Groundwater encountered at 4.6m depth.

Title
Borehole record

Date(s)
25/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 3

Level (m OD)
42.60

Compiled by
SA

Revision
0

Co-ordinates
354714mE, 397358mN

Checked by
JP

RBH06A

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light brown SANDSTONE.	10.90	31.70																
	(PENNINE MIDDLE COAL MEASURES)	11.00	31.60																
	Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium angular to subrounded sandstone and mudstone. (PENNINE MIDDLE COAL MEASURES)					11.00 - 12.50	100	40	12	NI									
	Extremely weak light and dark grey thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	12.10	30.50			12.50 - 14.00	100	75	9	9									
						14.00 - 15.50	100	100	53	7									
						15.50 - 17.00	100	100	44	7									
	COAL.	16.40	26.20																
	(PENNINE MIDDLE COAL MEASURES)	16.55	26.05																
	Weak black thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)																		

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 11.0m depth, rotary cored to 20.0m depth. Soils described from returned cuttings during open hole drilling.

Groundwater observations
Groundwater encountered at 4.6m depth.

Title
Borehole record

Date(s)
25/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 3

Level (m OD)
42.60

Compiled by
SA

Revision
0

Co-ordinates
354714mE, 397358mN

Checked by
JP

RBH06A

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						17.00 - 18.50	74	66	29	7									
	Weak black thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	18.60	24.00			18.50 - 20.00	100	100	15	18									
	Weak light grey thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	19.60	23.00																
	BOREHOLE TERMINATED AT 20.00m	20.00	22.60																

Notes Rotary open hole drilling from 0.0 to 11.0m depth, rotary cored to 20.0m depth. Soils described from returned cuttings during open hole drilling.	**Title** Borehole record	**Date(s)** 25/08/2022
	Method Rotary drilling rig	**Logged by** FQ
		Sheet number Sheet 3 of 3
Groundwater observations Groundwater encountered at 4.6m depth.	**Level (m OD)** 42.60	**Compiled by** SA
		Revision 0
	Co-ordinates 354714mE, 397358mN	**Checked by** JP
		RBH06A

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.20	38.92																
	Black ash fill. (MADE GROUND)	0.60	38.52																
	Brown CLAY. (DEVENSIAN TILL)																		
	Brown sandy CLAY. (DEVENSIAN TILL)	3.70	35.42																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	8.20	30.92																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
39.12

Compiled by
SA

Revision
0

Co-ordinates
354710mE, 397266mN

Checked by
JP

RBH07

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES)	10.40	28.72																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
39.12

Compiled by
SA

Revision
0

Co-ordinates
354710mE, 397266mN

Checked by
JP

RBH07

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark grey MUDSTONE.	22.50	16.62																
	(PENNINE MIDDLE COAL MEASURES)	22.70	16.42																
	COAL.																		
	(PENNINE MIDDLE COAL MEASURES)	23.30	15.82																
	Light grey MUDSTONE.																		
	(PENNINE MIDDLE COAL MEASURES)	23.60	15.52																
	Dark grey MUDSTONE.																		
	(PENNINE MIDDLE COAL MEASURES)	23.90	15.22																
	Light grey MUDSTONE.																		
	(PENNINE MIDDLE COAL MEASURES)																		

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
39.12

Compiled by
SA

Revision
0

Co-ordinates
354710mE, 397266mN

Checked by
JP

RBH07

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	9.12																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 39.12	**Compiled by** SA	**Revision** 0
	Co-ordinates 354710mE, 397266mN	**Checked by** JP	**RBH07**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL) Black ash fill. (MADE GROUND) Brown CLAY. (DEVENSIAN TILL)	0.20 0.70	46.16 45.66																
	Brown SAND. (DEVENSIAN TILL)	5.20	41.16																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
46.36

Compiled by
SA

Revision
0

Co-ordinates
354822mE, 397477mN

Checked by
JP

RBH08

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	9.70	36.66																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	10.10	36.26																
	COAL. (PENNINE MIDDLE COAL MEASURES)	13.20	33.16																
	Light grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES)	13.80	32.56																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	14.00	32.36																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
46.36

Compiled by
SA

Revision
0

Co-ordinates
354822mE, 397477mN

Checked by
JP

RBH08

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
46.36

Compiled by
SA

Revision
0

Co-ordinates
354822mE, 397477mN

Checked by
JP

RBH08

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	16.36																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 46.36	**Compiled by** SA	**Revision** 0
	Co-ordinates 354822mE, 397477mN	**Checked by** JP	**RBH08**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.30	43.44																
	Black ash fill. (MADE GROUND)	0.60	43.14																
	Brown CLAY. (DEVENSIAN TILL)																		
	Brown sandy CLAY. (DEVENSIAN TILL)	4.20	39.54																
	Light grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	6.20	37.54																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
43.74

Compiled by
SA

Revision
0

Co-ordinates
354848mE, 397310mN

Checked by
JP

RBH09

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	13.30	30.44																
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	16.70	27.04																
	Light grey MUDSTONE.	17.30	26.44																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
43.74

Compiled by
SA

Revision
0

Co-ordinates
354848mE, 397310mN

Checked by
JP

RBH09

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	(PENNINE MIDDLE COAL MEASURES)																		
	Light grey MUDSTONE with sandstone bands.	26.10	17.64																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
43.74

Compiled by
SA

Revision
0

Co-ordinates
354848mE, 397310mN

Checked by
JP

RBH09

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	(PENNINE MIDDLE COAL MEASURES)																		
	BOREHOLE TERMINATED AT 30.00m	30.00	13.74																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 43.74	**Compiled by** SA	**Revision** 0
	Co-ordinates 354848mE, 397310mN	**Checked by** JP	**RBH09**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)																		
	Stiff brown silty CLAY. (DEVENSIAN TILL)	0.60	46.13																
	Grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	4.90	41.83																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
46.73

Compiled by
SA

Revision
0

Co-ordinates
354971mE, 397462mN

Checked by
JP

RBH10

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grey MUDSTONE with dark grey bands and coal traces. (PENNINE MIDDLE COAL MEASURES)	13.00	33.73																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	14.50	32.23																
	Grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	15.90	30.83																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
46.73

Compiled by
SA

Revision
0

Co-ordinates
354971mE, 397462mN

Checked by
JP

RBH10

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	19.00	27.73																
	COAL. (PENNINE MIDDLE COAL MEASURES)	19.40	27.33																
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	19.90	26.83																
	Grey SANDSTONE with mudstone bands. (PENNINE MIDDLE COAL MEASURES)	20.50	26.23																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
46.73

Compiled by
SA

Revision
0

Co-ordinates
354971mE, 397462mN

Checked by
JP

RBH10

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	16.73																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 46.73	**Compiled by** SA	**Revision** 0
	Co-ordinates 354971mE, 397462mN	**Checked by** JP	**RBH10**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)																		
	Brown silty CLAY with sand bands. (DEVENSIAN TILL)	0.60	43.14																
	Weathered grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES)	6.60	37.14																
	Grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	7.00	36.74																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
43.74

Compiled by
SA

Revision
0

Co-ordinates
354976mE, 397304mN

Checked by
JP

RBH11

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	9.60	34.14																
	Grey SANDSTONE with mudstone bands. (PENNINE MIDDLE COAL MEASURES)	10.20	33.54																
	Dark grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES)	12.30	31.44																
	COAL with shale. (PENNINE MIDDLE COAL MEASURES)	13.00	30.74																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	13.70	30.04																
	Grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	14.10	29.64																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
43.74

Compiled by
SA

Revision
0

Co-ordinates
354976mE, 397304mN

Checked by
JP

RBH11

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	17.90	25.84																
	Grey SANDSTONE with mudstone bands. (PENNINE MIDDLE COAL MEASURES)	18.40	25.34																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 3 of 4

Level (m OD)
43.74

Compiled by
SA

Revision
0

Co-ordinates
354976mE, 397304mN

Checked by
JP

RBH11

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	13.74																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record	**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 43.74	**Compiled by** SA	**Revision** 0
	Co-ordinates 354976mE, 397304mN	**Checked by** JP	**RBH11**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)																		
	Brown CLAY. (DEVENSIAN TILL)	0.50	43.90																
	Brown SAND. (DEVENSIAN TILL)	1.20	43.20																
	Brown CLAY with sand bands. (DEVENSIAN TILL)	1.90	42.50																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	6.70	37.70																
	Grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	7.70	36.70																

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
44.40

Compiled by
SA

Revision
0

Co-ordinates
355130mE, 397426mN

Checked by
JP

RBH12

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	11.00 11.10	33.40 33.30																
	COAL. (PENNINE MIDDLE COAL MEASURES)	11.30	33.10																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	11.90	32.50																
	Grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)																		

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
17/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 2 of 4

Level (m OD)
44.40

Compiled by
SA

Revision
0

Co-ordinates
355130mE, 397426mN

Checked by
JP

RBH12

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grey MUDSTONE with dark grey bands. (PENNINE MIDDLE COAL MEASURES)	18.10	26.30																
	COAL. (PENNINE MIDDLE COAL MEASURES)	20.20	24.20																
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	21.10	23.30																
	Light grey SANDSTONE with occasional mudstone bands. (PENNINE MIDDLE COAL MEASURES)	21.90	22.50																

CONTINUED ON NEXT SHEET

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record		**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 3 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 44.40	**Compiled by** SA	**Revision** 0
	Co-ordinates 355130mE, 397426mN	**Checked by** JP	**RBH12**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	14.40																

Notes Rotary open hole drilling from 0.0 to 30.0m depth. Soils described from returned cuttings.	**Title** Borehole record	**Date(s)** 17/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater encountered.	**Level (m OD)** 44.40	**Compiled by** SA	**Revision** 0
	Co-ordinates 355130mE, 397426mN	**Checked by** JP	**RBH12**

Florida Farm, East Lancashire Road, Merseyside

STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto dark brown and brown slightly sandy slightly gravelly CLAY with rootlets. Gravel is fine to medium angular to subangular sandstone and brick. (MADE GROUND)	0.40	43.30																
	Stiff dark brown sandy slightly gravelly CLAY. Gravel fine to coarse angular to subangular brick, coal and sandstone. (MADE GROUND)	1.50	42.20																
	Stiff dark grey sandy slightly gravelly CLAY. Gravel fine to coarse angular to subangular brick, coal and sandstone. (MADE GROUND)										S 2.00 - 2.45	(4) 8					2.00	2.45	D
	...from 2.5m depth, becoming peaty.																		
	Soft to firm sandy slightly peaty CLAY. (DEVENSIAN TILL)	2.80	40.90																
	Firm brown sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded sandstone and mudstone. (DEVENSIAN TILL)	3.00	40.70														3.00	3.45	UT
											S 4.00 - 4.45	(5) 13							
	...from 5m depth, becoming stiff.										S 5.00 - 5.45	(14) 42					5.00	5.45	D
											S 7.00 - 7.45	(13) 47							
	Extremely weak light grey SANDSTONE recorded as angular to subangular gravel. (PENNINE MIDDLE COAL MEASURES)	7.60	36.10								S 7.50 - 7.60	(25/50mm) 50/50mm							

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 9.5m depth, rotary cored to 15.5m depth.

Groundwater observations
Groundwater encountered at 6.4m depth.

Title
Borehole record

Date(s)
23/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 4

Level (m OD)
43.70

Compiled by
SA

Revision
0

Co-ordinates
354787mE, 397382mN

Checked by
JP

RBH13

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Extremely weak light grey SANDSTONE recorded as angular to subangular gravel. (PENNINE MIDDLE COAL MEASURES)	9.50	34.20																
	Very weak grey fine grained thickly bedded SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	9.80	33.90			9.50 - 11.00	100	78	78	0									
	Very weak light and dark grey thinly laminated MUDSTONE. Discontinuities are horizontal and very closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	11.40	32.30			11.00 - 12.50	100	95	63	6							11.85	11.95	C
	Weak grey fine grained thinly laminated SANDSTONE. Discontinuities are sub-vertical planar and rough. (PENNINE MIDDLE COAL MEASURES)	12.20	31.50																
	Moderately weak dark grey thinly laminated MUDSTONE. Discontinues are horizontal very closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	12.80	30.90			12.50 - 14.00	100	100	42	12									
						14.00 - 15.50	95	86	77	17									
	COAL. (PENNINE MIDDLE COAL MEASURES)	15.30	28.40														15.20	15.37	C
	Light grey MUDSTONE with dark grey bands. (PENNINE MIDDLE COAL MEASURES)	16.10	27.60																

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 9.5m depth, rotary cored to 15.5m depth.

Groundwater observations
Groundwater encountered at 6.4m depth.

Title Borehole record		**Date(s)** 23/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 2 of 4
Level (m OD) 43.70	**Compiled by** SA	**Revision** 0
Co-ordinates 354787mE, 397382mN	**Checked by** JP	**RBH13**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Light grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES)	22.40	21.30																
	Assumed SANDSTONE (heavily fractured hard drilling loss of flush). (PENNINE MIDDLE COAL MEASURES)	23.60	20.10																
	BOREHOLE TERMINATED AT 15.50m																		

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 9.5m depth, rotary cored to 15.5m depth.

Groundwater observations
Groundwater encountered at 6.4m depth.

Title Borehole record		**Date(s)** 23/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 3 of 4
Level (m OD) 43.70	**Compiled by** SA	**Revision** 0
Co-ordinates 354787mE, 397382mN	**Checked by** JP	**RBH13**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
		30.00	13.70																

Notes Dynamic sampled from 0.0m to 9.5m depth, rotary cored to 15.5m depth.	**Title** Borehole record		**Date(s)** 23/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 4 of 4
Groundwater observations Groundwater encountered at 6.4m depth.	**Level (m OD)** 43.70	**Compiled by** SA	**Revision** 0
	Co-ordinates 354787mE, 397382mN	**Checked by** JP	**RBH13**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly sandy slightly gravelly CLAY with some rootlets. Gravel is fine to medium angular to subrounded sandstone, mudstone and brick. (TOPSOIL)	0.30	39.49																
	Stiff brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded sandstone and mudstone. (DEVENSIAN TILL)										S 1.20 - 1.65	(5) 17							
	...between 1.2m and 2m depth, becoming sandy.																2.00		U
											S 2.20 - 2.65	(7) 22					2.00		UT
		3.00	36.79								S 3.00 - 3.45	(9) 25							
	Brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine to medium subangular to subrounded sandstone and mudstone. (DEVENSIAN TILL)	3.40	36.39																
	Very stiff brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded sandstone and mudstone. (DEVENSIAN TILL)																3.80		D
																	3.80		D
											S 4.30 - 4.65	(16) 50/200mm							
											S 4.80 - 5.15	(24) 60/200mm							
		5.00	34.79																
	Very stiff brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded sandstone and mudstone. (DEVENSIAN TILL)	5.10	34.69														5.20		D
		5.40	34.39														5.20		D
	Moderately weak light and dark grey thickly laminated fine grained SILTSTONE. Discontinuities are horizontal and very closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)					5.00 - 6.50	94	72	50	11							5.60	5.95	C
																	5.60	5.95	C
	Medium strong grey thickly bedded fine grained SANDSTONE. Discontinuities are horizontal and medium to closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)					6.50 - 8.00	100	88	86	4							7.50		D
																	7.50		D
	...between 8m and 9.5m depth, becoming light grey.																8.00	8.24	C
						8.00 - 9.50	100	98	85	8							8.00	8.24	C

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 5.0m depth, rotary cored to 11.0m depth.

Groundwater observations
No groundwater encountered.

Title Borehole record		**Date(s)** 10/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 1 of 2
Level (m OD) 39.79	**Compiled by** SA	**Revision** 0
Co-ordinates 354787mE, 397237mN	**Checked by** JP	**RBH14**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						9.50 - 11.00	100	100	98	2									
	BOREHOLE TERMINATED AT 11.00m	11.00	28.79																

Notes Dynamic sampled from 0.0m to 5.0m depth, rotary cored to 11.0m depth.	**Title** Borehole record		**Date(s)** 10/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 2 of 2
Groundwater observations No groundwater encountered.	**Level (m OD)** 39.79	**Compiled by** SA	**Revision** 0
	Co-ordinates 354787mE, 397237mN	**Checked by** JP	**RBH14**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly gravelly slightly clayey fine to medium SAND with some rootlets. Gravel is fine to medium angular to subangular brick and mudstone. (MADE GROUND)	0.40	45.03																
	Black fine to medium angular to subangular GRAVEL of clinker. (MADE GROUND)	0.55	44.88																
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subangular sandstone and mudstone. (DEVENSIAN TILL)	0.90	44.53																
	Dark brown firm pseudo fibrous PEAT. (PEAT)	1.30	44.13																
	Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subangular sandstone and mudstone. (DEVENSIAN TILL)										S 2.00 - 2.45	(6) 17					3.00	3.45	U
	Brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to subangular sandstone and mudstone. (DEVENSIAN TILL)	4.00	41.43		▼						S 4.00 - 4.45	(7) 19							
	NO RECOVERY. Assumed to be brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to subangular sandstone and mudstone. (DEVENSIAN TILL)	5.00	40.43								S 5.00 - 5.45	(11) 26							
											S 6.00 - 6.42	(19) 60/275mm							
	Stiff brown slightly gravelly CLAY. Gravel is fine to medium subangular to subangular sandstone and mudstone. (DEVENSIAN TILL)	6.50	38.93																
	Very weak light and dark grey thickly laminated MUDSTONE. Discontinuities are horizontal and very closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	7.10	38.33			6.50 - 8.00	100	84	50	6									
						8.00 - 9.50	95	64	35	12									

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 6.5m depth, rotary cored to 12.5m depth.

Groundwater observations
Groundwater encountered at 4.3m depth.

Title Borehole record		**Date(s)** 22/08/2022
Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 1 of 2
Level (m OD) 45.43	**Compiled by** SA	**Revision** 0
Co-ordinates 354994mE, 397382mN	**Checked by** JP	**RBH15**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
																	9.20	9.36	C
	Weak light and dark grey thickly laminated MUDSTONE. Discontinuities are horizontal and very closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	9.10	36.33																
						9.50 - 11.00	100	89	75	12									
	Medium strong grey thickly bedded fine grained SANDSTONE. Discontinuities are horizontal and medium to closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	10.40	35.03														10.60	10.86	C
						11.00 - 12.50	100	76	76	9									
	BOREHOLE TERMINATED AT 12.50m	12.50	32.93																

Notes Dynamic sampled from 0.0m to 6.5m depth, rotary cored to 12.5m depth.	**Title** Borehole record		**Date(s)** 22/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 2 of 2
Groundwater observations Groundwater encountered at 4.3m depth.	**Level (m OD)** 45.43	**Compiled by** SA	**Revision** 0
	Co-ordinates 354994mE, 397382mN	**Checked by** JP	**RBH15**

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly clayey slightly gravelly CLAY with some rootlets. Gravel is fine to medium angular to subrounded brick and sandstone. (MADE GROUND)	0.50	39.39																
	Brown slightly clayey slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to subrounded brick, sandstone, coal and mudstone. (MADE GROUND)	1.00	38.89								S 1.00 - 1.45	(5) 13							
	Brown slightly gravelly fine to medium SAND. Gravel is fine to medium angular to subangular sandstone, mudstone and coal. (DEVENSIAN TILL)	1.80	38.09														2.00	2.45	D
	Stiff brown slightly gravelly CLAY. Gravel is fine to medium angular to subrounded sandstone and mudstone. (DEVENSIAN TILL)	2.70	37.19																
	Extremely weak light grey MUDSTONE recorded as fine to coarse angular to subangular gravel. (PENNINE MIDDLE COAL MEASURES)	3.00	36.89								S 3.00 - 3.10	(25/50mm) 50/50mm							
	Extremely weak light and dark grey thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)					3.00 - 4.50	90	85	0	<25							4.00		D
						4.50 - 6.00	100	97	0	<25							4.95	5.10	D
	COAL. (PENNINE MIDDLE COAL MEASURES)	5.80	34.09																
	Grey clayey fine to coarse angular to subangular GRAVEL of mudstone. (PENNINE MIDDLE COAL MEASURES)	6.00	33.89			6.00 - 7.50	59	30	0	NI									
						7.50 - 9.00	40	15	0	NI									

CONTINUED ON NEXT SHEET

Notes
Dynamic sampled from 0.0m to 3.0m depth, rotary cored to 12.0m depth.

Groundwater observations
Groundwater encountered at 2.4m depth.

Title
Borehole record

Date(s)
26/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 2

Level (m OD)
39.89

Compiled by
SA

Revision
0

Co-ordinates
354604mE, 397352mN

Checked by
JP

RBH16

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
		9.00	30.89								S 9.00 - 9.38	(7) 50/235mm							
	COAL. (PENNINE MIDDLE COAL MEASURES)	9.40	30.49																
	Moderately weak black and light grey thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES)	9.50	30.39			9.00 - 10.50	100	100	15	9							9.50	9.60	C
	COAL. (PENNINE MIDDLE COAL MEASURES)	9.60	30.29																
	Moderately weak black and light grey thinly laminated MUDSTONE. Discontinuities are horizontal closely spaced planar and rough. (PENNINE MIDDLE COAL MEASURES) *...between 10.5m and 11.0m depth, coal encountered, likely to have fallen in from 9.0m between core runs.*					10.50 - 12.00	100	100	22	14							10.40	10.50	C
	BOREHOLE TERMINATED AT 12.00m	12.00	27.89																

Notes Dynamic sampled from 0.0m to 3.0m depth, rotary cored to 12.0m depth.	**Title** Borehole record	**Date(s)** 26/08/2022
	Method Rotary drilling rig	**Logged by** FQ
		Sheet number Sheet 2 of 2
Groundwater observations Groundwater encountered at 2.4m depth.	**Level (m OD)** 39.89	**Compiled by** SA
		Revision 0
	Co-ordinates 354604mE, 397352mN	**Checked by** JP
		RBH16

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.30	39.59																
	Black ash fill. (MADE GROUND)	1.60	38.29																
	Brown silty CLAY. (DEVENSIAN TILL)	2.50	37.39																
	Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	5.60	34.29																
	Dark grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES)	5.80	34.09																
	COAL. (PENNINE MIDDLE COAL MEASURES)	6.20	33.69																
	Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	6.40	33.49																
	Light grey MUDSTONE (loss of flush returns). (PENNINE MIDDLE COAL MEASURES)																		

CONTINUED ON NEXT SHEET

Notes
Rotary open hole drilling from 0.0 to 16.5m depth. Soils described from returned cuttings. Borehole terminated due to collapsing ground. Unable to excavate borehole further.

Groundwater observations
Groundwater strike recorded at 2.6m depth.

Title
Borehole record

Date(s)
26/08/2022

Method

Logged by
FQ

Sheet number
Sheet 1 of 2

Level (m OD)
39.89

Compiled by
FQ

Revision
0

Co-ordinates
354610mE, 397349mN

Checked by
JP

RBH16A

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Assumed MUDSTONE (loss of flush returns) (PENNINE MIDDLE COAL MEASURES)	10.70	29.19																
	Light grey SANDSTONE with mudstone bands (loss of flush returns). (PENNINE MIDDLE COAL MEASURES)	14.60	25.29																
	BOREHOLE TERMINATED AT 16.50m	16.50	23.39																

Notes
Rotary open hole drilling from 0.0 to 16.5m depth. Soils described from returned cuttings. Borehole terminated due to collapsing ground. Unable to excavate borehole further.

Groundwater observations
Groundwater strike recorded at 2.6m depth.

Title Borehole record		**Date(s)** 26/08/2022
Method	**Logged by** FQ	**Sheet number** Sheet 2 of 2
Level (m OD) 39.89	**Compiled by** FQ	**Revision** 0
Co-ordinates 354610mE, 397349mN	**Checked by** JP	**RBH16A**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)																		
	Brown CLAY. (DEVENSIAN TILL)	0.50	43.37																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	3.50	40.37																
	BOREHOLE TERMINATED AT 6.00m	6.00	37.87																

Notes
Open hole from 0 to 6m, description based on drillers log. Inspection pit excavated to 1.2m depth.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
19/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
43.87

Compiled by
SA

Revision
0

Co-ordinates
354424mE, 397323mN

Checked by
JP

RBH17

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.40	43.15																
	Brown CLAY. (DEVENSIAN TILL)	3.40	40.15																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	6.00	37.55																
	BOREHOLE TERMINATED AT 6.00m																		

Notes
Open hole from 0 to 6m, description based on drillers log. Inspection pit excavated to 1.2m depth.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
19/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
43.55

Compiled by
SA

Revision
0

Co-ordinates
354462mE, 397320mN

Checked by
JP

RBH18

Florida Farm, East Lancashire Road, Merseyside

STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.40	42.92																
	Brown CLAY. (DEVENSIAN TILL)																		
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.20	41.12																
	COAL. (PENNINE MIDDLE COAL MEASURES)	5.00 5.20	38.32 38.12																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	5.80	37.52																
	COAL. (PENNINE MIDDLE COAL MEASURES)	6.80	36.52																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	8.00	35.32																
	BOREHOLE TERMINATED AT 8.00m																		

Notes
Open hole from 0 to 8m, description based on drillers log. Inspection pit excavated to 1.2m depth.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
19/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
43.32

Compiled by
SA

Revision
0

Co-ordinates
354488mE, 397319mN

Checked by
JP

RBH19

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.40	42.50																
	Brown CLAY. (DEVENSIAN TILL)	2.80	40.10																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	6.20	36.70																
	COAL. (PENNINE MIDDLE COAL MEASURES)	6.40	36.49																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	8.00	34.90																
	BOREHOLE TERMINATED AT 8.00m																		

Notes Open hole from 0 to 8m, description based on drillers log. Inspection pit excavated to 1.2m depth.	**Title** Borehole record		**Date(s)** 19/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** 42.90	**Compiled by** SA	**Revision** 0
	Co-ordinates 354513mE, 397319mN	**Checked by** JP	**RBH20**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.40	41.37																
	Brown CLAY. (DEVENSIAN TILL)																		
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	3.30	38.47																
	BOREHOLE TERMINATED AT 6.00m	6.00	35.77																

Notes
Open hole from 0 to 6m, description based on drillers log. Inspection pit excavated to 1.2m depth.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
19/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
41.77

Compiled by
SA

Revision
0

Co-ordinates
354539mE, 397318mN

Checked by
JP

RBH21

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.20	40.21																
	Brown CLAY. (DEVENSIAN TILL)																		
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.60	37.81																
	COAL. (PENNINE MIDDLE COAL MEASURES)	3.50	36.91																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	4.30	36.11																
	BOREHOLE TERMINATED AT 6.00m	6.00	34.41																

Notes
Open hole from 0 to 6m, description based on drillers log. Inspection pit excavated to 1.2m depth.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
19/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
40.41

Compiled by
SA

Revision
0

Co-ordinates
354562mE, 397318mN

Checked by
JP

RBH22

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.30	38.68																
	Brown CLAY. (DEVENSIAN TILL)																		
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	2.00	36.98																
	COAL. (PENNINE MIDDLE COAL MEASURES)	4.60	34.38																
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	5.20	33.78																
	BOREHOLE TERMINATED AT 8.00m	8.00	30.98																

Notes
Open hole from 0 to 8m, description based on drillers log. Inspection pit excavated to 1.2m depth.

Groundwater observations
No groundwater encountered.

Title
Borehole record

Date(s)
19/08/2022

Method
Rotary drilling rig

Logged by
FQ

Sheet number
Sheet 1 of 1

Level (m OD)
38.98

Compiled by
SA

Revision
0

Co-ordinates
354586mE, 397321mN

Checked by
JP

RBH23

Florida Farm, East Lancashire Road, Merseyside

STN3680NM

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	TOPSOIL. (TOPSOIL)	0.30	43.30																
	Brown CLAY. (DEVENSIAN TILL)																		
	Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES)	3.20	40.40																
	BOREHOLE TERMINATED AT 8.00m	8.00	35.60																

Notes Open hole from 0 to 8m, description based on drillers log. Inspection pit excavated to 1.2m depth.	**Title** Borehole record		**Date(s)** 19/08/2022
	Method Rotary drilling rig	**Logged by** FQ	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** 43.60	**Compiled by** SA	**Revision** 0
	Co-ordinates 354475mE, 397320mN	**Checked by** JP	**RBH24**

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Key to legends

Composite materials, soils and lithology							
	Topsoil		Made Ground		Boulders		Chalk
	Clay		Coal		Cobbles		Concrete
	Gravel		Limestone		Mudstone		Peat
	Sand		Sandstone		Silt		Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	ES	Environmental sample
	W	Water sample
	U	Undisturbed thick-walled sample 100mm diameter sampler
	UT	Undisturbed thin walled sample 100mm diameter sampler
	UTF	Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

▽ Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] reddish brown clayey very gravelly fine to medium SAND. Gravel is coarse angular brick, glass, tile and concrete. (MADE GROUND)							1.00		B
...at 0.7m depth, angular cobbles of brick.									
[Loose] red sandy clayey medium to coarse angular GRAVEL of brick, glass and sandstone. (MADE GROUND)	2.00			▼			2.50		B
TRIAL PIT TERMINATED AT 2.60m	2.60								

Notes Trial pit terminated due to side instability from 0.9m depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater encountered at 2.2m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP01**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] reddish brown very gravelly medium to coarse SAND with high cobble content. Cobbles and gravel is fine to coarse angular brick, glass, concrete and metal pipe. (MADE GROUND)									
	1.50								
Firm brown slightly gravelly slightly sandy CLAY. Gravel is medium to coarse angular brick, glass and metal. (MADE GROUND)					SV 1.60	SV=116	1.70		D
					SV 1.90	SV=83			
					SV 2.10	SV=102			
	2.30								
Firm to stiff brown slightly gravelly CLAY. Gravel is fine subangular coal. (DEVENSIAN TILL)					SV 2.40	SV=97	2.40		D
					SV 2.70	SV=94			
	3.00				SV 3.00	SV=137			
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP02**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly slightly clayey fine to medium SAND. Gravel is fine to medium angular glass and brick. (MADE GROUND)									
	0.50								
Firm to stiff friable brown slightly gravelly slightly sandy CLAY. Gravel is fine subrounded quartzite. (DEVENSIAN TILL)					SV 0.60	SV=32			
					SV 0.90	SV=30	1.00		D
					SV 1.20	SV=60			
					SV 1.50	SV=97			
					SV 1.80	SV=47			
					SV 2.10	SV=117			
	2.30								
Stiff brown slightly gravelly CLAY. Gravel is fine subrounded sandstone. (DEVENSIAN TILL)					SV 2.40	SV=137	2.40		D
	2.70				SV 2.70	SV=127			
TRIAL PIT TERMINATED AT 2.70m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP03**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] reddish brown very gravelly medium to coarse SAND. Gravel is coarse angular brick, glass, concrete and metal. (MADE GROUND)							1.00		B
...at 0.5m depth, high cobble content of angular brick.									
...at 2m depth, angular cobbles of brick.									
TRIAL PIT TERMINATED AT 2.60m	2.60								

Notes Trial pit terminated due to side instability from 1.5m depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP04**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] reddish brown very gravelly medium SAND with high cobble content of angular brick. Gravel is coarse angular brick, clicker, glass and metal pipe. (MADE GROUND)									
	2.10				SV 2.10	SV=55			
Firm brown/black slightly gravelly slightly sandy CLAY. Gravel is fine to medium angular brick and glass. (MADE GROUND)					SV 2.40	SV=40	2.40		D
	2.50								
TRIAL PIT TERMINATED AT 2.50m									

Notes Trial pit terminated due to side instability.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP05**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. Gravel is coarse angular glass, brick and concrete. (MADE GROUND)									
[Loose] reddish brown very sandy coarse angular GRAVEL of brick, glass and concrete. (MADE GROUND)	0.80								
Soft to firm brown gravelly slightly sandy CLAY. Gravel is coarse angular brick and glass. (MADE GROUND)	1.30				SV 1.30 SV 1.60 SV 1.90 SV 2.20 SV 2.50 SV 2.80	SV=41 SV=49 SV=72 SV=88 SV=88 SV=137			
Stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular coal. (DEVENSIAN TILL)	2.30						2.60		D
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.20m	**Date(s)** 17/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP06**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown slightly gravelly clayey fine to medium SAND. Gravel is coarse subangular sandstone and quartzite. (TOPSOIL)									
	0.40								
Very stiff friable brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular to subrounded coal and quartzite. (DEVENSIAN TILL)					SV 0.50	SV=145	0.70		D
	2.00				SV 2.00	SV=100			
Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular coal. (DEVENSIAN TILL)					SV 2.30	SV=151			
	2.60				SV 2.60	SV=105			
TRIAL PIT TERMINATED AT 2.60m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 17/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP07**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] reddish brown very gravelly fine to coarse SAND. Gravel is coarse angular glass, brick, concrete and metal bar. (MADE GROUND)									
...at 1m depth, high cobble content of angular concrete and brick.									
	2.20			▼					
[Loose] reddish brown clayey sandy coarse angular GRAVEL of brick, glass, metal and concrete. (MADE GROUND)							2.50		B
TRIAL PIT TERMINATED AT 2.70m	2.70								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 17/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater encountered at 2.2m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP08**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly medium to coarse SAND. Gravel is coarse angular glass, brick and concrete. (MADE GROUND)									
	0.50								
[Loose] reddish brown gravelly slightly clayey medium to coarse SAND. Gravel is coarse angular glass, brick and concrete. (MADE GROUND)									
Soft dark grey slightly gravelly CLAY. Gravel is coarse angular glass, brick and metal. (MADE GROUND)	1.80			▼	SV 1.80	SV=39	1.80		D
...between 1.8m and 2.5m depth, strong hydrocarbon odour.					SV 2.10	SV=27			
					SV 2.30	SV=30			
					SV 2.60	SV=28			
					SV 2.90	SV=104			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit terminated due to side instability from 1.5m depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 17/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater encountered at 1.8m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP09**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. Gravel is fine subrounded quartzite. (TOPSOIL - MADE GROUND)									
	0.40								
Stiff friable brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded quartzite, coal and mudstone. (DEVENSIAN TILL)					SV 0.60	SV=105	1.00		D
					SV 2.00	SV=144			
	2.20				SV 2.20	SV=119			
TRIAL PIT TERMINATED AT 2.20m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 17/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP10**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] reddish brown very gravelly medium to coarse SAND. Gravel is coarse angular clicker, brick, glass and tile. (MADE GROUND)									
Firm brown slightly gravelly CLAY. Gravel is coarse angular brick and glass. (MADE GROUND)	1.80				SV 1.80 SV 2.10 SV 2.40	SV=99 SV=58 SV=57			
TRIAL PIT TERMINATED AT 2.50m	2.50								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 17/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP11**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. Gravel is medium to coarse subrounded quartzite and glass. (TOPSOIL - MADE GROUND)									
	0.40								
Firm brown slightly gravelly CLAY. Gravel is rounded fine to medium quartzite and coal. (DEVENSIAN TILL)					SV 0.60	SV=80	1.00		D
					SV 0.90	SV=30			
					SV 1.20	SV=65			
					SV 1.50	SV=128			
					SV 1.80	SV=99			
					SV 2.20	SV=125			
TRIAL PIT TERMINATED AT 2.50m	2.50				SV 2.50	SV=67			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.10m	**Date(s)** 17/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH05-TP12**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey fine to medium SAND. Gravel is fine to coarse angular to subangular concrete, brick and plastic. (MADE GROUND - TOPSOIL)	0.20								
[Loose] brown gravelly very clayey medium to coarse SAND. Gravel is coarse angular to subangular concrete, brick and plastic. (MADE GROUND)							0.90		B
Soft to firm brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium angular to subangular brick. (MADE GROUND)	1.00				SV 1.10	SV=50			
					SV 1.40	SV=43			
					SV 1.70	SV=67			
Firm to stiff brown slightly gravelly CLAY. Gravel is fine to medium subangular coal and mudstone. (DEVENSIAN TILL)	1.90				SV 2.00	SV=110	2.00		D
					SV 2.30	SV=73			
TRIAL PIT TERMINATED AT 2.50m	2.50				SV 2.50	SV=132			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP01**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly clayey fine to medium SAND. Gravel is medium to coarse angular to subangular concrete, brick and plastic. (MADE GROUND - TOPSOIL)									
	0.60								
Firm orangish brown slightly sandy slightly gravelly CLAY with occasional brick. Gravel is fine to medium subrounded quartzite and mudstone. (MADE GROUND)					SV 0.70	SV=70			
					SV 0.90	SV=33			
					SV 1.30	SV=48			
					SV 1.60	SV=30			
...at 1.9m depth, frequent decomposed plant matter and slight sulphurous smell.					SV 1.90	SV=28	1.90		D
					SV 2.20	SV=46			
	2.30				SV 2.30	SV=113			
Stiff orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine subrounded quartzite and mudstone. (DEVENSIAN TILL)					SV 2.60	SV=148			
	2.70								
TRIAL PIT TERMINATED AT 2.70m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.20m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP02**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium to coarse SAND. Gravel is fine to medium angular to subangular tile, brick and mudstone. (MADE GROUND - TOPSOIL)									
	0.40								
Firm brown sandy slightly gravelly CLAY. Gravel is fine subangular to subrounded coal, sandstone and quartzite. (DEVENSIAN TILL)					SV 0.50	SV=67			
					SV 0.80	SV=42			
					SV 1.10	SV=29			
...from 1.4m depth, becoming stiff to very stiff.					SV 1.40	SV=100			
...at 1.7m depth, land drain trending east to west.					SV 1.70	SV=210	1.70		D
	2.00				SV 2.00	SV=149			
TRIAL PIT TERMINATED AT 2.00m									

Notes Land drain hit at 1.7m depth trending east to west. Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Inflow of water observed at 1.7m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP03**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is coarse subangular tile, concrete and brick. (MADE GROUND - TOPSOIL)									
[Loose] brown very gravelly slightly clayey SAND with medium cobble content of angular brick and concrete. Gravel is coarse angular glass, brick and tile. (MADE GROUND)	0.60						0.70		D
Firm brown slightly gravelly CLAY. Gravel is medium to coarse subangular brick, asphalt and coal. (MADE GROUND)	1.70				SV 2.00	SV=91			
Firm to stiff brown mottled grey slightly gravelly CLAY. Gravel is fine subangular coal. (DEVENSIAN TILL)	2.10				SV 2.20	SV=55	2.20		D
TRIAL PIT TERMINATED AT 2.20m	2.20								

Notes Trial pit refusal at 2.2m depth. Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP04**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium to coarse SAND. Gravel is fine to medium angular to subangular tile, brick and mudstone. (MADE GROUND - TOPSOIL)									
	0.50								
Stiff friable orangish brown slightly gravelly slightly sandy CLAY with medium cobble content of angular brick and rounded quartzite. Gravel is coarse subangular brick and quartzite. (MADE GROUND)					SV 0.60	SV=114			
					SV 0.90	SV=75			
	1.20				SV 1.20	SV=56			
Firm to stiff brown slightly gravelly CLAY. Gravel is fine subrounded quartzite and coal. (DEVENSIAN TILL)					SV 1.50	SV=68			
					SV 1.80	SV=46			
	2.00								
TRIAL PIT TERMINATED AT 2.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP05**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium to coarse SAND. Gravel is fine to medium angular to subangular tile, brick and mudstone. (MADE GROUND - TOPSOIL)									
	0.50								
Stiff friable brown slightly gravelly CLAY. Gravel is medium subangular to subrounded quartzite and sandstone. (DEVENSIAN TILL)									
...at 0.9m depth, subrounded cobbles of sandstone.					SV 1.50	SV=60			
	1.80				SV 1.80	SV=92			
TRIAL PIT TERMINATED AT 1.80m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP06**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown very gravelly medium SAND with medium cobble content of angular concrete. Gravel is medium to coarse angular brick, tile, sandstone and plastic. (MADE GROUND - TOPSOIL)									
	0.50								
[Loose] brown very gravelly medium to coarse SAND. Gravel is coarse angular brick and glass. (MADE GROUND)									
...at 0.8m depth, angular boulder of asphalt with hydrocarbon odour noted.									
	1.10								
Soft dark grey slightly gravelly CLAY with decomposed plant matter and medium cobble content of angular brick. Gravel is angular fine to medium of sandstone and and brick. (MADE GROUND)					SV 1.20	SV=13			
					SV 1.50	SV=14			
					SV 1.80	SV=10			
					SV 2.10	SV=8			
...from 2.4m, firm.				▼	SV 2.40	SV=20			
	3.00				SV 3.00	SV=16			
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater encountered at 2.6m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP07**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown very gravelly medium SAND with medium cobble content of angular concrete. Gravel is medium to coarse angular brick, tile, sandstone and plastic. (MADE GROUND - TOPSOIL)									
	0.30								
[Medium dense] brown very gravelly medium to coarse SAND with high cobble content of angular asphalt and brick. Gravel is coarse angular brick and tile. (MADE GROUND)									
	0.90								
Soft dark grey slightly gravelly CLAY with decomposed plant matter. Gravel is coarse angular plastic, brick and glass. (MADE GROUND)									
	1.10				SV 1.10	SV=22			
Stiff brown and light grey slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 1.40	SV=115			
	1.70				SV 1.70	SV=189	1.70		D
TRIAL PIT TERMINATED AT 1.70m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.30m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP08**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly medium to coarse SAND. Gravel is medium to coarse angular brick, quartzite and glass. (MADE GROUND - TOPSOIL)									
Stiff friable orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine subrounded mudstone. (MADE GROUND)	0.40								
Soft dark grey slightly gravelly slightly sandy CLAY. Gravel is fine subrounded coal. (MADE GROUND)	0.90				SV 0.90	SV=30			
					SV 1.20	SV=49			
					SV 1.50	SV=30			
Stiff brown mottled light grey slightly gravelly CLAY. Gravel is medium rounded quartzite. (DEVENSIAN TILL)	1.80				SV 1.80	SV=91			
TRIAL PIT TERMINATED AT 2.10m	2.10				SV 2.10	SV=114			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.30m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP09**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown very gravelly medium SAND with medium cobble content of angular concrete. Gravel is medium to coarse angular brick, tile, sandstone and plastic. (MADE GROUND - TOPSOIL)									
[Loose] brown gravelly clayey fine to medium SAND. Gravel is medium to coarse angular brick, concrete, asphalt and tile. (MADE GROUND)	0.50								
...at 1.2m depth, boulders of asphalt.									
Soft dark grey and black slightly gravelly slightly sandy CLAY with decomposed plant matter. Gravel is coarse angular metal, plastic and brick. (MADE GROUND)	1.30			▼	SV 1.30	SV=18			
					SV 1.60	SV=13			
					SV 1.90	SV=15			
					SV 2.10	SV=15			
					SV 2.40	SV=12			
					SV 2.70	SV=7			
...3.0m depth, tyre recorded.									
TRIAL PIT TERMINATED AT 3.00m	3.00				SV 3.00	SV=7			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.30m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater encountered at 2m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP10**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown very gravelly medium SAND with medium cobble content of angular concrete. Gravel is medium to coarse angular brick, tile, sandstone and plastic. (MADE GROUND - TOPSOIL)									
	0.40								
[Loose] brown gravelly clayey medium to coarse SAND with high cobble content of angular brick. Gravel is coarse angular brick, plastic and concrete. (MADE GROUND)									
Firm brown to dark grey slightly gravelly slightly sandy CLAY. Gravel is coarse angular brick. (MADE GROUND)	1.30								
...at 1.6m depth, boulders of angular asphalt.					SV 2.00	SV=56			
					SV 2.30	SV=43			
	2.50				SV 2.50	SV=63			
Firm orangish brown slightly gravelly CLAY. Gravel is fine subrounded quartzite. (DEVENSIAN TILL)					SV 2.80	SV=47			
	3.00								
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.30m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP11**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown very gravelly medium SAND with medium cobble content of angular concrete. Gravel is medium to coarse angular brick, tile, sandstone and plastic. (MADE GROUND - TOPSOIL)									
	0.40								
[Loose] brown very gravelly slightly clayey medium to coarse SAND. Gravel is coarse angular concrete and brick. (MADE GROUND)									
	1.20								
Stiff orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is fine subrounded quartzite and coal. (DEVENSIAN TILL)					SV 1.30	SV=45			
					SV 1.60	SV=90			
					SV 1.90	SV=108			
					SV 2.20	SV=111			
	2.50				SV 2.50	SV=96			
TRIAL PIT TERMINATED AT 2.50m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.30m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH13-TP12**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly clayey fine to medium SAND. Gravel is fine to medium subangular coal and brick. (MADE GROUND - TOPSOIL)									
	0.60								
Soft to firm brown slightly sandy CLAY. (DEVENSIAN TILL)					SV 0.70	SV=30	0.70		D
					SV 1.00	SV=48			
					SV 1.30	SV=69			
					SV 1.60	SV=71			
	1.90				SV 1.90	SV=49			
Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is medium subrounded quartzite. (DEVENSIAN TILL)					SV 2.20	SV=64			
	2.50				SV 2.50	SV=70			
TRIAL PIT TERMINATED AT 2.50m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP01**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly clayey fine to medium SAND. Gravel is fine to medium subangular coal and brick. (MADE GROUND - TOPSOIL)									
	0.60								
Firm orangish brown slightly gravelly CLAY. Gravel is fine to medium subangular coal and quartzite. (DEVENSIAN TILL)					SV 0.70	SV=69			
					SV 1.00	SV=68			
					SV 1.30	SV=59			
					SV 1.60	SV=57			
					SV 1.90	SV=75			
	2.20				SV 2.20	SV=69			
TRIAL PIT TERMINATED AT 2.20m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP02**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly fine to medium SAND. Gravel is fine subangular coal. (TOPSOIL)									
Soft orangish brown slightly sandy CLAY. (DEVENSIAN TILL)	0.60				SV 0.70	SV=30	1.50		D
					SV 1.00	SV=56			
...from 1.3m depth, becoming firm.					SV 1.30	SV=29			
					SV 1.60	SV=59			
					SV 1.90	SV=90			
					SV 2.20	SV=75			
TRIAL PIT TERMINATED AT 2.50m	2.50				SV 2.50	SV=83			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 15/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP03**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium to coarse SAND. Gravel is medium subrounded quartzite. (TOPSOIL)									
Stiff orangish brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)	0.50				SV 0.60	SV=116			
					SV 0.90	SV=47			
					SV 1.20	SV=81			
					SV 1.50	SV=117			
...from 1.8m depth, becoming slightly sandy.									
					SV 2.00	SV=39			
...at 2.4m depth, boulder of rounded sandstone.					SV 2.30	SV=87			
TRIAL PIT TERMINATED AT 2.60m	2.60								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP04**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
	0.40								
Stiff friable orangish brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 0.50	SV=144			
					SV 0.80	SV=72			
					SV 1.20	SV=59			
					SV 1.50	SV=27			
	1.80				SV 1.80	SV=35			
Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine mudstone. (DEVENSIAN TILL)					SV 2.10	SV=30			
					SV 2.30	SV=30			
	2.50				SV 2.50	SV=95			
Stiff brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 2.80	SV=122			
	3.00								
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP05**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
	0.40								
Firm orangish brown slightly gravelly CLAY. Gravel is fine to medium subrounded sandstone. (DEVENSIAN TILL)					SV 0.50	SV=87			
					SV 0.80	SV=57			
					SV 1.10	SV=99			
	1.30								
Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 1.40	SV=28			
					SV 1.70	SV=24			
					SV 2.00	SV=25			
	2.30								
Firm to stiff brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 2.30	SV=83			
					SV 2.50	SV=81			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP06**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
	0.40								
Stiff friable orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded mudstone and quartzite. (DEVENSIAN TILL)					SV 0.60	SV=88			
					SV 0.70	SV=93			
					SV 1.20	SV=55			
					SV 1.50	SV=56			
	1.80				SV 1.80	SV=17			
Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 2.10	SV=15			
					SV 2.40	SV=20			
					SV 2.70	SV=9			
	2.80								
Firm to stiff brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)	3.00				SV 3.00	SV=73			
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP07**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
	0.60								
Firm to stiff orangish brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 0.70	SV=47			
					SV 1.00	SV=45			
					SV 1.00	SV=71			
					SV 1.30	SV=62			
					SV 1.90	SV=50			
					SV 2.20	SV=90			
					SV 2.50	SV=61			
	2.80				SV 2.80	SV=23			
Soft orangish brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)	3.00				SV 3.00	SV=18			
TRIAL PIT TERMINATED AT 3.00m					SV 3.20	SV=32			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP08**

Florida Farm, East Lancashire Road, Merseyside

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
Firm to stiff friable orangish brown slightly gravelly CLAY. Gravel is fine to medium subrounded mudstone and quartzite. (DEVENSIAN TILL)	0.30				SV 0.70	SV=77			
[Medium dense] orangish brown clayey fine to medium SAND. (DEVENSIAN TILL)	1.00						1.00		B
Firm to stiff brown slightly sandy CLAY. (DEVENSIAN TILL)	1.60				SV 1.60	SV=79			
					SV 1.90	SV=45			
[Medium dense] orangish brown clayey fine to medium SAND. (DEVENSIAN TILL)	2.00								
Firm to stiff orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)	2.40				SV 2.50	SV=133			
					SV 2.80	SV=81			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP09**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
	0.50				SV 0.50	SV=30			
Firm orangish brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded mudstone and quartzite. (DEVENSIAN TILL)					SV 0.80	SV=19			
...at 0.9m depth, occasional angular cobbles of brick.					SV 1.10	SV=30			
					SV 1.30	SV=58			
	1.60				SV 1.60	SV=30			
Soft to firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded quartzite and mudstone. (DEVENSIAN TILL)					SV 1.90	SV=27			
					SV 2.20	SV=79			
					SV 2.50	SV=40			
					SV 2.80	SV=17			
	2.90								
Stiff brown slightly gravelly CLAY. Gravel is fine subrounded mudstone and quartzite. (DEVENSIAN TILL)	3.00								
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP10**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly slightly clayey medium SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
Firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)	0.60				SV 0.70 SV 1.00 SV 1.30	SV=35 SV=94 SV=25			
TRIAL PIT TERMINATED AT 1.60m	1.60								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP11**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly clayey medium to coarse SAND. (MADE GROUND - TOPSOIL)									
	0.30								
[Loose] black slightly silty fine to coarse SAND. (MADE GROUND)									
	0.60								
Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)					SV 0.60	SV=43			
					SV 0.90	SV=30			
					SV 1.20	SV=42			
					SV 1.50	SV=55			
					SV 1.80	SV=33			
...at 2m depth, high cobble content of subangular sandstone.					SV 2.10	SV=45			
	2.50								
TRIAL PIT TERMINATED AT 2.50m									

Notes Trial pit terminated due to proximity to ditch. Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP12**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly SAND. Gravel is coarse rounded quartzite. (TOPSOIL)									
Stiff friable orangish brown slightly gravelly CLAY. Gravel is fine to medium subangular coal and mudstone. (DEVENSIAN TILL)	0.30				SV 1.30 SV 1.60 SV 1.90	SV=74 SV=81 SV=85			
TRIAL PIT TERMINATED AT 2.00m	2.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP13**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly SAND. Gravel is medium rounded quartzite. (TOPSOIL)									
Stiff friable orangish brown slightly gravelly CLAY. Gravel is fine to medium subangular coal and mudstone. (DEVENSIAN TILL)	0.30				SV 0.40	SV=75			
					SV 0.70	SV=58			
					SV 1.00	SV=73			
					SV 1.30	SV=65			
					SV 1.60	SV=85			
					SV 1.90	SV=45			
TRIAL PIT TERMINATED AT 2.00m	2.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP14**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly SAND with occasional brick and coal. Gravel is medium rounded quartzite. (TOPSOIL)									
[Loose] dark brown gravelly medium SAND. Gravel is fine to medium subangular brick and coal. (MADE GROUND)	0.40								
Firm dark brown slightly gravelly CLAY. Gravel is fine to medium subrounded quartzite and coal. (DEVENSIAN TILL)	1.00				SV 1.00	SV=44			
					SV 1.30	SV=34			
					SV 1.60	SV=29			
					SV 1.90	SV=48			
					SV 2.20	SV=33			
					SV 2.50	SV=43			
					SV 2.80	SV=35			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP15**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly medium SAND. (TOPSOIL)									
Stiff friable orangish brown slightly gravelly slightly sandy CLAY. Gravel is medium subangular coal and mudstone. (DEVENSIAN TILL)	0.40								
					SV 1.40	SV=115			
...from 1.7m depth, becoming slightly sandy.					SV 1.70	SV=30			
					SV 2.00	SV=32			
TRIAL PIT TERMINATED AT 2.50m	2.50								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP16**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto [loose] brown gravelly medium SAND. (MADE GROUND - TOPSOIL)									
	0.40				SV 0.40	SV=73			
Stiff friable slightly gravelly CLAY. Grave is medium angular brick, tile and coal. (MADE GROUND)									
...from 1m depth, becoming slightly sandy.					SV 1.00	SV=30	1.00		D
	1.20				SV 1.20	SV=57			
Firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded coal and mudstone. (DEVENSIAN TILL)					SV 1.50	SV=30			
					SV 1.80	SV=32			
					SV 2.10	SV=30	2.00		D
					SV 2.40	SV=41			
	2.50								
TRIAL PIT TERMINATED AT 2.50m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.40m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH14-TP17**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine SAND. (MADE GROUND - TOPSOIL)							0.20		D
Stiff friable brown slightly gravelly CLAY. Gravel is medium to coarse subrounded quartzite and mudstone. (DEVENSIAN TILL)	0.30				SV 1.00	SV=75			
					SV 1.30	SV=46			
					SV 1.60	SV=74			
					SV 1.90	SV=132	2.00		D
					SV 2.30	SV=127			
...from 2.4m depth, becoming slightly sandy.									
TRIAL PIT TERMINATED AT 2.50m	2.50								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP01**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.40								
Soft to firm reddish brown slightly gravelly CLAY. Gravel is fine subrounded quartzite and mudstone. (MADE GROUND - SUSPECTED REWORKED DEVENSIAN TILL)					SV 0.50	SV=50			
					SV 0.80	SV=30			
					SV 1.10	SV=31			
					SV 1.40	SV=30			
					SV 1.70	SV=25			
...between 2m and 2.2m depth, pocket of fine to medium reddish brown sand.					SV 2.00	SV=22			
...at 2.3m depth, plant matter and roots up to 100mm in diameter and 1300mm long.					SV 2.30	SV=23			
	2.50								
Stiff reddish brown slightly gravelly CLAY. Gravel is fine subrounded quartzite and mudstone. (DEVENSIAN TILL)					SV 2.60	SV=73			
					SV 2.90	SV=127			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP02**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.45								
[Loose] black slightly gravelly clayey fine to medium SAND. Gravel is fine to coarse subangular sandstone and brick. (MADE GROUND)									
	1.00				SV 1.00	SV=27			
Soft orangish brown slightly gravelly CLAY with medium cobble content gravel and cobbles of fine to coarse subangular sandstone, concrete and glass. (MADE GROUND)					SV 1.30	SV=29			
					SV 1.60	SV=25	1.70		D
					SV 1.90	SV=30			
...at 2m depth, decomposed plant matter.					SV 2.20	SV=47			
					SV 2.50	SV=45			
	2.60								
[Medium dense] slightly gravelly clayey fine to medium SAND. Gravel is fine subangular quartzite. (DEVENSIAN TILL)							2.80		B
	3.00								
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP03**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.30								
Stiff friable brown gravelly slightly sandy CLAY. Gravel is fine to coarse subangular to subrounded asphalt, coal and mudstone. (MADE GROUND)							0.70		D
Firm orangish brown mottled grey slightly gravelly CLAY. Gravel is fine subrounded mudstone and quartzite. (DEVENSIAN TILL)	1.00				SV 1.00	SV=44			
					SV 1.30	SV=98			
					SV 1.60	SV=89			
Soft light grey slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)	1.70				SV 1.70	SV=29	1.90		D
Stiff reddish brown slightly gravelly CLAY. Gravel is fine subrounded mudstone and quartzite. (DEVENSIAN TILL)	2.00				SV 2.00	SV=53			
					SV 2.30	SV=118			
					SV 2.60	SV=91			
					SV 2.90	SV=95			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP04**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.40								
Firm friable orangish brown slightly gravelly CLAY. Gravel is fine subrounded coal and mudstone. (DEVENSIAN TILL)					SV 0.50 SV 0.80 SV 1.10 SV 1.30 SV 1.60 SV 1.90 SV 2.00	SV=89 SV=112 SV=61 SV=90 SV=81 SV=162 SV=154			
TRIAL PIT TERMINATED AT 2.00m	2.00						2.00		D

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP05**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine subangular coal and mudstone. (MADE GROUND - SUSPECTED REWORKED DEVENSIAN TILL)	0.50				SV 0.60	SV=29			
					SV 0.90	SV=41			
					SV 1.20	SV=41			
Stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded quartzite and mudstone. (MADE GROUND - SUSPECTED REWORKED DEVENSIAN TILL)	1.40				SV 1.50	SV=66			
...between 1.6m and 1.7m depth, decomposed plant matter.					SV 1.80	SV=66			
[Medium dense] reddish brown very clayey slightly gravelly SAND. Gravel is fine subrounded mudstone and coal. (DEVENSIAN TILL)	1.90						2.00		D
Stiff friable reddish brown slightly gravelly CLAY. Gravel is fine subrounded coal and mudstone. (DEVENSIAN TILL)	2.20				SV 2.30	SV=78	2.40		D
TRIAL PIT TERMINATED AT 2.50m	2.50				SV 2.50	SV=157			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP06**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.50								
Stiff friable orangish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium subrounded quartzite, coal and mudstone. (DEVENSIAN TILL)					SV 0.60	SV=148	0.90		D
...at 0.8m depth, land drain treading north west to south east.					SV 1.20	SV=114			
					SV 1.50	SV=102			
					SV 1.80	SV=109			
					SV 2.10	SV=108			
					SV 2.40	SV=104			
TRIAL PIT TERMINATED AT 2.50m	2.50								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP07**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
Soft orangish brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded coal and mudstone. (MADE GROUND)	0.50				SV 0.60	SV=30			
					SV 0.90	SV=26			
Soft dark brown slightly gravelly slightly sandy CLAY with decomposed plant matter. Gravel is fine to coarse subrounded coal and quartzite. (MADE GROUND)	1.10				SV 1.20	SV=19			
					SV 1.50	SV=23			
Stiff reddish brown slightly gravelly CLAY. Gravel is fine subrounded mudstone. (DEVENSIAN TILL)	1.60				SV 1.60	SV=105			
					SV 1.90	SV=148			
[Medium dense] reddish brown gravelly clayey fine to medium SAND. Gravel is medium to coarse subrounded quartzite. (DEVENSIAN TILL)	2.20			▼			2.50		B
...at 2.6m depth, tree root 120mm in diameter and 500mm in length.									
Stiff reddish brown slightly gravelly CLAY. Gravel is fine subrounded quartzite and mudstone. (DEVENSIAN TILL)	2.80				SV 2.80	SV=130			
TRIAL PIT TERMINATED AT 2.90m	2.90								

Notes Trial pit terminated due to refusal at 2.9m depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.20m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater seepage observed from 2.3m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP08**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
Stiff orangish brown slightly gravelly CLAY. Gravel is fine and subrounded of coal. (DEVENSIAN TILL)	0.50				SV 0.60 SV 0.90	SV=91 SV=88			
[Medium dense] orangish brown clayey fine SAND. (DEVENSIAN TILL)	1.10			▼			1.20		B
...from 2m depth, becoming very clayey.							2.20		B
TRIAL PIT TERMINATED AT 2.90m	2.90								

Notes Trial pit terminated due to refusal at 2.9m depth. Instability in sides of trial pit between 1.2m and 2.9m depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.30m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Seepages observed from 1.2m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP09**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)	0.40								
[Loose] brown to black very clayey gravelly medium to coarse SAND. Gravel is medium to coarse subrounded to subangular coal. (MADE GROUND)	0.80								
Soft brown slightly gravelly CLAY with high decomposed plant matter content. Gravel is fine subangular coal. (MADE GROUND)					SV 0.90	SV=14			
					SV 1.20	SV=11	1.20		D
Stiff reddish brown slightly gravelly CLAY. Gravel is fine subrounded coal and mudstone. (DEVENSIAN TILL)	1.50				SV 1.50	SV=98			
[Medium dense] reddish brown clayey gravelly fine to medium SAND. Gravel is medium to coarse subrounded quartzite and mudstone. (DEVENSIAN TILL)	1.80						2.00		B
Stiff reddish brown slightly gravelly CLAY. Gravel is fine to medium subrounded coal and mudstone. (DEVENSIAN TILL)	2.70				SV 2.70	SV=121	2.70		D
TRIAL PIT TERMINATED AT 3.00m	3.00				SV 3.00	SV=76			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP10**

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] black clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
Soft to firm orangish brown slightly gravelly CLAY. Gravel is fine subangular coal. (MADE GROUND)	0.60				SV 0.60	SV=45			
Soft brown to black slightly gravelly CLAY with decomposed plant matter content. Gravel is fine subrounded coal. (MADE GROUND)	0.90				SV 0.90	SV=12			
					SV 1.20	SV=10			
					SV 1.50	SV=23			
					SV 1.80	SV=18			
					SV 2.10	SV=16			
					SV 2.40	SV=17	2.40		D
					SV 2.80	SV=15			
Stiff reddish brown slightly gravelly CLAY. Gravel is fine subangular coal and mudstone. (DEVENSIAN TILL)	3.10				SV 3.10	SV=15	3.10		D
TRIAL PIT TERMINATED AT 3.50m	3.50								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH15-TP11**

Florida Farm, East Lancashire Road, Merseyside
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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
Stiff friable brown slightly gravelly CLAY. Gravel is medium to coarse subangular coal and quartzite. (MADE GROUND)	0.50								
Firm brown gravelly CLAY with medium cobble content of angular sandstone and brick. Gravel is medium angular sandstone and brick. (MADE GROUND)	1.10				SV 1.20 SV 1.50 SV 1.80	SV=59 SV=63 SV=50	1.10		D
[Medium dense] brown very clayey fine SAND. (DEVENSIAN TILL)	2.00								
Stiff reddish brown slightly gravelly CLAY. Gravel is fine subrounded coal and flint. (DEVENSIAN TILL)	2.70				SV 2.70	SV=98	2.70		D
TRIAL PIT TERMINATED AT 3.00m	3.00				SV 3.00	SV=84			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater encountered at 1.8m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP01**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)	0.40								
Stiff friable brown slightly gravelly CLAY. Gravel is medium subrounded quartzite and mudstone. (DEVENSIAN TILL)					SV 0.50	SV=65			
					SV 0.80	SV=103			
...at 1m depth, land drain trending north to south.							1.00		D
					SV 1.20	SV=87			
					SV 1.50	SV=71			
					SV 1.80	SV=49			
					SV 2.10	SV=79			
					SV 2.30	SV=90			
Stiff light grey slightly sandy CLAY. (DEVENSIAN TILL)	2.30								
TRIAL PIT TERMINATED AT 2.60m	2.60				SV 2.60	SV=101	2.50		D

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP02**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.50								
Firm friable brown CLAY. Gravel is fine subrounded coal and mudstone. (MADE GROUND)					SV 0.60	SV=45			
					SV 0.90	SV=41			
					SV 1.20	SV=50			
					SV 1.50	SV=58			
					SV 1.80	SV=71			
	2.00			▼					
Soft to firm brown mottled light grey gravelly CLAY. Gravel is medium to coarse angular brick and coal. (MADE GROUND)					SV 2.10	SV=38			
					SV 2.40	SV=45			
	2.50				SV 2.50	SV=94	2.50		D
Very soft dark grey gravelly CLAY with highly decomposed plant matter content. Gravel is coarse angular glass brick and ceramic tile. (MADE GROUND)					SV 2.80	SV=22			
					SV 3.00	SV=23			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater encountered at 2.1m depth.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP03**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.50								
Firm to stiff friable brown slightly gravelly slightly sandy CLAY. Gravel is medium to coarse subangular coal and quartzite. (DEVENSIAN TILL)					SV 1.40	SV=125	1.50		D
					SV 1.70	SV=99			
					SV 2.00	SV=99			
					SV 2.30	SV=46			
					SV 2.60	SV=50			
	2.70				SV 2.90	SV=47			
Firm to soft brown slightly sandy slightly gravelly CLAY. Gravel is fine subrounded coal. (DEVENSIAN TILL)									
	3.00								
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP04**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.50								
Stiff friable brown slightly gravelly CLAY. Gravel is medium to coarse subrounded quartzite and coal. (MADE GROUND)					SV 0.60	SV=66			
					SV 0.90	SV=30			
Soft dark grey slightly sandy slightly gravelly CLAY with occasional decomposed plant matter. Gravel is fine subrounded coal. (MADE GROUND)	1.20				SV 1.20	SV=28			
					SV 1.50	SV=27			
					SV 1.80	SV=37			
					SV 2.10	SV=31			
...at 2.3m depth, relic topsoil.					SV 2.30	SV=33			
	2.60				SV 2.60	SV=23	2.70		D
Soft dark grey slightly gravelly slightly sandy CLAY. Gravel is coarse angular brick. (MADE GROUND)									
...at 2.7m depth, decomposed plant matter.					SV 2.90	SV=22			
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP05**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
Stiff friable brown slightly gravelly CLAY. Gravel is medium to coarse subangular coal and quartzite. (DEVENSIAN TILL)	0.40				SV 0.60	SV=85			
					SV 0.90	SV=60			
					SV 1.20	SV=35			
					SV 1.50	SV=92			
Stiff brown slightly gravelly CLAY. Gravel is fine subrounded coal. (DEVENSIAN TILL)	1.80				SV 1.80	SV=74	2.00		D
					SV 2.10	SV=71			
					SV 2.40	SV=115			
					SV 2.70	SV=102			
TRIAL PIT TERMINATED AT 3.00m	3.00				SV 3.00	SV=155			

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP06**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
Stiff friable brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular coal. (MADE GROUND)	0.50				SV 0.60	SV=33			
...at 1.2m depth, angular boulders of sandstone.									
Soft dark grey slightly gravelly CLAY with frequent decomposed plant matter. Gravel is coarse angular sandstone and brick. (MADE GROUND)	1.30				SV 1.30 SV 1.60 SV 1.90 SV 2.20 SV 2.50 SV 2.80	SV=27 SV=24 SV=27 SV=20 SV=23 SV=21			
...at 2.9m depth, angular cobbles of brick.									
TRIAL PIT TERMINATED AT 3.00m	3.00								

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 19/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP07**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.40								
Stiff friable brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium coal, quartzite and occasional brick. (MADE GROUND)					SV 0.60	SV=55			
	1.40				SV 1.40	SV=29			
Firm light grey mottled brown slightly gravelly CLAY with rare decomposed plant matter. Gravel is fine to medium angular to subangular coal and sandstone. (MADE GROUND)					SV 1.70	SV=44			
					SV 2.00	SV=48			
	2.10				SV 2.20	SV=86			
Stiff orangish brown slightly gravelly CLAY. Gravel is fine subrounded coal and quartzite. (DEVENSIAN TILL)					SV 2.50	SV=106			
					SV 2.80	SV=109			
	3.00								
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP08**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.40								
Stiff friable orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular quartzite. (DEVENSIAN TILL)					SV 0.60	SV=89			
...at 0.6m depth, not friable.					SV 0.90	SV=99	0.90		D
...from 1.1m depth, very stiff.					SV 1.10	SV=131			
					SV 1.40	SV=140			
					SV 1.70	SV=165			
	2.00				SV 2.00	SV=139			
TRIAL PIT TERMINATED AT 2.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP09**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown gravelly clayey fine to medium SAND. (MADE GROUND - TOPSOIL)									
	0.40								
Firm to stiff friable slightly sandy slightly gravelly CLAY. Gravel is fine subrounded coal and quartzite. (MADE GROUND)					SV 1.00	SV=36			
	1.30				SV 1.30	SV=30			
Soft dark grey slightly gravelly CLAY. Gravel is medium to coarse subangular brick, plastic and tile. (MADE GROUND)					SV 1.60	SV=54			
	1.90				SV 1.90	SV=30			
Firm brown slightly gravelly CLAY. Gravel is fine to medium subrounded quartzite and coal. (DEVENSIAN TILL)					SV 2.10	SV=72			
					SV 2.40	SV=54			
					SV 2.70	SV=80			
	3.00				SV 3.00	SV=40			
TRIAL PIT TERMINATED AT 3.00m									

Notes Trial pit sides remained upright and stable upon completion.	**Title** Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	**Date(s)** 18/08/2022
	Method Machine excavator	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations No groundwater encountered.	**Level (m OD)** -	**Compiled by** SA	**Revision** 0
	Co-ordinates -	**Checked by** JP	**RBH16-TP10**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Dark brown gravelly slightly silty fine SAND with frequent roots and rootlets. Gravel is fine subangular brick, glass and sandstone. (TOPSOIL)							0.30		ES
Dark brown gravelly slightly silty fine SAND with occasional roots and rootlets. Gravel is fine angular to subangular brick and ceramic. (MADE GROUND)	0.43						0.50		D
Firm light grey and brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular brick and sandstone. (MADE GROUND)	0.84				PP 0.90	PP=83	1.00		ES
TRIAL PIT TERMINATED AT 1.20m	1.20								

Notes Trial pit sides remained upright and stable upon completion. Terminated at scheduled depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 28/03/2024
	Method Hand excavated	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater not observed.	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
	Co-ordinates -	**Checked by** DH	**HP201**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Dark brown gravelly slightly silty fine SAND with frequent roots and rootlets. Gravel is fine subangular brick, glass and sandstone. (TOPSOIL)							0.10		ES
	0.23								
Dark brown to black gravelly silty fine SAND. Gravel is fine subangular coal and clinker. (MADE GROUND)							0.40		ES
	0.52								
Yellowish brown gravelly very clayey fine SAND. Gravel is fine to medium subangular sandstone. (DEVENSIAN TILL)							0.60	1.00	B
	1.20								
TRIAL PIT TERMINATED AT 1.20m									

Notes Trial pit sides remained upright and stable upon completion. Terminated at scheduled depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 28/03/2024
	Method Hand excavated	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater not observed.	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
	Co-ordinates -	**Checked by** DH	**HP202**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Dark brown very silty fine SAND with frequent rootlets. (TOPSOIL)	0.12						0.10		ES
Light brown gravelly clayey fine SAND with occasional 10mm to 40mm diameter lenses of soft light brown CLAY. Gravel is fine to medium subangular sandstone. (DEVENSIAN TILL)							0.20	1.00	B
TRIAL PIT TERMINATED AT 1.20m	1.20								

Notes Trial pit sides remained upright and stable upon completion. Terminated at scheduled depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 28/03/2024
	Method Hand excavated	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater not observed.	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
	Co-ordinates -	**Checked by** DH	**HP203**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Soft dark brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravel is fine subangular sandstone. (TOPSOIL)							0.20		ES
Firm light brown sandy slightly gravelly CLAY with low cobble content of subangular sandstone. Gravel is fine to medium subangular sandstone. (DEVENSIAN TILL)	0.36				PP 0.50 PP 0.80	PP=50 PP=75	0.75		D
TRIAL PIT TERMINATED AT 1.20m	1.20								

Notes Trial pit sides remained upright and stable upon completion. Terminated at scheduled depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 28/03/2024
	Method Hand excavated	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater not observed.	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
	Co-ordinates -	**Checked by** DH	**HP204**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick and ceramic. (TOPSOIL)							0.10		ES
	0.20								
Firm reddish brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular coal and sandstone. (DEVENSIAN TILL)					PP 0.50	PP=50			
					PP 0.80	PP=67			
							1.00		D
	1.20								
TRIAL PIT TERMINATED AT 1.20m									

Notes Trial pit sides remained upright and stable upon completion. Terminated at scheduled depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 28/03/2024
	Method Hand excavated	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater not observed.	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
	Co-ordinates 354351mE, 397248mN	**Checked by** DH	**HP205**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto soft brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular brick. (TOPSOIL)							0.20		ES
Firm dark brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular to angular brick. (MADE GROUND)	0.30						0.60		ES
Yellowish brown gravelly clayey fine SAND. Gravel is fine to medium angular sandstone. (DEVENSIAN TILL)	0.90						1.00	1.30	B
TRIAL PIT TERMINATED AT 1.30m	1.30								

Notes Trial pit sides remained upright and stable upon completion. Terminated at scheduled depth.	**Title** Trial pit record	**Dimensions (w x l)** 0.30m x 0.30m	**Date(s)** 28/03/2024
	Method Hand excavated	**Logged by** JT	**Sheet number** Sheet 1 of 1
Groundwater observations Groundwater not observed.	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
	Co-ordinates 354393mE, 397272mN	**Checked by** DH	**HP206**

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to coarse angular to subangular brick and glass. (TOPSOIL)	0.25												
	Soft reddish cream and dark brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular to subangular brick glass and chalk. (MADE GROUND)											0.80		ES
	Loose red very sandy silty GRAVEL of fine to medium angular glass. (MADE GROUND)	1.00				S 1.00 - 1.45	(3) 4					1.30		ES
	Black very sandy slightly silty GRAVEL of fine subangular coal and clinker. (MADE GROUND)	1.50												
	Medium dense brownish red and yellow very gravelly silty fine to coarse SAND. Gravel is fine to coarse angular to subangular glass sandstone and clinker. (MADE GROUND)	1.90			▼	S 2.00 - 2.45	(3) 11					2.80		ES
	Stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded sandstone. (DEVENSIAN TILL)	3.00				S 3.00 - 3.45	(6) 14			PP 3.50	PP=208	3.80		D
						S 4.00 - 4.45	(7) 18			PP 4.80	PP=200			
						S 5.00 - 5.45	(6) 16							
	BOREHOLE TERMINATED AT 5.45m	5.45												

Notes
Borehole terminated at scheduled depth.

Groundwater observations
Groundwater strike at 2.0m remaining at 2.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details	
Range (m)	Recovery (%)
1.20 - 2.00	90
2.00 - 3.00	40
3.00 - 4.00	60
4.00 - 5.00	90

Method
Windowless sampler

Logged by
JT

Sheet number
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Level (m OD)
-

Compiled by
AM

Revision
1

Co-ordinates
354696mE, 397501mN

Checked by
DH

WS201

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to coarse angular to subangular brick and glass. (TOPSOIL)	0.30										0.30	0.40	ES
	Black very sandy slightly silty GRAVEL of fine subangular coal and clinker. (MADE GROUND)	0.40										0.50	1.00	ES
	Soft reddish cream and orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular to subangular brick glass and chalk. (MADE GROUND)					S 1.00 - 1.45	(2) 4							
	Firm becoming stiff brown slightly gravelly slightly sandy CLAY with rare rootlets. Gravel is fine to medium subangular to subrounded sandstone and coal. (DEVENSIAN TILL)	1.53				S 2.00 - 2.45	(2) 4			PP 1.80	PP=100			
										PP 2.50	PP=83	2.50		D
						S 3.00 - 3.45	(6) 17			PP 2.80	PP=121			
										PP 3.50	PP=117			
						S 4.00 - 4.45	(6) 17			PP 3.80	PP=179			
						S 5.00 - 5.45	(6) 16							
	BOREHOLE TERMINATED AT 5.45m	5.45												

Notes
Borehole terminated at scheduled depth. Permeability testing performed.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Recovery details

Range (m)	Recovery (%)
1.20 - 2.00	50
2.00 - 3.00	40
3.00 - 4.00	95
4.00 - 5.00	60

Method
Windowless sampler

Logged by
JT

Level (m OD)
-

Compiled by
AM

Co-ordinates
354722mE, 397502mN

Checked by
DH

Date(s)
28/03/2024

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Revision
1

WS202

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)													
		0.30	46.90									0.40		ES
	Cream mottled red slightly sandy very clayey GRAVEL of fine to medium angular to subangular chalk brick and glass. (MADE GROUND)													
		0.60	46.60									0.80		ES
	Black very sandy silty GRAVEL of fine subangular clinker and coal. (MADE GROUND)											0.90	1.00	D
	...between 0.9m and 1m depth, red sponge like material.													
		1.00	46.20			S 1.00 - 1.45	(1)							
	Very soft brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular brick. (MADE GROUND)									PP 1.50	PP=42	1.50		ES
					▼	S 2.00 - 2.45	(0)		2.00					
		2.30	44.90											
	Firm becoming stiff brown sandy CLAY. (DEVENSIAN TILL)									PP 2.50	PP=83	2.50		D
										PP 2.80	PP=67			
						S 3.00 - 3.45	(1) 7							
						S 3.50 - 3.92	(12) 50/265mm							
		3.92	43.28											
	BOREHOLE TERMINATED AT 3.92m													

Notes
Borehole terminated at 3.92m due to SPT refusal.

Groundwater observations
Groundwater encountered at 2.0m, remaining constant upon completion.

Title
Dynamic windowless sampling record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	70
1.00 - 2.00	30
2.00 - 3.00	90

Method
Windowless sampler

Logged by
JT

Level (m OD)
47.20

Compiled by
AM

Co-ordinates
354695mE, 397491mN

Checked by
DH

Date(s)
21/03/2024

Sheet number
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Revision
1

WS203

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)											0.10		D
	Firm becoming stiff reddish brown slightly gravelly slightly sandy CLAY with 20mm to 30mm diameter lenses of reddish brown fine SAND. Gravel is fine to medium subangular sandstone. (DEVENSIAN TILL)	0.25	44.75							PP 0.50	PP=50	0.50		D
						S 1.00 - 1.45	(3) 11					1.20		D
										PP 1.50	PP=71			
										PP 1.80	PP=117			
						S 2.00 - 2.45	(6) 14							
	Firm to stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular to subrounded sandstone and quartzite. (DEVENSIAN TILL)	2.20	42.80											
										PP 2.50	PP=100	2.50		D
						S 3.00 - 3.45	(12) 28		3.00					
										PP 3.50	PP=108	3.50		D
						S 4.00 - 4.42	(16) 50/265mm							
	BOREHOLE TERMINATED AT 4.42m	4.42	40.58											

Notes
Borehole terminated at 4.42m due to SPT refusal.

Groundwater observations
Groundwater strike at 2.0m, remaining at 2.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
21/03/2024

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	80
2.00 - 3.00	90
3.00 - 4.00	100

Method
Windowless sampler

Logged by
JT

Sheet number
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Level (m OD)
45.00

Compiled by
AM

Revision
1

Co-ordinates
354716mE, 397493mN

Checked by
DH

WS204

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Soft brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium angular glass and brick. (TOPSOIL)											0.10		ES
	Firm reddish brown mottled black and grey slightly gravelly slightly sandy CLAY with 60mm to 110mm thick bands of reddish brown medium SAND. Gravel is fine to medium subangular coal and sandstone. (MADE GROUND)	0.20	44.87									0.70		ES
						S 1.00 - 1.45	(5) 13							
										PP 1.40	PP=158	1.30		ES
										PP 1.80	PP=133			
	Stiff reddish brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular coal and fine to medium rounded quartzite. (DEVENSIAN TILL)	1.85	43.22			S 2.00 - 2.45	(6) 21		2.00					
										PP 2.50	PP=142	2.50		D
										PP 2.80	PP=154			
						S 3.00 - 3.42	(10) 50/275mm							
	BOREHOLE TERMINATED AT 3.42m	3.42	41.65											

Notes
Borehole terminated at 3.42m due to SPT refusal.

Groundwater observations
Groundwater strike at 3.0m, rising to 2.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
19/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	90
2.00 - 3.00	80

Method
Windowless sampler

Logged by
JT

Sheet number
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Level (m OD)
45.07

Compiled by
AM

Revision
1

Co-ordinates
354725mE, 397484mN

Checked by
DH

WS205

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
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INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium angular to subangular brick and glass. (TOPSOIL)	0.25	43.91									0.10		ES
	Yellowish brown very gravelly slightly clayey fine SAND. Gravel is fine to medium subangular sandstone and brick. Suspected cement bound ACM fragment observed at 0.8m. (MADE GROUND)											0.80		ES
	Very loose red very gravelly clayey fine to coarse SAND. Gravel is fine to coarse angular brick and glass. (MADE GROUND)	1.00	43.16			S 1.00 - 1.45	(3) 3							
						S 2.00 - 2.45	(0)					1.50		ES
	Loose black and brown very gravelly slightly clayey fine SAND. Gravel is fine to coarse angular brick glass. Slight hydrocarbon odour noted. (MADE GROUND)	2.80	41.36		▼	S 3.00 - 3.45	(1) 5		3.00					
												3.50		ES
	Very soft brown slightly sandy CLAY. (MADE GROUND)	3.70	40.46									3.90		D
						S 4.00 - 4.45	(0) 2							
	BOREHOLE TERMINATED AT 4.45m	4.45	39.71											

Notes
Borehole terminated at 4.45m due to instability/collapse.

Groundwater observations
Groundwater strike at 3.0m, remaining at 3.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
19/03/2024

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	40
2.00 - 3.00	40
3.00 - 4.00	60

Method
Windowless sampler

Logged by
JT

Sheet number
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Level (m OD)
44.16

Compiled by
AM

Revision
1

Co-ordinates
354714mE, 397474mN

Checked by
DH

WS206

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Very soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick and glass. (TOPSOIL)											0.10		ES
	Firm brown slightly gravelly slightly sandy CLAY with100mm to 200mm thick lenses of reddish brown fine SAND. Gravel is fine to medium subangular sandstone and coal. (MADE GROUND)	0.25	44.11											
	...between 0.55m and 0.66m depth, subangular cobble of sandstone.					S 1.00 - 1.45	(3) 11			PP 0.90	PP=96	0.80		D
										PP 1.50	PP=138			
										PP 1.80	PP=208			
	Very stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular to rounded coal and quartzite. (DEVENSIAN TILL)	1.95	42.41			S 2.00 - 2.45	(6) 18							
										PP 2.60	PP=225	2.50		D
						S 3.00 - 3.42	(11) 50/275mm							
	BOREHOLE TERMINATED AT 3.42m	3.42	40.94											

Notes
Borehole terminated at 3.42m due to SPT refusal.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
19/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 2.00	90
2.00 - 3.00	100

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
44.36

Compiled by
AM

Revision
1

Co-ordinates
354700mE, 397462mN

Checked by
DH

WS207

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Very soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick and glass. (TOPSOIL)	0.27	43.06									0.30	0.40	ES
	Light brown and red very gravelly fine SAND. Gravel is fine to medium angular to subangular brick and glass. (MADE GROUND)	0.50	42.83											
	Very soft brown and red gravelly slightly sandy CLAY. Gravel is fine to coarse angular to subangular sandstone, brick and glass. (MADE GROUND)					S 1.00 - 1.45	(1)			PP 0.90	PP=0	0.90	1.00	ES
	Soft becoming firm brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone and coal. (DEVENSIAN TILL)	1.40	41.93							PP 1.60	PP=104	1.80		D
					▼	S 2.00 - 2.45	(0) 7		2.00	PP 2.40	PP=75			
	Very dense brown gravelly slightly silty fine SAND. Gravel is fine subangular sandstone and coal. (DEVENSIAN TILL)	2.70	40.63			S 3.00 - 3.42	(14) 50/265mm					2.80		D
	BOREHOLE TERMINATED AT 3.42m	3.42	39.91											

Notes
Borehole terminated at 3.42m due to SPT refusal.

Groundwater observations
Groundwater strike at 2.0m, remaining at 2.0m upon completion.

Title
Dynamic windowless sampling record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	70
2.00 - 3.00	95

Method
Windowless sampler

Logged by
JT

Level (m OD)
43.33

Compiled by
AM

Co-ordinates
354712mE, 397463mN

Checked by
DH

Date(s)
21/03/2024

Sheet number
Sheet 1 of 1

Revision
1

WS208

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Very soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick and glass. (TOPSOIL)	0.16	42.47											
	Stiff brown slightly gravelly slightly sandy CLAY with 10mm thick bands of fine reddish brown SAND. Gravel is fine to medium subrounded quartzite and fine subangular coal. (DEVENSIAN TILL)									PP 0.50	PP=154	0.50		D
						S 1.00 - 1.45	(7) 15							
										PP 1.50	PP=179	1.50		D
	Medium dense brown gravelly slightly silty fine to medium SAND. Gravel is fine subangular sandstone. (DEVENSIAN TILL)	2.00	40.63		▼	S 2.00 - 2.45	(9) 20		2.00					
	Firm brown slightly sandy CLAY. (DEVENSIAN TILL)	2.50	40.13									2.50		D
										PP 2.80	PP=113			
						S 3.00 - 3.44	(10) 50/285mm							
	BOREHOLE TERMINATED AT 3.44m	3.44	39.19											

Notes
Borehole terminated at 3.44m due to SPT refusal.

Groundwater observations
Groundwater strike at 2.0m, remaining at 2.0m upon completion.

Title
Dynamic windowless sampling record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60
1.00 - 2.00	100
2.00 - 3.00	70

Method
Windowless sampler

Level (m OD)
42.63

Co-ordinates
354717mE, 397459mN

Logged by
JT

Compiled by
AM

Checked by
DH

Date(s)
21/03/2024

Sheet number
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Revision
1

WS209

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine subangular mudstone. (TOPSOIL)	0.15	42.92											
	Firm to stiff reddish brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular coal and subrounded sandstone. (DEVENSIAN TILL)											0.40		D
										PP 0.80	PP=179			
						S 1.00 - 1.45	(3) 8					0.90		D
										PP 1.50	PP=200	1.50		D
										PP 1.80	PP=204			
						S 2.00 - 2.45	(4) 13							
	Stiff reddish brown slightly sandy CLAY. (DEVENSIAN TILL)	2.30	40.77											
										PP 2.50	PP=208			
										PP 2.80	PP=100	2.80		D
	Medium dense becoming loose brown very gravelly slightly clayey medium to coarse SAND. Gravel is fine to medium subangular to subrounded sandstone and mudstone. (DEVENSIAN TILL)	3.00	40.07			S 3.00 - 3.45	(8) 24					3.00	4.00	B
						S 4.00 - 4.45	(2) 5							
	Soft to firm reddish brown slightly sandy CLAY. (DEVENSIAN TILL)	4.40	38.67							PP 4.50	PP=104			
										PP 4.80	PP=63			
						S 5.00 - 5.45	(2) 6							
	BOREHOLE TERMINATED AT 5.45m	5.45	37.62											

Notes
Borehole terminated at scheduled depth.

Groundwater observations
Groundwater strike at 2.5m, rising to 0.2m upon completion.

Title
Dynamic windowless sampling record

Date(s)
26/03/2024

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100
2.00 - 3.00	90
3.00 - 4.00	100
4.00 - 5.00	70

Method
Windowless sampler

Logged by
JT

Sheet number
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Level (m OD)
43.07

Compiled by
AM

Revision
1

Co-ordinates
354711mE, 397457mN

Checked by
DH

WS210

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Dark grey slightly sandy CLAY with frequent rootlets. (TOPSOIL)	0.15	40.22											
	Firm reddish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is fine subrounded mudstone and coal. (DEVENSIAN TILL)									PP 0.50	PP=167	0.50		D
										PP 0.80	PP=183			
						S 1.00 - 1.45	(4) 10							
	Stiff reddish brown slightly gravelly slightly sandy CLAY. Gravel is fine subrounded mudstone and sandstone. (DEVENSIAN TILL)	1.30	39.07							PP 1.50	PP=196	1.50		D
						S 2.00 - 2.45	(6) 20							
										PP 2.50	PP=192	2.50		D
										PP 2.80	PP=158			
	Medium dense reddish brown clayey fine SAND. (DEVENSIAN TILL)	3.00	37.37			S 3.00 - 3.45	(7) 13							
	Stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine subrounded sandstone and mudstone. (DEVENSIAN TILL)	3.60	36.77							PP 3.80	PP=121	3.80		D
						S 4.00 - 4.34	(15) 50/195mm							
	BOREHOLE TERMINATED AT 4.34m	4.34	36.03											

Notes
Borehole terminated at 4.34m due to SPT refusal.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	70
2.00 - 3.00	100
3.00 - 4.00	55

Method
Windowless sampler

Logged by
JT

Sheet number
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Level (m OD)
40.37

Compiled by
AM

Revision
1

Co-ordinates
354609mE, 397364mN

Checked by
DH

WS211

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine subangular sandstone and brick. (TOPSOIL)													
	Firm becoming soft orangish brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine subangular brick. (MADE GROUND)	0.35	39.79							PP 0.50	PP=121	0.50		ES
										PP 0.80	PP=50			
						S 1.00 - 1.45	(2) 4							
										PP 1.50	PP=29			
	Soft black and grey slightly gravelly slightly sandy CLAY with occasional roots. Gravel is fine to medium subangular sandstone. (MADE GROUND)	1.60	38.54							PP 1.90	PP=38	1.80		ES
						S 2.00 - 2.45	(2) 9							
										PP 2.50	PP=25	2.50		ES
										PP 2.80	PP=29			
						S 3.00 - 3.45	(5) 17							
	Stiff orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular sandstone. (DEVENSIAN TILL)	3.40	36.74							PP 3.50	PP=175			
	Very stiff light grey slightly gravelly slightly sandy CLAY. Gravel is fine subangular mudstone. (DEVENSIAN TILL)	3.60	36.54							PP 3.80	PP=225	3.80		D
						S 4.00 - 4.16	(25/20mm) 50/135mm							
	BOREHOLE TERMINATED AT 4.16m	4.16	35.98											

Notes
Borehole terminated at 4.16m due to SPT refusal.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	70
2.00 - 3.00	90
3.00 - 4.00	70

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
40.14

Compiled by
AM

Revision
1

Co-ordinates
354604mE, 397354mN

Checked by
DH

WS212

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Very soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets and roots. Gravel is fine subangular mudstone and brick. (TOPSOIL)											0.10		D
	Firm brown mottled orangish brown and grey slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular to subangular brick, sandstone and coal (MADE GROUND)	0.30	39.68							PP 0.50	PP=29			
						S 1.00 - 1.45	(4) 8			PP 0.90	PP=33	0.80		ES
	...between 1.3m and 1.5m depth, black very sandy clayey GRAVEL of medium to coarse subangular brick and sandstone.									PP 1.50	PP=50			
										PP 1.80	PP=50	1.80		ES
	Firm orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular sandstone and mudstone. (DEVENSIAN TILL)	2.00	37.98			S 2.00 - 2.45	(2) 4							
										PP 2.50	PP=92	2.50		D
										PP 2.80	PP=75			
						S 3.00 - 3.42	(15) 50/265mm							
	BOREHOLE TERMINATED AT 3.42m	3.42	36.56											

Notes
Borehole terminated at 3.42m due to SPT refusal.

Groundwater observations
Groundwater strike at 1.0m, remaining at 1.0 upon completion.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95
1.00 - 2.00	80
2.00 - 3.00	55

Method
Windowless sampler

Logged by
JT

Level (m OD)
39.98

Compiled by
AM

Co-ordinates
354597mE, 397347mN

Checked by
DH

Sheet number
Sheet 1 of 1

Revision
1

WS213

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
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INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Very soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine subangular sandstone. (TOPSOIL)	0.15	45.39											
	Soft orangish brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular to subrounded coal and quartzite. (DEVENSIAN TILL)									PP 0.50	PP=50	0.50		D
										PP 0.90	PP=13			
	Firm light orangish brown slightly gravelly slightly sandy CLAY with 20mm diameter lenses of orangish brown fine SAND. Gravel is fine subangular to subrounded coal and quartzite. (DEVENSIAN TILL)	1.10	44.44			S 1.00 - 1.45	(3) 8					1.20		D
										PP 1.50	PP=54			
										PP 1.80	PP=50			
	Stiff reddish brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular sandstone. (DEVENSIAN TILL)	2.00	43.54			S 2.00 - 2.45	(3) 10					2.20		D
										PP 2.50	PP=108			
										PP 2.70	PP=108			
						S 2.80 - 3.08	(25/145mm) 50/130mm							
	BOREHOLE TERMINATED AT 3.08m	3.08	42.46											

Notes
Borehole terminated at 3.08m due to obstruction. Permeability testing performed.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	100
1.00 - 2.00	100
2.00 - 3.00	90

Method
Windowless sampler

Logged by
JT

Level (m OD)
45.54

Compiled by
AM

Co-ordinates
354387mE, 397347mN

Checked by
DH

Date(s)
28/03/2024

Sheet number
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Revision
1

WS214

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
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INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Very soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets and roots. Gravel is fine subangular mudstone. (TOPSOIL)											0.10		ES
	Firm reddish brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone (DEVENSIAN TILL)	0.40	41.68			S 1.00 - 1.45	(3) 15			PP 0.80	PP=54	0.90		D
	Stiff yellowish brown and light grey slightly gravelly slightly sandy CLAY. Gravel is medium subangular sandstone. (DEVENSIAN TILL)	1.50	40.58			S 2.00 - 2.45	(10) 31			PP 1.50 PP 1.80	PP=50 PP=125	1.80		D
	Very dense yellowish brown very sandy GRAVEL of fine to coarse angular to subangular sandstone. (DEVENSIAN TILL)	2.30	39.78			S 2.60 - 2.80	(25/70mm) 55/130mm					2.30	2.60	B
	BOREHOLE TERMINATED AT 2.80m	2.80	39.28											

Notes
Borehole terminated at 2.8m due to obstruction.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	100
2.00 - 2.60	30

Method
Windowless sampler

Logged by
JT

Level (m OD)
42.08

Compiled by
AM

Co-ordinates
354422mE, 397303mN

Checked by
DH

Date(s)
28/03/2024

Sheet number
Sheet 1 of 1

Revision
1

WS215

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)											0.30		ES
	Soft brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine subangular brick. (MADE GROUND)	0.40	43.93									0.70		ES
	Firm to stiff brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded quartzite. (DEVENSIAN TILL)	0.90	43.43			S 1.00 - 1.45	(5) 11			PP 0.90	PP=79	1.20		D
										PP 1.50	PP=67			
					▼	S 2.00 - 2.45	(7) 25		2.00					
										PP 2.50	PP=125	2.50		D
										PP 2.80	PP=75			
						S 3.00 - 3.40	(14) 50/255mm							
	BOREHOLE TERMINATED AT 3.40m	3.40	40.93											

Notes
Borehole terminated at 3.40m due to obstruction.

Groundwater observations
Groundwater strike at 2.0m, remaining at 2.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
21/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	90
2.00 - 3.00	100

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
44.33

Compiled by
AM

Revision
1

Co-ordinates
354393mE, 397272mN

Checked by
DH

WS218

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)	0.30	43.51											
	Firm brown mottled orangish brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular brick. (MADE GROUND)	0.75	43.06									0.35		ES
	Very loose brown mottled black and grey very sandy slightly clayey GRAVEL of fine to medium angular to subangular sandstone brick and clinker. (MADE GROUND)	1.30	42.51			S 1.00 - 1.45	(0)							
	Very soft black and grey slightly gravelly slightly sandy CLAY with occasional roots. Gravel is fine subangular brick. (MADE GROUND)	2.00	41.81									1.50		ES
	Loose brown sandy clayey GRAVEL of medium to coarse subangular brick. (MADE GROUND)	2.60	41.21			S 2.00 - 2.45	(0) 9							
	Stiff brown slightly sandy CLAY. (DEVENSIAN TILL)	3.45	40.36		▼	S 3.00 - 3.45	(8) 30		3.00			2.80		D
	BOREHOLE TERMINATED AT 3.45m													

Notes
Borehole terminated at 3.45m due to obstruction.

Groundwater observations
Groundwater strike at 3.0m, remaining at 3.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
24/03/2024

Recovery details: Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	70
2.00 - 3.00	30

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
43.81

Compiled by
AM

Revision
1

Co-ordinates
354351mE, 397248mN

Checked by
DH

WS219

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)													
	Soft brown mottled black and grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded sandstone. (MADE GROUND)	0.25	42.83							PP 0.80	PP=42	0.80		D
	Very soft grey slightly sandy CLAY with occasional rootlets. (MADE GROUND)	1.00	42.08			S 1.00 - 1.45	(0)			PP 1.50	PP=21	1.50		ES
	Firm to stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular to subrounded sandstone. (DEVENSIAN TILL)	2.00	41.08			S 2.00 - 2.45	(0) 13			PP 2.60	PP=50	2.70		D
						S 3.00 - 3.44	(14) 50/285mm		3.00					
	BOREHOLE TERMINATED AT 3.44m	3.45	39.63											

Notes
Borehole terminated at 3.44m due to SPT refusal.

Groundwater observations
Groundwater strike at 3.0m, remaining at 3.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
24/03/2024

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	90
2.00 - 3.00	40
3.00 - 4.00	80

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
43.08

Compiled by
AM

Revision
1

Co-ordinates
354775mE, 397369mN

Checked by
DH

WS220

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)													
	Very soft brown mottled black slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular to subangular brick and glass. (MADE GROUND)	0.25	43.38			S 1.00 - 1.45	(1)					0.50		ES
	Very soft black slightly sandy CLAY with frequent rootlets. Slight organic odour. (MADE GROUND)	1.40	42.23									1.50		ES
	Soft black slightly gravelly slightly sandy CLAY. Gravel is medium subangular brick. Slight hydrocarbon odour. (MADE GROUND)	2.00	41.63			S 2.00 - 2.45	(0)							
												2.50		ES
						S 3.00 - 3.45	(1) 5		3.00					
	Stiff brown slightly sandy CLAY. (DEVENSIAN TILL)	3.30	40.33									3.80		D
						S 4.00 - 4.42	(9) 51/275mm							
	BOREHOLE TERMINATED AT 4.42m	4.42	39.21											

Notes
Borehole terminated at 4.42m due to SPT refusal.

Groundwater observations
Groundwater strike at 3.0m, remaining at 3.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
21/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	50
1.00 - 2.00	55
2.00 - 3.00	80

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
43.63

Compiled by
AM

Revision
1

Co-ordinates
354791mE, 397380mN

Checked by
DH

WS221

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)	0.15	43.14									0.30		ES
	Brown and black very sandy slightly clayey GRAVEL of fine angular to subangular brick sandstone and clinker. (MADE GROUND)	0.45	42.84											
	Firm brown mottled black slightly gravelly slightly sandy CLAY with occasional rootlets. Gravel is fine subangular brick. Slight organic odour. (MADE GROUND)					S 1.00 - 1.45	(5) 2			PP 1.50	PP=17	1.50		ES
						S 2.00 - 2.45	(5) 21							
	Stiff brown slightly sandy CLAY. (DEVENSIAN TILL)	2.30	40.99							PP 2.60	PP=113	2.80		D
					▼	S 3.00 - 3.45	(8) 41		3.00					
	BOREHOLE TERMINATED AT 3.45m	3.45	39.84							PP 3.45	PP=83			

Notes
Borehole terminated at 3.0m due to obstruction.

Groundwater observations
Groundwater strike at 3.0m, remaining at 3.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
24/03/2024

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	30
2.00 - 3.00	70
3.00 - 4.00	20

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
43.29

Compiled by
AM

Revision
1

Co-ordinates
354790mE, 397374mN

Checked by
DH

WS222

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine to medium subangular brick. (TOPSOIL)	0.20	43.16									0.20		ES
	Soft brown mottled black slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular to subangular brick and glass and clinker. (MADE GROUND)											0.80		ES
	Soft dark brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravel is fine to coarse subangular to subrounded sandstone. Slight organic odour. (MADE GROUND)	1.00	42.36			S 1.00 - 1.45	(3)					1.60		ES
						S 2.00 - 2.45	(1) 8		2.00					
	Stiff brown slightly sandy CLAY. (DEVENSIAN TILL)	2.50	40.86									2.60		D
						S 3.00 - 3.42	(11) 50/265mm							
	BOREHOLE TERMINATED AT 3.42m	3.42	39.94											

Notes
Borehole terminated at scheduled depth.

Groundwater observations
Groundwater strike at 2.0m, remaining at 2.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
21/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	70
2.00 - 3.00	30

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
43.36

Compiled by
AM

Revision
1

Co-ordinates
354796mE, 397376mN

Checked by
DH

WS223

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto very soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets. (TOPSOIL)				▼							0.20		ES
	Very soft brown mottled dark grey and black slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular brick and sandstone. (MADE GROUND)	0.50	45.55							PP 0.80	PP=42	0.80		ES
	Very soft dark grey slightly gravelly slightly sandy CLAY with occassional roots. Gravel is fine subangular coal and brick. (MADE GROUND)	1.00	45.05			S 1.00 - 1.45	(0)			PP 1.60	PP=17	1.80		ES
						S 2.00 - 2.45	(0)			PP 2.60	PP=17			
						S 3.00 - 3.45	(0)							
						S 4.00 - 4.45	(0) 7							
	BOREHOLE TERMINATED AT 4.45m	4.45	41.60											

Notes
Borehole terminated due to collapse of shallow made ground material.

Groundwater observations
Groundwater strike at 0.3m, remaining at 0.3m upon completion.

Title
Dynamic windowless sampling record

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	80
1.00 - 2.00	80
2.00 - 3.00	80
3.00 - 4.00	85

Method
Windowless sampler

Logged by
JT

Level (m OD)
46.05

Compiled by
AM

Co-ordinates
355006mE, 397388mN

Checked by
DH

Date(s)
24/03/2024

Sheet number
Sheet 1 of 1

Revision
1

WS224

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

soiltechnics
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INSTALL	STRATA: DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING: TYPE / DEPTH (m)	SPT TESTING: RESULT	SPT TESTING: CASING DEPTH (m)	SPT TESTING: WATER LEVEL (m)	OTHER IN SITU TESTING: TYPE / DEPTH (m)	OTHER IN SITU TESTING: RESULT	SAMPLING: FROM (m)	SAMPLING: TO (m)	SAMPLING: TYPE
	Soft brown slightly sandy CLAY with frequent rootlets. (TOPSOIL)											0.10		ES
	Firm orangish brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular to subrounded coal and sandstone. (DEVENSIAN TILL)	0.30	45.75							PP 0.50	PP=96			
	Firm orangish brown mottled grey slightly gravelly slightly sandy CLAY with occasional 10mm to 20mm lenses of fine to medium SAND. Gravel is fine subangular sandstone. (DEVENSIAN TILL)	0.80	45.25			S 1.00 - 1.45	(2) 10			PP 0.90	PP=138			
										PP 1.50	PP=88	1.50		D
	Medium dense orangish brown slightly silty fine to medium SAND. (DEVENSIAN TILL)	1.75	44.30							PP 1.70	PP=63			
						S 2.00 - 2.45	(4) 18					2.00	3.00	B
						S 3.00 - 3.45	(6) 21							
	Stiff to very stiff brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded sandstone. (DEVENSIAN TILL)	3.10	42.95							PP 3.80	PP=158			
						S 4.00 - 4.45	(5) 26							
										PP 4.80	PP=113			
						S 5.00 - 5.45	(9) 26							
	BOREHOLE TERMINATED AT 5.45m	5.45	40.60											

Notes
Borehole terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details: Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	90
2.00 - 3.00	50
3.00 - 4.00	90
4.00 - 5.00	60

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
46.05

Compiled by
AM

Revision
1

Co-ordinates
355006mE, 397388mN

Checked by
DH

WS224B

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto very soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets. (TOPSOIL)													
	Soft brown mottled light grey slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone. (MADE GROUND)	0.40	45.22											
	Soft dark grey and black slightly gravelly slightly sandy CLAY with occasional roots. Gravel is fine subangular clinker and brick. (MADE GROUND)	0.90	44.72			S 1.00 - 1.45	(4) 7					1.30		ES
						S 2.00 - 2.45	(5) 15		3.00					
	Firm brown slightly sandy CLAY. (DEVENSIAN TILL)	2.40	43.22									2.80		D
						S 3.00 - 3.45	(8) 41							
	BOREHOLE TERMINATED AT 3.45m	3.45	42.17											

Notes
Borehole terminated at 3.0m due to obstruction.

Groundwater observations
Groundwater strike at 3.0m, remaining at 3.0m upon completion.

Title
Dynamic windowless sampling record

Date(s)
24/03/2024

Recovery details

Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	80
2.00 - 3.00	70

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
45.62

Compiled by
AM

Revision
1

Co-ordinates
355000mE, 397380mN

Checked by
DH

WS225

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Grass onto very soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine subangular sandstone. (TOPSOIL)	0.22	45.24											
	Stiff reddish brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone. (MADE GROUND)									PP 0.50	PP=121	0.50		D
	...between 1m and 1.2m depth, very soft dark grey slightly sandy CLAY with occassional roots.					S 1.00 - 1.45	(5) 15							
	Very dense reddish brown silty fine SAND. (DEVENSIAN TILL)	1.65	43.81							PP 1.60	PP=121			
										PP 1.80	PP=104	1.80		D
						S 2.00 - 2.40	(13) 50/255mm							
	BOREHOLE TERMINATED AT 2.40m	2.40	43.06											

Notes
Terminated due to obstruction.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
24/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90
1.00 - 2.00	100

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
45.46

Compiled by
AM

Revision
1

Co-ordinates
354986mE, 397375mN

Checked by
DH

WS226

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Dark brown mottled black slightly gravelly slightly sandy CLAY. Gravel is fine to medium subangular brick. (MADE GROUND)											0.40		ES
	Soft becoming firm brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone. (DEVENSIAN TILL)	0.60												
	BOREHOLE TERMINATED AT 1.00m	1.00												

Notes
Terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
24/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	90

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
-

Compiled by
AM

Revision
1

Co-ordinates
-

Checked by
DH

WS227

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Grass onto soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is fine subangular brick. (TOPSOIL)	0.25												
	Soft brown mottled black slightly gravelly slightly sandy CLAY. Gravel is fine to coarse subangular coal, brick and sandstone. (MADE GROUND)											0.50		ES
	BOREHOLE TERMINATED AT 1.00m	1.00												

Notes
Terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
24/03/2024

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	JT	Sheet 1 of 1
0.00 - 1.00	90	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
		Co-ordinates -	**Checked by** DH	**WS228**

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Black very sandy silty GRAVEL of fine to medium angular to subangular clinker, brick and coal. (MADE GROUND)											0.30	0.60	ES
	Soft brown mottled grey and light brown slightly sandy CLAY. (DEVENSIAN TILL)	0.60												
	BOREHOLE TERMINATED AT 1.00m	1.00												

Notes
Terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	60

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
-

Compiled by
AM

Revision
1

Co-ordinates
-

Checked by
DH

WS229

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STN3680NM

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Firm dark grey and black slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular brick and clinker. (MADE GROUND)											0.40		ES
	Firm brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded sandstone. (DEVENSIAN TILL)	0.75												
	BOREHOLE TERMINATED AT 1.00m	1.00												

Notes
Terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	100

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
-

Compiled by
AM

Revision
1

Co-ordinates
-

Checked by
DH

WS230

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Black very sandy silty GRAVEL of fine to medium angular to subangular clinker, brick and coal. (MADE GROUND)													
	Soft dark grey mottled black slightly gravelly slightly sandy CLAY. Gravel is fine subangular brick and clinker. (MADE GROUND)	0.30										0.50		ES
	Firm brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded sandstone. (DEVENSIAN TILL)	0.80												
	BOREHOLE TERMINATED AT 1.00m	1.00												

Notes
Terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details	
Range (m)	Recovery (%)
0.00 - 1.00	95

Method
Windowless sampler

Logged by
JT

Sheet number
Sheet 1 of 1

Level (m OD)
-

Compiled by
AM

Revision
1

Co-ordinates
-

Checked by
DH

WS231

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Black and red very gravelly slightly clayey fine SAND. Gravel is medium to coarse angular to subangular brick and clinker. (MADE GROUND)											0.30		ES
	Firm brown and grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium subrounded sandstone. (DEVENSIAN TILL)	0.50												
	BOREHOLE TERMINATED AT 1.00m	1.00												

Notes
Terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	JT	Sheet 1 of 1
0.00 - 1.00	100	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
		Co-ordinates -	**Checked by** DH	**WS232**

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Black very gravelly slightly clayey fine SAND. Gravel is medium to coarse angular to subangular brick and clinker. (MADE GROUND)											0.30		ES
	Soft greyish brown slightly gravelly slightly sandy CLAY. Gravel is fine subangular sandstone. (DEVENSIAN TILL)	0.60												
	BOREHOLE TERMINATED AT 1.00m	1.00												

Notes
Terminated at scheduled depth.

Groundwater observations
Groundwater not encountered.

Title
Dynamic windowless sampling record

Date(s)
28/03/2024

Recovery details		Method	Logged by	Sheet number
Range (m)	Recovery (%)	Windowless sampler	JT	Sheet 1 of 1
0.00 - 1.00	80	**Level (m OD)** -	**Compiled by** AM	**Revision** 1
		Co-ordinates -	**Checked by** DH	**WS233**

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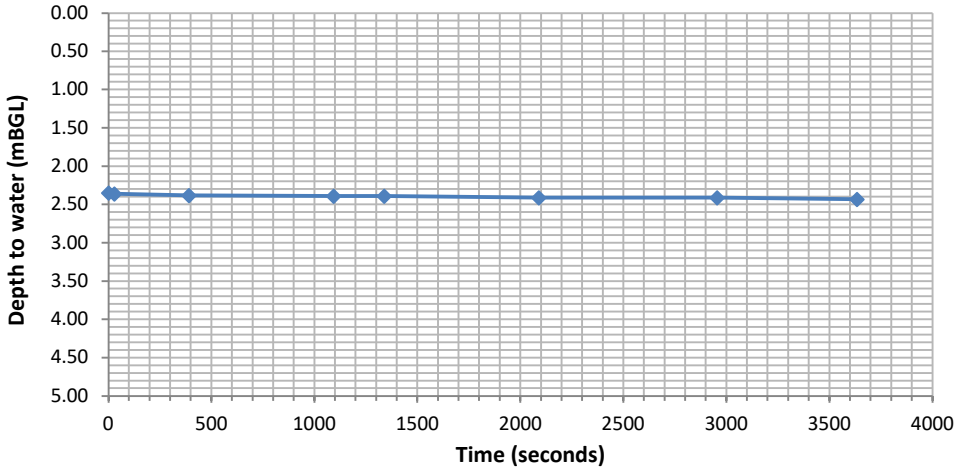
Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

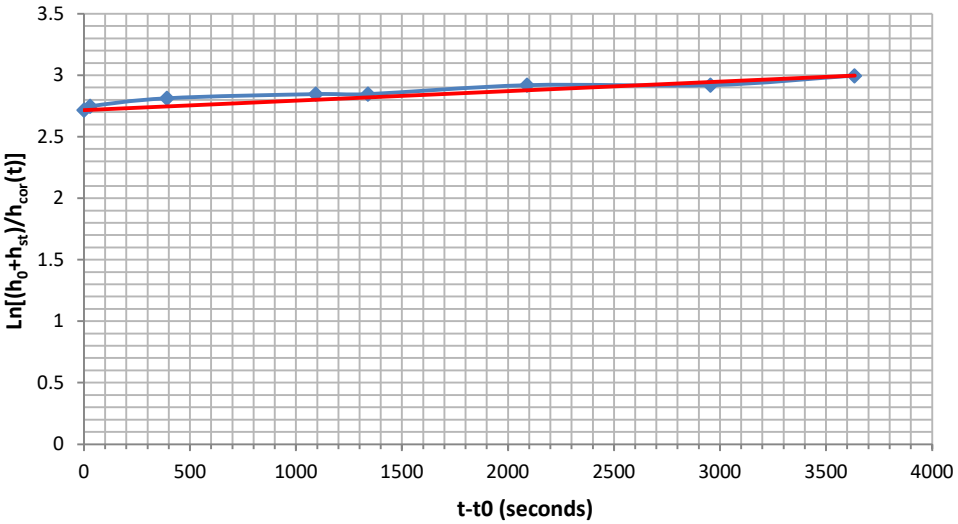
Location	Test number	Test method	Test system	Test date
WS202	1	Falling head	Open borehole	28/03/2024

Test base (m)	Test section length (m)	Test diameter (m)
5.00	2.65	0.075

Variables at start of test

Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)
Dry	2.35	2.65





F	Shape factor according BS EN ISO 22282-1:2012	3.910 m
S	Cross sectional area of test section	0.0044 m^2
h_{st}	Corrective term to initial static level	2.32E+00 m
α	Gradient of line alpha	7.69E-05 s^{-1}
k	**Permeability (α S / F)**	**8.69E-08 m/s**

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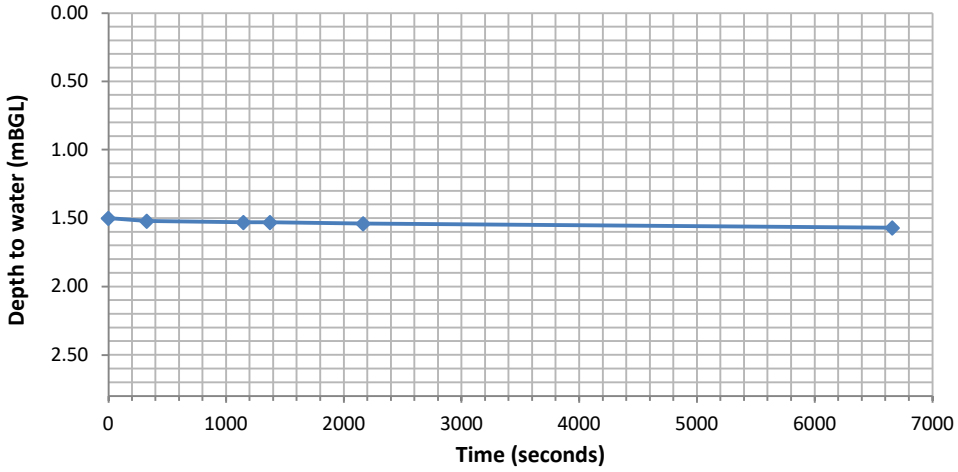
Permeability test in a borehole using open systems (BS EN ISO 22282-2:2012)

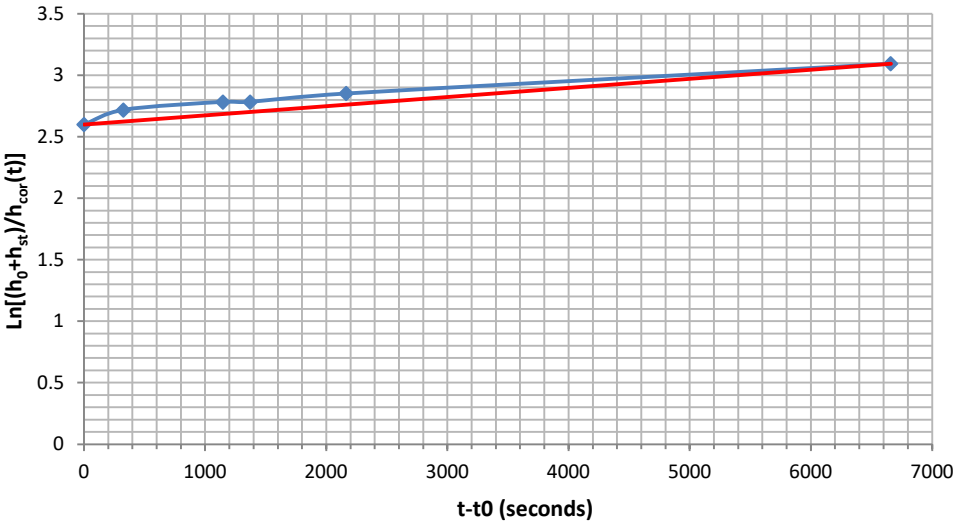
Location	Test number	Test method	Test system	Test date
WS214	1	Falling head	Open borehole	28/03/2024

Test base (m)	Test section length (m)	Test diameter (m)
2.80	1.80	0.06

Variables at start of test

Groundwater (mBGL)	Water after injection (mBGL)	Change in head (m)
2.8	1.5	1.30





F	Shape factor according BS EN ISO 22282-1:2012	2.762 m
S	Cross sectional area of test section	0.0028 m^2
h_{st}	Corrective term to initial static level	1.12E+00 m
α	Gradient of line alpha	7.42E-05 s^{-1}
k	**Permeability (α S / F)**	**7.60E-08 m/s**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's Description] TOPSOIL. (TOPSOIL)	0.30	42.79																
	[Driller's Description] Brown CLAY with sand. (DEVENSIAN TILL)																		
	[Driller's Description] Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	6.30	36.79																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL; Descriptions based on driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
18/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 1 of 4

Level (m OD)
43.09

Compiled by
AM

Revision
1

Co-ordinates
354730mE, 397472mN

Checked by
DH

RBH201

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's Description] Light grey MUDSTONE with occasional hard siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	15.30	27.79																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL; Descriptions based on driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 18/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 2 of 4
Level (m OD) 43.09	**Compiled by** AM	**Revision** 1
Co-ordinates 354730mE, 397472mN	**Checked by** DH	**RBH201**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's Description] Light grey hard SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	19.00	24.09																
	[Driller's Description] Light brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	20.10	22.99																
	[Driller's description] Workings. Loss of flush recorded. (PENNINE MIDDLE COAL MEASURES FORMATION)	23.90	19.19																
	[Driller's description] Light brown SANDSTONE. Loss of flush recorded. (PENNINE MIDDLE COAL MEASURES FORMATION)	24.80	18.29																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL; Descriptions based on driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 18/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 3 of 4
Level (m OD) 43.09	**Compiled by** AM	**Revision** 1
Co-ordinates 354730mE, 397472mN	**Checked by** DH	**RBH201**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	13.09																

Notes Open hole drilling from G.L. to 30.00m BGL; Descriptions based on driller's log. Terminated at scheduled depth.	**Title** Borehole record		**Date(s)** 18/03/2024
	Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 43.09	**Compiled by** AM	**Revision** 1
	Co-ordinates 354730mE, 397472mN	**Checked by** DH	**RBH201**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL. (TOPSOIL) [Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)	2.20	41.90																
	[Driller's description] Grey MUDSTONE with thin sandstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	6.80	37.30																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted howver likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 18/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 1 of 4
Level (m OD) 44.10	**Compiled by** AM	**Revision** 1
Co-ordinates 354707mE, 397467mN	**Checked by** DH	**RBH202**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	10.30	33.80																
	[Driller's description] Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	14.20	29.90																
	[Driller's description] Grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	15.90	28.20																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted howver likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 18/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 2 of 4
Level (m OD) 44.10	**Compiled by** AM	**Revision** 1
Co-ordinates 354707mE, 397467mN	**Checked by** DH	**RBH202**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	18.90	25.20																
	[Driller's description] Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	20.30	23.80																
	[Driller's description] COAL. Bright, solid. No flush loss. (PENNINE MIDDLE COAL MEASURES FORMATION)	22.50	21.60																
	[Driller's description] Grey MUDSTONE (PENNINE MIDDLE COAL MEASURES FORMATION)	24.10	20.00																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted howver likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 18/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 3 of 4
Level (m OD) 44.10	**Compiled by** AM	**Revision** 1
Co-ordinates 354707mE, 397467mN	**Checked by** DH	**RBH202**

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Grey SANDSTONE with mudstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	26.80	17.30																
	BOREHOLE TERMINATED AT 30.00m	30.00	14.10																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.	**Title** Borehole record		**Date(s)** 18/03/2024
	Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater strike noted howver likely to be masked by water flush drilling medium.	**Level (m OD)** 44.10	**Compiled by** AM	**Revision** 1
	Co-ordinates 354707mE, 397467mN	**Checked by** DH	**RBH202**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL (TOPSOIL)	0.30	42.82																
	[Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)																		
	[Driller's description] Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	6.70	36.42																
		8.70	34.42																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 19/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 1 of 4
Level (m OD) 43.12	**Compiled by** AM	**Revision** 1
Co-ordinates 354708mE, 397454mN	**Checked by** DH	**RBH203**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Light grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)																		
	[Driller's description] Light grey MUDSTONE with siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	10.30	32.82																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 19/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 2 of 4
Level (m OD) 43.12	**Compiled by** AM	**Revision** 1
Co-ordinates 354708mE, 397454mN	**Checked by** DH	**RBH203**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Light brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	19.30	23.82																
	[Driller's description] Coal. No flush loss. (PENNINE MIDDLE COAL MEASURES FORMATION)	22.70	20.42																
	[Driller's description] Light grey SILTSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	24.10	19.02																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
19/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 3 of 4

Level (m OD)
43.12

Compiled by
AM

Revision
1

Co-ordinates
354708mE, 397454mN

Checked by
DH

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	13.12																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.	**Title** Borehole record		**Date(s)** 19/03/2024
	Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 43.12	**Compiled by** AM	**Revision** 1
	Co-ordinates 354708mE, 397454mN	**Checked by** DH	**RBH203**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL. (TOPSOIL)																		
	[Driller's description] Brown CLAY and SAND. (DEVENSIAN TILL)	0.90	42.49																
	[Driller's description] Brown CLAY with gravel bands. (DEVENSIAN TILL)	5.70	37.69																
	[Driller's description] Grey MUDSTONE with sandstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	7.30	36.09																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 19/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 1 of 4
Level (m OD) 43.39	**Compiled by** AM	**Revision** 1
Co-ordinates 354694mE, 397443mN	**Checked by** DH	**RBH204**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 19/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 2 of 4
Level (m OD) 43.39	**Compiled by** AM	**Revision** 1
Co-ordinates 354694mE, 397443mN	**Checked by** DH	**RBH204**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Dark grey SANDSTONE with mudstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	17.90	25.49																
	[Driller's description] Brown grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	19.60	23.79																
	[Driller's description] Grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	23.50	19.89																
	[Driller's description] Intact COAL (PENNINE MIDDLE COAL MEASURES FORMATION)	23.90	19.49																
	[Driller's description] Grey MUDSTONE with sandstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	25.50	17.89																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 19/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 3 of 4
Level (m OD) 43.39	**Compiled by** AM	**Revision** 1
Co-ordinates 354694mE, 397443mN	**Checked by** DH	**RBH204**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	13.39																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on driller's logs. Terminated at scheduled depth.	**Title** Borehole record		**Date(s)** 19/03/2024
	Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 43.39	**Compiled by** AM	**Revision** 1
	Co-ordinates 354694mE, 397443mN	**Checked by** DH	**RBH204**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL. (TOPSOIL)	0.30	42.53																
	[Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)																		
	[Driller's description] Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	7.80	35.03																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on drillers logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
20/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 1 of 4

Level (m OD)
42.83

Compiled by
AM

Revision
1

Co-ordinates
354689mE, 397419mN

Checked by
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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Light grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)	9.20	33.63																
	[Driller's description] Light grey MUDSTONE with SILTSTONE bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	11.30	31.53																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on drillers logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 20/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 2 of 4
Level (m OD) 42.83	**Compiled by** AM	**Revision** 1
Co-ordinates 354689mE, 397419mN	**Checked by** DH	**RBH205**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on drillers logs. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 20/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 3 of 4
Level (m OD) 42.83	**Compiled by** AM	**Revision** 1
Co-ordinates 354689mE, 397419mN	**Checked by** DH	**RBH205**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] COAL. No loss of flush. (PENNINE MIDDLE COAL MEASURES FORMATION)	27.70	15.13																
	[Driller's description] Light grey SILTSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	28.60	14.23																
	BOREHOLE TERMINATED AT 30.00m	30.00	12.83																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on drillers logs. Terminated at scheduled depth.	**Title** Borehole record	**Date(s)** 20/03/2024
	Method Rotary open hole	**Logged by** JT
		Sheet number Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 42.83	**Compiled by** AM
		Revision 1
	Co-ordinates 354689mE, 397419mN	**Checked by** DH
		RBH205

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL (TOPSOIL)																		
	[Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)	0.50	44.39																
	[Driller's description] Light grey MUDSTONE.	8.50	36.39																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
19/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 1 of 4

Level (m OD)
44.89

Compiled by
AM

Revision
1

Co-ordinates
354654mE, 397405mN

Checked by
DH

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	(PENNINE MIDDLE COAL MEASURES FORMATION)																		
	[Driller's description] Light grey fractured SANDSTONE with mudstone. Partial loss of flush. (PENNINE MIDDLE COAL MEASURES FORMATION)	9.80	35.09																
	[Driller's description] Light grey MUDSTONE with siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	14.40	30.49																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
19/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 2 of 4

Level (m OD)
44.89

Compiled by
AM

Revision
1

Co-ordinates
354654mE, 397405mN

Checked by
DH

RBH206

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
19/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 3 of 4

Level (m OD)
44.89

Compiled by
AM

Revision
1

Co-ordinates
354654mE, 397405mN

Checked by
DH

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	14.89																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.	**Title** Borehole record	**Date(s)** 19/03/2024
	Method Rotary open hole	**Logged by** JT
		Sheet number Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 44.89	**Compiled by** AM
		Revision 1
	Co-ordinates 354654mE, 397405mN	**Checked by** DH
		RBH206

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL. (TOPSOIL)	0.30	40.07																
	[Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)																		
	[Driller's description] Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	6.70	33.67																
	[Driller's description] Dark grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)	7.50	32.87																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
21/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 1 of 4

Level (m OD)
40.37

Compiled by
AM

Revision
1

Co-ordinates
354644mE, 397375mN

Checked by
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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Light grey MUDSTONE with occasional darker bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	9.80	30.57																
	[Driller's description] Dark grey MUDSTONE with siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	12.10	28.27																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
21/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 2 of 4

Level (m OD)
40.37

Compiled by
AM

Revision
1

Co-ordinates
354644mE, 397375mN

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Fractured SILTSTONE with mudstone bands. Partial loss of flush and hard drilling. (PENNINE MIDDLE COAL MEASURES FORMATION)	24.50	15.87																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
21/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 3 of 4

Level (m OD)
40.37

Compiled by
AM

Revision
1

Co-ordinates
354644mE, 397375mN

Checked by
DH

RBH207

Florida Farm, East Lancashire Road, Merseyside
STN3680NM

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	10.37																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.	**Title** Borehole record		**Date(s)** 21/03/2024
	Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 40.37	**Compiled by** AM	**Revision** 1
	Co-ordinates 354644mE, 397375mN	**Checked by** DH	**RBH207**

Florida Farm, East Lancashire Road, Merseyside
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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL. (TOPSOIL)	0.30	39.84																
	[Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)																		
	[Driller's description] Light grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)	4.40	35.74																
	[Driller's description] Intact COAL. (PENNINE MIDDLE COAL MEASURES FORMATION)	6.60	33.54																
	[Driller's description] Dark grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)	7.00	33.14																
	[Driller's description] Intact COAL. (PENNINE MIDDLE COAL MEASURES FORMATION)	8.20	31.94																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
21/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 1 of 4

Level (m OD)
40.14

Compiled by
AM

Revision
1

Co-ordinates
354616mE, 397361mN

Checked by
DH

RBH208

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Dark grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)	8.80	31.34																
	[Driller's description] Light grey MUDSTONE with siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	9.70	30.44																
	[Driller's description] Black MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)	10.40	29.74																
	[Driller's description] Light grey MUDSTONE with occasional dark siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	11.00	29.14																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 21/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 2 of 4
Level (m OD) 40.14	**Compiled by** AM	**Revision** 1
Co-ordinates 354616mE, 397361mN	**Checked by** DH	**RBH208**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Light grey MUDSTONE with siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	18.70	21.44																
	[Driller's description] Fractured brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	24.90	15.24																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
21/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 3 of 4

Level (m OD)
40.14

Compiled by
AM

Revision
1

Co-ordinates
354616mE, 397361mN

Checked by
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Florida Farm, East Lancashire Road, Merseyside
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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Fractured brown SANDSTONE. Partial loss of flush. (PENNINE MIDDLE COAL MEASURES FORMATION)	27.80	12.34																
	[Driller's description] VOID (PENNINE MIDDLE COAL MEASURES FORMATION)	28.40	11.74																
	[Driller's description] Hard brown SANDSTONE. Hard drilling (PENNINE MIDDLE COAL MEASURES FORMATION)	29.30	10.84																
	BOREHOLE TERMINATED AT 32.00m	32.00	8.14																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.	**Title** Borehole record	**Date(s)** 21/03/2024
	Method Rotary open hole	**Logged by** JT
		Sheet number Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 40.14	**Compiled by** AM
		Revision 1
	Co-ordinates 354616mE, 397361mN	**Checked by** DH
		RBH208

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL (TOPSOIL)	0.30	41.32																
	[Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)																		
	[Driller's description] Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	3.80	37.82																
	[Driller's description] Dark grey MUDSTONE with coal traces. (PENNINE MIDDLE COAL MEASURES FORMATION)	4.30	37.32																
	[Driller's description] Dark grey SILTSTONE with coal broken ground. (PENNINE MIDDLE COAL MEASURES FORMATION)	5.80	35.82																
	[Driller's description] VOID (PENNINE MIDDLE COAL MEASURES FORMATION)	6.40	35.22																
	[Driller's description] Broken grey SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	8.30	33.32																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title Borehole record		**Date(s)** 22/03/2024
Method Rotary open hole	**Logged by** JT	**Sheet number** Sheet 1 of 4
Level (m OD) 41.62	**Compiled by** AM	**Revision** 1
Co-ordinates 354598mE, 397360mN	**Checked by** DH	**RBH209**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Light grey MUDSTONE with siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	9.20	32.42																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
22/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 2 of 4

Level (m OD)
41.62

Compiled by
AM

Revision
1

Co-ordinates
354598mE, 397360mN

Checked by
DH

RBH209

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Fractured brown SANDSTONE with occasional grey bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	21.20	20.42																
	[Driller's description] Hard brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	23.40	18.22																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
22/03/2024

Method
Rotary open hole

Logged by
JT

Sheet number
Sheet 3 of 4

Level (m OD)
41.62

Compiled by
AM

Revision
1

Co-ordinates
354598mE, 397360mN

Checked by
DH

RBH209

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description]Fractured brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	26.70	14.92																
	BOREHOLE TERMINATED AT 30.00m	30.00	11.62																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.	**Title** Borehole record	**Date(s)** 22/03/2024
	Method Rotary open hole	**Logged by** JT
		Sheet number Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 41.62	**Compiled by** AM
		Revision 1
	Co-ordinates 354598mE, 397360mN	**Checked by** DH
		RBH209

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] TOPSOIL (TOPSOIL)	0.04	38.18																
	[Driller's description] Brown CLAY with sand. (DEVENSIAN TILL)																		
	[Driller's description] Light grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	2.40	35.82																
	[Driller's description] Dark grey MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	6.40	31.82																
	[Driller's description] Broken grey SANDSTONE/SILTSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	6.70	31.52																
		8.60	29.62																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
22/03/2024

Method
Rotary core

Logged by
JT

Sheet number
Sheet 1 of 4

Level (m OD)
38.22

Compiled by
AM

Revision
1

Co-ordinates
354603mE, 397338mN

Checked by
DH

RBH210

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Hard grey SILTSTONE with occasional mudstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)																		
	[Driller's description] Fractured grey SANDSTONE. Loose drilling - possible infilled working. (PENNINE MIDDLE COAL MEASURES FORMATION)	10.40	27.82																
	[Driller's description] Hard grey SILTSTONE with occasional mudstone bands. Hard Drilling. (PENNINE MIDDLE COAL MEASURES FORMATION)	11.50	26.72																
	[Driller's description] Light grey MUDSTONE with siltstone bands. (PENNINE MIDDLE COAL MEASURES FORMATION)	14.20	24.02																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
22/03/2024

Method
Rotary core

Logged by
JT

Sheet number
Sheet 2 of 4

Level (m OD)
38.22

Compiled by
AM

Revision
1

Co-ordinates
354603mE, 397338mN

Checked by
DH

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Driller's description] Hard brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	18.90	19.32																
	[Driller's description] Fractured brown SANDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION)	24.70	13.52																

CONTINUED ON NEXT SHEET

Notes
Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.

Groundwater observations
No groundwater strike noted however likely to be masked by water flush drilling medium.

Title
Borehole record

Date(s)
22/03/2024

Method
Rotary core

Logged by
JT

Sheet number
Sheet 3 of 4

Level (m OD)
38.22

Compiled by
AM

Revision
1

Co-ordinates
354603mE, 397338mN

Checked by
DH

RBH210

Florida Farm, East Lancashire Road, Merseyside
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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	BOREHOLE TERMINATED AT 30.00m	30.00	8.22																

Notes Open hole drilling from G.L. to 30.00m BGL. Descriptions based on Driller's log. Terminated at scheduled depth.	**Title** Borehole record	**Date(s)** 22/03/2024
	Method Rotary core	**Logged by** JT
		Sheet number Sheet 4 of 4
Groundwater observations No groundwater strike noted however likely to be masked by water flush drilling medium.	**Level (m OD)** 38.22	**Compiled by** AM
		Revision 1
	Co-ordinates 354603mE, 397338mN	**Checked by** DH
		RBH210

SUMMARY REPORT

DETERMINATION OF UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Tested in Accordance with: ISRM, 2007, p153, part 1

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

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Jack Price

Site Address: Florida Farm East Lancashire Road

Client Reference: STN3680NM
Job Number: 22-78103
Date Sampled: 10/08/2022
Date Received: 16/08/2022
Date Tested: 05/09/2022
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Specimen Dimensions (2)				Bulk density (2)	Water Content (1)	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample	Mg/m3	%	Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
2388522	RBH14	RBH145.604	5.60	5.95	C	Light grey SILTSTONE	Sample is below recommended length to diameter ratio.	88.7	161.1	1.8	Vertical	2.41	6.1	as received	0.0810	MS + AC	32.3
2388523	RBH14	RBH148.006	8.00	8.24	C	Light grey SILTSTONE	Sample is below recommended length to diameter ratio.	88.4	169.0	1.9	Vertical	2.34	0.8	as received	0.0814	MS + AC	46.6

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

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

Date Reported: 07/09/2022

GF 223.14

TEST CERTIFICATE

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

Tested in Accordance with: BS 1377-7: 1990: Clause 8

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

UKAS TESTING 4041

Environmental Science

Client:	Soiltechnics Limited	Client Reference:	STN3680NM
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-78103
		Date Sampled:	10/08/2022
		Date Received:	16/08/2022
Contact:	Jack Price	Date Tested:	24/08/2022
Site Address:	Florida Farm East Lancashire Road	Sampled By:	Not Given

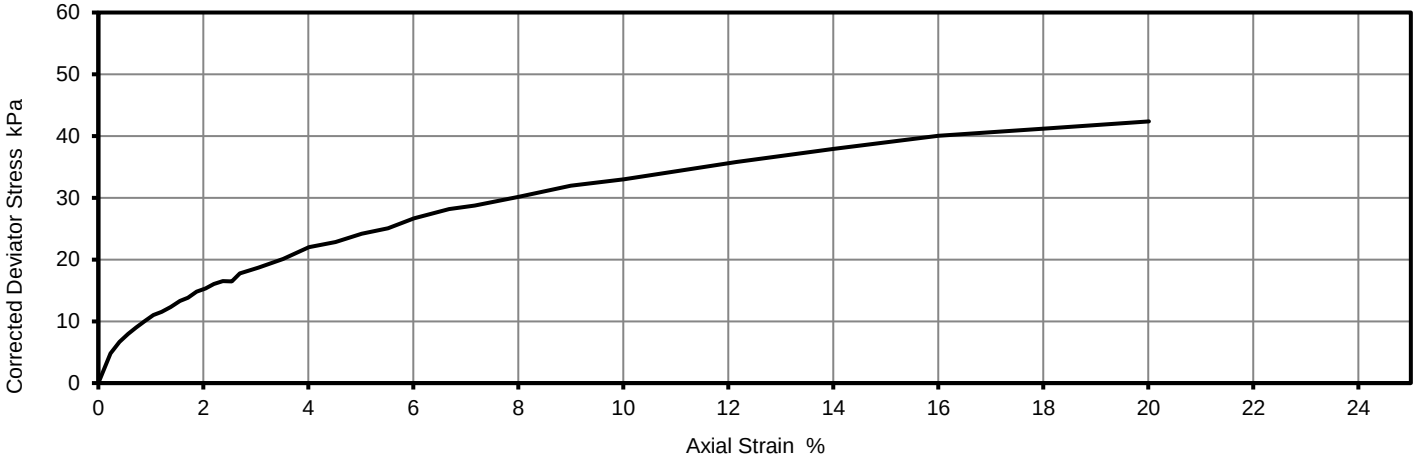
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

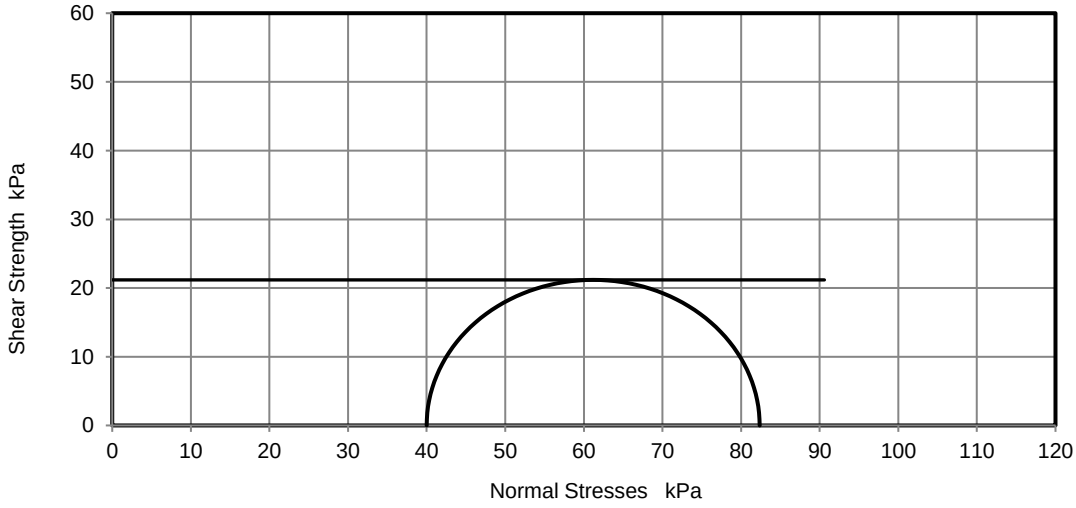
Laboratory Reference:	2388521	Depth Top [m]:	2.00
Hole No.:	RBH14	Depth Base [m]:	Not Given
Sample Reference:	RBH142.001	Sample Type:	U
Sample Description:	Yellowish brown sandy CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	139.87	mm	Cell Pressure	40	kPa
Diameter	68.90	mm	Axial Strain at failure	20.0	%
Bulk Density	1.99	Mg/m3	Deviator Stress, (σ1 - σ3)f	42	kPa
Moisture Content	24	%	Undrained Shear Strength, cu	21	kPa ½(σ1 - σ3)f
Dry Density	1.60	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.40	kPa	Membrane thickness	0.25	mm

Deviator Stress v Axial Strain

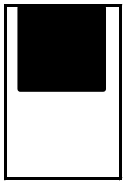


Mohr Circles





Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed: Monika Siewior

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

Date Reported: 07/09/2022

GF 184.12

Admin
Soiltechnics Limited
Cedar Barn
White Lodge
Walgrave
Northampton
NN6 9PY

e: admin@soiltechnics.net

i2 Analytical Ltd.
7 Woodshots Meadow,
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WD18 8YS

t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 22-78104

Project / Site name:	Florida Farm East Lancashire Road	**Samples received on:**	16/08/2022
Your job number:	STN3680NM	**Samples instructed on/ Analysis started on:**	16/08/2022
Your order number:	POR013361	**Analysis completed by:**	26/08/2022
Report Issue Number:	1	**Report issued on:**	29/08/2022
Samples Analysed:	3 soil samples		

Martyna Langer

Signed:

Martyna Langer
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-78104
Project / Site name: Florida Farm East Lancashire Road
Your Order No: POR013361

Lab Sample Number				2388524	2388525	2388526
Sample Reference				RBH14	RBH14	RBH14
Sample Number				RBH143.802	RBH145.203	RBH157.505
Depth (m)				3.80	5.20	7.50
Date Sampled				10/08/2022	10/08/2022	10/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.3	3.6	5.2
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.5
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	8.7	8.6	8.4
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.016	0.011	0.0081
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	15.8	11.1	8.1
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.8	4.1	2.9
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0
Heavy Metals / Metalloids						
Magnesium (water soluble)	mg/kg	5	NONE	15	11	12
Magnesium (leachate equivalent)	mg/l	2.5	NONE	7.4	5.6	5.9

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-78104
Project / Site name: Florida Farm East Lancashire Road

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2388524	RBH14	RBH143.802	3.8	Brown clay and sand.
2388525	RBH14	RBH145.203	5.2	Grey sand.
2388526	RBH14	RBH157.505	7.5	Brown sand.

Analytical Report Number : 22-78104
Project / Site name: Florida Farm East Lancashire Road

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin

Site Address: Florida Farm, East Lancashire Road

Client Reference: STN3680NM
Job Number: 22-79928
Date Sampled: 22/08/2022
Date Received: 24/08/2022
Date Tested: 14/09/2022
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
2400878	RBH15	RBH159.202	9.20	9.36	C	Grey SILTSTONE	WC = 6.2%	1	A	U	YES	-	85.9	47.0	33.0	1.8	60.1	0.50	0.54

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:

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

Date Reported: 15/09/2022

GF 134.13

SUMMARY REPORT

DETERMINATION OF UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Tested in Accordance with: ISRM, 2007, p153, part 1

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

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin

Site Address: Florida Farm, East Lancashire Road

Client Reference: STN3680NM
Job Number: 22-79928
Date Sampled: 22/08/2022
Date Received: 24/08/2022
Date Tested: 14/09/2022
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Specimen Dimensions (2)				Bulk density (2)	Water Content (1)	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample	Mg/m3	%	Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
2400879	RBH15	RGH1510.603	10.60	10.86	C	Grey SANDSTONE		89.0	228.8	2.6	Vertical	2.38	6.6	as received	0.0803	S + AC	32.0

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

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

Date Reported: 15/09/2022

GF 223.14

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin

Site Address: Florida Farm East Lancashire Road

Client Reference: STN3680NM
Job Number: 22-82604
Date Sampled: 23/08 - 26/08/2022
Date Received: 07/09/2022
Date Tested: 26/09/2022
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top m	Depth Base m	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN	mm	Is MPa	Is(50) MPa
2416238	RBH1311.8504	4	11.85	11.95	C	Grey SILTSTONE	WC = 1.4%	1	A	U	YES	-	86.3	47.0	38.0	8.6	64.6	2.05	2.30
2416243	RBH1610.405	5	10.40	10.50	C	Black MUDSTONE	WC = 3.7%	1	A	U	YES	-	88.4	40.0	36.0	2.9	63.6	0.72	0.80
2416241	RBH164.9503	3	4.95	5.10	C	Dark grey SILTSTONE	WC = 4.0%	1	A	U	YES	-	88.9	38.0	36.0	2.1	63.8	0.52	0.58
2416242	RBH169.504	4	9.50	9.60	C	Black MUDSTONE	WC = 5.0%	1	A	U	YES	-	88.5	57.0	30.0	7.0	58.1	2.07	2.22

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 28/09/2022

GF 134.13

SUMMARY REPORT

DETERMINATION OF UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Tested in Accordance with: ISRM, 2007, p153, part 1

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

4041

Client: Soiltechnics Limited

Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin

Site Address: Florida Farm East Lancashire Road

Client Reference: STN3680NM
Job Number: 22-82604
Date Sampled: 23/08 - 24/08/2022
Date Received: 07/09/2022
Date Tested: 26/09/2022
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Specimen Dimensions (2)				Bulk density (2)	Water Content (1)	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample	Mg/m3	%	Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
2416236	RBH0510.0804	4	10.08	10.38	C	Dark grey SILTSTONE		87.9	230.7	2.6	Vertical	2.56	3.9	as received	0.0165	S	10.4
2416235	RBH058.6503	3	8.65	8.78	C	Dark grey SILTSTONE	Sample is below recommended length to diameter ratio. *	86.2	75.5	0.9	Vertical	2.48	5.1	as received	0.0171	MS + AC	3.60
2416239	RBH1315.205	5	15.20	15.37	C	Dark grey SILTSTONE	Sample is below recommended length to diameter ratio.	88.2	122.5	1.4	Vertical	2.60	3.2	as received	0.0327	AC	19.4

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments: * Duration of test, fell below time specified in ISRM method, 2007, p153, part1.

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Signed:

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 28/09/2022

GF 223.14

TEST CERTIFICATE

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

Tested in Accordance with: BS 1377-7: 1990: Clause 8

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

UKAS TESTING 4041

Environmental Science

Client:	Soiltechnics Limited	Client Reference:	STN3680NM
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-82604
		Date Sampled:	23/08/2022
		Date Received:	07/09/2022
Contact:	Admin	Date Tested:	16/09/2022
Site Address:	Florida Farm East Lancashire Road	Sampled By:	Not Given

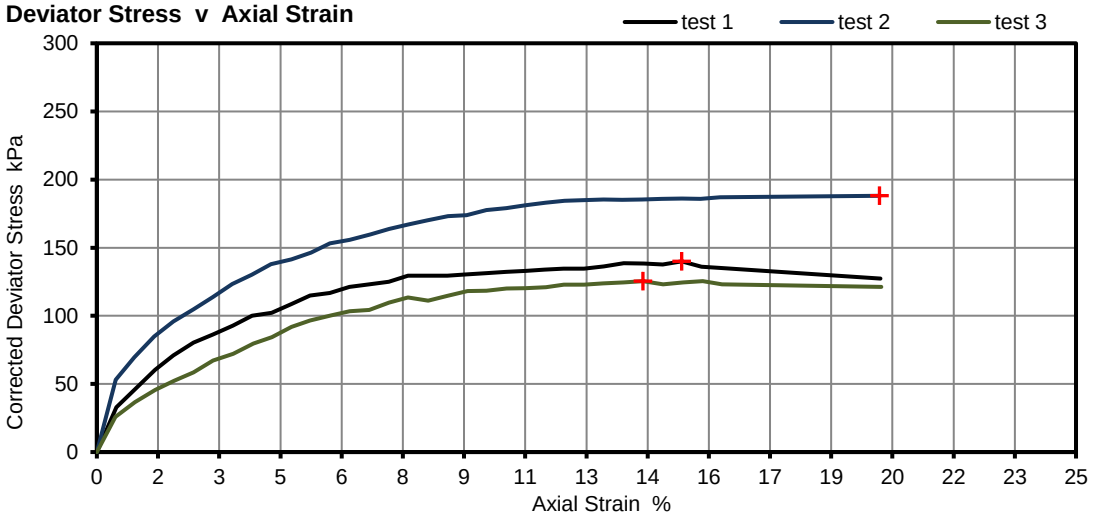
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

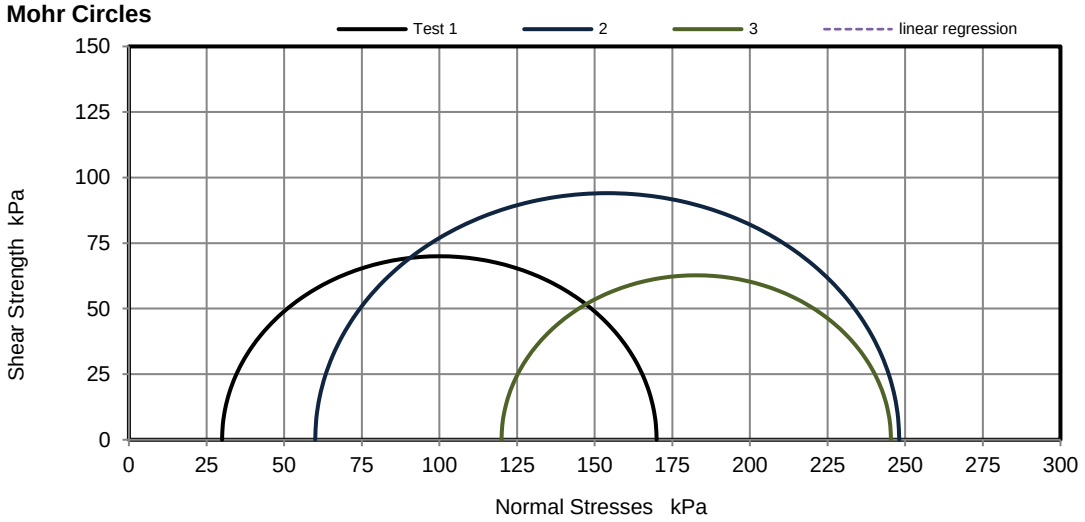
Laboratory Reference:	2416237	Depth Top [m]:	3.00
Hole No.:	RBH133.002	Depth Base [m]:	3.45
Sample Reference:	2	Sample Type:	U
Sample Description:	Brown mottled grey slightly gravelly sandy an organic CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1	2	3		Rate of Strain	2.00	2.00	2.00	%/min
Length	74.62	75.30	75.89	mm	Cell Pressure	30	60	120	kPa
Diameter	37.21	37.82	37.04	mm	Axial Strain at failure	14.9	20.0	13.9	%
Bulk Density	2.26	2.22	2.22	Mg/m3	Deviator Stress, (σ1 - σ3)f	140	188	125	kPa
Moisture Content	21	21	21	%	Shear strength, cu	70	94	63	kPa
Dry Density	1.87	1.83	1.83	Mg/m3	Mode of failure	Compound	Compound	Compound	
Membrane Correction	1.63	2.13	1.55	kPa	Membrane thickness	0.20	0.21	0.20	mm

Deviator Stress v Axial Strain



Mohr Circles



Test 1



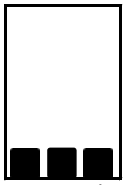
Test 2



Test 3



Position within sample



Linear Regression:

ϕu °

cu kPa

Note: Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Remarks: Unable to interpret Mohr Circles.

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Signed: Dudzińska Anna

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 28/09/2022

GF 185.12

TEST CERTIFICATE

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

Tested in Accordance with: BS 1377-7: 1990: Clause 8

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

4041

Client:	Soiltechnics Limited	Client Reference:	STN3680NM
Client Address:	Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY	Job Number:	22-82604
		Date Sampled:	26/08/2022
		Date Received:	07/09/2022
Contact:	Admin	Date Tested:	15/09/2022
Site Address:	Florida Farm East Lancashire Road	Sampled By:	Not Given

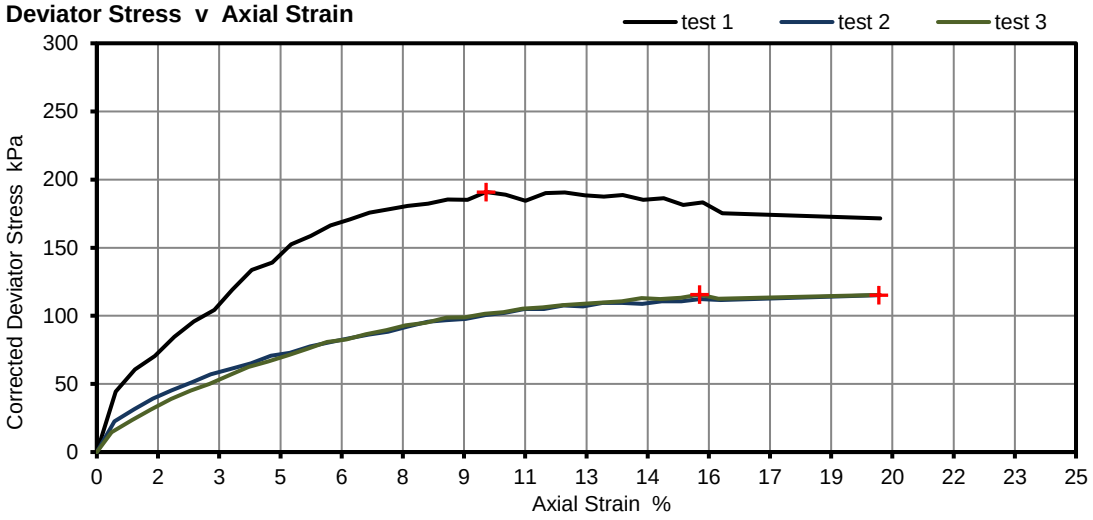
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

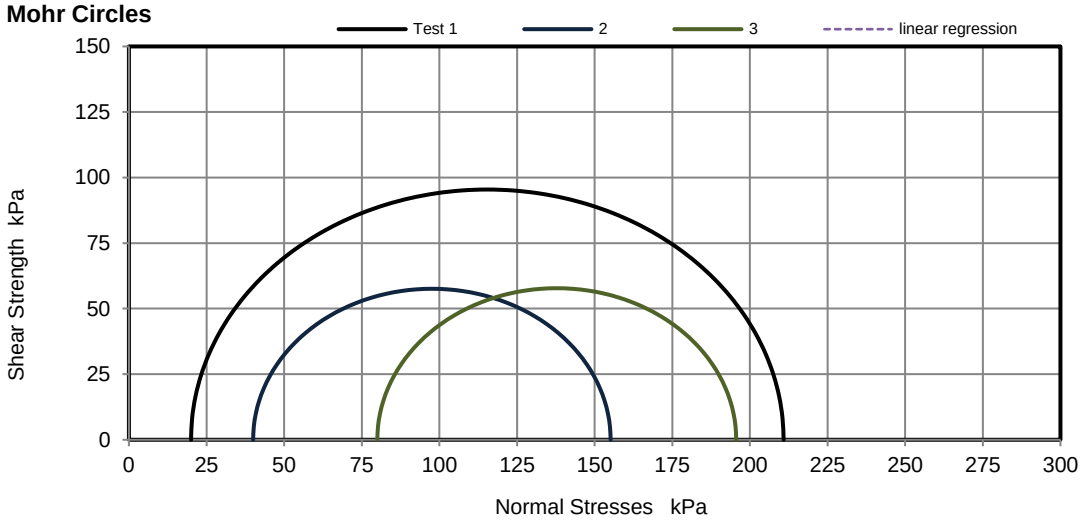
Laboratory Reference:	2416240	Depth Top [m]:	2.00
Hole No.:	RBH162.001	Depth Base [m]:	2.45
Sample Reference:	1	Sample Type:	U
Sample Description:	Brown very sandy CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1	2	3		Rate of Strain	2.00	2.00	2.00	%/min
Length	76.39	76.27	74.40	mm	Cell Pressure	20	40	80	kPa
Diameter	36.98	37.40	37.36	mm	Axial Strain at failure	9.9	20.0	15.4	%
Bulk Density	2.14	2.13	2.20	Mg/m3	Deviator Stress, (σ1 - σ3)f	191	115	116	kPa
Moisture Content	18	18	18	%	Shear strength, cu	95	58	58	kPa
Dry Density	1.82	1.81	1.86	Mg/m3	Mode of failure	Compound	Compound	Compound	
Membrane Correction	1.14	2.16	1.74	kPa	Membrane thickness	0.19	0.21	0.21	mm

Deviator Stress v Axial Strain



Mohr Circles



Test 1



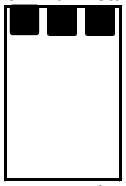
Test 2



Test 3



Position within sample



Linear Regression:
ϕu °
cu kPa

Note: Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Remarks: Unable to interpret Mohr Circles.

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 28/09/2022

GF 185.12

Admin
Soiltechnics Limited
Cedar Barn
White Lodge
Walgrave
Northampton
NN6 9PY

e: admin@soiltechnics.net

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 22-82608

Project / Site name:	Florida Farm East Lancashire Road	**Samples received on:**	07/09/2022
Your job number:	STN3680NM	**Samples instructed on/ Analysis started on:**	07/09/2022
Your order number:	POR013496	**Analysis completed by:**	21/09/2022
Report Issue Number:	1	**Report issued on:**	21/09/2022
Samples Analysed:	6 soil samples		

Izabela Wójcik

Signed:

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-82608
Project / Site name: Florida Farm East Lancashire Road
Your Order No: POR013496

Lab Sample Number				2416251	2416252	2416253	2416254	2416255
Sample Reference				RBH051.001	RBH057.002	RBH132.001	RBH135.003	RBH164.002
Sample Number				1	2	1	3	2
Depth (m)				1.00-1.45	7.00	2.00-2.45	5.00-5.45	4.00
Date Sampled				24/08/2022	24/08/2022	23/08/2022	23/08/2022	26/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	41	16	18	12	8.5
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.3	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	8.7	8.1	8.7	9
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	8.2	0.066	0.13	0.037	0.096
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8150	66.4	132	37	95.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1500*	5.2	17	7.6	5.3
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	62	18	15	18	16
Magnesium (leachate equivalent)	mg/l	2.5	NONE	31	8.8	7.4	9	8

U/S = Unsuitable Sample I/S = Insufficient Sample
* Result was reported from high dilution and should be interpreted with care

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Analytical Report Number: 22-82608
Project / Site name: Florida Farm East Lancashire Road
Your Order No: POR013496

Lab Sample Number				2416256
Sample Reference				RBH16-TP011.101
Sample Number				1
Depth (m)				1.10
Date Sampled				19/08/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	16
Total mass of sample received	kg	0.001	NONE	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.071
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	70.7
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.5
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	9.1
Magnesium (leachate equivalent)	mg/l	2.5	NONE	4.5

U/S = Unsuitable Sample I/S = Insufficient Sample
* Result was reported from high dilution and should be interpreted with care

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Analytical Report Number : 22-82608
Project / Site name: Florida Farm East Lancashire Road

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2416251	RBH051.001	1	1.00-1.45	Brown clay and sand.
2416252	RBH057.002	2	7	Grey clay and sand.
2416253	RBH132.001	1	2.00-2.45	Brown clay and sand with gravel.
2416254	RBH135.003	3	5.00-5.45	Brown clay and sand with vegetation.
2416255	RBH164.002	2	4	Grey clay and sand.
2416256	BH16-TP011.10	1	1.1	Brown clay and sand.

Analytical Report Number : 22-82608
Project / Site name: Florida Farm East Lancashire Road

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

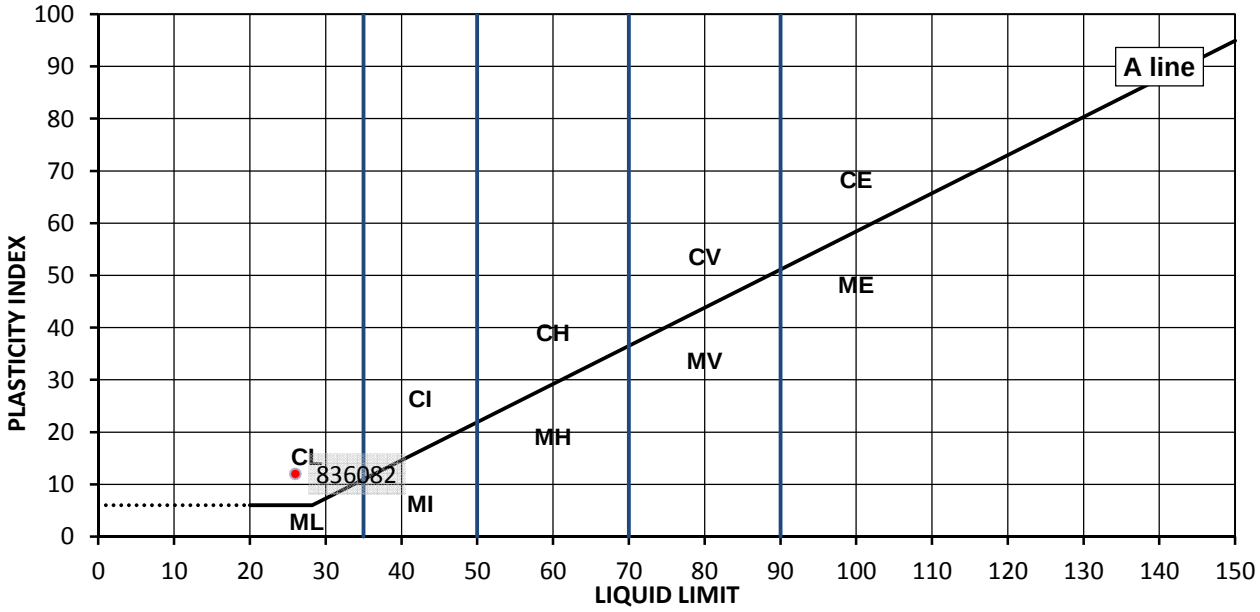
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836082
Sample Reference: Not Given

Description:	Yellowish brown very sandy CLAY	Sample Type:	D
Location:	DTS23	Depth Top [m]:	1.00
Sample Preparation:	Tested in natural condition	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	26	14	12	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section

Date Reported: 27/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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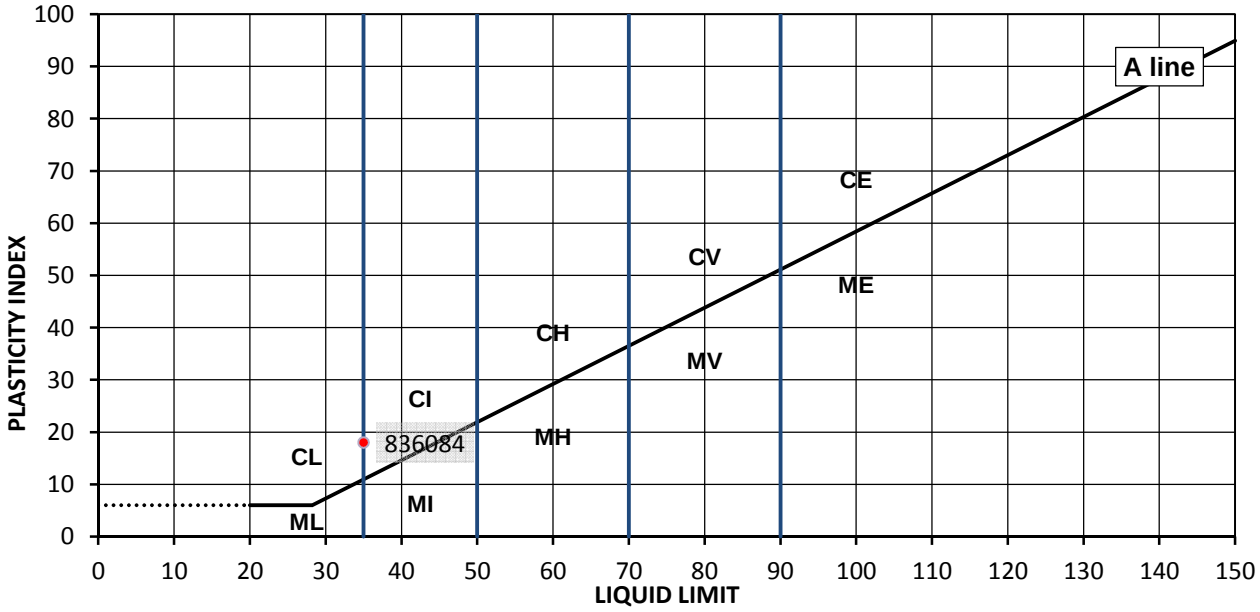
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836084
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS23	Depth Top [m]:	1.30
Sample Preparation:	Tested after washing to remove >425um	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	35	17	18	66



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

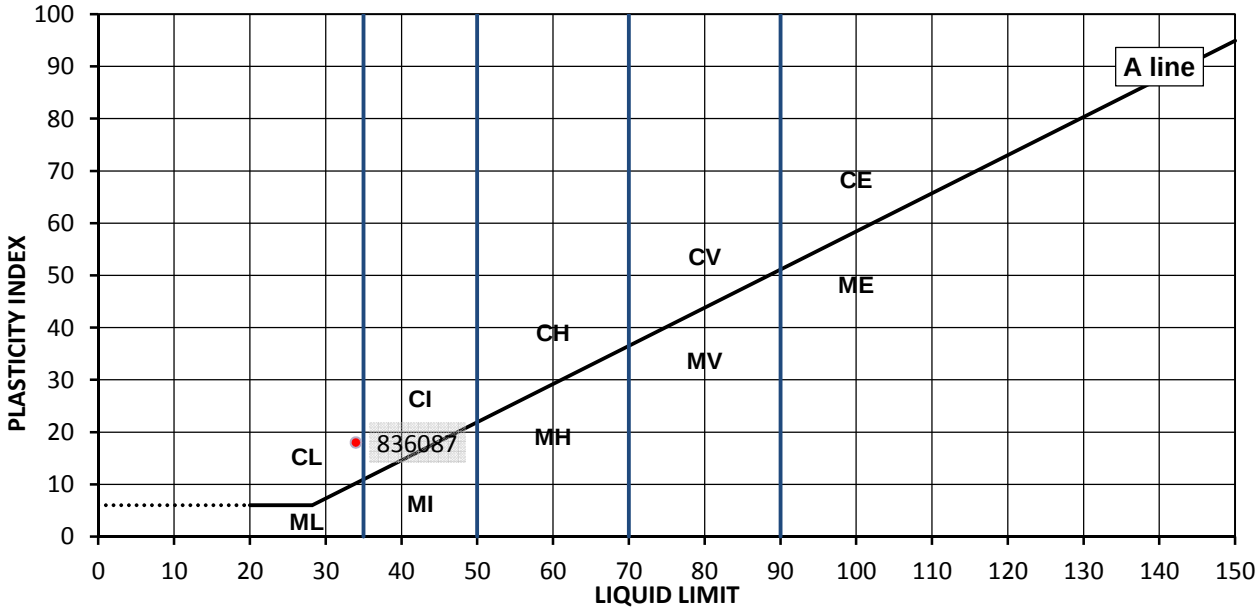
TEST RESULTS

Laboratory Reference: 836087
Sample Reference: Not Given

Description: Brown slightly gravelly very sandy CLAY
Location: DTS23
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 1.70
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	34	16	18	86



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

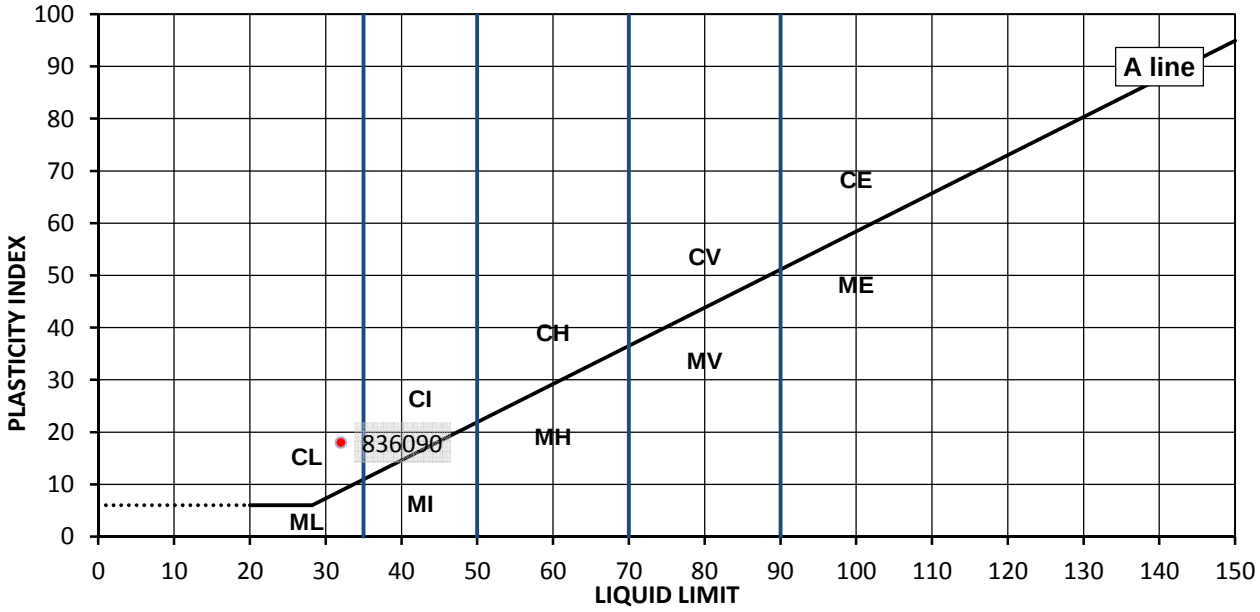
TEST RESULTS

Laboratory Reference: 836090
Sample Reference: Not Given

Description: Brown slightly gravelly very sandy CLAY
Location: DTS23
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 2.20
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	32	14	18	85



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section

Date Reported: 27/10/2017

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GF 105.11

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

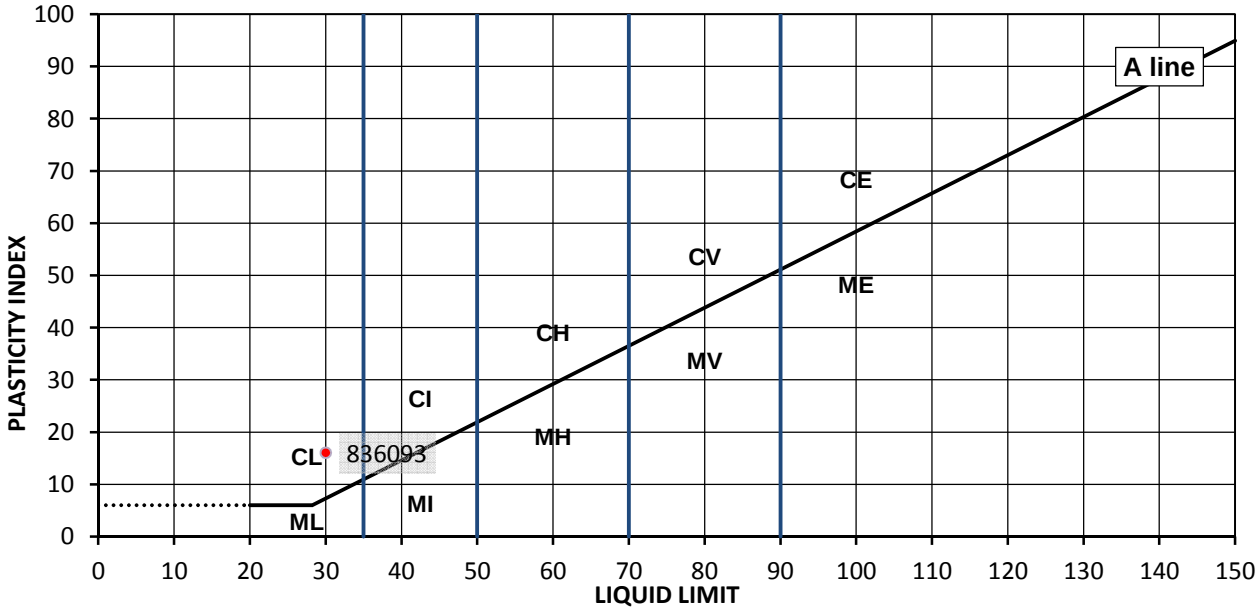
TEST RESULTS

Laboratory Reference: 836093
Sample Reference: Not Given

Description: Brown slightly gravelly very sandy CLAY
Location: DTS23
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 2.60
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	30	14	16	84



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section

Date Reported: 27/10/2017

Signed:

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63846
Date Sampled: 20/09/2017
Date Received: 11/10/2017
Date Tested: 24/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836082	DTS23	Not Given	1.00	Not Given	D	Yellowish brown very sandy CLAY			22	100	26	14	12	
836083	DTS23	Not Given	1.20	Not Given	D	Brown slightly gravelly CLAY			15					
836084	DTS23	Not Given	1.30	Not Given	D	Brown slightly gravelly very sandy CLAY			17	66	35	17	18	
836085	DTS23	Not Given	1.50	Not Given	D	Brown slightly gravelly sandy CLAY			14					
836086	DTS23	Not Given	1.60	Not Given	D	Brown slightly gravelly CLAY			15					
836087	DTS23	Not Given	1.70	Not Given	D	Brown slightly gravelly very sandy CLAY			14	86	34	16	18	
836088	DTS23	Not Given	1.80	Not Given	D	Brown slightly gravelly CLAY			14					
836089	DTS23	Not Given	2.00	Not Given	D	Brown slightly gravelly sandy CLAY			18					
836090	DTS23	Not Given	2.20	Not Given	D	Brown slightly gravelly very sandy CLAY			17	85	32	14	18	
836091	DTS23	Not Given	2.30	Not Given	D	Brown slightly gravelly sandy CLAY			16					

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 27/10/2017

Signed:

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Technical Manager (Geotechnical Division)

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63846
Date Sampled: 20/09/2017
Date Received: 11/10/2017
Date Tested: 24/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836092	DTS23	Not Given	2.50	Not Given	D	Brown slightly gravelly sandy CLAY			15					
836093	DTS23	Not Given	2.60	Not Given	D	Brown slightly gravelly very sandy CLAY			12	84	30	14	16	
836094	DTS23	Not Given	2.70	Not Given	D	Brown slightly gravelly slightly sandy CLAY			13					
836095	DTS23	Not Given	2.80	Not Given	D	Brown slightly gravelly slightly sandy CLAY			12					

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 27/10/2017

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Technical Manager (Geotechnical Division)

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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7 Woodshots Meadow
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UKAS TESTING 4041

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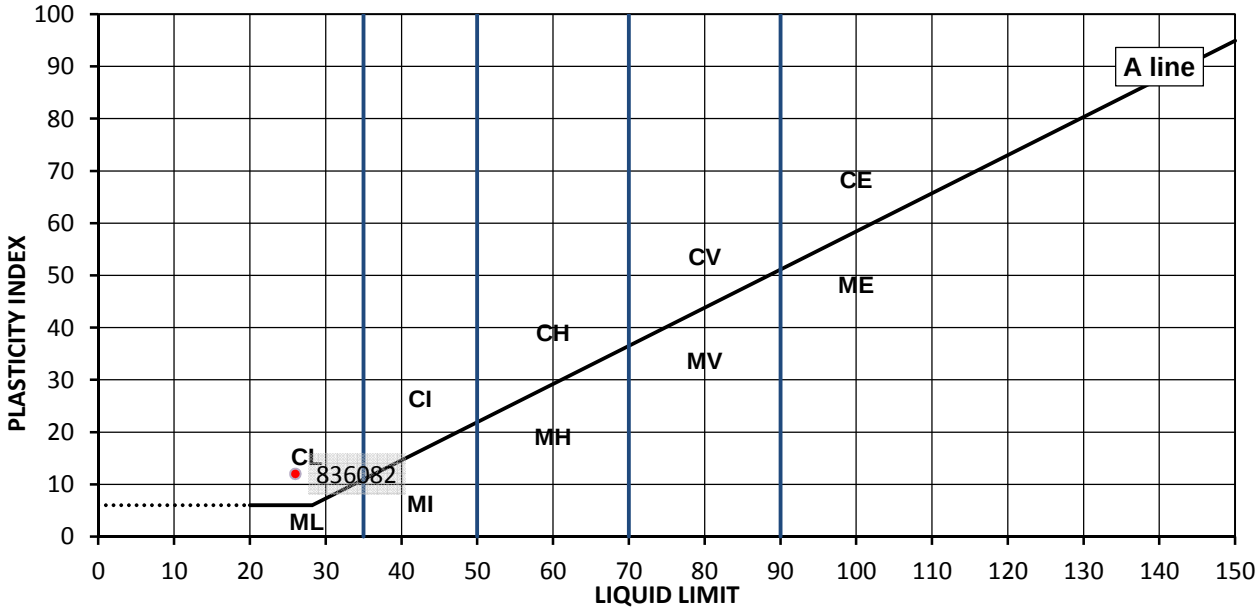
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836082
Sample Reference: Not Given

Description:	Yellowish brown very sandy CLAY	Sample Type:	D
Location:	DTS23	Depth Top [m]:	1.00
Sample Preparation:	Tested in natural condition	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	26	14	12	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

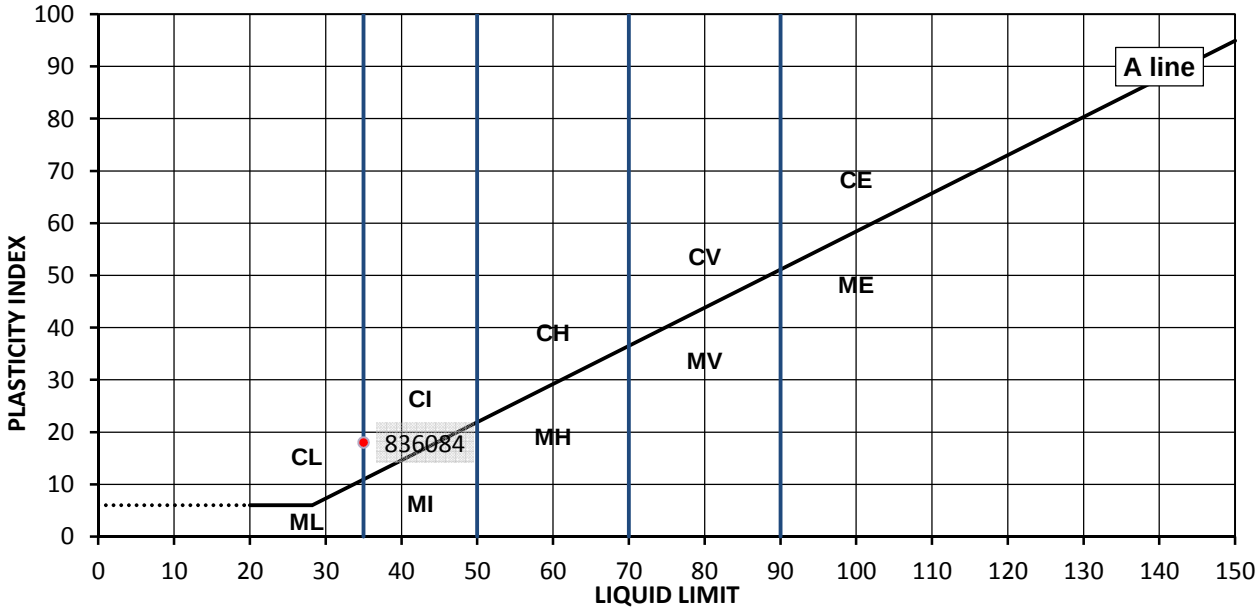
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836084
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS23	Depth Top [m]:	1.30
Sample Preparation:	Tested after washing to remove >425um	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	35	17	18	66



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section

Date Reported: 27/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

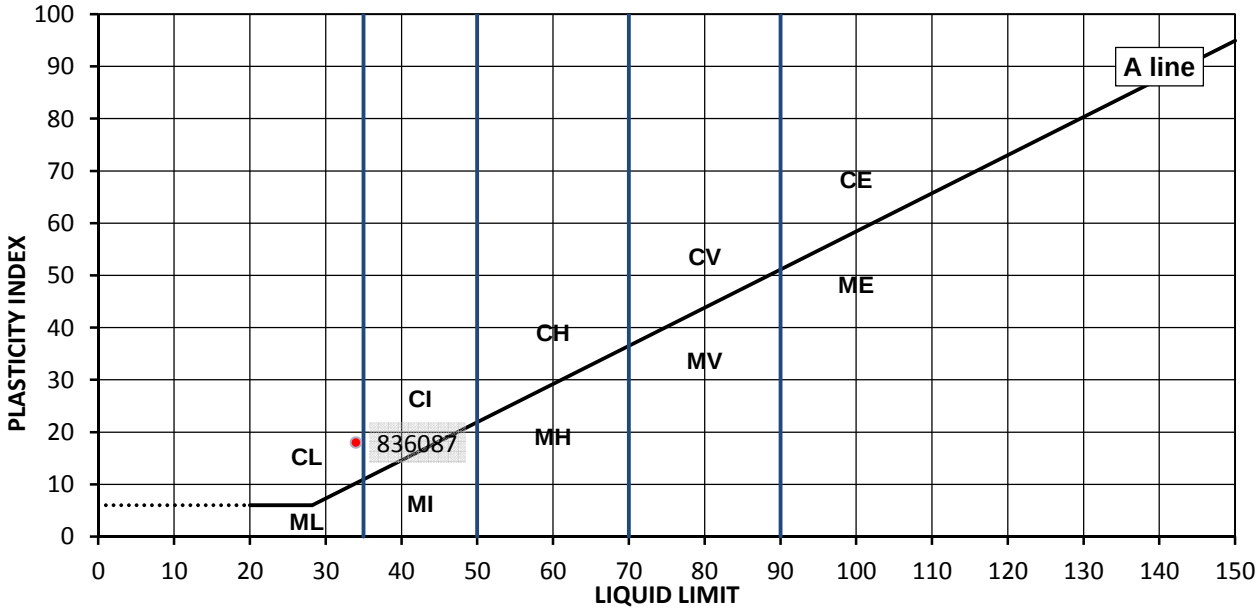
TEST RESULTS

Laboratory Reference: 836087
Sample Reference: Not Given

Description: Brown slightly gravelly very sandy CLAY
Location: DTS23
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 1.70
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	34	16	18	86



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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Watford Herts WD18 8YS

UKAS TESTING 4041

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Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

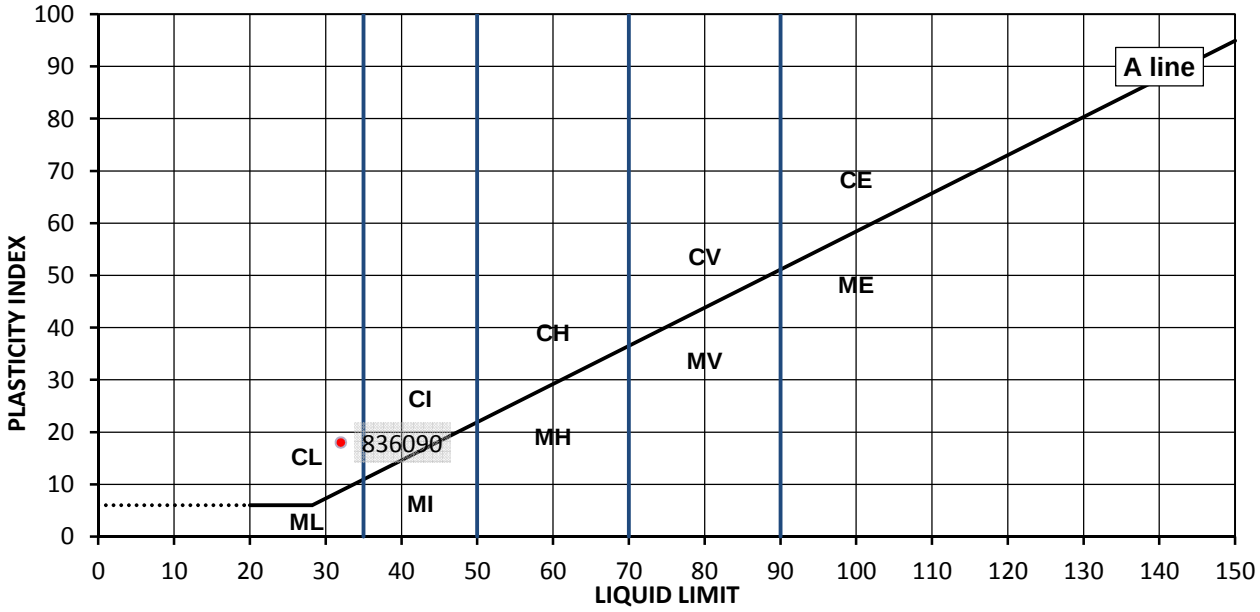
TEST RESULTS

Laboratory Reference: 836090
Sample Reference: Not Given

Description: Brown slightly gravelly very sandy CLAY
Location: DTS23
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 2.20
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	32	14	18	85



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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GF 105.11

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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Watford Herts WD18 8YS

UKAS TESTING 4041

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Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63846
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

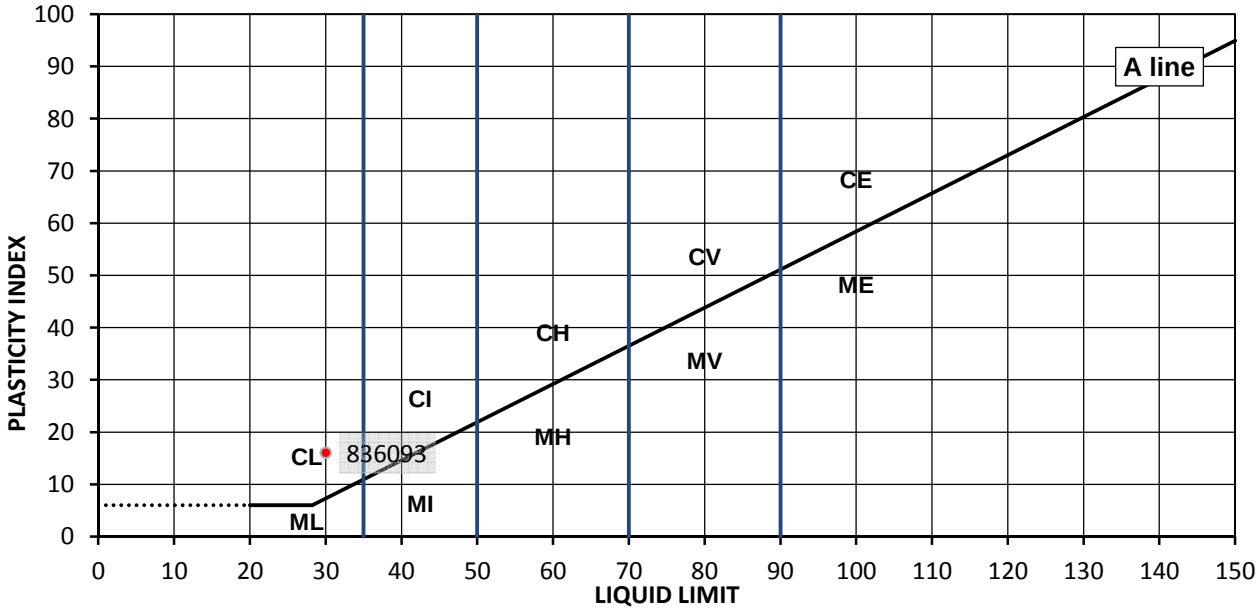
TEST RESULTS

Laboratory Reference: 836093
Sample Reference: Not Given

Description: Brown slightly gravelly very sandy CLAY
Location: DTS23
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 2.60
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	30	14	16	84



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63846
Date Sampled: 20/09/2017
Date Received: 11/10/2017
Date Tested: 24/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836082	DTS23	Not Given	1.00	Not Given	D	Yellowish brown very sandy CLAY			22	100	26	14	12	
836083	DTS23	Not Given	1.20	Not Given	D	Brown slightly gravelly CLAY			15					
836084	DTS23	Not Given	1.30	Not Given	D	Brown slightly gravelly very sandy CLAY			17	66	35	17	18	
836085	DTS23	Not Given	1.50	Not Given	D	Brown slightly gravelly sandy CLAY			14					
836086	DTS23	Not Given	1.60	Not Given	D	Brown slightly gravelly CLAY			15					
836087	DTS23	Not Given	1.70	Not Given	D	Brown slightly gravelly very sandy CLAY			14	86	34	16	18	
836088	DTS23	Not Given	1.80	Not Given	D	Brown slightly gravelly CLAY			14					
836089	DTS23	Not Given	2.00	Not Given	D	Brown slightly gravelly sandy CLAY			18					
836090	DTS23	Not Given	2.20	Not Given	D	Brown slightly gravelly very sandy CLAY			17	85	32	14	18	
836091	DTS23	Not Given	2.30	Not Given	D	Brown slightly gravelly sandy CLAY			16					

Comments:

Approved:

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PL Laboratory Manager
Geotechnical Section

Date Reported: 27/10/2017

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Watford Herts WD18 8YS

Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63846
Date Sampled: 20/09/2017
Date Received: 11/10/2017
Date Tested: 24/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836092	DTS23	Not Given	2.50	Not Given	D	Brown slightly gravelly sandy CLAY			15					
836093	DTS23	Not Given	2.60	Not Given	D	Brown slightly gravelly very sandy CLAY			12	84	30	14	16	
836094	DTS23	Not Given	2.70	Not Given	D	Brown slightly gravelly slightly sandy CLAY			13					
836095	DTS23	Not Given	2.80	Not Given	D	Brown slightly gravelly slightly sandy CLAY			12					

Comments:

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PL Laboratory Manager
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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

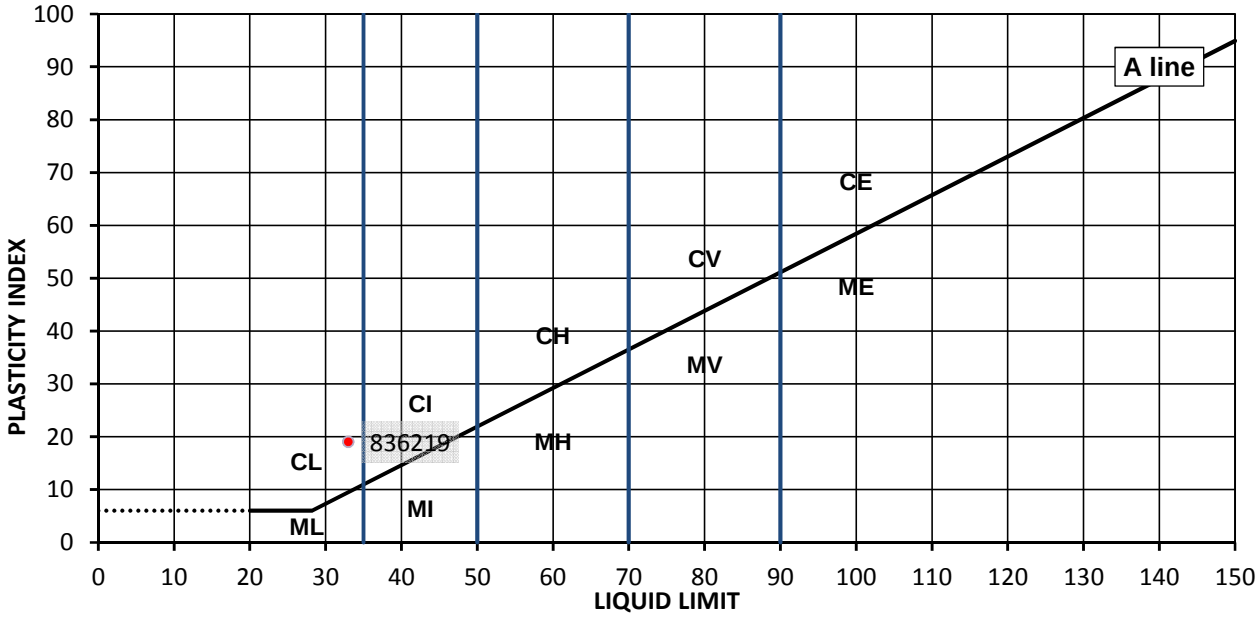
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	18/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836219
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS08	Depth Top [m]:	1.00
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	33	14	19	96



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

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PL Laboratory Manager Geotechnical Section
Date Reported: 25/10/2017

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Determination of Liquid and Plastic Limits

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Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

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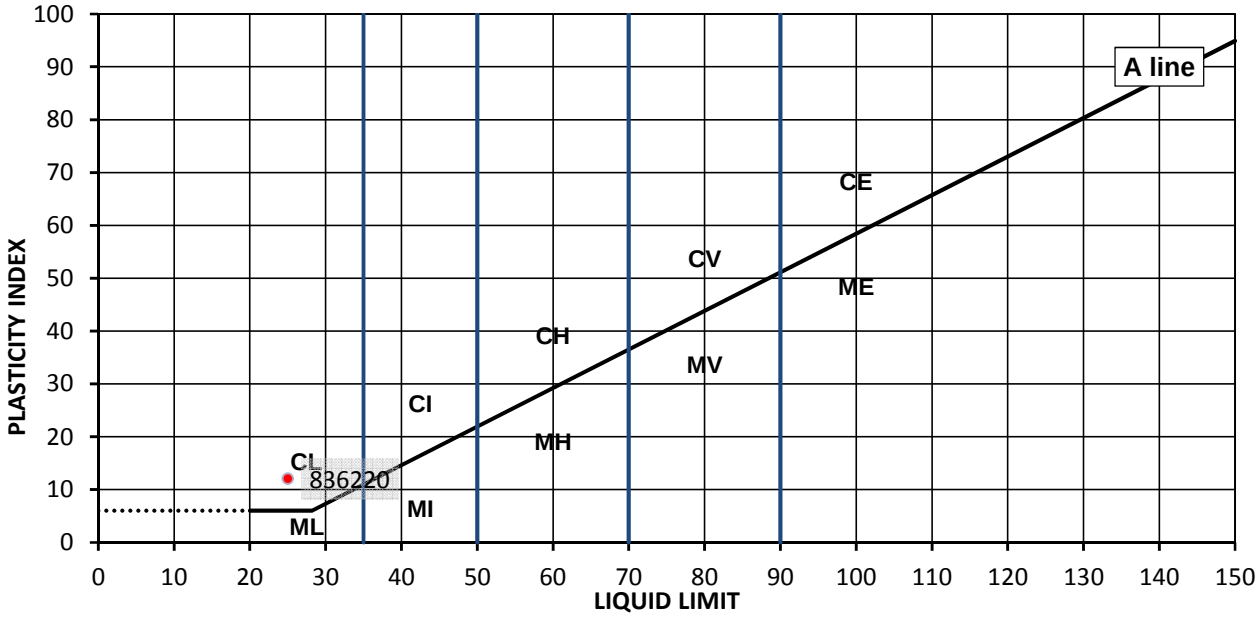
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836220
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS24	Depth Top [m]:	1.00
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	25	13	12	92



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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Watford Herts WD18 8YS

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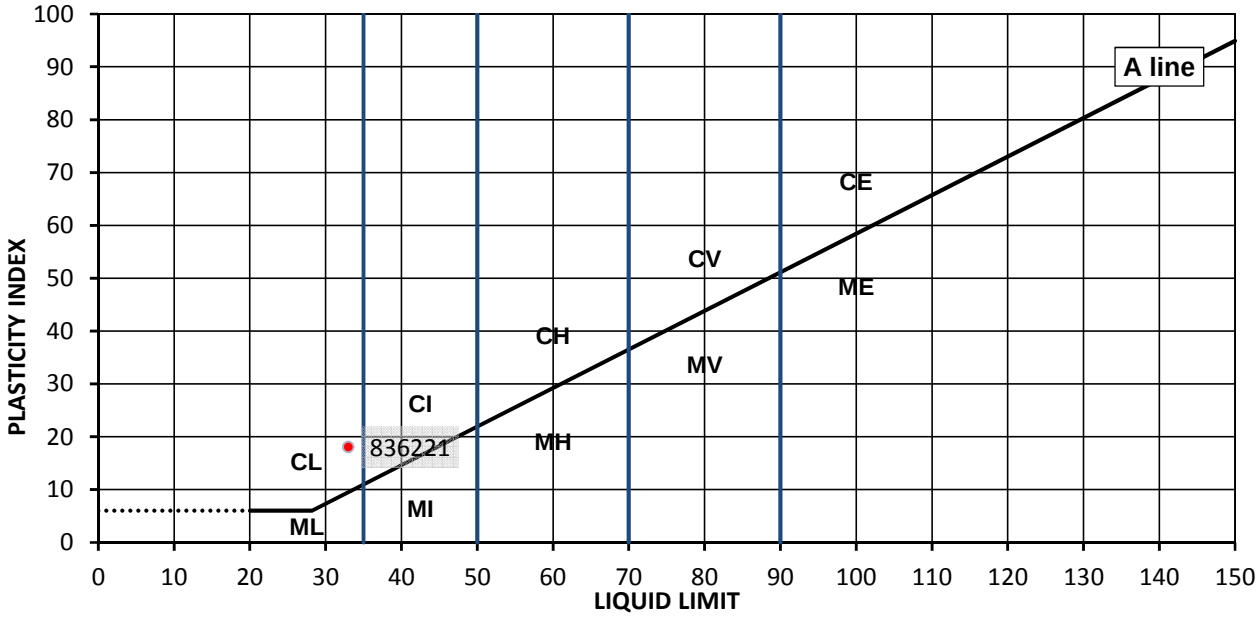
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836221
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS53	Depth Top [m]:	1.00
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	1.10

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	33	15	18	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

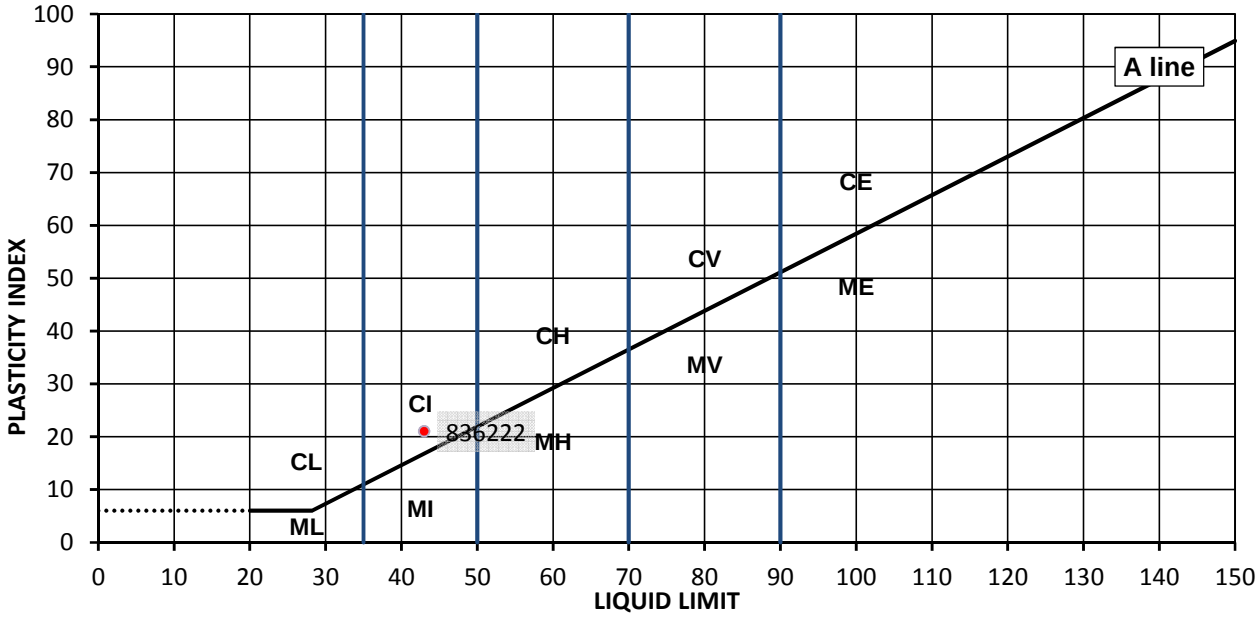
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	28/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836222
Sample Reference: Not Given

Description:	Mottled brown slightly gravelly sandy CLAY	Sample Type:	D
Location:	DTS71	Depth Top [m]:	0.70
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	43	22	21	95



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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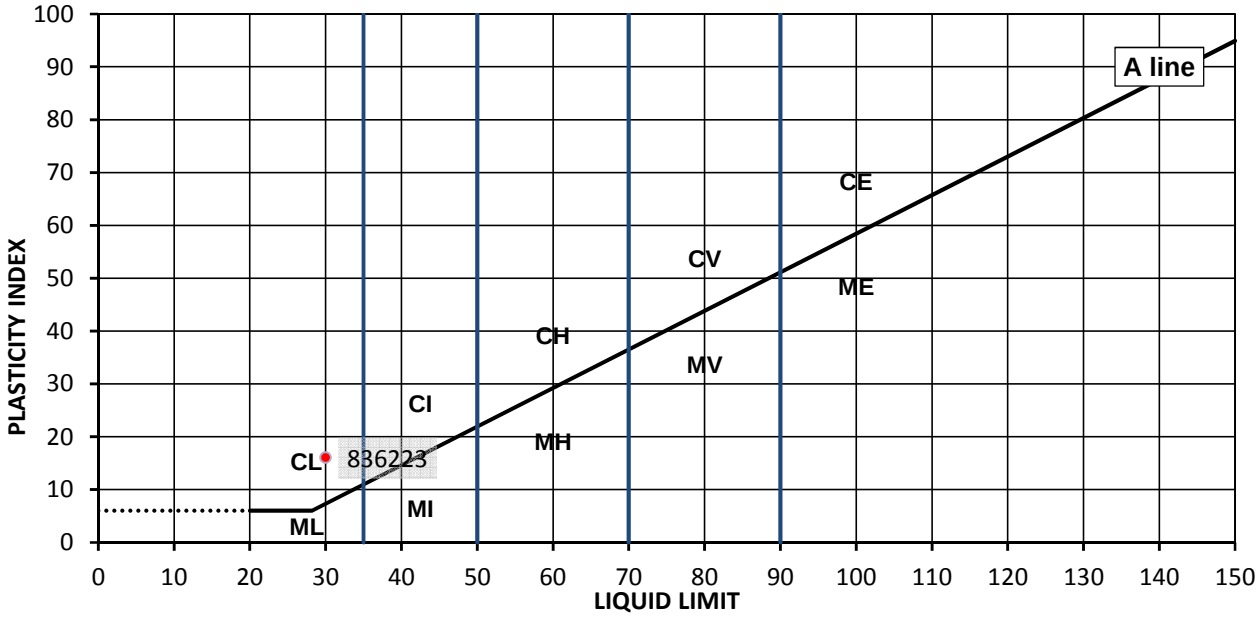
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	27/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836223
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS65	Depth Top [m]:	1.50
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	30	14	16	97



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

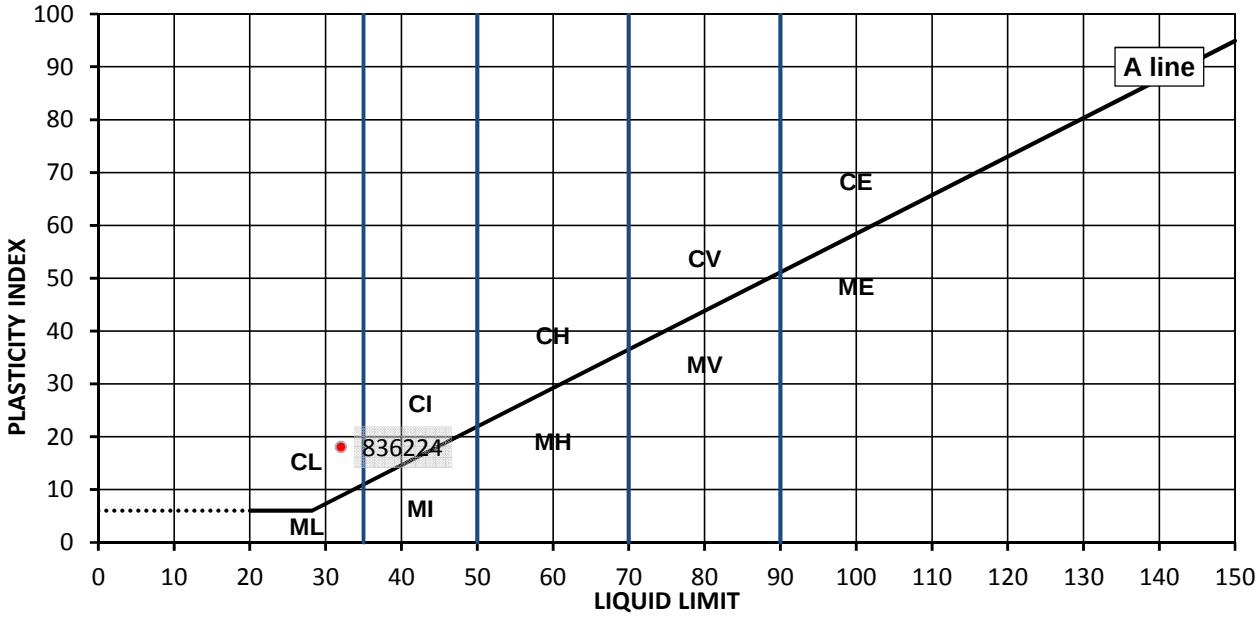
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836224
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS53	Depth Top [m]:	1.90
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	32	14	18	94



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 25/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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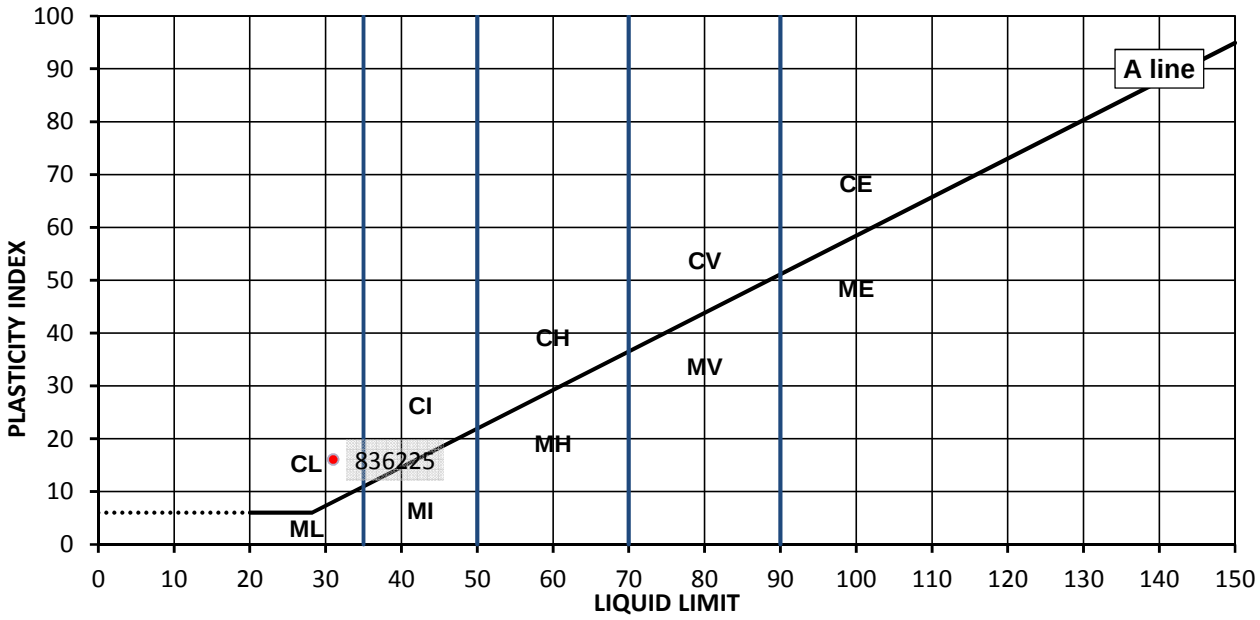
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	25/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836225
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS49	Depth Top [m]:	1.30
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	31	15	16	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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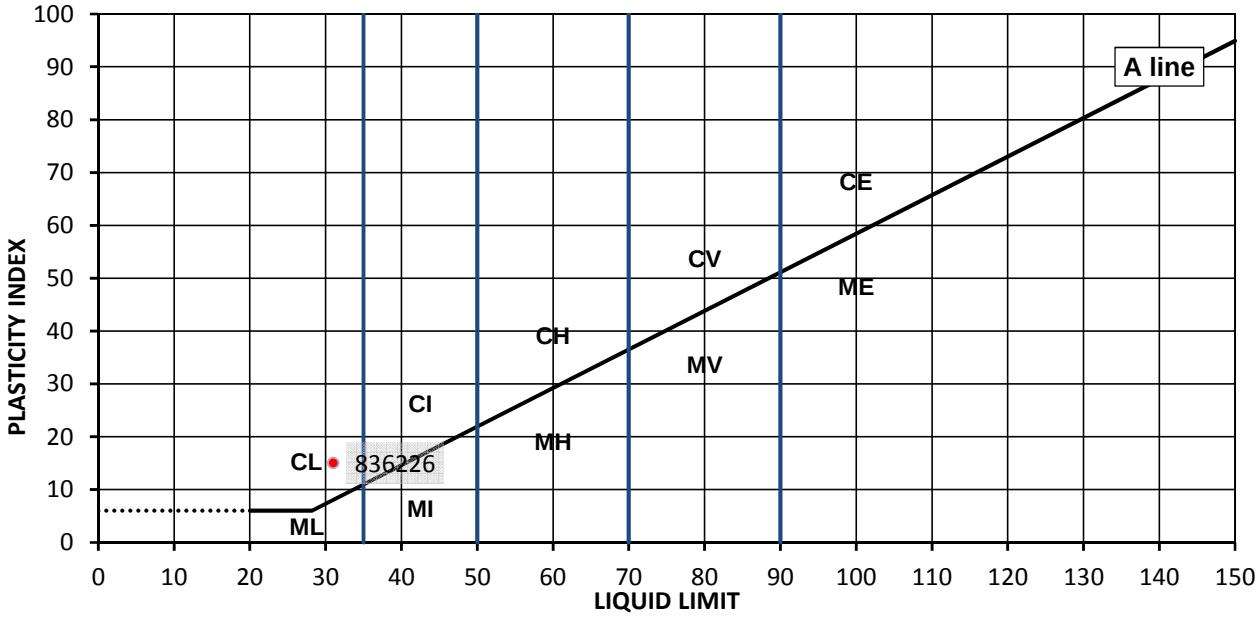
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	18/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	23/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836226
Sample Reference: Not Given

Description:	Mottled brown very sandy CLAY	Sample Type:	B
Location:	DTS11	Depth Top [m]:	1.50
Sample Preparation:	Tested in natural condition	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	31	16	15	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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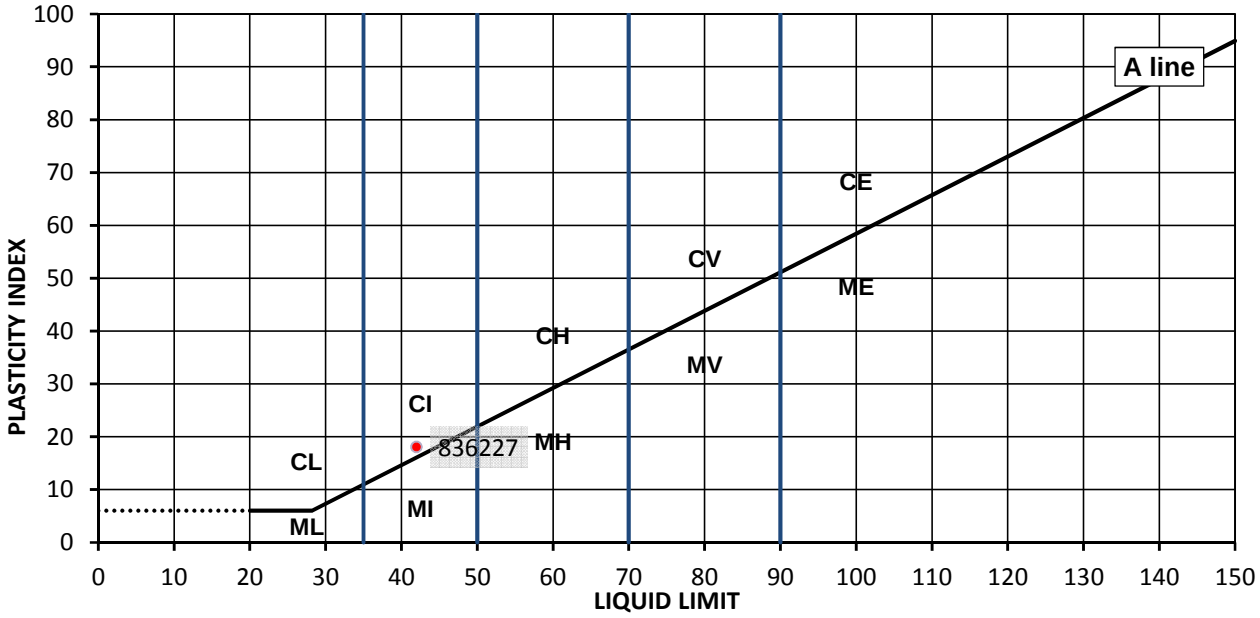
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	19/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	23/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836227
Sample Reference: Not Given

Description:	Mottled brown slightly gravelly sandy CLAY	Sample Type:	B
Location:	DTS15	Depth Top [m]:	1.10
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	42	24	18	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton, NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63867
Date Sampled: 18/09 - 28/09/2017
Date Received: 11/10/2017
Date Tested: 20/10 - 23/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836219	DTS08	Not Given	1.00	Not Given	D	Brown slightly gravelly very sandy CLAY			14	96	33	14	19	
836226	DTS11	Not Given	1.50	Not Given	B	Mottled brown very sandy CLAY			16	100	31	16	15	
836227	DTS15	Not Given	1.10	Not Given	B	Mottled brown slightly gravelly sandy CLAY			17	98	42	24	18	
836220	DTS24	Not Given	1.00	Not Given	D	Brown slightly gravelly very sandy CLAY			15	92	25	13	12	
836225	DTS49	Not Given	1.30	Not Given	D	Brown slightly gravelly very sandy CLAY			17	99	31	15	16	
836221	DTS53	Not Given	1.00	1.10	D	Brown slightly gravelly very sandy CLAY			17	98	33	15	18	
836224	DTS53	Not Given	1.90	Not Given	D	Brown slightly gravelly very sandy CLAY			13	94	32	14	18	
836223	DTS65	Not Given	1.50	Not Given	D	Brown slightly gravelly very sandy CLAY			16	97	30	14	16	
836222	DTS71	Not Given	0.70	Not Given	D	Mottled brown slightly gravelly sandy CLAY			21	95	43	22	21	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 25/10/2017

Signed:

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Determination of Liquid and Plastic Limits

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Watford Herts WD18 8YS

UKAS TESTING 4041

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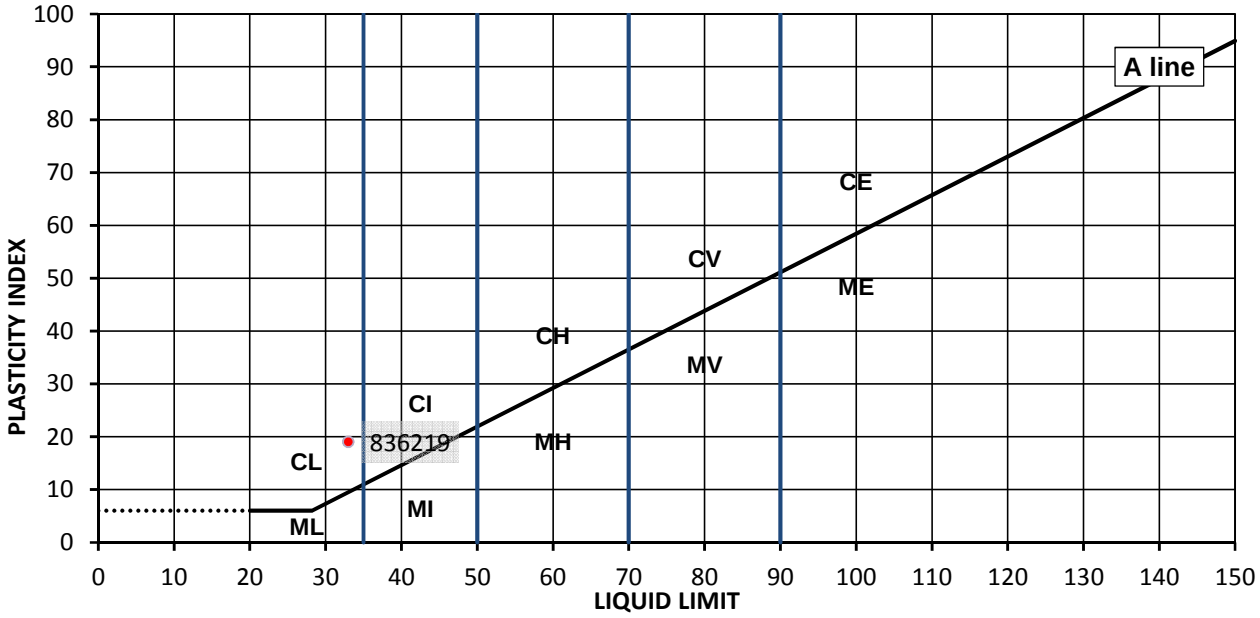
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	18/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836219
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS08	Depth Top [m]:	1.00
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	33	14	19	96



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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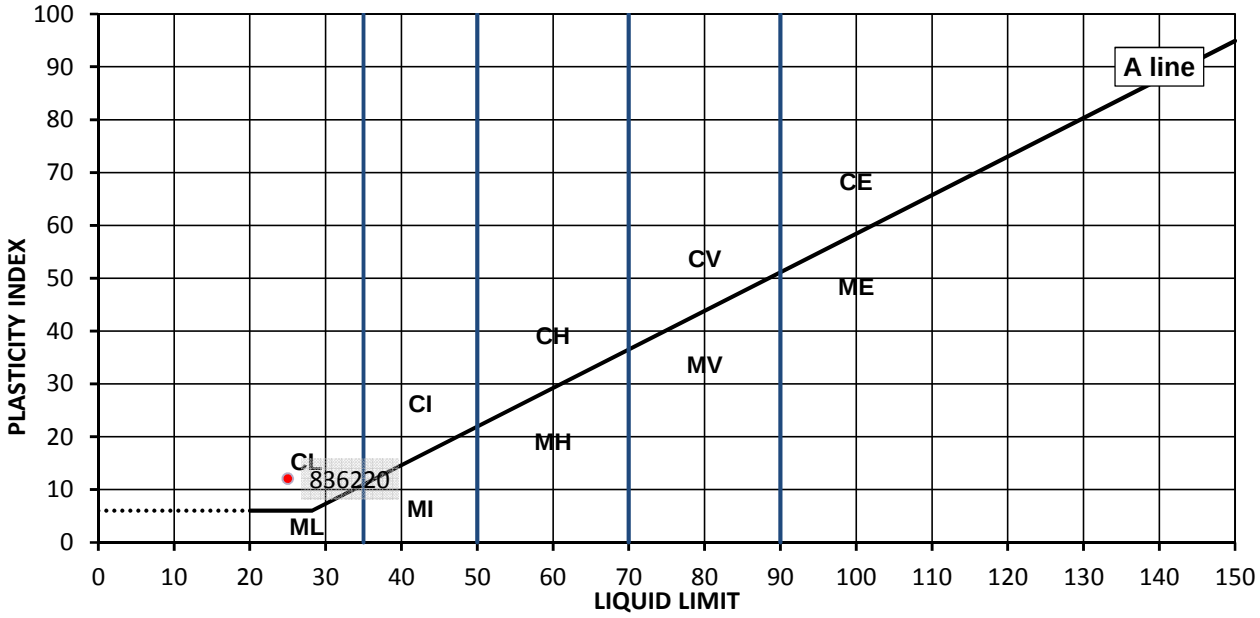
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836220
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS24	Depth Top [m]:	1.00
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	25	13	12	92



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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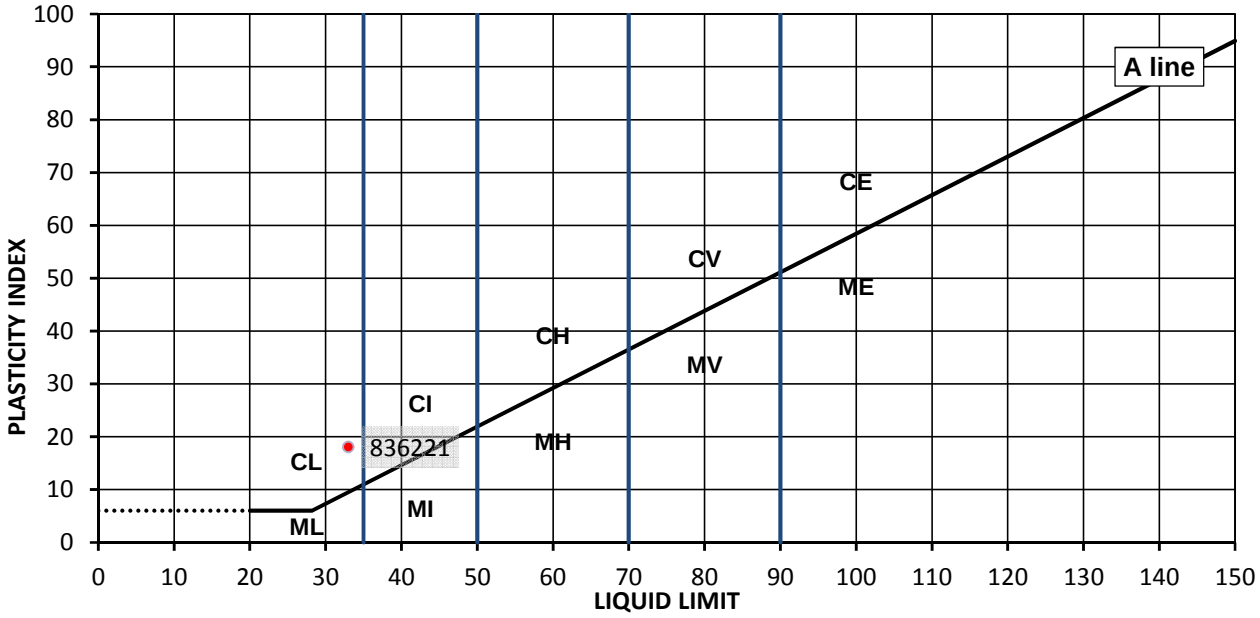
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836221
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS53	Depth Top [m]:	1.00
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	1.10

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	33	15	18	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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TEST CERTIFICATE

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4041

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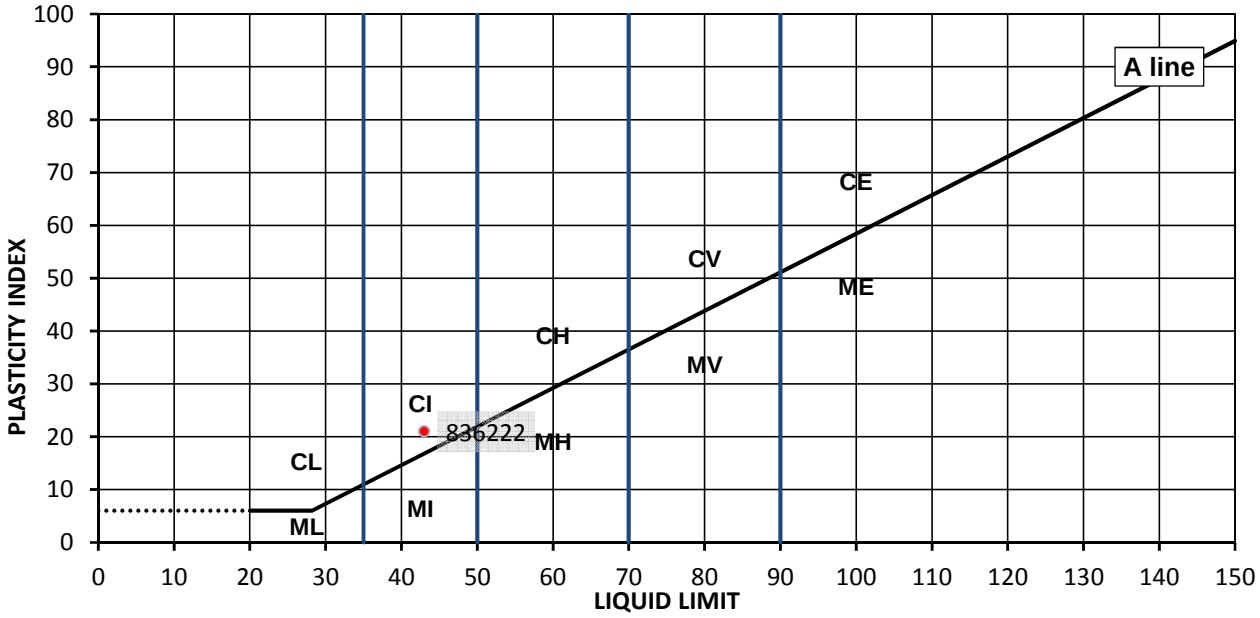
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	28/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836222
Sample Reference: Not Given

Description:	Mottled brown slightly gravelly sandy CLAY	Sample Type:	D
Location:	DTS71	Depth Top [m]:	0.70
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	43	22	21	95



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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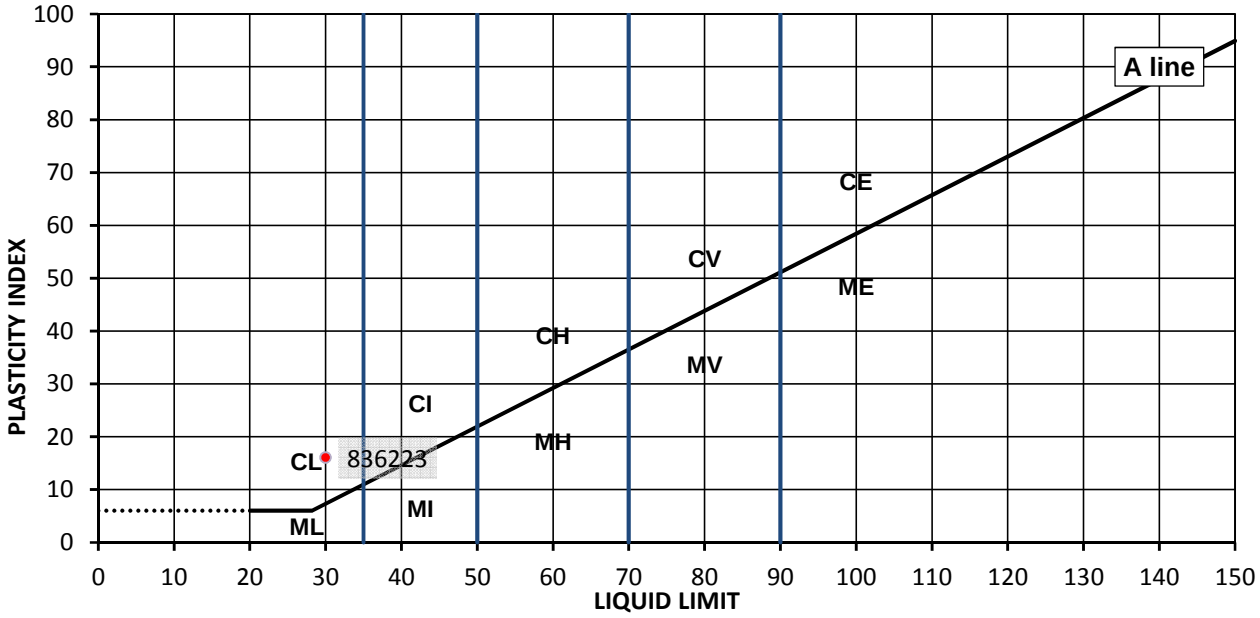
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Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	27/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836223
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS65	Depth Top [m]:	1.50
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	30	14	16	97



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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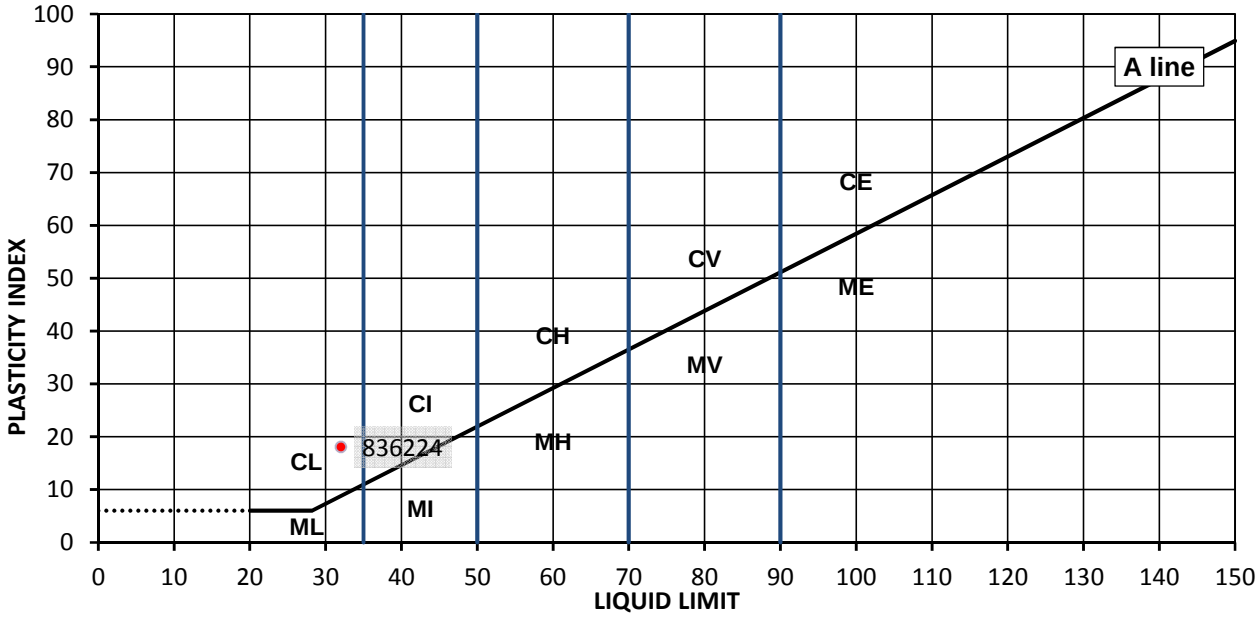
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836224
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS53	Depth Top [m]:	1.90
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	32	14	18	94



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 25/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

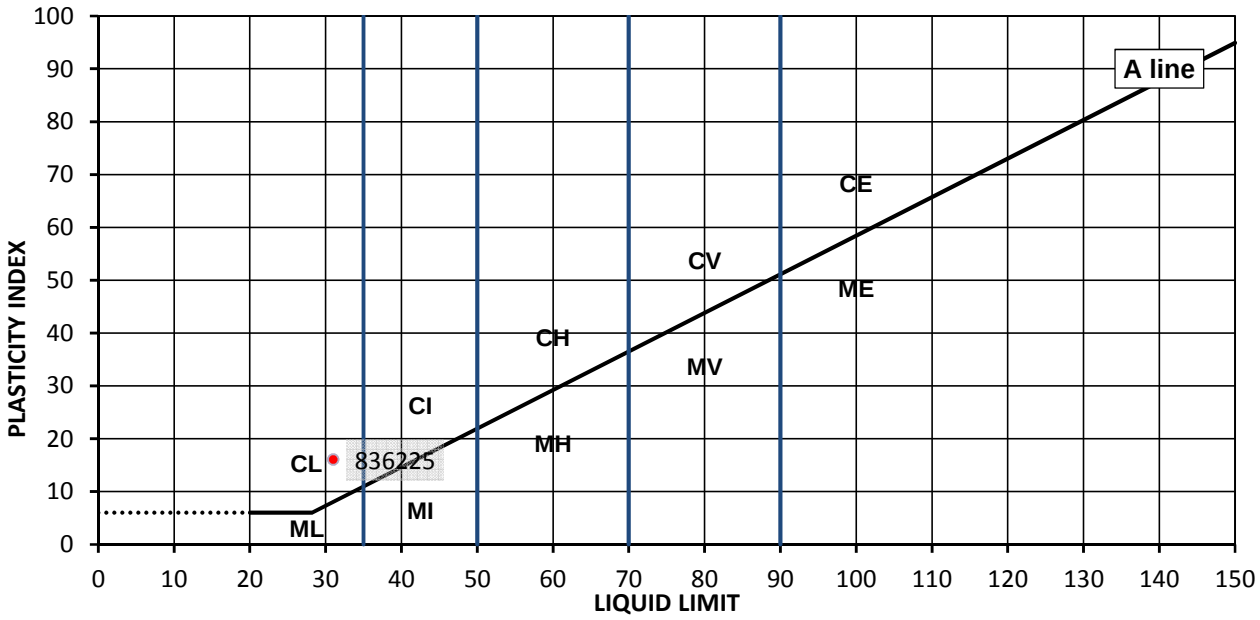
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	25/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836225
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS49	Depth Top [m]:	1.30
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	31	15	16	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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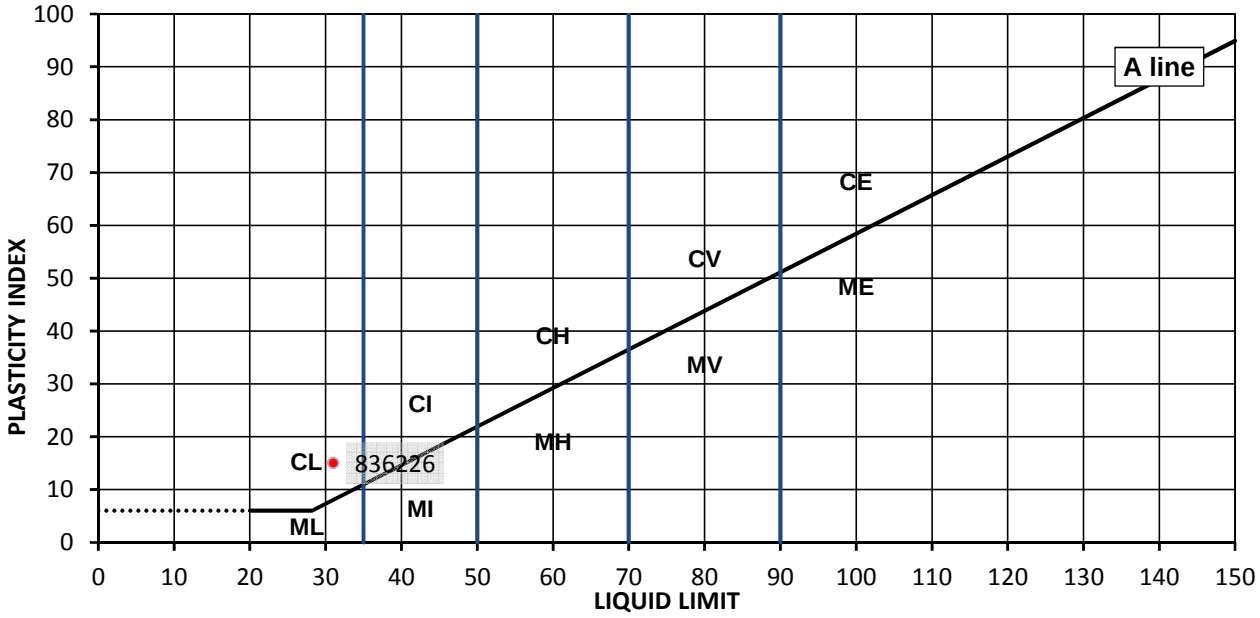
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	18/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	23/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836226
Sample Reference: Not Given

Description:	Mottled brown very sandy CLAY	Sample Type:	B
Location:	DTS11	Depth Top [m]:	1.50
Sample Preparation:	Tested in natural condition	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	31	16	15	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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Watford Herts WD18 8YS

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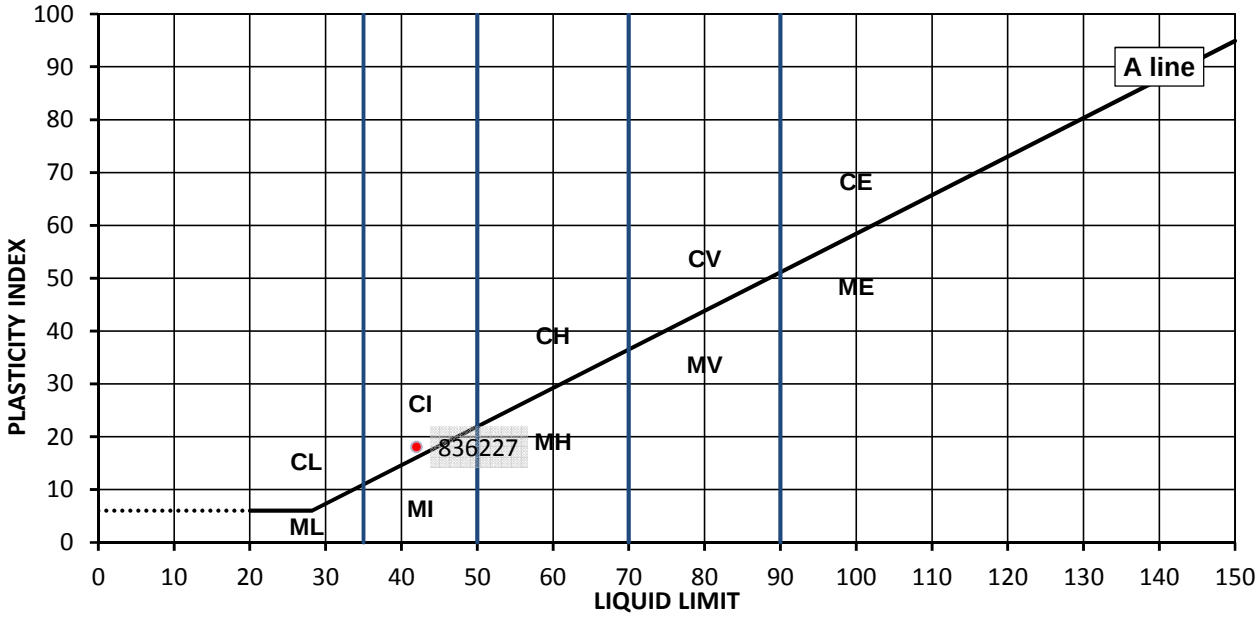
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton, NN6 9PY	Job Number:	17-63867
		Date Sampled:	19/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	23/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836227
Sample Reference: Not Given

Description:	Mottled brown slightly gravelly sandy CLAY	Sample Type:	B
Location:	DTS15	Depth Top [m]:	1.10
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	42	24	18	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton, NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63867
Date Sampled: 18/09 - 28/09/2017
Date Received: 11/10/2017
Date Tested: 20/10 - 23/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836219	DTS08	Not Given	1.00	Not Given	D	Brown slightly gravelly very sandy CLAY			14	96	33	14	19	
836226	DTS11	Not Given	1.50	Not Given	B	Mottled brown very sandy CLAY			16	100	31	16	15	
836227	DTS15	Not Given	1.10	Not Given	B	Mottled brown slightly gravelly sandy CLAY			17	98	42	24	18	
836220	DTS24	Not Given	1.00	Not Given	D	Brown slightly gravelly very sandy CLAY			15	92	25	13	12	
836225	DTS49	Not Given	1.30	Not Given	D	Brown slightly gravelly very sandy CLAY			17	99	31	15	16	
836221	DTS53	Not Given	1.00	1.10	D	Brown slightly gravelly very sandy CLAY			17	98	33	15	18	
836224	DTS53	Not Given	1.90	Not Given	D	Brown slightly gravelly very sandy CLAY			13	94	32	14	18	
836223	DTS65	Not Given	1.50	Not Given	D	Brown slightly gravelly very sandy CLAY			16	97	30	14	16	
836222	DTS71	Not Given	0.70	Not Given	D	Mottled brown slightly gravelly sandy CLAY			21	95	43	22	21	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 25/10/2017

Signed:

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

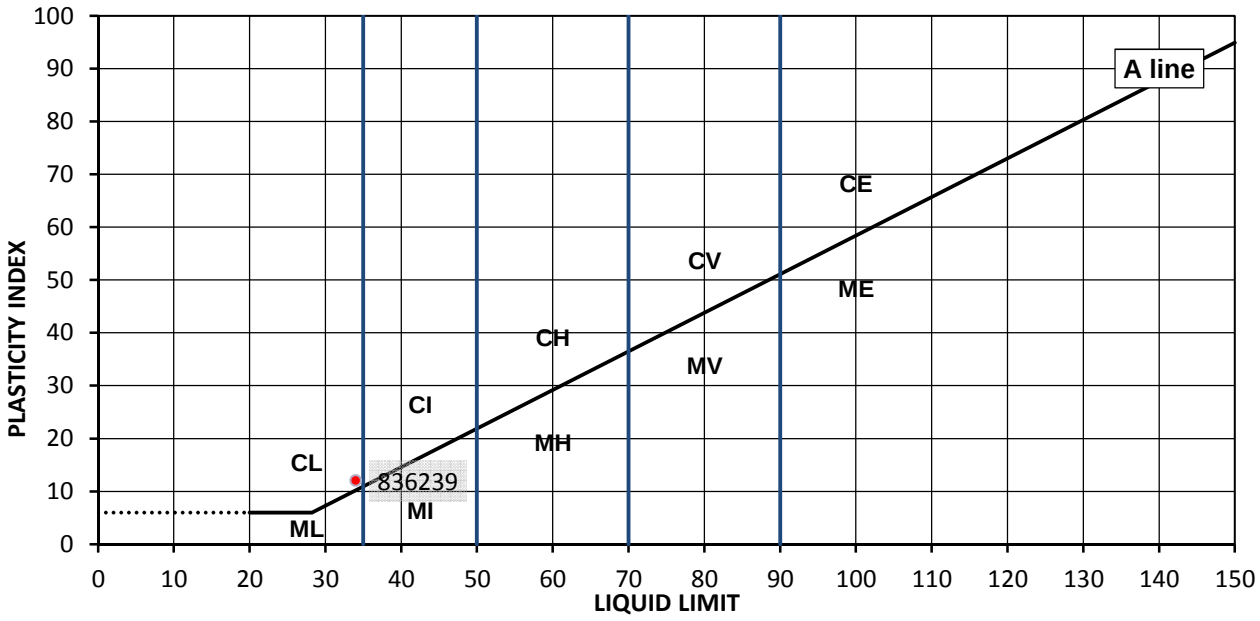
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63870
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836239
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS54	Depth Top [m]:	1.00
Sample Preparation:	Tested after washing to remove >425um	Depth Base [m]:	1.15

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	34	22	12	91



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

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PL Laboratory Manager Geotechnical Section
Date Reported: 27/10/2017

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7 Woodshots Meadow
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Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63870
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

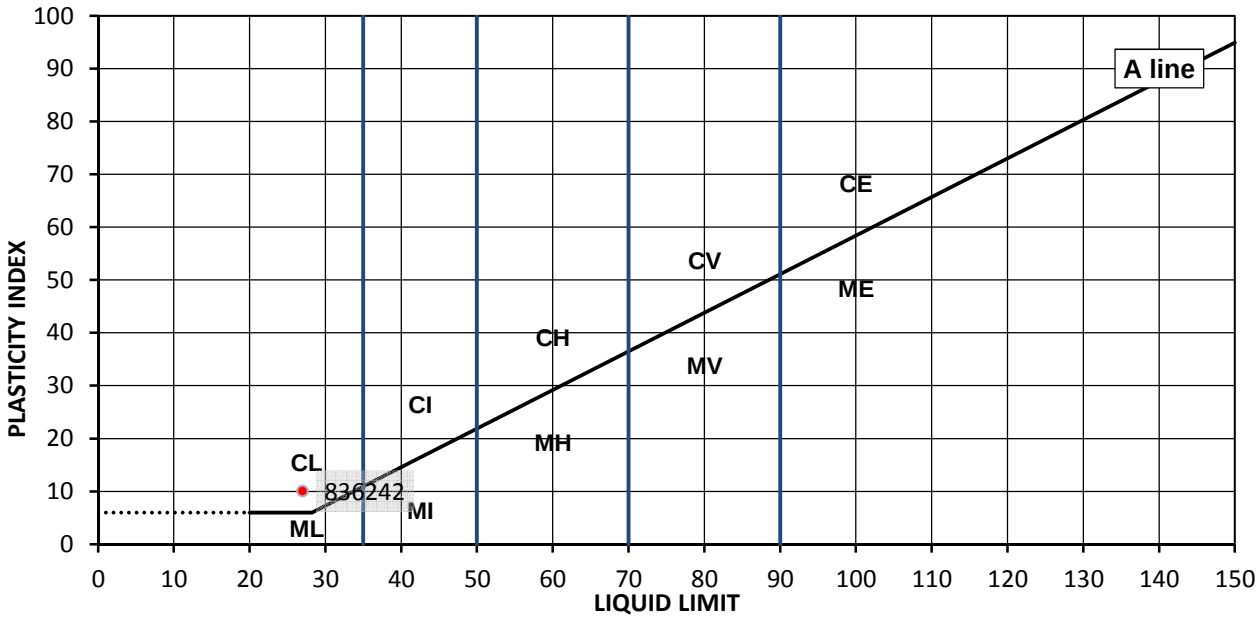
TEST RESULTS

Laboratory Reference: 836242
Sample Reference: Not Given

Description: Mottled brown slightly gravelly very sandy CLAY
Location: DTS54
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 1.45
Depth Base [m]: 1.60

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	27	17	10	94



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

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PL Laboratory Manager Geotechnical Section
Date Reported: 27/10/2017

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GF 105.11

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63870
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

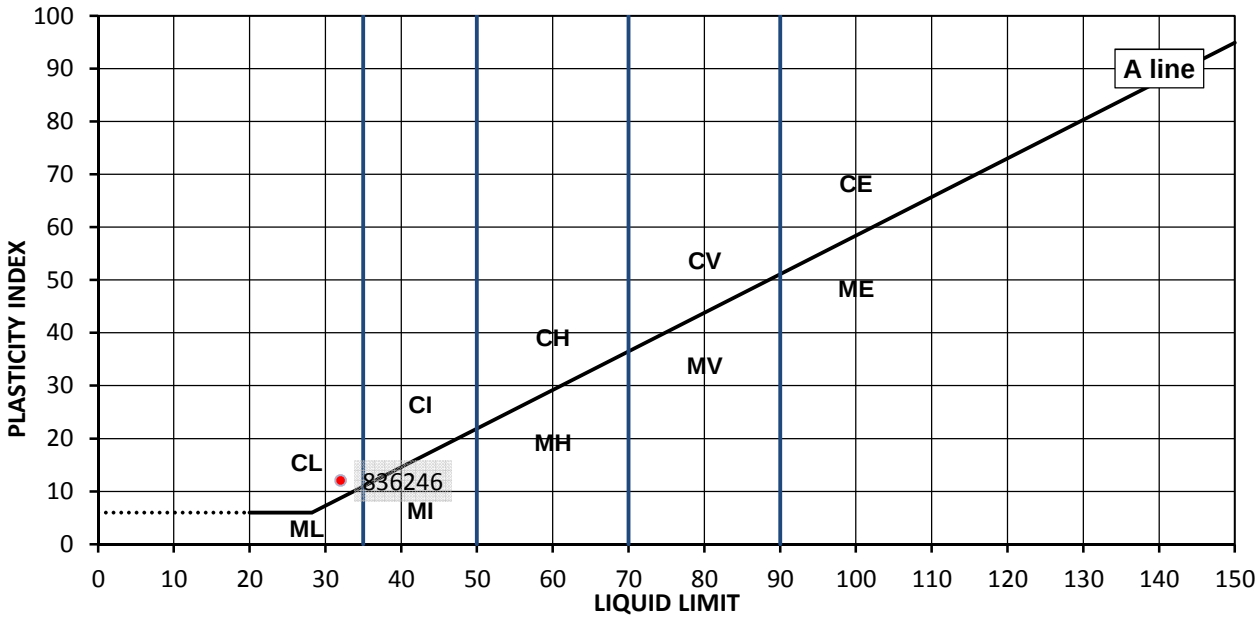
TEST RESULTS

Laboratory Reference: 836246
Sample Reference: Not Given

Description: Mottled brown slightly gravelly very sandy CLAY
Location: DTS54
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 2.00
Depth Base [m]: 2.15

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	32	20	12	79



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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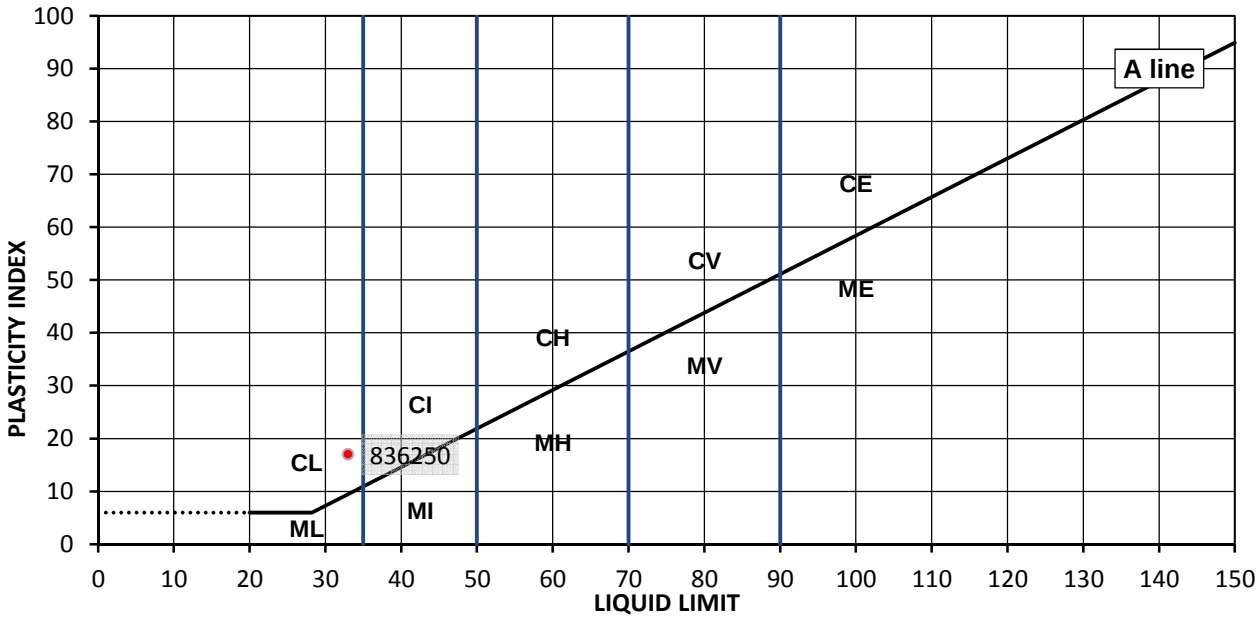
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63870
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836250
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	B
Location:	DTS54	Depth Top [m]:	2.60
Sample Preparation:	Tested after washing to remove >425um	Depth Base [m]:	2.75

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	33	16	17	88



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
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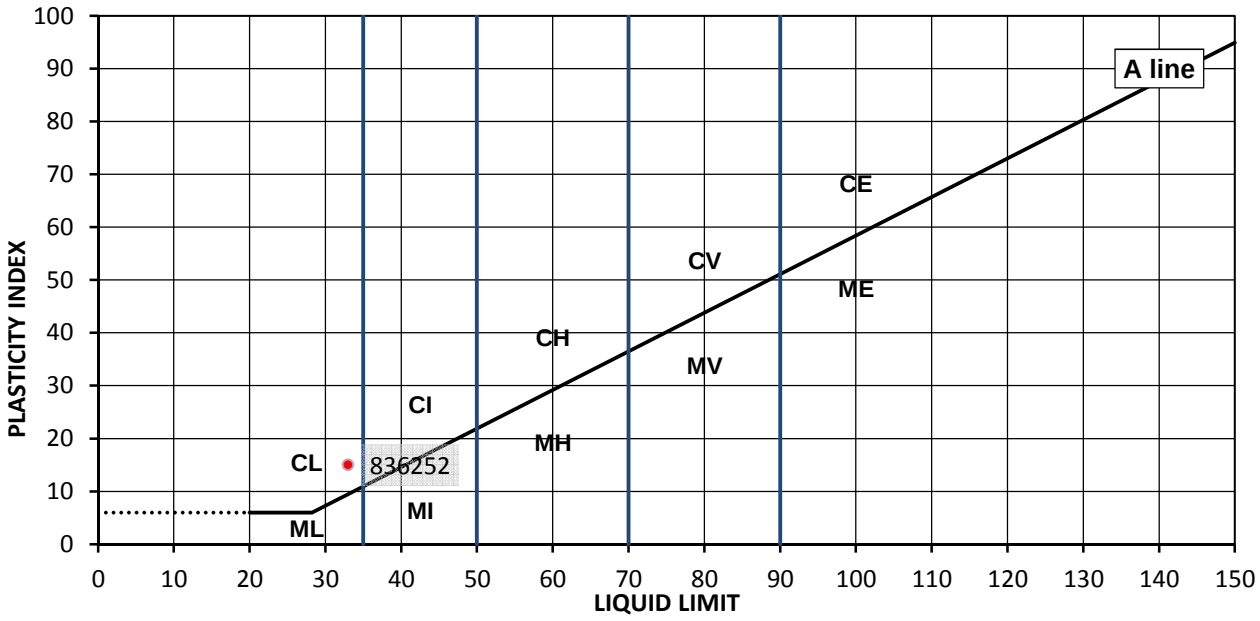
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63870
		Date Sampled:	26/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	24/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836252
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	B
Location:	DTS54	Depth Top [m]:	2.90
Sample Preparation:	Tested after washing to remove >425um	Depth Base [m]:	3.00

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	33	18	15	89



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63870
Date Sampled: 26/09/2017
Date Received: 11/10/2017
Date Tested: 24/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836239	DTS54	Not Given	1.00	1.15	D	Brown slightly gravelly very sandy CLAY			15	91	34	22	12	
836240	DTS54	Not Given	1.15	1.30	D	Brown slightly gravelly CLAY			16					
836241	DTS54	Not Given	1.30	1.45	D	Brown slightly gravelly CLAY			16					
836242	DTS54	Not Given	1.45	1.60	D	Mottled brown slightly gravelly very sandy CLAY			18	94	27	17	10	
836243	DTS54	Not Given	1.60	1.75	D	Brown slightly gravelly CLAY			16					
836244	DTS54	Not Given	1.75	1.90	D	Brown slightly gravelly CLAY			14					
836245	DTS54	Not Given	1.90	2.00	D	Brown slightly gravelly CLAY			13					
836246	DTS54	Not Given	2.00	2.15	D	Mottled brown slightly gravelly very sandy CLAY			13	79	32	20	12	
836247	DTS54	Not Given	2.15	2.30	D	Brown slightly gravelly CLAY			13					
836248	DTS54	Not Given	2.30	2.45	B	Brown slightly gravelly CLAY			12					

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 27/10/2017

Signed:

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Technical Manager (Geotechnical Division)

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Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

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Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63870
Date Sampled: 26/09/2017
Date Received: 11/10/2017
Date Tested: 24/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836249	DTS54	Not Given	2.45	2.60	B	Brown slightly gravelly CLAY			12					
836250	DTS54	Not Given	2.60	2.75	B	Brown slightly gravelly very sandy CLAY			13	88	33	16	17	
836251	DTS54	Not Given	2.75	2.90	B	Brown slightly sandy CLAY			14					
836252	DTS54	Not Given	2.90	3.00	B	Brown slightly gravelly very sandy CLAY			12	89	33	18	15	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 27/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

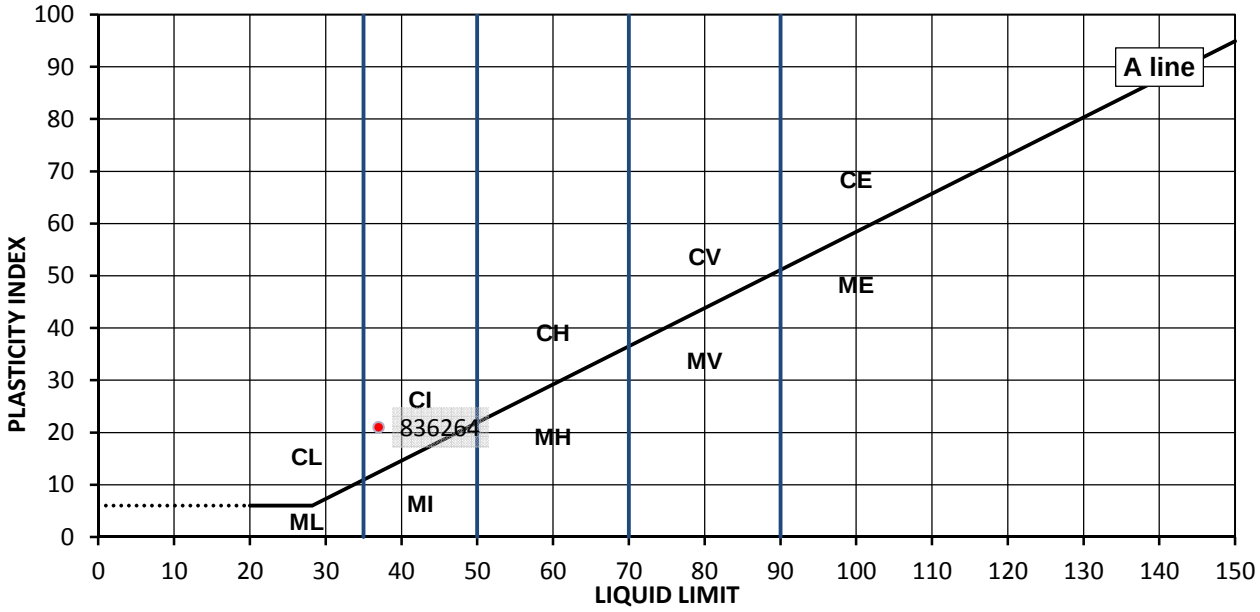
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836264
Sample Reference: Not Given

Description:	Brown sandy CLAY	Sample Type:	D
Location:	DTS30	Depth Top [m]:	1.10
Sample Preparation:	Tested in natural condition	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	37	16	21	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section

Date Reported: 24/10/2017

Signed:

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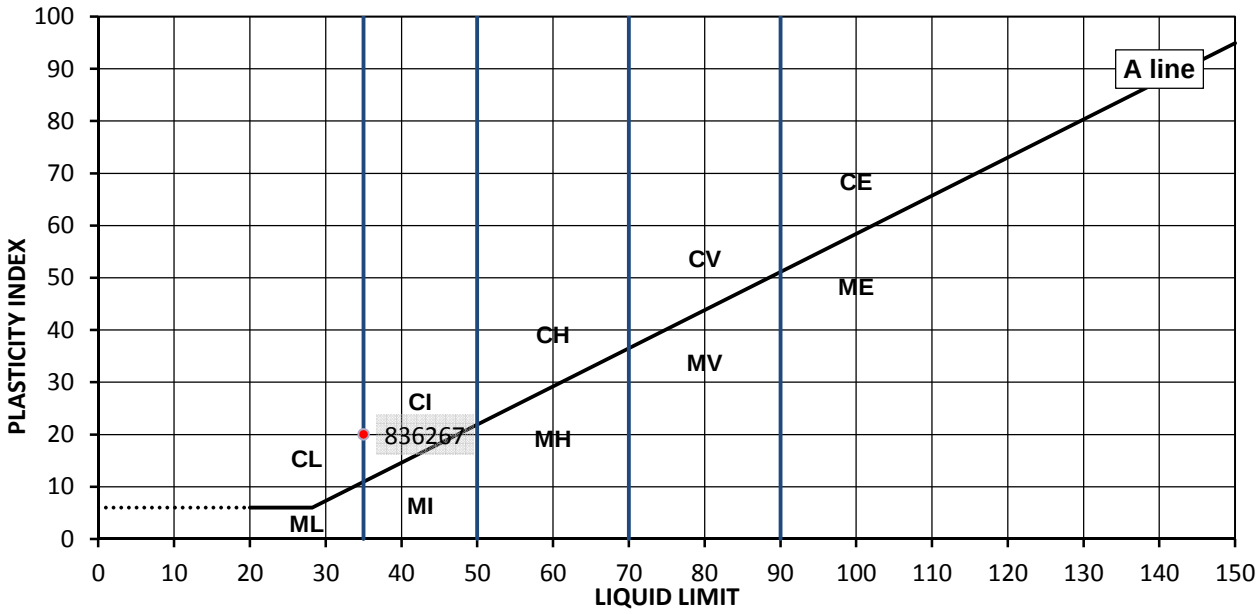
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Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836267
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS30	Depth Top [m]:	1.50
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	35	15	20	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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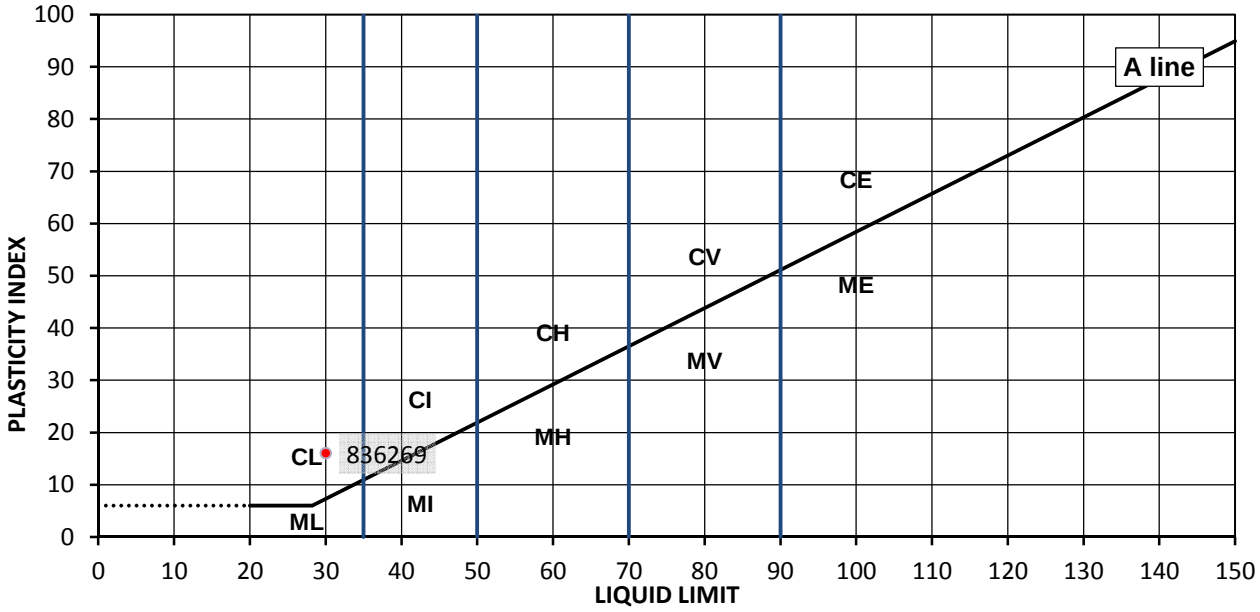
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Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836269
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS30	Depth Top [m]:	1.80
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	30	14	16	90



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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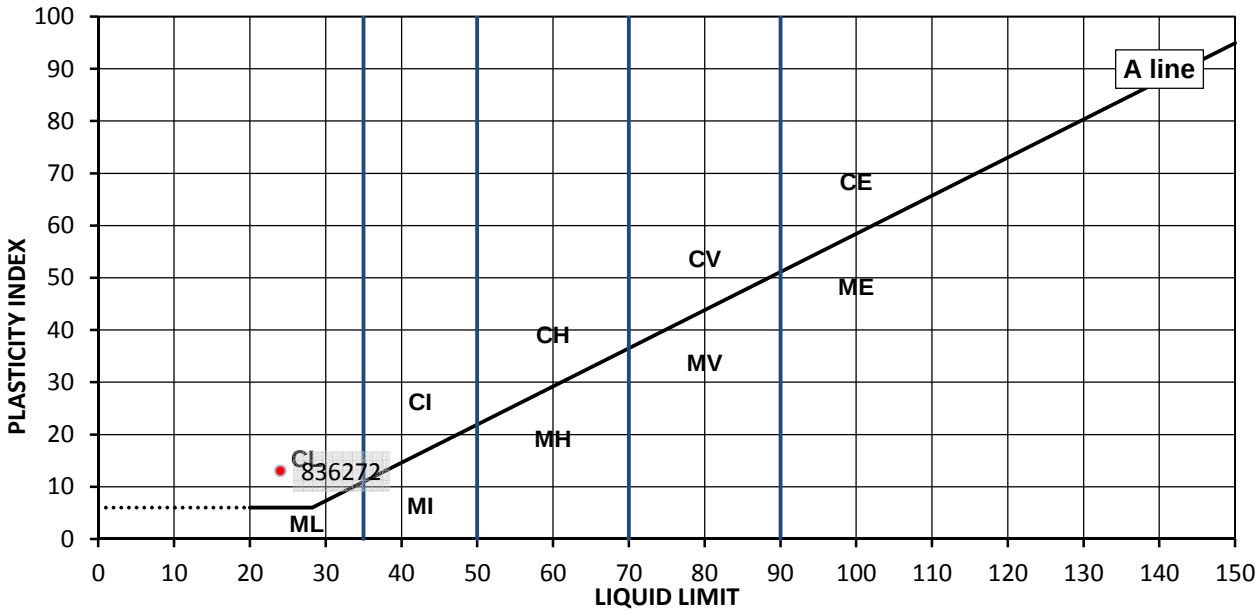
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Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836272
Sample Reference: Not Given

Description:	Brown slightly gravelly clayey SAND	Sample Type:	D
Location:	DTS30	Depth Top [m]:	2.20
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	24	11	13	93



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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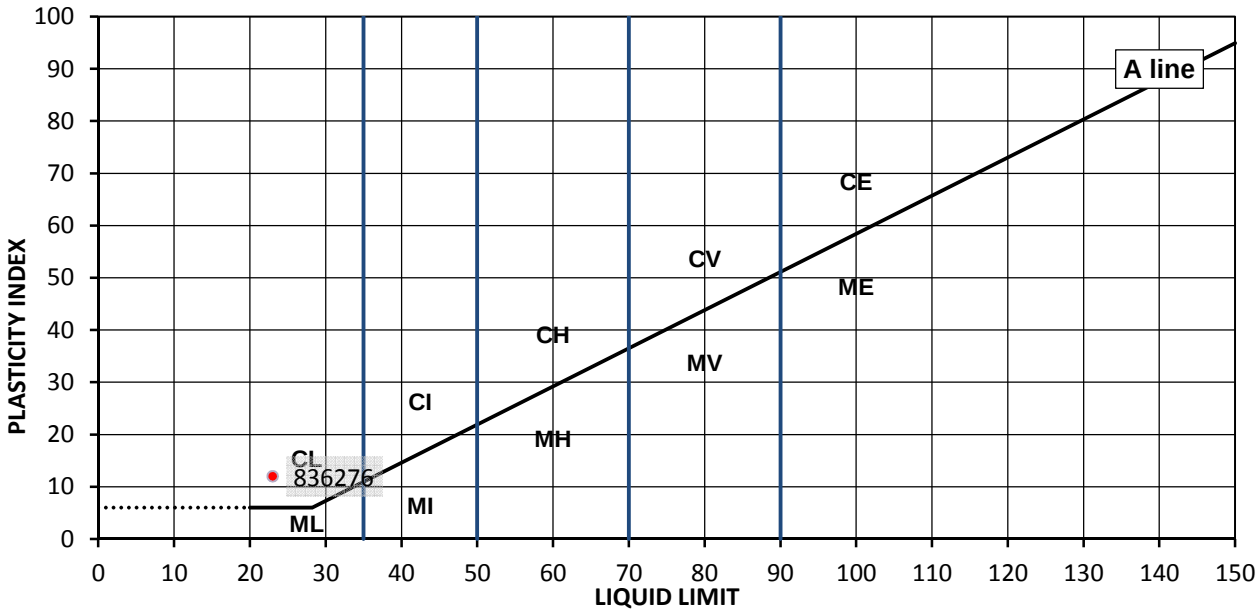
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836276
Sample Reference: Not Given

Description:	Brown slightly gravelly clayey SAND	Sample Type:	D
Location:	DTS30	Depth Top [m]:	2.80
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
9.8	23	11	12	96



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section

Date Reported: 24/10/2017

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836263	DTS30	Not Given	1.00	Not Given	D	Brown slightly gravelly CLAY			19					
836264	DTS30	Not Given	1.10	Not Given	D	Brown sandy CLAY			18	100	37	16	21	
836265	DTS30	Not Given	1.20	Not Given	D	Brown slightly gravelly CLAY			15					
836266	DTS30	Not Given	1.30	Not Given	D	Brown slightly gravelly CLAY			18					
836267	DTS30	Not Given	1.50	Not Given	D	Brown slightly gravelly very sandy CLAY			16	99	35	15	20	
836268	DTS30	Not Given	1.60	Not Given	D	Brown slightly gravelly CLAY			15					
836269	DTS30	Not Given	1.80	Not Given	D	Brown slightly gravelly very sandy CLAY			14	90	30	14	16	
836270	DTS30	Not Given	2.00	Not Given	D	Brown slightly gravelly CLAY			28					
836271	DTS30	Not Given	2.10	Not Given	D	Brown slightly gravelly CLAY			14					
836272	DTS30	Not Given	2.20	Not Given	D	Brown slightly gravelly clayey SAND			12	93	24	11	13	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 24/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63875
Date Sampled: 20/09/2017
Date Received: 11/10/2017
Date Tested: 20/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836273	DTS30	Not Given	2.50	Not Given	D	Brown slightly gravelly CLAY			15					
836274	DTS30	Not Given	2.60	Not Given	D	Brown slightly gravelly CLAY			18					
836275	DTS30	Not Given	2.70	Not Given	D	Brown slightly gravelly CLAY			16					
836276	DTS30	Not Given	2.80	Not Given	D	Brown slightly gravelly clayey SAND			9.8	96	23	11	12	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 24/10/2017

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

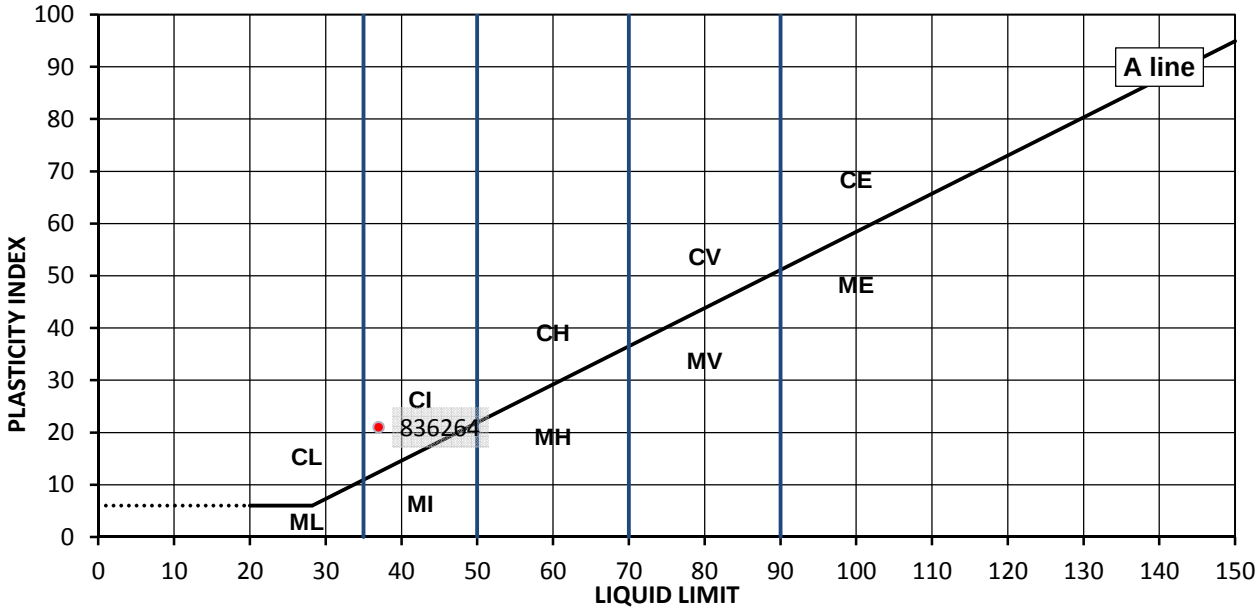
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Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836264
Sample Reference: Not Given

Description:	Brown sandy CLAY	Sample Type:	D
Location:	DTS30	Depth Top [m]:	1.10
Sample Preparation:	Tested in natural condition	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	37	16	21	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

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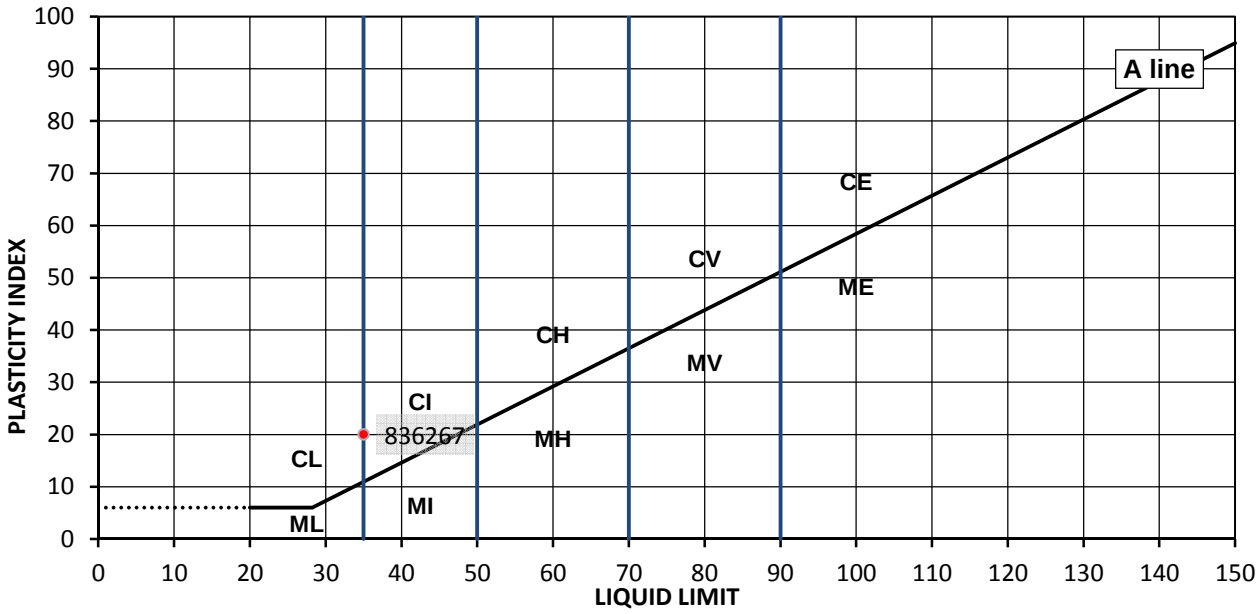
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		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836267
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS30	Depth Top [m]:	1.50
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	35	15	20	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
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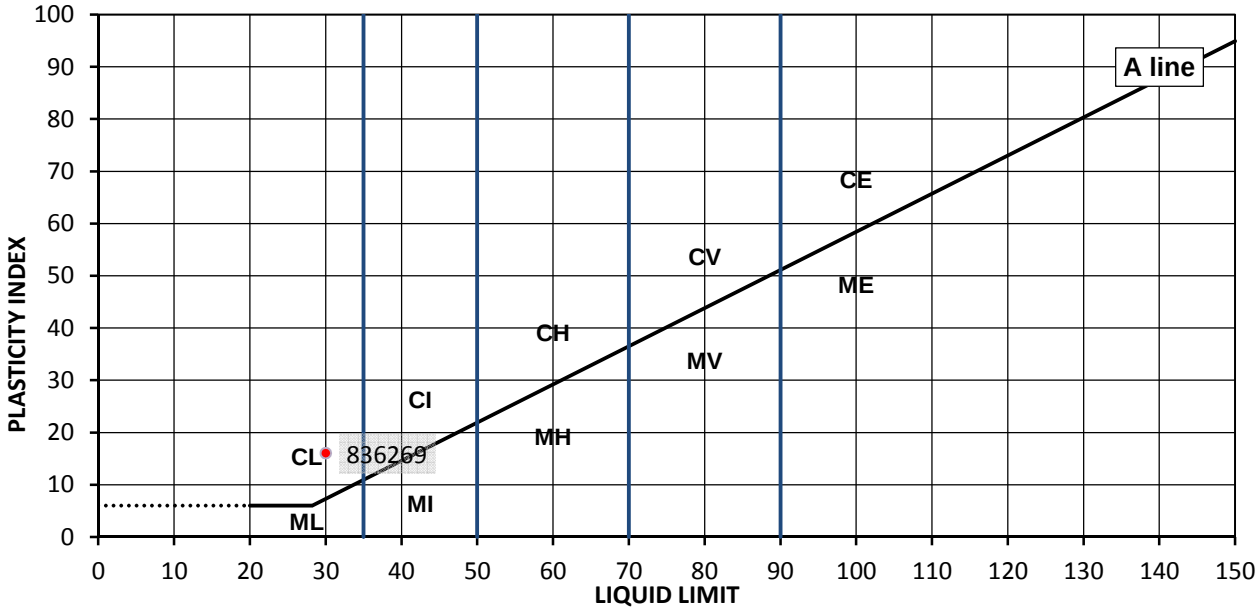
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Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836269
Sample Reference: Not Given

Description:	Brown slightly gravelly very sandy CLAY	Sample Type:	D
Location:	DTS30	Depth Top [m]:	1.80
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
14	30	14	16	90



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
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M	Silt	I	Medium	35 to 50
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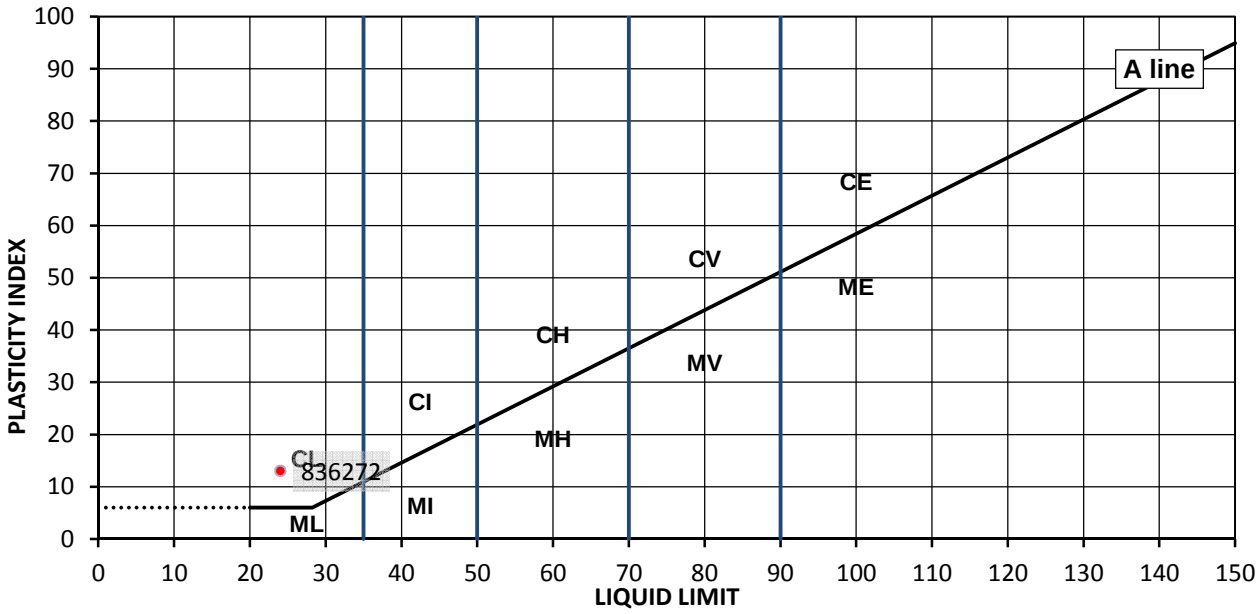
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836272
Sample Reference: Not Given

Description:	Brown slightly gravelly clayey SAND	Sample Type:	D
Location:	DTS30	Depth Top [m]:	2.20
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
12	24	11	13	93



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 24/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

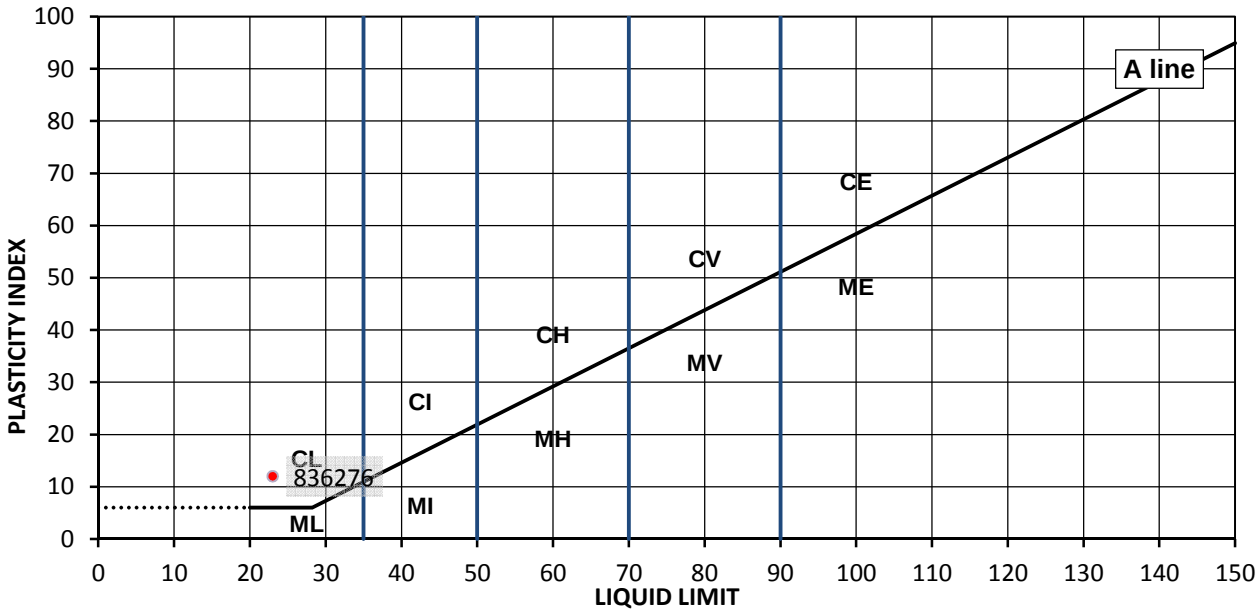
Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 836276
Sample Reference: Not Given

Description:	Brown slightly gravelly clayey SAND	Sample Type:	D
Location:	DTS30	Depth Top [m]:	2.80
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
9.8	23	11	12	96



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section

Date Reported: 24/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client:	Soiltechnics Limited	Client Reference:	STN3680
Client Address:	Cedar Barn White Lodge Walgrave Northhampton NN6 9PY	Job Number:	17-63875
		Date Sampled:	20/09/2017
		Date Received:	11/10/2017
Contact:	Lauren Wenham	Date Tested:	20/10/2017
Site Name:	Florida Farm	Sampled By:	Not Given
Site Address:	Not Given		

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836263	DTS30	Not Given	1.00	Not Given	D	Brown slightly gravelly CLAY			19					
836264	DTS30	Not Given	1.10	Not Given	D	Brown sandy CLAY			18	100	37	16	21	
836265	DTS30	Not Given	1.20	Not Given	D	Brown slightly gravelly CLAY			15					
836266	DTS30	Not Given	1.30	Not Given	D	Brown slightly gravelly CLAY			18					
836267	DTS30	Not Given	1.50	Not Given	D	Brown slightly gravelly very sandy CLAY			16	99	35	15	20	
836268	DTS30	Not Given	1.60	Not Given	D	Brown slightly gravelly CLAY			15					
836269	DTS30	Not Given	1.80	Not Given	D	Brown slightly gravelly very sandy CLAY			14	90	30	14	16	
836270	DTS30	Not Given	2.00	Not Given	D	Brown slightly gravelly CLAY			28					
836271	DTS30	Not Given	2.10	Not Given	D	Brown slightly gravelly CLAY			14					
836272	DTS30	Not Given	2.20	Not Given	D	Brown slightly gravelly clayey SAND			12	93	24	11	13	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 24/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northhampton
NN6 9PY
Contact: Lauren Wenham
Site Name: Florida Farm
Site Address: Not Given

Client Reference: STN3680
Job Number: 17-63875
Date Sampled: 20/09/2017
Date Received: 11/10/2017
Date Tested: 20/10/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
836273	DTS30	Not Given	2.50	Not Given	D	Brown slightly gravelly CLAY			15					
836274	DTS30	Not Given	2.60	Not Given	D	Brown slightly gravelly CLAY			18					
836275	DTS30	Not Given	2.70	Not Given	D	Brown slightly gravelly CLAY			16					
836276	DTS30	Not Given	2.80	Not Given	D	Brown slightly gravelly clayey SAND			9.8	96	23	11	12	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 24/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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Warrington
WA1 4RF
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Facsimile: +44(0) 1925 838135

0001

TEST REPORT

Liquid and Plastic Limits and Plasticity Indices

Report No:	**WAM0008583/423/M2**	**Report Date:**	**22 September 2017**
		Our Contract Ref:	51036428
Client:	SOILTECHNICS LIMITED	Tested By:	ESG Warrington
Address:	CEDAR BARN WHITE LODGE WALGRAVE NORTHAMPTON,NORTHANTS NN6 9PY	Date Sampled:	31 Aug 2017
		Date Received:	13 Sep 2017
Client Contact:	Not Advised	Date Tested:	19 Sep 2017
Site:	Florida Farm, East Lancashire Road, Merseyside		
		Sample Type:	TUB
		Sampling Certificate:	Not Received
		Samples Submitted by:	Client
Method of preparation:	BS1377-1:1990 7.4.3	Sampled by:	Client

Results:

Sample Reference	Client's Ref	Location	Description	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing on 425 µm
55028423	DTS05	DTS051.501-019 1.50 - 1.50	CLAY	17	44	24	20	100

As Received, Coarse particles removed by hand prior to test
*** Washed over 425µm BS Test Sieve**

Certified that the Liquid and Plastic Limits and Plasticity Indices were determined in accordance with BS1377-2: 1990 Clauses 4.4, 5.0 and 5.4 respectively
Certified that the Moisture Content was determined in accordance with BS1377-2: 1990: 3.2
Method of Preparation: BS 1377-1:1990 7.4.3 & BS1377-2:1990 4.2.3/4.2.4

Signed: P Thomas

Paul Thomas - Field Section Manager

for and on behalf of Environmental Scientifics Group Limited

Form V9 7/06

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Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-012266

Project / Site name:	Florida Farm	**Samples received on:**	04/04/2024
Your job number:	STN3680NM	**Samples instructed on/ Analysis started on:**	04/04/2024
Your order number:	POR018409	**Analysis completed by:**	17/04/2024
Report Issue Number:	1	**Report issued on:**	24/06/2024
Samples Analysed:	6 soil samples		

Signed: Izabela Wójcik

Izabela Wójcik
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-012266
Project / Site name: Florida Farm
Your Order No: POR018409

Lab Sample Number				161572	161573	161574	161575	161576
Sample Reference				HP201	WS201	WS204	WS206	WS207
Sample Number				HP201-0.5-2	WS202-1.3-2	WS204-1.2-3	WS206-1.5-3	WS207-0.8-2
Depth (m)				0.50	1.30	1.20	1.50	0.80
Date Sampled				27/03/2024	27/03/2024	27/03/2024	27/03/2024	27/03/2024
Time Taken				1219	1435	0931	1203	1250
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	2.2	13	19	12
Total mass of sample received	kg	0.1	NONE	0.8	0.7	0.7	1.1	0.9
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	5	9.2	7.8	7.6	7.9
Total Sulphate as SO_4	%	0.005	MCERTS	0.148	0.906	0.022	2.19	0.011
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	120	3300	26	2900	15
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	62.5	1630	13.1	1430	7.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3	1.4	4.9	3.2	2.2
Total Sulphur	mg/kg	50	MCERTS	660	3500	67	8000	< 50
Total Sulphur	%	0.005	MCERTS	0.066	0.353	0.007	0.804	< 0.005
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	5.2	< 2.0	< 2.0	41	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	3.1	< 2.0	< 2.0	49	< 2.0
Heavy Metals / Metalloids								
Magnesium (leachate equivalent)	mg/l	2.5	NONE	4.6	5.8	2.6	13	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	9.3	12	5.1	25	< 5.0

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

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Analytical Report Number: 24-012266
Project / Site name: Florida Farm
Your Order No: POR018409

Lab Sample Number				161577
Sample Reference				WS208
Sample Number				WS208-0.9-2
Depth (m)				0.90-1.00
Date Sampled				27/03/2024
Time Taken				1438
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	16
Total mass of sample received	kg	0.1	NONE	1.1
General Inorganics				
pH (L099)	pH Units	N/A	MCERTS	7.8
Total Sulphate as SO_4	%	0.005	MCERTS	0.078
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	36
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	18
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.4
Total Sulphur	mg/kg	50	MCERTS	550
Total Sulphur	%	0.005	MCERTS	0.055
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	3.9
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	2.3
Heavy Metals / Metalloids				
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0

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

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Analytical Report Number : 24-012266
Project / Site name: Florida Farm

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
161572	HP201	HP201-0.5-2	0.5	Brown loam and clay with gravel and vegetation
161573	WS201	WS202-1.3-2	1.3	Red sand with glass
161574	WS204	WS204-1.2-3	1.2	Brown loam and clay with gravel
161576	WS207	WS207-0.8-2	0.8	Brown clay and sand with gravel
161577	WS208	WS208-0.9-2	0.90-1.00	Brown loam and sand with gravel

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Analytical Report Number : 24-012266
Project / Site name: Florida Farm

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Final Report

Report No.:	17-24249-1
Initial Date of Issue:	20-Sep-2017
Client	Soiltechnics Limited
Client Address:	Cedar Barn White Lodge Walgrave Northampton Northamptonshire NN6 9PY
Contact(s):	Rachel Brown
Project	STN3680NM Florida Farm, East Lancashire Road, Merseyside

Quotation No.:		**Date Received:**	14-Sep-2017
Order No.:	POR001346	**Date Instructed:**	14-Sep-2017
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	20-Sep-2017
Date Approved:	20-Sep-2017		

Approved By:



Details: Keith Jones, Technical Manager

Chemtest
The right chemistry to deliver results

Results - Leachate

Project: STN3680NM Florida Farm, East Lancashire Road, Merseyside

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-24249
Quotation No.:			**Chemtest Sample ID.:**		511271
Order No.: POR001346			Client Sample Ref.:		DTS01
			Client Sample ID.:		DTS010.501-002
			Sample Type:		SOIL
			Top Depth (m):		0.50
			Date Sampled:		31-Aug-2017
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
pH	U	1010		N/A	7.8
Nitrate	U	1220	mg/l	0.50	0.54
Sulphate	U	1220	mg/l	1.0	1.1
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050
Cyanide (Complex)	U	1300	mg/l	0.050	< 0.050
Sulphide	U	1325	mg/l	0.050	0.078
Arsenic (Dissolved)	U	1450	µg/l	1.0	2.6
Boron (Dissolved)	U	1450	µg/l	20	< 20
Beryllium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	3.5
Copper (Dissolved)	U	1450	µg/l	1.0	5.6
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	2.0
Lead (Dissolved)	U	1450	µg/l	1.0	4.4
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	5.8
Zinc (Dissolved)	U	1450	µg/l	1.0	10
Naphthalene	U	1800	µg/l	0.10	< 0.10
Acenaphthylene	U	1800	µg/l	0.10	< 0.10
Acenaphthene	U	1800	µg/l	0.10	< 0.10
Fluorene	U	1800	µg/l	0.10	< 0.10
Phenanthrene	U	1800	µg/l	0.10	< 0.10
Anthracene	U	1800	µg/l	0.10	< 0.10
Fluoranthene	U	1800	µg/l	0.10	< 0.10
Pyrene	U	1800	µg/l	0.10	< 0.10
Benzo[a]anthracene	U	1800	µg/l	0.10	< 0.10
Chrysene	U	1800	µg/l	0.10	< 0.10
Benzo[b]fluoranthene	U	1800	µg/l	0.10	< 0.10
Benzo[k]fluoranthene	U	1800	µg/l	0.10	< 0.10
Benzo[a]pyrene	U	1800	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1800	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene	U	1800	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene	U	1800	µg/l	0.10	< 0.10
Total Of 16 PAH's	U	1800	µg/l	2.0	< 2.0
Total Phenols	U	1920	mg/l	0.030	< 0.030

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire Road, Merseyside

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-24249	17-24249	17-24249	17-24249	17-24249	17-24249
Quotation No.:			**Chemtest Sample ID.:**		511270	511271	511272	511273	511274	511275
Order No.: POR001346			Client Sample Ref.:		DTS01	DTS01	DTS03	DTS04	DTS04	DTS05
			Client Sample ID.:		DTS010.101-028	DTS010.501-002	DTS030.101-010	DTS040.801-014	DTS041.701-016	DTS050.101-018
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.50	0.10	0.80	1.70	0.10
			Date Sampled:		31-Aug-2017	31-Aug-2017	31-Aug-2017	31-Aug-2017	31-Aug-2017	31-Aug-2017
			Asbestos Lab:			COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A		-				
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected				
Moisture	N	2030	%	0.020	15	7.4	11	11	7.9	12
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones, Roots	Stones	Stones, Roots	NONE	NONE	Stones, Roots
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand
pH	M	2010		N/A	5.2	7.2	6.1	5.8	6.4	5.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.58	< 0.40	< 0.40	< 0.40		< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010				< 0.010	< 0.010	
Total Sulphur	M	2175	%	0.010				0.027	0.042	
Cyanide (Complex)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010				0.030	0.017	
Arsenic	M	2450	mg/kg	1.0	27	6.4	14	7.2		11
Beryllium	U	2450	mg/kg	1.0	1.3	< 1.0	1.2	< 1.0		< 1.0
Cadmium	M	2450	mg/kg	0.10	0.41	0.14	0.24	< 0.10		0.15
Chromium	M	2450	mg/kg	1.0	20	13	21	24		20
Copper	M	2450	mg/kg	0.50	120	20	47	26		42
Mercury	M	2450	mg/kg	0.10	0.23	< 0.10	0.10	< 0.10		< 0.10
Nickel	M	2450	mg/kg	0.50	27	24	40	18		19
Lead	M	2450	mg/kg	0.50	130	11	45	19		33
Selenium	M	2450	mg/kg	0.20	0.24	< 0.20	< 0.20	< 0.20		< 0.20
Vanadium	U	2450	mg/kg	5.0	26	16	28	24		19
Zinc	M	2450	mg/kg	0.50	130	77	98	38		77
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Organic Matter	M	2625	%	0.40	24	1.1	5.7	2.4		7.6
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.52	< 0.10	0.45	< 0.10		0.13
Anthracene	M	2800	mg/kg	0.10	0.13	< 0.10	< 0.10	< 0.10		< 0.10
Fluoranthene	M	2800	mg/kg	0.10	1.1	< 0.10	0.69	< 0.10		0.15
Pyrene	M	2800	mg/kg	0.10	0.96	< 0.10	0.60	< 0.10		0.15

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire Road, Merseyside

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-24249	17-24249	17-24249	17-24249	17-24249	17-24249
Quotation No.:			**Chemtest Sample ID.:**		511270	511271	511272	511273	511274	511275
Order No.: POR001346			Client Sample Ref.:		DTS01	DTS01	DTS03	DTS04	DTS04	DTS05
			Client Sample ID.:		DTS010.101-028	DTS010.501-002	DTS030.101-010	DTS040.801-014	DTS041.701-016	DTS050.101-018
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.50	0.10	0.80	1.70	0.10
			Date Sampled:		31-Aug-2017	31-Aug-2017	31-Aug-2017	31-Aug-2017	31-Aug-2017	31-Aug-2017
			Asbestos Lab:			COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.36	< 0.10	0.16	< 0.10		< 0.10
Chrysene	M	2800	mg/kg	0.10	0.53	< 0.10	0.21	< 0.10		< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.56	< 0.10	0.20	< 0.10		< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.16	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.28	< 0.10	< 0.10	< 0.10		< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.14	< 0.10	< 0.10	< 0.10		< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.13	< 0.10	< 0.10	< 0.10		< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	4.9	< 2.0	2.3	< 2.0		< 2.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.

Test Methods

SOP	Title	Parameters included	Method summary
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Final Report

Report No.:	17-27383-1
Initial Date of Issue:	24-Oct-2017
Client	Soiltechnics Limited
Client Address:	Cedar Barn White Lodge Walgrave Northampton Northamptonshire NN6 9PY
Contact(s):	Rachel Brown
Project	STN3680NM Florida Farm, East Lancashire

Quotation No.:		**Date Received:**	18-Oct-2017
Order No.:	POR001655	**Date Instructed:**	18-Oct-2017
No. of Samples:	75		
Turnaround (Wkdays):	5	**Results Due:**	24-Oct-2017
Date Approved:	24-Oct-2017		

Approved By:



Details: Martin Dyer, Laboratory Manager

Chemtest
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Results - Leachate

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited		**Chemtest Job No.:**			17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:		**Chemtest Sample ID.:**			526354	526371	526401	526406	526408
Order No.: POR001655		Client Sample Ref.:			DTS15	DTS31	DTS61	DTS64	DTS66
		Client Sample ID.:			DTS150.101-068	DTS310.101-150	DTS610.601-459	DTS640.601-476	DTS660.201-485
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.10	0.10	0.60	0.60	0.20
		Date Sampled:			19-Sep-2017	21-Sep-2017	27-Sep-2017	27-Sep-2017	28-Sep-2017
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
pH	U	1010		N/A	8.3	7.4	4.4	7.5	6.5
Nitrate	U	1220	mg/l	0.50	4.1	4.0	1.2	< 0.50	0.84
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	6.8	2.6	< 1.0
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Complex)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	3.2	4.8	1.4	2.3	1.7
Boron (Dissolved)	U	1450	µg/l	20	31	23	30	200	24
Beryllium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	< 1.0	7.9	4.3
Copper (Dissolved)	U	1450	µg/l	1.0	4.5	9.2	1.7	2.0	9.6
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.3	1.1	5.3	4.5
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.0	1.5	2.0	3.2
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.6	1.2	7.8	4.9
Zinc (Dissolved)	U	1450	µg/l	1.0	5.4	8.1	22	8.5	10
Naphthalene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1800	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526346	526347	526348	526349	526350	526351	526352	526353	526354
Order No.: POR001655					Client Sample Ref.:	DTS08	DTS09	DTS10	DTS11	DTS12	DTS12	DTS13	DTS14	DTS15
					Client Sample ID.:	DTS080.101-045	DTS090.101-033	DTS100.102-001	DTS110.101-046	DTS120.101-050	DTS121.501-052	DTS130.101-054	DTS140.101-057	DTS150.101-068
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.10	0.10	0.10	0.10	0.10	1.50	0.10	0.10	0.10
					Bottom Depth (m):									
					Date Sampled:	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	19-Sep-2017
					Asbestos Lab:									
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A										
Asbestos Identification	U	2192	%	0.001										
Moisture	N	2030	%	0.020	16	17	18	17	17	13	17	15	17	
Soil Colour	N	2040		N/A	Brown	Brown, Loam	Brown	Brown	Brown	Brown	Brown	Brown	Brown	
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	NONE	
Soil Texture	N	2040		N/A	Sand	Loam	Loam	Loam	Loam	Sand	Loam	Loam	Loam	
pH	M	2010		N/A	[B] 8.2	[B] 8.2	[B] 8.3	[B] 8.3	[B] 8.1	[B] 6.4	[B] 8.1	[B] 8.0	[B] 8.1	
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.67	0.45	0.47	0.46	0.40		0.62	0.40	0.48	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		< 0.010				0.034				
Total Sulphur	M	2175	%	0.010		[B] 0.056				[B] 0.010				
Cyanide (Complex)	M	2300	mg/kg	0.50	[B] 1.0	[B] 0.80	[B] < 0.50	[B] < 0.50	[B] 1.0		[B] 0.60	[B] 0.70	[B] 0.90	
Cyanide (Free)	M	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	
Cyanide (Total)	M	2300	mg/kg	0.50	[B] 1.1	[B] 0.80	[B] < 0.50	[B] < 0.50	[B] 1.2		[B] 0.60	[B] 0.70	[B] 0.90	
Sulphate (Acid Soluble)	M	2430	%	0.010		[B] 0.061				[B] 0.015				
Arsenic	M	2450	mg/kg	1.0	16	16	15	21	13		16	17	22	
Beryllium	U	2450	mg/kg	1.0	1.2	< 1.0	< 1.0	1.2	< 1.0		< 1.0	< 1.0	1.1	
Cadmium	M	2450	mg/kg	0.10	0.46	0.34	0.37	0.43	0.33		0.44	0.43	0.46	
Chromium	M	2450	mg/kg	1.0	33	31	25	23	19		22	26	25	
Vanadium	U	2450	mg/kg	5.0	32	29	25	26	23		25	26	28	
Copper	M	2450	mg/kg	0.50	88	61	51	84	50		66	75	90	
Mercury	M	2450	mg/kg	0.10	0.41	0.34	0.28	0.27	0.21		0.25	0.22	0.24	
Nickel	M	2450	mg/kg	0.50	34	27	24	24	17		23	23	26	
Lead	M	2450	mg/kg	0.50	100	56	52	84	53		65	61	66	
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20		< 0.20	< 0.20	< 0.20	
Zinc	M	2450	mg/kg	0.50	120	88	83	110	79		110	100	110	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	
Organic Matter	M	2625	%	0.40	[B] 6.2	[B] 4.7	[B] 4.3	[B] 8.5	[B] 4.7		[B] 5.2	[B] 5.0	[B] 6.2	
Total Organic Carbon	M	2625	%	0.20										
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010										
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010										
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10										

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526346	526347	526348	526349	526350	526351	526352	526353	526354
Order No.: POR001655					Client Sample Ref.:	DTS08	DTS09	DTS10	DTS11	DTS12	DTS12	DTS13	DTS14	DTS15
					Client Sample ID.:	DTS080.101-045	DTS090.101-033	DTS100.102-001	DTS110.101-046	DTS120.101-050	DTS121.501-052	DTS130.101-054	DTS140.101-057	DTS150.101-068
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.10	0.10	0.10	0.10	0.10	1.50	0.10	0.10	0.10
					Bottom Depth (m):									
					Date Sampled:	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	19-Sep-2017
					Asbestos Lab:									
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10										
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0										
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010										
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010										
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10										
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10										
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0										
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0										
Benzene	M	2760	µg/kg	1.0										
Toluene	M	2760	µg/kg	1.0										
Ethylbenzene	M	2760	µg/kg	1.0										
m & p-Xylene	M	2760	µg/kg	1.0										
o-Xylene	M	2760	µg/kg	1.0										
Naphthalene	M	2800	mg/kg	0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.11	
Acenaphthylene	N	2800	mg/kg	0.10	0.27	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	
Acenaphthene	M	2800	mg/kg	0.10	0.23	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.36	
Fluorene	M	2800	mg/kg	0.10	0.52	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.13	
Phenanthrene	M	2800	mg/kg	0.10	1.9	0.15	0.22	0.30	< 0.10		0.12	0.10	2.1	
Anthracene	M	2800	mg/kg	0.10	1.3	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.40	
Fluoranthene	M	2800	mg/kg	0.10	2.1	0.25	0.50	0.50	< 0.10		0.29	0.21	2.6	
Pyrene	M	2800	mg/kg	0.10	1.9	0.20	0.37	0.38	< 0.10		0.25	0.20	2.1	
Benzo[a]anthracene	M	2800	mg/kg	0.10	1.6	< 0.10	< 0.10	0.11	< 0.10		< 0.10	< 0.10	0.74	
Chrysene	M	2800	mg/kg	0.10	1.2	< 0.10	< 0.10	0.14	< 0.10		< 0.10	< 0.10	0.83	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	1.0	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.67	
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.33	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.27	
Benzo[a]pyrene	M	2800	mg/kg	0.10	1.1	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.70	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.42	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.43	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.68	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.39	
Total Of 16 PAH's	N	2800	mg/kg	2.0	15	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0	< 2.0	12	

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526346	526347	526348	526349	526350	526351	526352	526353	526354
Order No.: POR001655					Client Sample Ref.:	DTS08	DTS09	DTS10	DTS11	DTS12	DTS12	DTS13	DTS14	DTS15
					Client Sample ID.:	DTS080.101-045	DTS090.101-033	DTS100.102-001	DTS110.101-046	DTS120.101-050	DTS121.501-052	DTS130.101-054	DTS140.101-057	DTS150.101-068
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.10	0.10	0.10	0.10	0.10	1.50	0.10	0.10	0.10
					Bottom Depth (m):									
					Date Sampled:	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	18-Sep-2017	19-Sep-2017
					Asbestos Lab:									
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total Phenols	M	2920	mg/kg	0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	< 0.30	< 0.30

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526355	526356	526357	526358	526359	526360	526361	526362	526363
Order No.: POR001655					Client Sample Ref.:	DTS16	DTS17	DTS17	DTS18	DTS19	DTS21	DTS22	DTS23	DTS24
					Client Sample ID.:	DTS160.101-072	DTS170.101-081	DTS171.201-083	DTS180.101-063	DTS190.101-088	DTS210.101-085	DTS220.101-062	DTS230.101-123	DTS240.101-092
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.10	0.10	1.20	0.10	0.10	0.10	0.10	0.10	0.10
					Bottom Depth (m):									
					Date Sampled:	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	20-Sep-2017	20-Sep-2017
					Asbestos Lab:				COVENTRY					
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A					-					
Asbestos Identification	U	2192	%	0.001					No Asbestos Detected					
Moisture	N	2030	%	0.020	19	18	15	18	16	15	18	17	15	
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brow	Brown	Brown	Brow	
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	
Soil Texture	N	2040		N/A	Loam	Loam	Clay	Loam	Loam	Clay	Loam	Loam	Loam	
pH	M	2010		N/A	[B] 8.1	[B] 8.0	[B] 7.3	[B] 8.0	[B] 8.1	[B] 7.8	[B] 5.7	7.9	7.9	
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.46	0.40		< 0.40	< 0.40	< 0.40	< 0.40	0.40	0.43	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010			< 0.010							
Total Sulphur	M	2175	%	0.010			[B] < 0.010							
Cyanide (Complex)	M	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] 1.2	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	
Cyanide (Free)	M	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	
Cyanide (Total)	M	2300	mg/kg	0.50	[B] 0.50	[B] < 0.50		[B] < 0.50	[B] 1.3	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	
Sulphate (Acid Soluble)	M	2430	%	0.010			[B] < 0.010							
Arsenic	M	2450	mg/kg	1.0	21	8.6		17	18	11	16	18	18	
Beryllium	U	2450	mg/kg	1.0	1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Cadmium	M	2450	mg/kg	0.10	0.47	0.20		0.38	0.39	0.17	0.25	0.40	0.43	
Chromium	M	2450	mg/kg	1.0	22	12		22	27	27	32	23	28	
Vanadium	U	2450	mg/kg	5.0	25	12		24	27	28	32	25	31	
Copper	M	2450	mg/kg	0.50	79	44		59	67	34	49	86	63	
Mercury	M	2450	mg/kg	0.10	0.24	0.14		0.70	0.20	0.13	0.18	0.21	0.21	
Nickel	M	2450	mg/kg	0.50	25	12		22	26	21	28	25	27	
Lead	M	2450	mg/kg	0.50	65	33		52	57	26	46	60	50	
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	
Zinc	M	2450	mg/kg	0.50	110	66		84	100	47	67	110	100	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Organic Matter	M	2625	%	0.40	[B] 8.5	[B] 4.8		[B] 6.0	[B] 6.4	[B] 2.2	[B] 4.5	7.1	5.5	
Total Organic Carbon	M	2625	%	0.20										
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010										
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010										
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10										

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526355	526356	526357	526358	526359	526360	526361	526362	526363
Order No.: POR001655			Client Sample Ref.:		DTS16	DTS17	DTS17	DTS18	DTS19	DTS21	DTS22	DTS23	DTS24
			Client Sample ID.:		DTS160.101-072	DTS170.101-081	DTS171.201-083	DTS180.101-063	DTS190.101-088	DTS210.101-085	DTS220.101-062	DTS230.101-123	DTS240.101-092
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.10	1.20	0.10	0.10	0.10	0.10	0.10	0.10
			Bottom Depth (m):										
			Date Sampled:		19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	20-Sep-2017	20-Sep-2017
			Asbestos Lab:					COVENTRY					
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10									
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10									
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0									
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010									
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010									
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10									
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10									
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10									
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10									
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10									
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10									
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0									
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0									
Benzene	M	2760	µg/kg	1.0									
Toluene	M	2760	µg/kg	1.0									
Ethylbenzene	M	2760	µg/kg	1.0									
m & p-Xylene	M	2760	µg/kg	1.0									
o-Xylene	M	2760	µg/kg	1.0									
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.10	< 0.10		0.21	0.34	< 0.10	< 0.10	< 0.10	0.17
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	0.16	0.16		0.37	0.41	< 0.10	0.12	0.14	0.25
Pyrene	M	2800	mg/kg	0.10	0.16	0.11		0.36	0.43	< 0.10	0.12	0.13	0.22
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526355	526356	526357	526358	526359	526360	526361	526362	526363
Order No.: POR001655			Client Sample Ref.:		DTS16	DTS17	DTS17	DTS18	DTS19	DTS21	DTS22	DTS23	DTS24
			Client Sample ID.:		DTS160.101-072	DTS170.101-081	DTS171.201-083	DTS180.101-063	DTS190.101-088	DTS210.101-085	DTS220.101-062	DTS230.101-123	DTS240.101-092
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.10	1.20	0.10	0.10	0.10	0.10	0.10	0.10
			Bottom Depth (m):										
			Date Sampled:		19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	19-Sep-2017	20-Sep-2017	20-Sep-2017
			Asbestos Lab:					COVENTRY					
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526364	526365	526366	526368	526370	526372	526373	526374	526375
Order No.: POR001655					Client Sample Ref.:	DTS24	DTS25	DTS26	DTS27	DTS30	DTS32	DTS33	DTS34	DTS35
					Client Sample ID.:	DTS240.501-093	DTS250.102-002	DTS260.101-118	DTS270.101-104	DTS300.101-124	DTS320.101-154	DTS330.101-146	DTS340.101-175	DTS350.101-178
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
					Bottom Depth (m):									
					Date Sampled:	20-Sep-2017	20-Sep-2017	20-Sep-2017	20-Sep-2017	20-Sep-2017	21-Sep-2017	21-Sep-2017	21-Sep-2017	21-Sep-2017
					Asbestos Lab:	COVENTRY			COVENTRY					
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A		-			-					
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected			No Asbestos Detected					
Moisture	N	2030	%	0.020		10	15	18	14	17	17	16	17	18
Soil Colour	N	2040		N/A		Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A		Stones	NONE	Stones	Stones	Stones	Stones	Stones, Roots	Stones	Stones
Soil Texture	N	2040		N/A		Sand	Loam	Loam	Loam	Loam	Clay	Sand	Sand	Clay
pH	M	2010		N/A		7.6	7.6	7.5	7.7	7.4	6.4	6.3	7.4	8.0
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		< 0.40	0.46	0.67	0.49	0.53	0.43	< 0.40	0.66	0.53
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010								< 0.010		
Total Sulphur	M	2175	%	0.010								0.061		
Cyanide (Complex)	M	2300	mg/kg	0.50		[B] < 0.50	[B] 0.60	[B] 0.70	[B] 0.80	[B] 0.50	[B] < 0.50	[B] < 0.50	[B] 0.80	[B] < 0.50
Cyanide (Free)	M	2300	mg/kg	0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Cyanide (Total)	M	2300	mg/kg	0.50		[B] < 0.50	[B] 0.60	[B] 0.70	[B] 0.80	[B] 0.50	[B] < 0.50	[B] < 0.50	[B] 0.80	[B] < 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010								0.056		
Arsenic	M	2450	mg/kg	1.0		9.0	20	22	20	18	18	20	23	18
Beryllium	U	2450	mg/kg	1.0		< 1.0	< 1.0	1.1	1.1	< 1.0	< 1.0	< 1.0	1.0	< 1.0
Cadmium	M	2450	mg/kg	0.10		< 0.10	0.43	0.49	0.48	0.31	0.42	0.35	0.41	0.36
Chromium	M	2450	mg/kg	1.0		38	23	25	25	28	29	27	29	30
Vanadium	U	2450	mg/kg	5.0		32	25	25	29	31	33	30	33	30
Copper	M	2450	mg/kg	0.50		28	80	91	84	69	58	67	81	62
Mercury	M	2450	mg/kg	0.10		< 0.10	0.22	0.28	0.28	0.20	0.26	0.19	0.22	0.23
Nickel	M	2450	mg/kg	0.50		38	25	28	29	24	26	27	30	25
Lead	M	2450	mg/kg	0.50		12	62	72	63	48	70	57	63	46
Selenium	M	2450	mg/kg	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	M	2450	mg/kg	0.50		61	110	130	120	92	97	84	87	89
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40		1.2	5.9	6.0	7.9	4.7	4.1	5.5	7.8	6.4
Total Organic Carbon	M	2625	%	0.20										
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010										
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010										
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10										

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526364	526365	526366	526368	526370	526372	526373	526374	526375
Order No.: POR001655					Client Sample Ref.:	DTS24	DTS25	DTS26	DTS27	DTS30	DTS32	DTS33	DTS34	DTS35
					Client Sample ID.:	DTS240.501-093	DTS250.102-002	DTS260.101-118	DTS270.101-104	DTS300.101-124	DTS320.101-154	DTS330.101-146	DTS340.101-175	DTS350.101-178
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
					Bottom Depth (m):									
					Date Sampled:	20-Sep-2017	20-Sep-2017	20-Sep-2017	20-Sep-2017	20-Sep-2017	21-Sep-2017	21-Sep-2017	21-Sep-2017	21-Sep-2017
					Asbestos Lab:	COVENTRY			COVENTRY					
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10										
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0										
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010										
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010										
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10										
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10										
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0										
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0										
Benzene	M	2760	µg/kg	1.0										
Toluene	M	2760	µg/kg	1.0										
Ethylbenzene	M	2760	µg/kg	1.0										
m & p-Xylene	M	2760	µg/kg	1.0										
o-Xylene	M	2760	µg/kg	1.0										
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	0.16	0.27	< 0.10	< 0.10	< 0.10	0.10	< 0.10	0.15	
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	0.44	0.65	0.19	< 0.10	0.14	0.46	0.22	0.25	
Pyrene	M	2800	mg/kg	0.10	< 0.10	0.40	0.55	0.20	< 0.10	0.14	0.41	0.22	0.22	
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526364	526365	526366	526368	526370	526372	526373	526374	526375
Order No.: POR001655					Client Sample Ref.:	DTS24	DTS25	DTS26	DTS27	DTS30	DTS32	DTS33	DTS34	DTS35
					Client Sample ID.:	DTS240.501-093	DTS250.102-002	DTS260.101-118	DTS270.101-104	DTS300.101-124	DTS320.101-154	DTS330.101-146	DTS340.101-175	DTS350.101-178
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
					Bottom Depth (m):									
					Date Sampled:	20-Sep-2017	20-Sep-2017	20-Sep-2017	20-Sep-2017	20-Sep-2017	21-Sep-2017	21-Sep-2017	21-Sep-2017	21-Sep-2017
					Asbestos Lab:	COVENTRY			COVENTRY					
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total Phenols	M	2920	mg/kg	0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526376	526377	526378	526379	526380	526381	526382	526384	526385
Order No.: POR001655					Client Sample Ref.:	DTS36	DTS36	DTS36	DTS38	DTS39	DTS40	DTS41	DTS44	DTS47
					Client Sample ID.:	DTS360.101-142	DTS360.501-143	DTS361.001-144	DTS380.501-213	DTS390.101-204	DTS400.101-191	DTS410.101-198	DTS440.101-197	DTS470.201-256
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.10	0.50	1.00	0.50	0.10	0.10	0.10	0.10	0.20
					Bottom Depth (m):									
					Date Sampled:	21-Sep-2017	21-Sep-2017	21-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	25-Sep-2017
					Asbestos Lab:		COVENTRY							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A			-							
Asbestos Identification	U	2192	%	0.001			No Asbestos Detected							
Moisture	N	2030	%	0.020		15	19	13	13	21	17	18	17	17
Soil Colour	N	2040		N/A		Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A		Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A		Loam	Loam	Clay	Clay	Loam	Sand	Clay	Clay	Sand
pH	M	2010		N/A		7.6	7.2	7.5	7.5	6.5	6.4	7.5	7.3	5.4
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		0.57	0.44		< 0.40	0.98	0.72	0.53	0.57	0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010				< 0.010				< 0.010		
Total Sulphur	M	2175	%	0.010				0.019				0.065		
Cyanide (Complex)	M	2300	mg/kg	0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] 0.60	[B] 0.80	[B] 0.50
Cyanide (Free)	M	2300	mg/kg	0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Cyanide (Total)	M	2300	mg/kg	0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] 0.60	[B] 0.90	[B] 0.60
Sulphate (Acid Soluble)	M	2430	%	0.010				< 0.010				0.059		
Arsenic	M	2450	mg/kg	1.0		20	9.9		7.1	32	25	23	26	32
Beryllium	U	2450	mg/kg	1.0		< 1.0	< 1.0		< 1.0	1.4	1.1	< 1.0	1.1	1.3
Cadmium	M	2450	mg/kg	0.10		0.45	0.12		< 0.10	0.52	0.37	0.45	0.46	0.42
Chromium	M	2450	mg/kg	1.0		28	29		38	28	29	24	28	29
Vanadium	U	2450	mg/kg	5.0		29	26		31	35	32	29	31	37
Copper	M	2450	mg/kg	0.50		67	23		10	120	60	92	110	120
Mercury	M	2450	mg/kg	0.10		0.18	0.10		< 0.10	0.27	0.16	0.22	0.20	0.20
Nickel	M	2450	mg/kg	0.50		24	25		22	39	32	26	32	34
Lead	M	2450	mg/kg	0.50		48	17		7.1	210	47	70	92	66
Selenium	M	2450	mg/kg	0.20		< 0.20	< 0.20		< 0.20	0.40	< 0.20	< 0.20	0.20	0.29
Zinc	M	2450	mg/kg	0.50		110	38		27	130	79	130	120	98
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40		2.9	4.1		0.83	14	6.7	6.2	7.9	21
Total Organic Carbon	M	2625	%	0.20							3.9		4.6	
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010							[B] < 0.010		[B] < 0.010	
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010							[B] < 0.010		[B] < 0.010	
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10							[B] < 0.10		[B] < 0.10	
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10							[B] < 0.10		[B] < 0.10	
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10							[B] < 0.10		[B] < 0.10	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526376	526377	526378	526379	526380	526381	526382	526384	526385
Order No.: POR001655			Client Sample Ref.:		DTS36	DTS36	DTS36	DTS38	DTS39	DTS40	DTS41	DTS44	DTS47
			Client Sample ID.:		DTS360.101-142	DTS360.501-143	DTS361.001-144	DTS380.501-213	DTS390.101-204	DTS400.101-191	DTS410.101-198	DTS440.101-197	DTS470.201-256
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.50	1.00	0.50	0.10	0.10	0.10	0.10	0.20
			Bottom Depth (m):										
			Date Sampled:		21-Sep-2017	21-Sep-2017	21-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	25-Sep-2017
			Asbestos Lab:			COVENTRY							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10						[B] < 0.10		[B] < 0.10	
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10						[B] < 0.10		[B] < 0.10	
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10						[B] < 0.10		[B] < 0.10	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0						[B] < 1.0		[B] < 1.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010						[B] < 0.010		[B] < 0.010	
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010						[B] < 0.010		[B] < 0.010	
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10						[B] < 0.10		[B] < 0.10	
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10						[B] < 0.10		[B] < 0.10	
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10						[B] < 0.10		[B] < 0.10	
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10						[B] 6.1		[B] < 0.10	
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10						[B] 15		[B] < 0.10	
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10						[B] < 0.10		[B] < 0.10	
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0						[B] 21		[B] < 1.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0						[B] 21		[B] < 2.0	
Benzene	M	2760	µg/kg	1.0						[B] < 1.0		[B] < 1.0	
Toluene	M	2760	µg/kg	1.0						[B] < 1.0		[B] < 1.0	
Ethylbenzene	M	2760	µg/kg	1.0						[B] < 1.0		[B] < 1.0	
m & p-Xylene	M	2760	µg/kg	1.0						[B] < 1.0		[B] 1.2	
o-Xylene	M	2760	µg/kg	1.0						[B] < 1.0		[B] < 1.0	
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	0.15	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	1.1	< 0.10		< 0.10	0.17	< 0.10	0.25	0.12	0.30
Anthracene	M	2800	mg/kg	0.10	0.13	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	1.2	< 0.10		< 0.10	0.32	< 0.10	0.56	0.29	0.51
Pyrene	M	2800	mg/kg	0.10	0.98	< 0.10		< 0.10	0.30	< 0.10	0.49	0.31	0.43
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.18	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	0.26	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	4.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526376	526377	526378	526379	526380	526381	526382	526384	526385
Order No.: POR001655			Client Sample Ref.:		DTS36	DTS36	DTS36	DTS38	DTS39	DTS40	DTS41	DTS44	DTS47
			Client Sample ID.:		DTS360.101-142	DTS360.501-143	DTS361.001-144	DTS380.501-213	DTS390.101-204	DTS400.101-191	DTS410.101-198	DTS440.101-197	DTS470.201-256
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.50	1.00	0.50	0.10	0.10	0.10	0.10	0.20
			Bottom Depth (m):										
			Date Sampled:		21-Sep-2017	21-Sep-2017	21-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	22-Sep-2017	25-Sep-2017
			Asbestos Lab:			COVENTRY							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526386	526387	526388	526389	526390	526391	526392	526393	526394
Order No.: POR001655					Client Sample Ref.:	DTS47	DTS47	DTS48	DTS49	DTS50	DTS51	DTS52	DTS53	DTS54
					Client Sample ID.:	DTS470.301-257	DTS471.801-263	DTS480.201-521	DTS490.201-274	DTS500.201-292	DTS510.201-310	DTS520.201-328	DTS530.201-345	DTS540.201-362
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.30	1.80	0.20	0.20	0.20	0.20	0.20	0.20	0.20
					Bottom Depth (m):	1.00	2.00							
					Date Sampled:	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	26-Sep-2017	26-Sep-2017
					Asbestos Lab:				COVENTRY					COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A					-					-
Asbestos Identification	U	2192	%	0.001					No Asbestos Detected					No Asbestos Detected
Moisture	N	2030	%	0.020	16	25	19	22	16	22	23	25		
Soil Colour	N	2040		N/A	Black	Brown	Brown	Brown	Brown	Brown	Brown	Brown		
Other Material	N	2040		N/A	Stones	NONE	Stones	Stones	Stones	Stones	Stones	Stones		
Soil Texture	N	2040		N/A	Sand	Loam	Clay	Clay	Sand	Loam	Clay	Clay		
pH	M	2010		N/A	4.5	5.0	7.0	7.3	5.8	5.2	5.4	6.2		
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.58		< 0.40	0.44	0.49	0.62	< 0.40	0.71		
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010		0.66								
Total Sulphur	M	2175	%	0.010		0.46								
Cyanide (Complex)	M	2300	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		
Cyanide (Free)	M	2300	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		
Sulphate (Acid Soluble)	M	2430	%	0.010		0.33								
Arsenic	M	2450	mg/kg	1.0	26		18	27	18	39	27	21		
Beryllium	U	2450	mg/kg	1.0	< 1.0		< 1.0	< 1.0	1.0	1.2	< 1.0	< 1.0		
Cadmium	M	2450	mg/kg	0.10	< 0.10		0.24	0.42	0.31	0.56	0.28	0.36		
Chromium	M	2450	mg/kg	1.0	6.6		38	34	32	37	30	27		
Vanadium	U	2450	mg/kg	5.0	22		36	36	32	41	33	30		
Copper	M	2450	mg/kg	0.50	30		34	78	51	81	72	63		
Mercury	M	2450	mg/kg	0.10	0.17		0.11	0.20	0.13	0.20	0.18	0.17		
Nickel	M	2450	mg/kg	0.50	12		29	30	37	39	30	25		
Lead	M	2450	mg/kg	0.50	26		22	55	60	80	52	44		
Selenium	M	2450	mg/kg	0.20	1.4		< 0.20	< 0.20	< 0.20	0.24	< 0.20	< 0.20		
Zinc	M	2450	mg/kg	0.50	16		63	93	76	120	88	76		
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Organic Matter	M	2625	%	0.40	91		4.1	7.2	4.0	5.5	4.1	14		
Total Organic Carbon	M	2625	%	0.20	53									
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	[B] < 0.010									
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	[B] < 0.010									
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	[B] < 0.10									
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	[B] 1.3									
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	[B] 10									

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526386	526387	526388	526389	526390	526391	526392	526393	526394
Order No.: POR001655					Client Sample Ref.:	DTS47	DTS47	DTS48	DTS49	DTS50	DTS51	DTS52	DTS53	DTS54
					Client Sample ID.:	DTS470.301-257	DTS471.801-263	DTS480.201-521	DTS490.201-274	DTS500.201-292	DTS510.201-310	DTS520.201-328	DTS530.201-345	DTS540.201-362
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.30	1.80	0.20	0.20	0.20	0.20	0.20	0.20	0.20
					Bottom Depth (m):	1.00	2.00							
					Date Sampled:	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	26-Sep-2017	26-Sep-2017
					Asbestos Lab:				COVENTRY					COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	[B] 14									
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	[B] 100									
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	[B] < 0.10									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	[B] 130									
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	[B] < 0.010									
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	[B] < 0.010									
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	[B] < 0.10									
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	[B] < 0.10									
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	[B] 33									
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	[B] 54									
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	[B] 160									
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	[B] < 0.10									
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	[B] 240									
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	[B] 370									
Benzene	M	2760	µg/kg	1.0	[B] < 1.0									
Toluene	M	2760	µg/kg	1.0	[B] < 1.0									
Ethylbenzene	M	2760	µg/kg	1.0	[B] < 1.0									
m & p-Xylene	M	2760	µg/kg	1.0	[B] < 1.0									
o-Xylene	M	2760	µg/kg	1.0	[B] < 1.0									
Naphthalene	M	2800	mg/kg	0.10	0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	M	2800	mg/kg	0.10	0.48			< 0.10	0.10	0.12	< 0.10	< 0.10	0.38	
Anthracene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	M	2800	mg/kg	0.10	0.14			< 0.10	0.28	0.36	0.23	0.19	0.52	
Pyrene	M	2800	mg/kg	0.10	0.18			< 0.10	0.23	0.28	0.19	0.16	0.44	
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	
Chrysene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.18	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526386	526387	526388	526389	526390	526391	526392	526393	526394
Order No.: POR001655			Client Sample Ref.:		DTS47	DTS47	DTS48	DTS49	DTS50	DTS51	DTS52	DTS53	DTS54
			Client Sample ID.:		DTS470.301-257	DTS471.801-263	DTS480.201-521	DTS490.201-274	DTS500.201-292	DTS510.201-310	DTS520.201-328	DTS530.201-345	DTS540.201-362
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.30	1.80	0.20	0.20	0.20	0.20	0.20	0.20	0.20
			Bottom Depth (m):		1.00	2.00							
			Date Sampled:		25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	26-Sep-2017	26-Sep-2017
			Asbestos Lab:					COVENTRY					COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Phenols	M	2920	mg/kg	0.30	< 0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526395	526396	526397	526398	526399	526400	526402	526403
Order No.: POR001655			Client Sample Ref.:		DTS55	DTS55	DTS56	DTS58	DTS60	DTS61	DTS61	DTS62
			Client Sample ID.:		DTS550.101-380	DTS550.301-381	DTS560.201-397	DTS580.201-433	DTS600.301-452	DTS610.201-458	DTS611.001-460	DTS620.201-464
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.30	0.20	0.20	0.30	0.20	1.00	0.20
			Bottom Depth (m):									
			Date Sampled:		26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017
			Asbestos Lab:									
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A								
Asbestos Identification	U	2192	%	0.001								
Moisture	N	2030	%	0.020	18	18	27	17	19	16	23	16
Soil Colour	N	2040		N/A	Brown		Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones		Stones, Roots	Stones	Stones, Roots	Stones, Roots, 526399	Stones	Stones
Soil Texture	N	2040		N/A	Clay		Loam	Loam	Sand	Sand	Clay	Sand
pH	M	2010		N/A	6.1		6.6	6.7	5.2	4.9	6.2	6.1
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.46		0.63	0.90	1.1	0.78		0.86
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010							0.016	
Total Sulphur	M	2175	%	0.010							0.13	
Cyanide (Complex)	M	2300	mg/kg	0.50	[B] < 0.50		[B] 0.50	[B] < 0.50	[B] 0.50	[B] < 0.50		[B] < 0.50
Cyanide (Free)	M	2300	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	[B] < 0.50		[B] 0.60	[B] < 0.50	[B] 0.60	[B] < 0.50		[B] < 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010							0.22	
Arsenic	M	2450	mg/kg	1.0	21		20	20	35	160		17
Beryllium	U	2450	mg/kg	1.0	1.3		1.2	1.2	1.9	2.4		< 1.0
Cadmium	M	2450	mg/kg	0.10	0.39		0.48	0.65	0.72	0.71		0.34
Chromium	M	2450	mg/kg	1.0	31		26	31	23	19		25
Vanadium	U	2450	mg/kg	5.0	33		31	33	35	34		26
Copper	M	2450	mg/kg	0.50	66		150	62	95	250		67
Mercury	M	2450	mg/kg	0.10	0.21		0.21	0.16	0.23	0.32		0.18
Nickel	M	2450	mg/kg	0.50	35		29	33	40	67		26
Lead	M	2450	mg/kg	0.50	49		65	50	100	300		59
Selenium	M	2450	mg/kg	0.20	< 0.20		< 0.20	< 0.20	0.63	1.8		< 0.20
Zinc	M	2450	mg/kg	0.50	81		130	110	130	230		97
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Organic Matter	M	2625	%	0.40	9.3	11	13	4.7	12	19		5.3
Total Organic Carbon	M	2625	%	0.20		6.1						
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010		[B] < 0.010						
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010		[B] < 0.010						
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10		[B] < 0.10						
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10		[B] < 0.10						
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10		[B] < 0.10						

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526395	526396	526397	526398	526399	526400	526402	526403
Order No.: POR001655			Client Sample Ref.:		DTS55	DTS55	DTS56	DTS58	DTS60	DTS61	DTS61	DTS62
			Client Sample ID.:		DTS550.101-380	DTS550.301-381	DTS560.201-397	DTS580.201-433	DTS600.301-452	DTS610.201-458	DTS611.001-460	DTS620.201-464
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.30	0.20	0.20	0.30	0.20	1.00	0.20
			Bottom Depth (m):									
			Date Sampled:		26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017
			Asbestos Lab:									
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10		[B] < 0.10						
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10		[B] < 0.10						
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10		[B] < 0.10						
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0		[B] < 1.0						
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010		[B] < 0.010						
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010		[B] < 0.010						
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10		[B] < 0.10						
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10		[B] < 0.10						
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10		[B] < 0.10						
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10		[B] 12						
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10		[B] 17						
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10		[B] < 0.10						
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0		[B] 29						
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0		[B] 29						
Benzene	M	2760	µg/kg	1.0		[B] < 1.0						
Toluene	M	2760	µg/kg	1.0		[B] < 1.0						
Ethylbenzene	M	2760	µg/kg	1.0		[B] < 1.0						
m & p-Xylene	M	2760	µg/kg	1.0		[B] < 1.0						
o-Xylene	M	2760	µg/kg	1.0		[B] < 1.0						
Naphthalene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	0.10	< 0.10		< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.23		0.13	0.43	1.2	0.82		< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	0.26	0.15		< 0.10
Fluoranthene	M	2800	mg/kg	0.10	0.42		0.23	0.86	2.9	1.2		< 0.10
Pyrene	M	2800	mg/kg	0.10	0.34		0.17	0.69	2.8	1.1		< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.12		< 0.10	0.23	1.6	0.47		< 0.10
Chrysene	M	2800	mg/kg	0.10	0.14		< 0.10	0.26	1.8	0.51		< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.22	2.4	0.56		< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	0.77	0.18		< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	1.4	0.33		< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	0.96	0.22		< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	0.15	< 0.10		< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	1.1	0.21		< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0		< 2.0	2.7	17	5.8		< 2.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526395	526396	526397	526398	526399	526400	526402	526403
Order No.: POR001655			Client Sample Ref.:		DTS55	DTS55	DTS56	DTS58	DTS60	DTS61	DTS61	DTS62
			Client Sample ID.:		DTS550.101-380	DTS550.301-381	DTS560.201-397	DTS580.201-433	DTS600.301-452	DTS610.201-458	DTS611.001-460	DTS620.201-464
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.30	0.20	0.20	0.30	0.20	1.00	0.20
			Bottom Depth (m):									
			Date Sampled:		26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017
			Asbestos Lab:									
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Total Phenols	M	2920	mg/kg	0.30	< 0.30		< 0.30	< 0.30	< 0.30	< 0.30		< 0.30

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited				**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:				**Chemtest Sample ID.:**	526404	526405	526407	526409	526410	526411	526412	526413	526414
Order No.: POR001655				Client Sample Ref.:	DTS63	DTS64	DTS65	DTS67	DTS68	DTS69	DTS70	DTS70	DTS71
				Client Sample ID.:	DTS630.201-470	DTS640.201-475	DTS650.201-480	DTS670.201-490	DTS680.201-495	DTS690.201-500	DTS700.201-505	DTS701.501-507	DTS710.201-511
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.20	0.20	0.20	0.20	0.20	0.20	0.20	1.50	0.20
				Bottom Depth (m):									
				Date Sampled:	27-Sep-2017	27-Sep-2017	27-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017
				Asbestos Lab:		COVENTRY					COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A		-					-		
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected					No Asbestos Detected		
Moisture	N	2030	%	0.020	15		15	28	22	20	25	10	22
Soil Colour	N	2040		N/A	Brown		Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones		Stones	Stones	Stones, Roots	Stones	Stones	NONE	Stones
Soil Texture	N	2040		N/A	Sand		Sand	Sand	Clay	Loam	Clay	Clay	Clay
pH	M	2010		N/A	5.9		5.8	5.5	5.7	5.5	6.0	8.3	7.3
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.89		0.84	0.40	0.98	0.64	0.88		< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010								0.058	
Total Sulphur	M	2175	%	0.010								0.061	
Cyanide (Complex)	M	2300	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50
Cyanide (Free)	M	2300	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010								0.040	
Arsenic	M	2450	mg/kg	1.0	21		20	20	24	17	21		14
Beryllium	U	2450	mg/kg	1.0	< 1.0		< 1.0	1.0	1.1	< 1.0	< 1.0		< 1.0
Cadmium	M	2450	mg/kg	0.10	0.39		0.49	0.34	0.48	0.35	0.45		0.14
Chromium	M	2450	mg/kg	1.0	25		30	24	32	26	27		32
Vanadium	U	2450	mg/kg	5.0	27		32	31	37	28	30		30
Copper	M	2450	mg/kg	0.50	79		66	62	64	47	52		290
Mercury	M	2450	mg/kg	0.10	0.19		0.16	0.17	0.21	0.14	0.19		0.12
Nickel	M	2450	mg/kg	0.50	27		29	28	35	27	30		40
Lead	M	2450	mg/kg	0.50	72		64	74	80	54	69		26
Selenium	M	2450	mg/kg	0.20	< 0.20		0.27	0.20	0.28	< 0.20	0.31		< 0.20
Zinc	M	2450	mg/kg	0.50	100		98	87	96	72	93		54
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Organic Matter	M	2625	%	0.40	5.7		6.6	11	5.3	4.0	6.4		2.8
Total Organic Carbon	M	2625	%	0.20									
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010									
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010									
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10									
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10									
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10									

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526404	526405	526407	526409	526410	526411	526412	526413	526414
Order No.: POR001655					Client Sample Ref.:	DTS63	DTS64	DTS65	DTS67	DTS68	DTS69	DTS70	DTS70	DTS71
					Client Sample ID.:	DTS630.201-470	DTS640.201-475	DTS650.201-480	DTS670.201-490	DTS680.201-495	DTS690.201-500	DTS700.201-505	DTS701.501-507	DTS710.201-511
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.20	0.20	0.20	0.20	0.20	0.20	0.20	1.50	0.20
					Bottom Depth (m):									
					Date Sampled:	27-Sep-2017	27-Sep-2017	27-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017
					Asbestos Lab:		COVENTRY					COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10										
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0										
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010										
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010										
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10										
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10										
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0										
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0										
Benzene	M	2760	µg/kg	1.0										
Toluene	M	2760	µg/kg	1.0										
Ethylbenzene	M	2760	µg/kg	1.0										
m & p-Xylene	M	2760	µg/kg	1.0										
o-Xylene	M	2760	µg/kg	1.0										
Naphthalene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.26		0.10	0.24	< 0.10	< 0.10	< 0.10		< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Fluoranthene	M	2800	mg/kg	0.10	0.42		0.14	0.55	0.14	0.13	0.15		0.26
Pyrene	M	2800	mg/kg	0.10	0.32		0.11	0.47	0.11	0.15	0.15		0.30
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.17	< 0.10	< 0.10	< 0.10		< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.19	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.17	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10		< 0.10	0.10	< 0.10	< 0.10	< 0.10		< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		< 2.0

Chemtest
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Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526404	526405	526407	526409	526410	526411	526412	526413	526414
Order No.: POR001655					Client Sample Ref.:	DTS63	DTS64	DTS65	DTS67	DTS68	DTS69	DTS70	DTS70	DTS71
					Client Sample ID.:	DTS630.201-470	DTS640.201-475	DTS650.201-480	DTS670.201-490	DTS680.201-495	DTS690.201-500	DTS700.201-505	DTS701.501-507	DTS710.201-511
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.20	0.20	0.20	0.20	0.20	0.20	0.20	1.50	0.20
					Bottom Depth (m):									
					Date Sampled:	27-Sep-2017	27-Sep-2017	27-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017
					Asbestos Lab:		COVENTRY					COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Total Phenols	M	2920	mg/kg	0.30		< 0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526415	526416	526417	526418	526419	526420	526421	526422	526423
Order No.: POR001655					Client Sample Ref.:	DTS73	DTS74	DTS75	DTS76	DTS78	DTS79	DTS81	DTS83	DTS83
					Client Sample ID.:	DTS730.201-544	DTS740.101-240	DTS750.101-252	DTS760.101-246	DTS780.101-230	DTS790.101-234	DTS811.501-244	DTS830.101-217	DTS830.501-218
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.20	0.10	0.10	0.10	0.10	0.10	1.50	0.10	0.50
					Bottom Depth (m):									
					Date Sampled:	28-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017
					Asbestos Lab:									COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A										-
Asbestos Identification	U	2192	%	0.001										No Asbestos Detected
Moisture	N	2030	%	0.020	19	9.4	17	18	17	21	14	15		
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown		
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Roots	Stones	Stones, Textiles		
Soil Texture	N	2040		N/A	Clay	Sand	Loam	Loam	Loam	Loam	Clay	Clay		
pH	M	2010		N/A	6.2	8.2	7.6	6.1	5.6	5.2	7.3	7.3		
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.44	0.90	0.74	1.0	0.95	0.85		< 0.40		
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010							< 0.010			
Total Sulphur	M	2175	%	0.010							< 0.010			
Cyanide (Complex)	M	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50		
Cyanide (Free)	M	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50		
Sulphate (Acid Soluble)	M	2430	%	0.010							< 0.010			
Arsenic	M	2450	mg/kg	1.0	14	20	28	27	20	21		12		
Beryllium	U	2450	mg/kg	1.0	< 1.0	< 1.0	1.7	1.6	1.0	1.1		< 1.0		
Cadmium	M	2450	mg/kg	0.10	0.23	0.47	0.56	0.64	0.37	0.41		0.13		
Chromium	M	2450	mg/kg	1.0	36	21	25	32	32	25		33		
Vanadium	U	2450	mg/kg	5.0	31	31	30	36	33	28		30		
Copper	M	2450	mg/kg	0.50	34	19	91	74	61	66		26		
Mercury	M	2450	mg/kg	0.10	0.14	< 0.10	0.21	0.22	0.17	0.16		0.13		
Nickel	M	2450	mg/kg	0.50	37	32	36	40	35	30		44		
Lead	M	2450	mg/kg	0.50	26	31	130	86	53	61		17		
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	0.20	< 0.20	< 0.20	< 0.20		< 0.20		
Zinc	M	2450	mg/kg	0.50	55	52	160	130	85	83		45		
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50		
Organic Matter	M	2625	%	0.40	2.9	9.1	7.6	8.1	4.7	5.9		1.6		
Total Organic Carbon	M	2625	%	0.20	1.7									
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	[B] < 0.010									
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	[B] < 0.010									
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	[B] < 0.10									
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	[B] < 0.10									
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	[B] < 0.10									

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited					**Chemtest Job No.:**	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:					**Chemtest Sample ID.:**	526415	526416	526417	526418	526419	526420	526421	526422	526423
Order No.: POR001655					Client Sample Ref.:	DTS73	DTS74	DTS75	DTS76	DTS78	DTS79	DTS81	DTS83	DTS83
					Client Sample ID.:	DTS730.201-544	DTS740.101-240	DTS750.101-252	DTS760.101-246	DTS780.101-230	DTS790.101-234	DTS811.501-244	DTS830.101-217	DTS830.501-218
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.20	0.10	0.10	0.10	0.10	0.10	1.50	0.10	0.50
					Bottom Depth (m):									
					Date Sampled:	28-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017
					Asbestos Lab:									COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	[B] < 0.10									
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	[B] < 0.10									
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	[B] < 0.10									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	[B] < 1.0									
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	[B] < 0.010									
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	[B] < 0.010									
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	[B] < 0.10									
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	[B] < 0.10									
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	[B] < 0.10									
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	[B] < 0.10									
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	[B] < 0.10									
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	[B] < 0.10									
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	[B] < 1.0									
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	[B] < 2.0									
Benzene	M	2760	µg/kg	1.0	[BC] < 1.0									
Toluene	M	2760	µg/kg	1.0	[BC] < 1.0									
Ethylbenzene	M	2760	µg/kg	1.0	[BC] < 1.0									
m & p-Xylene	M	2760	µg/kg	1.0	[BC] < 1.0									
o-Xylene	M	2760	µg/kg	1.0	[BC] < 1.0									
Naphthalene	M	2800	mg/kg	0.10	< 0.10	0.31	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10		
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10		
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	0.92	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10		
Fluorene	M	2800	mg/kg	0.10	< 0.10	0.66	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10		
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	5.3	1.1	0.16	< 0.10	0.18		< 0.10		
Anthracene	M	2800	mg/kg	0.10	< 0.10	1.4	0.23	< 0.10	< 0.10	< 0.10		< 0.10		
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	8.3	2.8	0.33	0.12	0.38		0.14		
Pyrene	M	2800	mg/kg	0.10	< 0.10	6.8	2.6	0.28	0.10	0.38		0.21		
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	4.1	1.3	< 0.10	< 0.10	0.11		< 0.10		
Chrysene	M	2800	mg/kg	0.10	< 0.10	4.4	1.5	0.12	< 0.10	0.23		< 0.10		
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	6.8	2.3	0.15	< 0.10	0.31		< 0.10		
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	2.6	0.83	< 0.10	< 0.10	< 0.10		< 0.10		
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	5.5	1.8	< 0.10	< 0.10	0.17		< 0.10		
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	4.0	1.4	< 0.10	< 0.10	0.12		< 0.10		
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.73	0.18	< 0.10	< 0.10	< 0.10		< 0.10		
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	3.9	1.2	< 0.10	< 0.10	0.14		< 0.10		
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	56	17	< 2.0	< 2.0	2.0		< 2.0		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STN3680NM Florida Farm, East Lancashire

Client: Soiltechnics Limited			**Chemtest Job No.:**		17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383	17-27383
Quotation No.:			**Chemtest Sample ID.:**		526415	526416	526417	526418	526419	526420	526421	526422	526423
Order No.: POR001655			Client Sample Ref.:		DTS73	DTS74	DTS75	DTS76	DTS78	DTS79	DTS81	DTS83	DTS83
			Client Sample ID.:		DTS730.201-544	DTS740.101-240	DTS750.101-252	DTS760.101-246	DTS780.101-230	DTS790.101-234	DTS811.501-244	DTS830.101-217	DTS830.501-218
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.20	0.10	0.10	0.10	0.10	0.10	1.50	0.10	0.50
			Bottom Depth (m):										
			Date Sampled:		28-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017
			Asbestos Lab:										COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Ref:	Sample ID:	Sampled Date:	Deviation Code(s):	Containers Received:
526346	DTS08	DTS080.101-045	18-Sep-2017	B	Plastic Tub 500g
526347	DTS09	DTS090.101-033	18-Sep-2017	B	Plastic Tub 500g
526348	DTS10	DTS100.102-001	18-Sep-2017	B	Plastic Tub 500g
526349	DTS11	DTS110.101-046	18-Sep-2017	B	Plastic Tub 500g
526350	DTS12	DTS120.101-050	18-Sep-2017	B	Plastic Tub 500g
526351	DTS12	DTS121.501-052	18-Sep-2017	B	Plastic Bag
526352	DTS13	DTS130.101-054	18-Sep-2017	B	Plastic Tub 500g
526353	DTS14	DTS140.101-057	18-Sep-2017	B	Plastic Tub 500g
526354	DTS15	DTS150.101-068	19-Sep-2017	B	Plastic Tub 500g
526355	DTS16	DTS160.101-072	19-Sep-2017	B	Plastic Tub 500g
526356	DTS17	DTS170.101-081	19-Sep-2017	B	Plastic Tub 500g
526357	DTS17	DTS171.201-083	19-Sep-2017	B	Plastic Bag
526358	DTS18	DTS180.101-063	19-Sep-2017	B	Plastic Tub 500g
526359	DTS19	DTS190.101-088	19-Sep-2017	B	Plastic Tub 500g
526360	DTS21	DTS210.101-085	19-Sep-2017	B	Plastic Tub 500g
526361	DTS22	DTS220.101-062	19-Sep-2017	B	Plastic Tub 500g
526362	DTS23	DTS230.101-123	20-Sep-2017	B	Plastic Tub 500g
526363	DTS24	DTS240.101-092	20-Sep-2017	B	Plastic Tub 500g
526364	DTS24	DTS240.501-093	20-Sep-2017	B	Plastic Tub 500g
526365	DTS25	DTS250.102-002	20-Sep-2017	B	Plastic Tub 500g
526366	DTS26	DTS260.101-118	20-Sep-2017	B	Plastic Tub 500g
526368	DTS27	DTS270.101-104	20-Sep-2017	B	Plastic Tub 500g
526370	DTS30	DTS300.101-124	20-Sep-2017	B	Plastic Tub 500g
526372	DTS32	DTS320.101-154	21-Sep-2017	B	Plastic Tub 500g
526373	DTS33	DTS330.101-146	21-Sep-2017	B	Plastic Bag
526374	DTS34	DTS340.101-175	21-Sep-2017	B	Plastic Tub 500g
526375	DTS35	DTS350.101-178	21-Sep-2017	B	Plastic Tub 500g
526376	DTS36	DTS360.101-142	21-Sep-2017	B	Plastic Tub 500g
526377	DTS36	DTS360.501-143	21-Sep-2017	B	Plastic Tub 500g
526379	DTS38	DTS380.501-213	22-Sep-2017	B	Plastic Tub 500g
526380	DTS39	DTS390.101-204	22-Sep-2017	B	Plastic Tub 500g
526381	DTS40	DTS400.101-191	22-Sep-2017	B	Amber Glass 250ml
526382	DTS41	DTS410.101-198	22-Sep-2017	B	Plastic Bag
526384	DTS44	DTS440.101-197	22-Sep-2017	B	Amber Glass 250ml
526385	DTS47	DTS470.201-256	25-Sep-2017	B	Plastic Tub 500g
526386	DTS47	DTS470.301-257	25-Sep-2017	B	Amber Glass 250ml
526386	DTS47	DTS470.301-257	25-Sep-2017	B	Plastic Tub 500g
526388	DTS48	DTS480.201-521	25-Sep-2017	B	Plastic Tub 500g
526389	DTS49	DTS490.201-274	25-Sep-2017	B	Plastic Tub 500g
526390	DTS50	DTS500.201-292	25-Sep-2017	B	Plastic Tub 500g
526391	DTS51	DTS510.201-310	25-Sep-2017	B	Plastic Tub 500g
526392	DTS52	DTS520.201-328	25-Sep-2017	B	Plastic Tub 500g

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Ref:	Sample ID:	Sampled Date:	Deviation Code(s):	Containers Received:
526393	DTS53	DTS530.201-345	26-Sep-2017	B	Plastic Tub 500g
526395	DTS55	DTS550.101-380	26-Sep-2017	B	Plastic Bag
526396	DTS55	DTS550.301-381	26-Sep-2017	B	Amber Glass 250ml
526397	DTS56	DTS560.201-397	26-Sep-2017	B	Plastic Bag
526397	DTS56	DTS560.201-397	26-Sep-2017	B	Plastic Tub 500g
526398	DTS58	DTS580.201-433	26-Sep-2017	B	Plastic Bag
526398	DTS58	DTS580.201-433	26-Sep-2017	B	Plastic Tub 500g
526399	DTS60	DTS600.301-452	27-Sep-2017	B	Plastic Tub 500g
526400	DTS61	DTS610.201-458	27-Sep-2017	B	Plastic Tub 500g
526403	DTS62	DTS620.201-464	27-Sep-2017	B	Plastic Tub 500g
526404	DTS63	DTS630.201-470	27-Sep-2017	B	Plastic Tub 500g
526407	DTS65	DTS650.201-480	27-Sep-2017	B	Plastic Tub 500g
526409	DTS67	DTS670.201-490	28-Sep-2017	B	Plastic Tub 500g
526410	DTS68	DTS680.201-495	28-Sep-2017	B	Plastic Tub 500g
526411	DTS69	DTS690.201-500	28-Sep-2017	B	Plastic Tub 500g
526412	DTS70	DTS700.201-505	28-Sep-2017	B	Plastic Tub 500g
526414	DTS71	DTS710.201-511	28-Sep-2017	B	Plastic Tub 500g
526415	DTS73	DTS730.201-544	28-Sep-2017	BC	Plastic Tub 500g
526416	DTS74	DTS740.101-240	29-Sep-2017	B	Plastic Tub 500g
526417	DTS75	DTS750.101-252	29-Sep-2017	B	Plastic Tub 500g
526418	DTS76	DTS760.101-246	29-Sep-2017	B	Plastic Tub 500g
526419	DTS78	DTS780.101-230	29-Sep-2017	B	Plastic Tub 500g
526420	DTS79	DTS790.101-234	29-Sep-2017	B	Amber Glass 250ml
526422	DTS83	DTS830.101-217	29-Sep-2017	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

Test Methods

SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Lauren Wenham
Soiltechnics Ltd
White Lodge
Cedar Barn
Walgrave
NN6 9PY

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 22-07070

Site Reference:	Florida Farm, East Lancashire Road
Project / Job Ref:	STN3680NM
Order No:	POR13360
Sample Receipt Date:	18/08/2022
Sample Scheduled Date:	19/08/2022
Report Issue Number:	1
Reporting Date:	25/08/2022

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

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

UKAS TESTING
4480

Water Analysis Certificate						
DETS Report No: 22-07070	**Date Sampled**	15/08/22	15/08/22			
Soiltechnics Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Florida Farm, East Lancashire Road	**TP / BH No**	SW10.001	SW30.001			
Project / Job Ref: STN3680NM	**Additional Refs**	SW1	SW3			
Order No: POR13360	**Depth (m)**	0.00	0.00			
Reporting Date: 25/08/2022	**DETS Sample No**	609796	609797			

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	ISO17025	7.5	7.5			
Dissolved Organic Carbon (DOC)	mg/l	< 0.1	NONE	12.1	13.8			
Hardness - Total	mgCaCO3/l	< 1	NONE	271	233			
Calcium (dissolved)	mg/l	< 0.2	ISO17025	81.6	70.3			

Subcontracted analysis (S)
Insufficient sample I/S
Unsuitable Sample U/S

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

UKAS TESTING
4480

Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 22-07070
Soiltechnics Ltd
Site Reference: Florida Farm, East Lancashire Road
Project / Job Ref: STN3680NM
Order No: POR13360
Reporting Date: 25/08/2022

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-10133-1
Initial Date of Issue:	09-Apr-2024
Re-Issue Details:	
Client	Soiltechnics Limited
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS
Contact(s):	Admin
Project	STN3680NM Florida Farm

Quotation No.:		**Date Received:**	03-Apr-2024
Order No.:	POR018372	**Date Instructed:**	03-Apr-2024
No. of Samples:	24		
Turnaround (Wkdays):	5	**Results Due:**	09-Apr-2024
Date Approved:	09-Apr-2024		

Approved By:



Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited						**Chemtest Job No.:**	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:						**Chemtest Sample ID.:**	1787908	1787909	1787910	1787911	1787912	1787913	1787914	1787915
Order No.: POR018372						Client Sample Ref.:	3	2	1	2	1	2	2	1
						Client Sample ID.:	HP201-1.0-3	HP202-0.4-2	HP204-0.2-1	HP206-0.6-2	WS202-0.8-1	WS202-0.5-2	WS203-0.8-2	WS204-0.1-1
						Sample Location:	HP201	HP202	HP204	HP206	WS201	WS202	WS203	WS204
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	1.00	0.40	0.20	0.60	0.80	0.50	0.80	0.10
						Bottom Depth (m):						1.00		
						Date Sampled:	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	26-Mar-2024	26-Mar-2024	20-Mar-2024	20-Mar-2024
						Time Sampled:	12:20	12:48	13:17	13:58	14:34	13:41	10:04	9:31
						Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type		U	2192		N/A		-	-	-	-	-	-	-	-
Asbestos Identification		U	2192		N/A		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020		11	7.9	31	7.8	7.6	8.2	6.6	19
Soil Colour		N	2040		N/A		Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A		Stones	Roots and Stones	Stones and Roots	Stones and Roots	Stones	Stones	Stones	Stones
Soil Texture		N	2040		N/A		Clay	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C		M	2010		4.0		7.0	5.6	7.0	6.4	[B] 6.7	[B] 7.2	[B] 7.5	[B] 7.3
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40		0.65	1.0	1.3	0.42	0.49	0.51	0.56	0.65
Cyanide (Complex)		M	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	0.70	< 0.50	< 0.50	< 0.50
Cyanide (Free)		M	2300	mg/kg	0.50		< 0.50	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50		< 0.50	0.60	< 0.50	< 0.50	0.70	< 0.50	< 0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5		3.9	7.8	24	12	24	8.5	16	17
Beryllium		U	2455	mg/kg	0.5		0.6	< 0.5	1.8	0.5	0.6	< 0.5	14	1.2
Cadmium		M	2455	mg/kg	0.10		< 0.10	< 0.10	2.0	< 0.10	0.95	< 0.10	< 0.10	0.24
Chromium		M	2455	mg/kg	0.5		22	0.6	32	8.2	22	11	24	32
Copper		M	2455	mg/kg	0.50		28	25	140	57	120	39	210	71
Mercury		M	2455	mg/kg	0.05		0.05	< 0.05	0.33	0.05	1.2	0.16	0.11	0.20
Nickel		M	2455	mg/kg	0.50		26	2.6	77	17	33	9.7	84	30
Lead		M	2455	mg/kg	0.50		34	55	260	37	98	32	28	62
Selenium		M	2455	mg/kg	0.25		< 0.25	< 0.25	1.6	0.86	0.51	< 0.25	1.4	0.58
Vanadium		U	2455	mg/kg	0.5		20	4.7	41	13	21	8.6	110	34
Zinc		M	2455	mg/kg	0.50		70	33	490	84	140	44	70	110
Chromium (Hexavalent)		N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05									
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05									
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05									
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10									
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05									
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25									
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00									
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00									
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00									
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00									

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited						**Chemtest Job No.:**	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:						**Chemtest Sample ID.:**	1787908	1787909	1787910	1787911	1787912	1787913	1787914	1787915
Order No.: POR018372						Client Sample Ref.:	3	2	1	2	1	2	2	1
						Client Sample ID.:	HP201-1.0-3	HP202-0.4-2	HP204-0.2-1	HP206-0.6-2	WS202-0.8-1	WS202-0.5-2	WS203-0.8-2	WS204-0.1-1
						Sample Location:	HP201	HP202	HP204	HP206	WS201	WS202	WS203	WS204
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	1.00	0.40	0.20	0.60	0.80	0.50	0.80	0.10
						Bottom Depth (m):						1.00		
						Date Sampled:	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	26-Mar-2024	26-Mar-2024	20-Mar-2024	20-Mar-2024
						Time Sampled:	12:20	12:48	13:17	13:58	14:34	13:41	10:04	9:31
						Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00									
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00									
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00									
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05									
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05									
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05									
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25									
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00									
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00									
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00									
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00									
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00									
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00									
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00									
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50									
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00									
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00									
LOI		M	2610	%	0.10	2.6	55	13	16	8.7	2.8	8.2	4.9	
Organic Matter		M	2625	%	0.40	2.6	36	10	15	6.6	2.2	9.8	3.5	
TPH >C5-C6	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
TPH >C6-C7	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
TPH >C7-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	16	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	20	12	15	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	32	23	37	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
TPH >C21-C35	EH_1D_Total	N	2670	mg/kg	1.0	55	63	130	< 1.0	< 1.0	< 1.0	< 1.0	[C] < 1.0	
Total TPH >C5-C35		N	2670	mg/kg	10	130	99	190	< 10	< 10	< 10	< 10	[C] < 10	
Naphthalene		M	2800	mg/kg	0.10	< 0.10	0.14	< 0.10	< 0.10	0.23	< 0.10	0.34	< 0.10	
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.1	< 0.10	
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.80	< 0.10	
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	0.77	2.1	0.38	0.74	1.1	8.3	0.35	
Anthracene		M	2800	mg/kg	0.10	< 0.10	0.19	0.46	0.11	0.28	0.29	2.2	< 0.10	
Fluoranthene		M	2800	mg/kg	0.10	< 0.10	1.5	6.1	0.63	1.0	1.0	7.1	0.40	

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited				**Chemtest Job No.:**		24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:				**Chemtest Sample ID.:**		1787908	1787909	1787910	1787911	1787912	1787913	1787914	1787915
Order No.: POR018372				Client Sample Ref.:		3	2	1	2	1	2	2	1
				Client Sample ID.:		HP201-1.0-3	HP202-0.4-2	HP204-0.2-1	HP206-0.6-2	WS202-0.8-1	WS202-0.5-2	WS203-0.8-2	WS204-0.1-1
				Sample Location:		HP201	HP202	HP204	HP206	WS201	WS202	WS203	WS204
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		1.00	0.40	0.20	0.60	0.80	0.50	0.80	0.10
				Bottom Depth (m):							1.00		
				Date Sampled:		27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	26-Mar-2024	26-Mar-2024	20-Mar-2024	20-Mar-2024
				Time Sampled:		12:20	12:48	13:17	13:58	14:34	13:41	10:04	9:31
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**								
Pyrene		M	2800	mg/kg	0.10	< 0.10	1.1	5.2	0.57	0.82	1.0	5.8	0.36
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	0.65	2.7	0.28	0.56	0.41	2.4	< 0.10
Chrysene		M	2800	mg/kg	0.10	< 0.10	0.83	3.0	0.27	0.45	0.37	2.3	< 0.10
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	1.3	4.9	0.41	0.73	0.45	2.3	< 0.10
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	0.41	1.5	0.15	0.25	0.15	0.88	< 0.10
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	0.88	3.4	0.31	0.49	0.41	2.1	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	0.69	2.6	0.28	0.44	0.26	1.1	< 0.10
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	0.45	< 0.10	< 0.10	< 0.10	0.26	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	0.59	2.8	0.28	0.46	0.22	1.1	< 0.10
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	9.1	35	3.7	6.5	5.7	38	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited					**Chemtest Job No.:**	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:					**Chemtest Sample ID.:**	1787916	1787917	1787918	1787919	1787920	1787921	1787922	1787923
Order No.: POR018372					Client Sample Ref.:	2	5	1	1	2	1	3	2
					Client Sample ID.:	WS206-0.8-2	WS206-3.5-5	WS208-0.3-1	WS209-0.5-1	WS212-1.8-2	WS218-0.3-1	WS221-2.5-3	WS222-1.5-2
					Sample Location:	WS206	WS206	WS208	WS209	WS212	WS218	WS221	WS222
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.80	3.50	0.30	0.50	1.80	0.30	2.50	1.50
					Bottom Depth (m):			0.40					
					Date Sampled:	19-Mar-2024	19-Mar-2024	19-Mar-2024	19-Mar-2024	26-Mar-2024	20-Mar-2024	20-Mar-2024	21-Mar-2024
					Time Sampled:	12:03	12:04	14:37	14:54	10:17	14:22	14:54	10:57
					Asbestos Lab:	DURHAM					DURHAM		
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type		U	2192		N/A	Cement					-		
Asbestos Identification		U	2192		N/A	Chrysotile					No Asbestos Detected		
Moisture		N	2030	%	0.020								
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Grey
Other Material		N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Sand	Sand	Clay	Sand	Clay	Clay
pH at 20C		M	2010		4.0								
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40								
Cyanide (Complex)		M	2300	mg/kg	0.50								
Cyanide (Free)		M	2300	mg/kg	0.50								
Cyanide (Total)		M	2300	mg/kg	0.50								
Arsenic		M	2455	mg/kg	0.5								
Beryllium		U	2455	mg/kg	0.5								
Cadmium		M	2455	mg/kg	0.10								
Chromium		M	2455	mg/kg	0.5								
Copper		M	2455	mg/kg	0.50								
Mercury		M	2455	mg/kg	0.05								
Nickel		M	2455	mg/kg	0.50								
Lead		M	2455	mg/kg	0.50								
Selenium		M	2455	mg/kg	0.25								
Vanadium		U	2455	mg/kg	0.5								
Zinc		M	2455	mg/kg	0.50								
Chromium (Hexavalent)		N	2490	mg/kg	0.50								
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	[B] < 0.05	[BC] < 0.05	[B] < 0.05	[BC] < 0.05	< 0.05		[C] < 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	[B] < 0.05	[BC] < 0.05	[B] < 0.05	[BC] < 0.05	< 0.05		[C] < 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	[B] < 0.05	[BC] < 0.05	[B] < 0.05	[BC] < 0.05	< 0.05		[C] < 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	[B] < 0.10	[BC] < 0.10	[B] < 0.10	[BC] < 0.10	< 0.10		[C] < 0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	[B] < 0.05	[BC] < 0.05	[B] < 0.05	[BC] < 0.05	< 0.05		[C] < 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	[B] < 0.25	[BC] < 0.25	[B] < 0.25	[BC] < 0.25	< 0.25		[C] < 0.25	< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	[B] 3.8	[BC] 3.2	[B] 2.8	[BC] 7.0	3.0		[C] 2.9	3.1
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	[B] 4.7	[BC] 1.7	[B] 1.2	[BC] 3.7	1.5		[C] 1.5	1.8
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	[B] 5.7	[BC] 14	[B] < 2.0	[BC] 3.0	< 2.0		[C] < 2.0	2.7
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	[B] 17	[BC] 40	[B] < 3.0	[BC] 4.6	< 3.0		[C] < 3.0	18

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited			**Chemtest Job No.:**			24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:			**Chemtest Sample ID.:**			1787916	1787917	1787918	1787919	1787920	1787921	1787922	1787923
Order No.: POR018372			Client Sample Ref.:			2	5	1	1	2	1	3	2
			Client Sample ID.:			WS206-0.8-2	WS206-3.5-5	WS208-0.3-1	WS209-0.5-1	WS212-1.8-2	WS218-0.3-1	WS221-2.5-3	WS222-1.5-2
			Sample Location:			WS206	WS206	WS208	WS209	WS212	WS218	WS221	WS222
			Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):			0.80	3.50	0.30	0.50	1.80	0.30	2.50	1.50
			Bottom Depth (m):					0.40					
			Date Sampled:			19-Mar-2024	19-Mar-2024	19-Mar-2024	19-Mar-2024	26-Mar-2024	20-Mar-2024	20-Mar-2024	21-Mar-2024
			Time Sampled:			12:03	12:04	14:37	14:54	10:17	14:22	14:54	10:57
			Asbestos Lab:			DURHAM					DURHAM		
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	[B] < 10	[BC] 22	[B] < 10	[BC] < 10	< 10		[C] < 10	< 10
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	[B] 31	[BC] 59	[B] 5.4	[BC] 18	< 5.0		[C] 6.3	26
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	[B] 31	[BC] 81	[B] < 10	[BC] 18	< 10		[C] < 10	26
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	[B] < 0.05	[BC] < 0.05	[B] < 0.05	[BC] < 0.05	< 0.05		[C] < 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	[B] < 0.05	[BC] < 0.05	[B] < 0.05	[BC] < 0.05	< 0.05		[C] < 0.05	< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	[B] < 0.05	[BC] < 0.05	[B] < 0.05	[BC] < 0.05	< 0.05		[C] < 0.05	< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	[B] < 0.25	[BC] < 0.25	[B] < 0.25	[BC] < 0.25	< 0.25		[C] < 0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	[B] < 1.0	[BC] < 1.0	[B] < 1.0	[BC] < 1.0	< 1.0		[C] < 1.0	< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	[B] 1.2	[BC] 3.3	[B] < 1.0	[BC] < 1.0	< 1.0		[C] < 1.0	4.8
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	[B] 7.7	[BC] 26	[B] < 2.0	[BC] 3.2	< 2.0		[C] < 2.0	31
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	[B] 52	[BC] 34	[B] < 2.0	[BC] 3.2	2.4		[C] < 2.0	46
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	[B] 11	[BC] 11	[B] < 1.0	[BC] 1.0	< 1.0		[C] < 1.0	24
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	[B] 61	[BC] 63	[B] < 5.0	[BC] 6.7	< 5.0		[C] < 5.0	82
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	[B] 72	[BC] 74	[B] < 10	[BC] < 10	< 10		[C] < 10	110
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	[B] < 0.50	[BC] < 0.50	[B] < 0.50	[BC] < 0.50	< 0.50		[C] < 0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	[B] 92	[BC] 120	[B] < 10	[BC] 25	< 10		[C] < 10	110
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	[B] 100	[BC] 160	[B] < 10	[BC] 26	< 10		[C] < 10	130
LOI		M	2610	%	0.10								
Organic Matter		M	2625	%	0.40								
TPH >C5-C6	EH_1D_Total	N	2670	mg/kg	1.0								
TPH >C6-C7	EH_1D_Total	N	2670	mg/kg	1.0								
TPH >C7-C8	EH_1D_Total	N	2670	mg/kg	1.0								
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0								
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0								
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0								
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0								
TPH >C21-C35	EH_1D_Total	N	2670	mg/kg	1.0								
Total TPH >C5-C35		N	2670	mg/kg	10								
Naphthalene		M	2800	mg/kg	0.10								
Acenaphthylene		N	2800	mg/kg	0.10								
Acenaphthene		M	2800	mg/kg	0.10								
Fluorene		M	2800	mg/kg	0.10								
Phenanthrene		M	2800	mg/kg	0.10								
Anthracene		M	2800	mg/kg	0.10								
Fluoranthene		M	2800	mg/kg	0.10								

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited					**Chemtest Job No.:**	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:					**Chemtest Sample ID.:**	1787916	1787917	1787918	1787919	1787920	1787921	1787922	1787923
Order No.: POR018372					Client Sample Ref.:	2	5	1	1	2	1	3	2
					Client Sample ID.:	WS206-0.8-2	WS206-3.5-5	WS208-0.3-1	WS209-0.5-1	WS212-1.8-2	WS218-0.3-1	WS221-2.5-3	WS222-1.5-2
					Sample Location:	WS206	WS206	WS208	WS209	WS212	WS218	WS221	WS222
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.80	3.50	0.30	0.50	1.80	0.30	2.50	1.50
					Bottom Depth (m):			0.40					
					Date Sampled:	19-Mar-2024	19-Mar-2024	19-Mar-2024	19-Mar-2024	26-Mar-2024	20-Mar-2024	20-Mar-2024	21-Mar-2024
					Time Sampled:	12:03	12:04	14:37	14:54	10:17	14:22	14:54	10:57
					Asbestos Lab:	DURHAM					DURHAM		
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**								
Pyrene		M	2800	mg/kg	0.10								
Benzo[a]anthracene		M	2800	mg/kg	0.10								
Chrysene		M	2800	mg/kg	0.10								
Benzo[b]fluoranthene		M	2800	mg/kg	0.10								
Benzo[k]fluoranthene		M	2800	mg/kg	0.10								
Benzo[a]pyrene		M	2800	mg/kg	0.10								
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10								
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10								
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10								
Total Of 16 PAH's		N	2800	mg/kg	2.0								
Total Phenols		M	2920	mg/kg	0.10								

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited				**Chemtest Job No.:**		24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:				**Chemtest Sample ID.:**		1787924	1787925	1787926	1787927	1787928	1787929	1787930	1787931
Order No.: POR018372				Client Sample Ref.:		1	1	1	1	1	1	1	1
				Client Sample ID.:		WS223-0.8-1	WS227-0.4-1	WS228-0.5-1	WS229-0.3-1	WS230-0.4-1	WS231-0.5-1	WS232-0.3-1	WS233-0.3-1
				Sample Location:		WS223	WS227	WS228	WS229	WS230	WS231	WS232	WS233
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.80	0.40	0.50	0.30	0.40	0.50	0.30	0.30
				Bottom Depth (m):					0.60				
				Date Sampled:		20-Mar-2024	22-Mar-2024	22-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024
				Time Sampled:		15:26	12:52	13:11	10:40	10:51	10:58	11:10	11:18
				Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type		U	2192		N/A		-	-	-	-	-	-	-
Asbestos Identification		U	2192		N/A		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020								
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones and Roots	Stones and Roots	Stones	Stones	Stones	Stones and Roots	Stones
Soil Texture		N	2040		N/A	Clay	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C		M	2010		4.0								
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40								
Cyanide (Complex)		M	2300	mg/kg	0.50								
Cyanide (Free)		M	2300	mg/kg	0.50								
Cyanide (Total)		M	2300	mg/kg	0.50								
Arsenic		M	2455	mg/kg	0.5								
Beryllium		U	2455	mg/kg	0.5								
Cadmium		M	2455	mg/kg	0.10								
Chromium		M	2455	mg/kg	0.5								
Copper		M	2455	mg/kg	0.50								
Mercury		M	2455	mg/kg	0.05								
Nickel		M	2455	mg/kg	0.50								
Lead		M	2455	mg/kg	0.50								
Selenium		M	2455	mg/kg	0.25								
Vanadium		U	2455	mg/kg	0.5								
Zinc		M	2455	mg/kg	0.50								
Chromium (Hexavalent)		N	2490	mg/kg	0.50								
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05							
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05							
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05							
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10							
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05							
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25							
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	3.3							
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	3.1							
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0							
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	7.5							

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited						**Chemtest Job No.:**	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:						**Chemtest Sample ID.:**	1787924	1787925	1787926	1787927	1787928	1787929	1787930	1787931
Order No.: POR018372						Client Sample Ref.:	1	1	1	1	1	1	1	1
						Client Sample ID.:	WS223-0.8-1	WS227-0.4-1	WS228-0.5-1	WS229-0.3-1	WS230-0.4-1	WS231-0.5-1	WS232-0.3-1	WS233-0.3-1
						Sample Location:	WS223	WS227	WS228	WS229	WS230	WS231	WS232	WS233
						Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	0.80	0.40	0.50	0.30	0.40	0.50	0.30	0.30
						Bottom Depth (m):				0.60				
						Date Sampled:	20-Mar-2024	22-Mar-2024	22-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024
						Time Sampled:	15:26	12:52	13:11	10:40	10:51	10:58	11:10	11:18
						Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00		< 10							
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00		15							
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00		15							
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05		< 0.05							
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05		< 0.05							
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05		< 0.05							
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25		< 0.25							
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00		< 1.0							
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00		< 1.0							
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00		11							
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00		36							
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00		37							
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00		47							
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00		84							
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50		< 0.50							
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00		63							
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00		99							
LOI		M	2610	%	0.10									
Organic Matter		M	2625	%	0.40									
TPH >C5-C6	EH_1D_Total	N	2670	mg/kg	1.0									
TPH >C6-C7	EH_1D_Total	N	2670	mg/kg	1.0									
TPH >C7-C8	EH_1D_Total	N	2670	mg/kg	1.0									
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0									
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0									
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0									
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0									
TPH >C21-C35	EH_1D_Total	N	2670	mg/kg	1.0									
Total TPH >C5-C35		N	2670	mg/kg	10									
Naphthalene		M	2800	mg/kg	0.10									
Acenaphthylene		N	2800	mg/kg	0.10									
Acenaphthene		M	2800	mg/kg	0.10									
Fluorene		M	2800	mg/kg	0.10									
Phenanthrene		M	2800	mg/kg	0.10									
Anthracene		M	2800	mg/kg	0.10									
Fluoranthene		M	2800	mg/kg	0.10									

Results - Soil

Project: STN3680NM Florida Farm

Client: Soiltechnics Limited			**Chemtest Job No.:**	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133	24-10133
Quotation No.:			**Chemtest Sample ID.:**	1787924	1787925	1787926	1787927	1787928	1787929	1787930	1787931
Order No.: POR018372			Client Sample Ref.:	1	1	1	1	1	1	1	1
			Client Sample ID.:	WS223-0.8-1	WS227-0.4-1	WS228-0.5-1	WS229-0.3-1	WS230-0.4-1	WS231-0.5-1	WS232-0.3-1	WS233-0.3-1
			Sample Location:	WS223	WS227	WS228	WS229	WS230	WS231	WS232	WS233
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	0.80	0.40	0.50	0.30	0.40	0.50	0.30	0.30
			Bottom Depth (m):				0.60				
			Date Sampled:	20-Mar-2024	22-Mar-2024	22-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024	27-Mar-2024
			Time Sampled:	15:26	12:52	13:11	10:40	10:51	10:58	11:10	11:18
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM

Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Pyrene		M	2800	mg/kg	0.10							
Benzo[a]anthracene		M	2800	mg/kg	0.10							
Chrysene		M	2800	mg/kg	0.10							
Benzo[b]fluoranthene		M	2800	mg/kg	0.10							
Benzo[k]fluoranthene		M	2800	mg/kg	0.10							
Benzo[a]pyrene		M	2800	mg/kg	0.10							
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10							
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10							
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10							
Total Of 16 PAH's		N	2800	mg/kg	2.0							
Total Phenols		M	2920	mg/kg	0.10							

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1787912	1	WS202-0.8-1	WS201	26-Mar-2024	B	Amber Glass 250ml
1787912	1	WS202-0.8-1	WS201	26-Mar-2024	B	Plastic Tub 500g
1787913	2	WS202-0.5-2	WS202	26-Mar-2024	B	Amber Glass 250ml
1787913	2	WS202-0.5-2	WS202	26-Mar-2024	B	Plastic Tub 500g
1787914	2	WS203-0.8-2	WS203	20-Mar-2024	B	Amber Glass 250ml
1787914	2	WS203-0.8-2	WS203	20-Mar-2024	B	Plastic Tub 500g
1787915	1	WS204-0.1-1	WS204	20-Mar-2024	BC	Plastic Tub 500g
1787916	2	WS206-0.8-2	WS206	19-Mar-2024	B	Amber Glass 250ml
1787916	2	WS206-0.8-2	WS206	19-Mar-2024	B	Plastic Tub 500g
1787917	5	WS206-3.5-5	WS206	19-Mar-2024	BC	Plastic Tub 500g
1787918	1	WS208-0.3-1	WS208	19-Mar-2024	B	Amber Glass 250ml
1787918	1	WS208-0.3-1	WS208	19-Mar-2024	B	Plastic Tub 500g
1787919	1	WS209-0.5-1	WS209	19-Mar-2024	BC	Plastic Tub 500g
1787922	3	WS221-2.5-3	WS221	20-Mar-2024	C	Plastic Tub 1000g

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water

Report Information

RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
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GQRA Screening

Assessments	Status	Date	Created by	Reviewed By
Acute human health risk - Soils	*Not undertaken*			
Chronic human health risk - Soils	*Not undertaken*	*14.52*		
Chronic human health risk - Groundwater vapour	*Not undertaken*			
Controlled waters risk - Surface water	Completed	28/10/2022	JP	SCD
Controlled waters risk - Drinking water	Completed	28/10/2022	JP	SCD
Controlled waters - Free phase indicator	*Not undertaken*			
Phytotoxicity	*Not undertaken*			
Ecotoxicity	*Not undertaken*			

Key

Assessment	Abbr.	GQRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-

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Controlled waters risk

Scenario	
Receptor	Surface water - Inland freshwater
Hydrometric area	English and Welsh freshwaters
Are bioavailability parameters known?	Yes
Hardness (mg $CaCO_3$/l)	233
DOC (mg/l)	12.1
pH	7.5
Calcium (mg Ca/l)	70.3

Contaminant	Guideline source	Guideline value (µg/l)	Max value (µg/l)	Location	DTS01	DTS15	DTS31	DTS61	DTS64	DTS66
				Depth (m)	0.5	0.1	0.1	0.6	0.6	0.2
				Type	EW	EW	EW	EW	EW	EW
				Date						
Inorganics - Metals										
Arsenic	AA-EQS	50	4.8		2.6	3.2	4.8	1.4	2.3	1.7
Boron	AA-EQS	2000	200		*< 20*	31	23	30	200	24
Cadmium	AA-EQS	0.25	<LoD		*< 0.080*	*< 0.080*	*< 0.080*	*< 0.080*	*< 0.080*	*< 0.080*
Chromium (total)	*NGA*	*NGA*	7.9		3.5	*< 1.0*	1.1	*< 1.0*	7.9	4.3
Copper	PNEC	52.35	9.6		5.6	4.5	9.2	1.7	2.0	9.6
Lead	PNEC	14.52	4.4		4.4	*< 1.0*	2.0	1.5	2.0	3.2
Mercury	MAC-EQS	0.07	<LoD		*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*
Nickel	PNEC	25.87	5.3		2.0	*< 1.0*	1.3	1.1	5.3	4.5
Selenium	*NGA*	*NGA*	1.2		*< 1.0*	*< 1.0*	*< 1.0*	*< 1.0*	1	*< 1.0*
Vanadium	AA-EQS	60	7.8		5.8	*< 1.0*	2.6	1.2	7.8	4.9
Zinc	PNEC	47.49	22		10.0	5.4	8.1	22.0	8.5	10.0
Organics - PAH & Phenol										
Naphthalene	AA-EQS	2	<LoD		*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*
Benzo(a)pyrene	AA-EQS	0.00017	<LoD		*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*
PAH (sum of 4)	*NGA*	*NGA*	<LoD		*<0.1**	*<0.1**	*<0.1**	*<0.1**	*<0.1**	*<0.1**

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Controlled waters risk

Scenario	
Receptor	Drinking water

Contaminant	Guideline source	Guideline value (µg/l)	Max value (µg/l)	Location	DTS01	DTS15	DTS31	DTS61	DTS64	DTS66
				Depth (m)	0.5	0.1	0.1	0.6	0.6	0.2
				Type	EW	EW	EW	EW	EW	EW
				Date						
Inorganics - Metals										
Arsenic	UK DWS	10	4.8		2.6	3.2	4.8	1.4	2.3	1.7
Boron	UK DWS	1000	200		*< 20*	31	23	30	200	24
Cadmium	UK DWS	5	<LoD		*< 0.080*	*< 0.080*	*< 0.080*	*< 0.080*	*< 0.080*	*< 0.080*
Chromium (total)	UK DWS	50	7.9		3.5	*< 1.0*	1.1	*< 1.0*	7.9	4.3
Copper	UK DWS	2000	9.6		5.6	4.5	9.2	1.7	2.0	9.6
Lead	UK DWS	10	4.4		4.4	*< 1.0*	2.0	1.5	2.0	3.2
Mercury	UK DWS	1	<LoD		*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*	*< 0.50*
Nickel	UK DWS	20	5.3		2.0	*< 1.0*	1.3	1.1	5.3	4.5
Selenium	UK DWS	10	1.2		*< 1.0*	*< 1.0*	*< 1.0*	*< 1.0*	1	*< 1.0*
Vanadium	*NGA*	*NGA*	7.8		5.8	*< 1.0*	2.6	1.2	7.8	4.9
Zinc	Int. DWS	3000	22		10.0	5.4	8.1	22.0	8.5	10.0
Organics - PAH & Phenol										
Naphthalene	*NGA*	*NGA*	<LoD		*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*
Benzo(a)pyrene	UK DWS	0.01	<LoD		*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*	*< 0.10*
PAH (sum of 4)	UK DWS	0.1	<LoD		*<0.1**	*<0.1**	*<0.1**	*<0.1**	*<0.1**	*<0.1**

GQRA Screening

Assessments	Status	Date	Created by	Reviewed By
Acute human health risk - Soils	Complete	25.11.24	DH	SCD
Chronic human health risk - Soils	Complete	25.11.24	DH	SCD
Chronic human health risk - Groundwater vapour	*Not undertaken*			
Controlled waters risk - Surface water	*Not undertaken*			
Controlled waters risk - Drinking water	*Not undertaken*			
Controlled waters - Free phase indicator	*Not undertaken*			
Phytotoxicity	Complete	25.11.24	DH	SCD
Ecotoxicity	*Not undertaken*			

Key

Assessment	Abbr.	GQRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-
Acute human health risk - Soils	AGAC	Acute Generic Assessment Criteria (SoBRA)	April 2019
	sat.	Contaminant poses a low acute risk unless the soil saturation limit is exceeded and a free oil phase is present.	April 2019
Chronic human health risk - Soils	C4SL	Category 4 Screening Levels (DEFRA)	May 2021
	S4UL	Suitable 4 Use Levels (LQM)	August 2015
	ATK	Atrisk Soil Screening Values (Atkins)	June 2017
	CL:AIRE	Generic Assessment Criteria (CL:AIRE)	Jan 2010
Phytotoxicity	BSI	BS 3882 - Specification for Topsoil (u = upper limit, l = lower limit for multipurpose topsoil) (British Standards Institute)	April 2015
	SSIA	Potentially Toxic Element. Sewage Sludge in Agriculture: Code of Practice (Environment Agency)	May 2018

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Topsoil
Made Ground
Devensian Till

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS01	DTS01	DTS03	DTS04	DTS05	DTS08	DTS09	DTS10	DTS11	DTS12	DTS13	DTS14	DTS15	DTS16	DTS17	DTS18	DTS19	DTS21	DTS22	DTS23	DTS24	DTS24	DTS25	DTS26	DTS27	DTS30	DTS32	DTS33
				Depth (m)	0.10	0.50	0.10	0.80	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.50	0.10	0.10	0.10	0.10	0.10	0.10
				Offsite																												
				Date	31/08/17	31/08/17	31/08/17	31/08/17	31/08/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	21/09/17	21/09/17
Inorganics - Metals																																
Arsenic	C4SL	37	160		27	6.4	14	7.2	11	16	16	15	21	13	16	17	22	21	8.6	17	18	11	16	18	18	9	20	22	20	18	18	20
Beryllium	S4UL	1.7	14		1.3	< 1.0	1.2	< 1.0	< 1.0	1.2	< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 1.0	1.1	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	1.1	< 1.0	< 1.0	< 1.0
Boron	S4UL	290	1.3		0.58	< 0.40	< 0.40	< 0.40	< 0.40	0.67	0.45	0.47	0.46	0.4	0.62	0.4	0.48	0.46	0.4	< 0.40	< 0.40	< 0.40	< 0.40	0.4	0.43	< 0.40	0.46	0.67	0.49	0.53	0.43	< 0.40
Cadmium	C4SL	22	2		0.41	0.14	0.24	< 0.10	0.15	0.46	0.34	0.37	0.43	0.33	0.44	0.43	0.46	0.47	0.2	0.38	0.39	0.17	0.25	0.4	0.43	< 0.10	0.43	0.49	0.48	0.31	0.42	0.35
Chromium (III)	S4UL	910	38		20	13	21	24	20	33	31	25	23	19	22	26	25	22	12	22	27	27	32	23	28	38	23	25	25	28	29	27
Chromium (VI)	C4SL	21	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Copper	S4UL	2400	290		120	20	47	26	42	88	61	51	84	50	66	75	90	79	44	59	67	34	49	86	63	28	80	91	84	69	58	67
Cyanide - Free	ATK	34	0.5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Lead	C4SL	200	300		130	11	45	19	33	100	56	52	84	53	65	61	66	65	33	52	57	26	46	60	50	12	62	72	63	48	70	57
Mercury	S4UL	40	1.2		0.23	< 0.10	0.1	< 0.10	< 0.10	0.41	0.34	0.28	0.27	0.21	0.25	0.22	0.24	0.24	0.14	0.7	0.2	0.13	0.18	0.21	0.21	< 0.10	0.22	0.28	0.28	0.2	0.26	0.19
Nickel	S4UL	130	84		27	24	40	18	19	34	27	24	24	17	23	23	26	25	12	22	26	21	28	25	27	38	25	28	29	24	26	27
Selenium	S4UL	250	1.8		0.24	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	S4UL	410	110		26	16	28	24	19	32	29	25	26	23	25	26	28	25	12	24	27	28	32	25	31	32	25	25	29	31	33	30
Zinc	S4UL	3700	490		130	77	98	38	77	120	88	83	110	79	110	100	110	110	66	84	100	47	67	110	100	61	110	130	120	92	97	84
Inorganics - Asbestos																																
Asbestos Type		N/A																														
Asbestos Screen		N/A																														
Inorganics - Soil Parameters																																
Organic matter		N/A			24	1.1	5.7	2.4	7.6	6.2	4.7	4.3	8.5	4.7	5.2	5	6.2	8.5	4.8	6	6.4	2.2	4.5	7.1	5.5	1.2	5.9	6	7.9	4.7	4.1	5.5
Organics - PAH & Phenol																																
Acenaphthene	S4UL	210	1.1		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.23	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.36	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	S4UL	170	0.27		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.27	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	S4UL	2400	2.2		0.13	< 0.10	< 0.10	< 0.10	< 0.10	1.3	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.4	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	S4UL	7.2	4.1		0.36	< 0.10	0.16	< 0.10	< 0.10	1.6	< 0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10	0.74	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.1	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	C4SL	5	5.5		0.28	< 0.10	< 0.10	< 0.10	< 0.10	1.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.7	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	S4UL	2.6	6.8		0.56	< 0.10	0.2	< 0.10	< 0.10	1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.67	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.1	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	S4UL	320	3.9		0.13	< 0.10	< 0.10	< 0.10	< 0.10	0.68	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.39	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	S4UL	77	2.6		0.16	< 0.10	< 0.10	< 0.10	< 0.10	0.33	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.27	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	S4UL	15	4.4		0.53	< 0.10	0.21	< 0.10	< 0.10	1.2	< 0.10	< 0.10	0.14	< 0.10	< 0.10	< 0.10	0.83	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.1	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	S4UL	0.24	0.73		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	S4UL	280	8.3		1.1	< 0.10	0.69	< 0.10	0.15	2.1	0.25	0.5	0.5	< 0.10	0.29	0.21	2.6	0.16	0.16	0.37	0.41	< 0.10	0.12	0.14	0.25	< 0.10	0.44	0.65	0.19	< 0.10	0.14	0.46
Fluorene	S4UL	170	0.8		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.52	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	S4UL	27	4		0.14	< 0.10	< 0.10	< 0.10	< 0.10	0.42	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.43	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	C4SL	15	0.34		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	S4UL	95	8.3		0.52	< 0.10	0.45	< 0.10	0.13	1.9	0.15	0.22	0.3	< 0.10	0.12	0.1	2.1	0.1	< 0.10	0.21	0.34	< 0.10	< 0.10	< 0.10	0.17	< 0.10	0.16	0.27	< 0.10	< 0.10	< 0.10	0.1
Phenol	S4UL	120	<LoD		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Pyrene	S4UL	620	6.8		0.96	< 0.10	0.6	< 0.10	0.15	1.9	0.2	0.37	0.38	< 0.10	0.25	0.2	2.1	0.16	0.11	0.36	0.43	< 0.10	0.12	0.13	0.22	< 0.10	0.4	0.55	0.2	< 0.10	0.14	0.41
Organics - TPH CWG and BTEX																																
Benzene	C4SL	0.87	<LoD																													
Toluene	S4UL	130	<LoD																													
Ethylbenzene	S4UL	47	<LoD																													
o-Xylene	S4UL	60	<LoD																													
m & p-xylene	S4UL	56	0.0012																													
Xylenes (sum of)	S4UL	56	0.0022																													
EC05 - EC06 Aliphatic	S4UL	42	<LoD																													
EC>06 - EC08 Aliphatic	S4UL	100	<LoD																													
EC>08 - EC10 Aliphatic	S4UL	27	<LoD																													
EC>10 - EC12 Aliphatic	S4UL	130	7																													
EC>12 - EC16 Aliphatic	S4UL	1100	10																													
EC>16 - EC21 Aliphatic	S4UL	65000	14																													
EC>21 - EC35 Aliphatic	S4UL	65000	100																													
EC>35 - EC40 Aliphatic	ERROR	ERROR	22																													
EC5 - EC7 (benzene)	S4UL	70	<LoD																													
EC7 - >EC8 (toluene)	S4UL	130	<LoD																													
EC>08 - EC10 Aromatic	S4UL	34	<LoD																													
EC>10 - EC12 Aromatic	S4UL	74	<LoD																													
EC>12 - EC16 Aromatic	S4UL	140	4.8																													
EC>16 - EC21 Aromatic	S4UL	260	31																													
EC>21 - EC35 Aromatic	S4UL	1100	160																													
EC>35 - EC44 Aromatic	S4UL	1100	37																													
Organics - Banded TPH (unspeciated)																																
EC >5-EC6 (unspeciated)	S4UL	42	<LoD																													
EC >6-EC7 (unspeciated)	S4UL	70	<LoD																													
EC >7-EC8 (unspeciated)	S4UL	100	<LoD																													
EC >08-EC10 (unspeciated)	S4UL	27	2.5																													
EC >10-EC12 (unspeciated)	S4UL	74	16																													
EC >12-EC16 (unspeciated)	S4UL	140	20																													
EC >16-EC21 (unspeciated)	S4UL	260	37																													
EC >21-EC35 (unspeciated)	S4UL	1100	130																													

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS34	DTS35	DTS36	DTS36	DTS38	DTS39	DTS40	DTS41	DTS44	DTS47	DTS47	DTS48	DTS49	DTS50	DTS51	DTS52	DTS53	DTS55	DTS55	DTS56	DTS58	DTS60	DTS61	DTS62	DTS63	DTS65	DTS67	DTS68
				Depth (m)	0.10	0.10	0.10	0.50	0.50	0.10	0.10	0.10	0.10	0.20	0.30 - 1.00	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.30	0.20	0.20	0.30	0.20	0.20	0.20	0.20	0.20	0.20
				Date	21/09/17	21/09/17	21/09/17	21/09/17	22/09/17	22/09/17	22/09/17	22/09/17	22/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	26/09/17	26/09/17	26/09/17	26/09/17	26/09/17	27/09/17	27/09/17	27/09/17	27/09/17	27/09/17	27/09/17	28/09/17	28/09/17
Inorganics - Metals																																
Arsenic	C4SL	37	160		23	18	20	9.9	7.1	32	25	23	26	32	26	18	27	18	39	27	21	21		20	20	35	160	17	21	20	20	24
Beryllium	S4UL	1.7	14		1	< 1.0	< 1.0	< 1.0	< 1.0	1.4	1.1	< 1.0	1.1	1.3	< 1.0	< 1.0	< 1.0	1	1.2	< 1.0	< 1.0	1.3		1.2	1.2	1.9	2.4	< 1.0	< 1.0	< 1.0	1	1.1
Boron	S4UL	290	1.3		0.66	0.53	0.57	0.44	< 0.40	0.98	0.72	0.53	0.57	0.4	0.58	< 0.40	0.44	0.49	0.62	< 0.40	0.71	0.46		0.63	0.9	1.1	0.78	0.86	0.89	0.84	0.4	0.98
Cadmium	C4SL	22	2		0.41	0.36	0.45	0.12	< 0.10	0.52	0.37	0.45	0.46	0.42	< 0.10	0.24	0.42	0.31	0.56	0.28	0.36	0.39		0.48	0.65	0.72	0.71	0.34	0.39	0.49	0.34	0.48
Chromium (III)	S4UL	910	38		29	30	28	29	38	28	29	24	28	29	6.6	38	34	32	37	30	27	31		26	31	23	19	25	25	30	24	32
Chromium (VI)	C4SL	21	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Copper	S4UL	2400	290		81	62	67	23	10	120	60	92	110	120	30	34	78	51	81	72	63	66		150	62	95	250	67	79	66	62	64
Cyanide - Free	ATK	34	0.5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Lead	C4SL	200	300		63	46	48	17	7.1	210	47	70	92	66	26	22	55	60	80	52	44	49		65	50	100	300	59	72	64	74	80
Mercury	S4UL	40	1.2		0.22	0.23	0.18	0.1	< 0.10	0.27	0.16	0.22	0.2	0.2	0.17	0.11	0.2	0.13	0.2	0.18	0.17	0.21		0.21	0.16	0.23	0.32	0.18	0.19	0.16	0.17	0.21
Nickel	S4UL	130	84		30	25	24	25	22	39	32	26	32	34	12	29	30	37	39	30	25	35		29	33	40	67	26	27	29	28	35
Selenium	S4UL	250	1.8		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.4	< 0.20	< 0.20	0.2	0.29	1.4	< 0.20	< 0.20	< 0.20	0.24	< 0.20	< 0.20	< 0.20		< 0.20	< 0.20	0.63	1.8	< 0.20	< 0.20	0.27	0.2	0.28
Vanadium	S4UL	410	110		33	30	29	26	31	35	32	29	31	37	22	36	36	32	41	33	30	33		31	33	35	34	26	27	32	31	37
Zinc	S4UL	3700	490		87	89	110	38	27	130	79	130	120	98	16	63	93	76	120	88	76	81		130	110	130	230	97	100	98	87	96
Inorganics - Asbestos																																
Asbestos Type		N/A																														
Asbestos Screen		N/A																														
Inorganics - Soil Parameters																																
Organic matter		N/A			7.8	6.4	2.9	4.1	0.83	14	6.7	6.2	7.9	21	91	4.1	7.2	4	5.5	4.1	14	9.3	11	13	4.7	12	19	5.3	5.7	6.6	11	5.3
Organics - PAH & Phenol																																
Acenaphthene	S4UL	210	1.1		< 0.10	< 0.10	0.15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	S4UL	170	0.27		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	S4UL	2400	2.2		< 0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.26	0.15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	S4UL	7.2	4.1		< 0.10	< 0.10	0.18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	0.12		< 0.10	0.23	1.6	0.47	< 0.10	< 0.10	< 0.10	0.17	< 0.10
Benzo(a)pyrene	C4SL	5	5.5		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	1.4	0.33	< 0.10	< 0.10	< 0.10	0.1	< 0.10
Benzo(b)fluoranthene	S4UL	2.6	6.8		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	0.22	2.4	0.56	< 0.10	< 0.10	< 0.10	0.17	< 0.10
Benzo(ghi)perylene	S4UL	320	3.9		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	1.1	0.21	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	S4UL	77	2.6		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.77	0.18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	S4UL	15	4.4		< 0.10	< 0.10	0.26	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.18	0.14		< 0.10	0.26	1.8	0.51	< 0.10	< 0.10	< 0.10	0.19	< 0.10
Dibenz(a,h)anthracene	S4UL	0.24	0.73		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	S4UL	280	8.3		0.22	0.25	1.2	< 0.10	< 0.10	0.32	< 0.10	0.56	0.29	0.51	0.14	< 0.10	0.28	0.36	0.23	0.19	0.52	0.42		0.23	0.86	2.9	1.2	< 0.10	0.42	0.14	0.55	0.14
Fluorene	S4UL	170	0.8		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	S4UL	27	4		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.96	0.22	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	C4SL	15	0.34		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	S4UL	95	8.3		< 0.10	0.15	1.1	< 0.10	< 0.10	0.17	< 0.10	0.25	0.12	0.3	0.48	< 0.10	0.1	0.12	< 0.10	< 0.10	0.38	0.23		0.13	0.43	1.2	0.82	< 0.10	0.26	0.1	0.24	< 0.10
Phenol	S4UL	120	<LoD		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Pyrene	S4UL	620	6.8		0.22	0.22	0.98	< 0.10	< 0.10	0.3	< 0.10	0.49	0.31	0.43	0.18	< 0.10	0.23	0.28	0.19	0.16	0.44	0.34		0.17	0.69	2.8	1.1	< 0.10	0.32	0.11	0.47	0.11
Organics - TPH CWG and BTEX																																
Benzene	C4SL	0.87	<LoD								< 0.001		< 0.001		< 0.001									< 0.001								
Toluene	S4UL	130	<LoD								< 0.001		< 0.001		< 0.001									< 0.001								
Ethylbenzene	S4UL	47	<LoD								< 0.001		< 0.001		< 0.001									< 0.001								
o-Xylene	S4UL	60	<LoD								< 0.001		< 0.001		< 0.001									< 0.001								
m & p-xylene	S4UL	56	0.0012								< 0.001		0.0012		< 0.001									< 0.001								
Xylenes (sum of)	S4UL	56	0.0022								< LoD		0.0022		< LoD									< LoD								
EC05 - EC06 Aliphatic	S4UL	42	<LoD								< 0.010		< 0.010		< 0.010									< 0.010								
EC>06 - EC08 Aliphatic	S4UL	100	<LoD								< 0.010		< 0.010		< 0.010									< 0.010								
EC>08 - EC10 Aliphatic	S4UL	27	<LoD								< 0.10		< 0.10		< 0.10									< 0.10								
EC>10 - EC12 Aliphatic	S4UL	130	7								< 0.10		< 0.10		1.3									< 0.10								
EC>12 - EC16 Aliphatic	S4UL	1100	10								< 0.10		< 0.10		10									< 0.10								
EC>16 - EC21 Aliphatic	S4UL	65000	14								< 0.10		< 0.10		14									< 0.10								
EC>21 - EC35 Aliphatic	S4UL	65000	100								< 0.10		< 0.10		100									< 0.10								
EC>35 - EC40 Aliphatic	ERROR	ERROR	22																													
EC5 - EC7 (benzene)	S4UL	70	<LoD								< 0.010		< 0.010		< 0.010									< 0.010								
EC7 - >EC8 (toluene)	S4UL	130	<LoD								< 0.010		< 0.010		< 0.010									< 0.010								
EC>08 - EC10 Aromatic	S4UL	34	<LoD								< 0.10		< 0.10		< 0.10									< 0.10								
EC>10 - EC12 Aromatic	S4UL	74	<LoD																													
EC>12 - EC16 Aromatic	S4UL	140	4.8																													
EC>16 - EC21 Aromatic	S4UL	260	31																													
EC>21 - EC35 Aromatic	S4UL	1100	160								15		< 0.10		160									17								
EC>35 - EC44 Aromatic	S4UL	1100	37								< 0.10		< 0.10		< 0.10									< 0.10								
Organics - Banded TPH (unspeciated)																																
EC >5-EC6 (unspeciated)	S4UL	42	<LoD																													
EC >6-EC7 (unspeciated)	S4UL	70	<LoD																													
EC >7-EC8 (unspeciated)	S4UL	100	<LoD																													
EC >08-EC10 (unspeciated)	S4UL	27	2.5																													
EC >10-EC12 (unspeciated)	S4UL	74	16																													
EC >12-EC16 (unspeciated)	S4UL	140	20																													
EC >16-EC21 (unspeciated)	S4UL	260	37																													
EC >21-EC35 (unspeciated)	S4UL	1100	130																													

soiltechnics
environmental • geotechnical • building fabric

Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS69	DTS70	DTS71	DTS73	DTS74	DTS75	DTS76	DTS78	DTS79	DTS83	HP201	HP202	HP204	HP206	WS201	WS202	WS203	WS204	WS206	WS206	WS208	WS209	WS212	WS218	WS221	WS222	WS223	WS227
				Depth (m)	0.20	0.20	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.10	1.00	0.40	0.20	0.60	0.80	0.50 - 1.00	0.80	0.10	0.80	3.50	0.30 - 0.40	0.50	1.80	0.30	2.50	1.50	0.80	0.40
				Date	28/09/17	28/09/17	28/09/17	28/09/17	29/09/17	29/09/17	29/09/17	29/09/17	29/09/17	29/09/17	27/03/24	27/03/24	27/03/24	27/03/24	26/03/24	26/03/24	20/03/24	20/03/24	19/03/24	19/03/24	19/03/24	19/03/24	26/03/24	20/03/24	20/03/24	21/03/24	20/03/24	22/03/24
Inorganics - Metals																																
Arsenic	C4SL	37	160		17	21	14	14	20	28	27	20	21	12	3.9	7.8	24	12	24	8.5	16	17										
Beryllium	S4UL	1.7	14		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.7	1.6	1	1.1	< 1.0	0.6	< 0.5	1.8	0.5	0.6	< 0.5	14	1.2										
Boron	S4UL	290	1.3		0.64	0.88	< 0.40	0.44	0.9	0.74	1	0.95	0.85	< 0.40	0.65	1	1.3	0.42	0.49	0.51	0.56	0.65										
Cadmium	C4SL	22	2		0.35	0.45	0.14	0.23	0.47	0.56	0.64	0.37	0.41	0.13	< 0.10	< 0.10	2	< 0.10	0.95	< 0.10	< 0.10	0.24										
Chromium (III)	S4UL	910	38		26	27	32	36	21	25	32	32	25	33	22	0.6	32	8.2	22	11	24	32										
Chromium (VI)	C4SL	21	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50										
Copper	S4UL	2400	290		47	52	290	34	19	91	74	61	66	26	28	25	140	57	120	39	210	71										
Cyanide - Free	ATK	34	0.5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50										
Lead	C4SL	200	300		54	69	26	26	31	130	86	53	61	17	34	55	260	37	98	32	28	62										
Mercury	S4UL	40	1.2		0.14	0.19	0.12	0.14	< 0.10	0.21	0.22	0.17	0.16	0.13	0.05	< 0.05	0.33	0.05	1.2	0.16	0.11	0.2										
Nickel	S4UL	130	84		27	30	40	37	32	36	40	35	30	44	26	2.6	77	17	33	9.7	84	30										
Selenium	S4UL	250	1.8		< 0.20	0.31	< 0.20	< 0.20	< 0.20	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.25	< 0.25	1.6	0.86	0.51	< 0.25	1.4	0.58										
Vanadium	S4UL	410	110		28	30	30	31	31	30	36	33	28	30	20	4.7	41	13	21	8.6	110	34										
Zinc	S4UL	3700	490		72	93	54	55	52	160	130	85	83	45	70	33	490	84	140	44	70	110										
Inorganics - Asbestos																																
Asbestos Type		N/A													-	-	-	-	-	-	-	-	Cement					-				-
Asbestos Screen		N/A													No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile					No Asbestos Detected				No Asbestos Detected
Inorganics - Soil Parameters																																
Organic matter		N/A			4	6.4	2.8	2.9	9.1	7.6	8.1	4.7	5.9	1.6	2.6	36	10	15	6.6	2.2	9.8	3.5										
Organics - PAH & Phenol																																
Acenaphthene	S4UL	210	1.1		< 0.10	< 0.10	< 0.10	< 0.10	0.92	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.1	< 0.10										
Acenaphthylene	S4UL	170	0.27		< 0.10	< 0.10	< 0.10	< 0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10										
Anthracene	S4UL	2400	2.2		< 0.10	< 0.10	< 0.10	< 0.10	1.4	0.23	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.19	0.46	0.11	0.28	0.29	2.2	< 0.10										
Benzo(a)anthracene	S4UL	7.2	4.1		< 0.10	< 0.10	< 0.10	< 0.10	4.1	1.3	< 0.10	< 0.10	0.11	< 0.10	< 0.10	0.65	2.7	0.28	0.56	0.41	2.4	< 0.10										
Benzo(a)pyrene	C4SL	5	5.5		< 0.10	< 0.10	< 0.10	< 0.10	5.5	1.8	< 0.10	< 0.10	0.17	< 0.10	< 0.10	0.88	3.4	0.31	0.49	0.41	2.1	< 0.10										
Benzo(b)fluoranthene	S4UL	2.6	6.8		< 0.10	< 0.10	< 0.10	< 0.10	6.8	2.3	0.15	< 0.10	0.31	< 0.10	< 0.10	1.3	4.9	0.41	0.73	0.45	2.3	< 0.10										
Benzo(ghi)perylene	S4UL	320	3.9		< 0.10	< 0.10	< 0.10	< 0.10	3.9	1.2	< 0.10	< 0.10	0.14	< 0.10	< 0.10	0.59	2.8	0.28	0.46	0.22	1.1	< 0.10										
Benzo(k)fluoranthene	S4UL	77	2.6		< 0.10	< 0.10	< 0.10	< 0.10	2.6	0.83	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.41	1.5	0.15	0.25	0.15	0.88	< 0.10										
Chrysene	S4UL	15	4.4		< 0.10	< 0.10	< 0.10	< 0.10	4.4	1.5	0.12	< 0.10	0.23	< 0.10	< 0.10	0.83	3	0.27	0.45	0.37	2.3	< 0.10										
Dibenz(a,h)anthracene	S4UL	0.24	0.73		< 0.10	< 0.10	< 0.10	< 0.10	0.73	0.18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.45	< 0.10	< 0.10	< 0.10	0.26	< 0.10										
Fluoranthene	S4UL	280	8.3		0.13	0.15	0.26	< 0.10	8.3	2.8	0.33	0.12	0.38	0.14	< 0.10	1.5	6.1	0.63	1	1	7.1	0.4										
Fluorene	S4UL	170	0.8		< 0.10	< 0.10	< 0.10	< 0.10	0.66	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.8	< 0.10										
Indeno(1,2,3-cd)pyrene	S4UL	27	4		< 0.10	< 0.10	< 0.10	< 0.10	4	1.4	< 0.10	< 0.10	0.12	< 0.10	< 0.10	0.69	2.6	0.28	0.44	0.26	1.1	< 0.10										
Naphthalene	C4SL	15	0.34		< 0.10	< 0.10	< 0.10	< 0.10	0.31	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	< 0.10	< 0.10	0.23	< 0.10	0.34	< 0.10										
Phenanthrene	S4UL	95	8.3		< 0.10	< 0.10	< 0.10	< 0.10	5.3	1.1	0.16	< 0.10	0.18	< 0.10	< 0.10	0.77	2.1	0.38	0.74	1.1	8.3	0.35										
Phenol	S4UL	120	<LoD		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10										
Pyrene	S4UL	620	6.8		0.15	0.15	0.3	< 0.10	6.8	2.6	0.28	0.1	0.38	0.21	< 0.10	1.1	5.2	0.57	0.82	1	5.8	0.36										
Organics - TPH CWG and BTEX																																
Benzene	C4SL	0.87	<LoD					< 0.001																								
Toluene	S4UL	130	<LoD					< 0.001																								
Ethylbenzene	S4UL	47	<LoD					< 0.001																								
o-Xylene	S4UL	60	<LoD					< 0.001																								
m & p-xylene	S4UL	56	0.0012					< 0.001																								
Xylenes (sum of)	S4UL	56	0.0022					< LoD																								
EC05 - EC06 Aliphatic	S4UL	42	<LoD					< 0.010															< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05
EC>06 - EC08 Aliphatic	S4UL	100	<LoD					< 0.010															< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10
EC>08 - EC10 Aliphatic	S4UL	27	<LoD					< 0.10															< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05
EC>10 - EC12 Aliphatic	S4UL	130	7					< 0.10															3.8	3.2	2.8	7	3		2.9	3.1	3.3
EC>12 - EC16 Aliphatic	S4UL	1100	10					< 0.10															4.7	1.7	1.2	3.7	1.5		1.5	1.8	3.1
EC>16 - EC21 Aliphatic	S4UL	65000	14					< 0.10															5.7	14	< 2.0	3	< 2.0		< 2.0	2.7	< 2.0
EC>21 - EC35 Aliphatic	S4UL	65000	100					< 0.10															17	40	< 3.0	4.6	< 3.0		< 3.0	18	7.5
EC>35 - EC40 Aliphatic	ERROR	ERROR	22																				< 10	22	< 10	< 10	< 10		< 10	< 10	< 10
EC5 - EC7 (benzene)	S4UL	70	<LoD					< 0.010															< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05
EC7 - >EC8 (toluene)	S4UL	130	<LoD					< 0.010															< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05
EC>08 - EC10 Aromatic	S4UL	34	<LoD					< 0.10															< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		< 0.05	< 0.05	< 0.05
EC>10 - EC12 Aromatic	S4UL	74	<LoD																				< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0
EC>12 - EC16 Aromatic	S4UL	140	4.8																				1.2	3.3	< 1.0	< 1.0	< 1.0		< 1.0	4.8	< 1.0
EC>16 - EC21 Aromatic	S4UL	260	31																				7.7	26	< 2.0	3.2	< 2.0		< 2.0	31	11
EC>21 - EC35 Aromatic	S4UL	1100	160					< 0.10															52	34	< 2.0	3.2	2.4		< 2.0	46	36
EC>35 - EC44 Aromatic	S4UL	1100	37					< 0.10															11	11	< 1.0	1	< 1.0		< 1.0	24	37
Organics - Banded TPH (unspeciated)																																
EC >5-EC6 (unspeciated)	S4UL	42	<LoD												< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
EC >6-EC7 (unspeciated)	S4UL	70	<LoD												< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
EC >7-EC8 (unspeciated)	S4UL	100	<LoD												< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
EC >08-EC10 (unspeciated)	S4UL	27	2.5												2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
EC >10-EC12 (unspeciated)	S4UL	74	16												16	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
EC >12-EC16 (unspeciated)	S4UL	140	20												20	12	15	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
EC >16-EC21 (unspeciated)	S4UL	260	37												32	23	37	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
EC >21-EC35 (unspeciated)	S4UL	1100	130												55	63	130	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential with homegrown produce
SOM	1.00%
GAC Preference	C4SLs over S4ULs

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	WS228	WS229	WS230	WS231	WS232	WS233
				Depth (m)	0.50	0.30 - 0.60	0.40	0.50	0.30	0.30
				Date	22/03/24	27/03/24	27/03/24	27/03/24	27/03/24	27/03/24
Inorganics - Metals										
Arsenic	C4SL	37	160							
Beryllium	S4UL	1.7	14							
Boron	S4UL	290	1.3							
Cadmium	C4SL	22	2							
Chromium (III)	S4UL	910	38							
Chromium (VI)	C4SL	21	<LoD							
Copper	S4UL	2400	290							
Cyanide - Free	ATK	34	0.5							
Lead	C4SL	200	300							
Mercury	S4UL	40	1.2							
Nickel	S4UL	130	84							
Selenium	S4UL	250	1.8							
Vanadium	S4UL	410	110							
Zinc	S4UL	3700	490							
Inorganics - Asbestos										
Asbestos Type		N/A			-	-	-	-	-	-
Asbestos Screen		N/A			No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Inorganics - Soil Parameters										
Organic matter		N/A								
Organics - PAH & Phenol										
Acenaphthene	S4UL	210	1.1							
Acenaphthylene	S4UL	170	0.27							
Anthracene	S4UL	2400	2.2							
Benzo(a)anthracene	S4UL	7.2	4.1							
Benzo(a)pyrene	C4SL	5	5.5							
Benzo(b)fluoranthene	S4UL	2.6	6.8							
Benzo(ghi)perylene	S4UL	320	3.9							
Benzo(k)fluoranthene	S4UL	77	2.6							
Chrysene	S4UL	15	4.4							
Dibenz(a,h)anthracene	S4UL	0.24	0.73							
Fluoranthene	S4UL	280	8.3							
Fluorene	S4UL	170	0.8							
Indeno(1,2,3-cd)pyrene	S4UL	27	4							
Naphthalene	C4SL	15	0.34							
Phenanthrene	S4UL	95	8.3							
Phenol	S4UL	120	<LoD							
Pyrene	S4UL	620	6.8							
Organics - TPH CWG and BTEX										
Benzene	C4SL	0.87	<LoD							
Toluene	S4UL	130	<LoD							
Ethylbenzene	S4UL	47	<LoD							
o-Xylene	S4UL	60	<LoD							
m & p-xylene	S4UL	56	0.0012							
Xylenes (sum of)	S4UL	56	0.0022							
EC05 - EC06 Aliphatic	S4UL	42	<LoD							
EC>06 - EC08 Aliphatic	S4UL	100	<LoD							
EC>08 - EC10 Aliphatic	S4UL	27	<LoD							
EC>10 - EC12 Aliphatic	S4UL	130	7							
EC>12 - EC16 Aliphatic	S4UL	1100	10							
EC>16 - EC21 Aliphatic	S4UL	65000	14							
EC>21 - EC35 Aliphatic	S4UL	65000	100							
EC>35 - EC40 Aliphatic	ERROR	ERROR	22							
EC5 - EC7 (benzene)	S4UL	70	<LoD							
EC7 - >EC8 (toluene)	S4UL	130	<LoD							
EC>08 - EC10 Aromatic	S4UL	34	<LoD							
EC>10 - EC12 Aromatic	S4UL	74	<LoD							
EC>12 - EC16 Aromatic	S4UL	140	4.8							
EC>16 - EC21 Aromatic	S4UL	260	31							
EC>21 - EC35 Aromatic	S4UL	1100	160							
EC>35 - EC44 Aromatic	S4UL	1100	37							
Organics - Banded TPH (unspeciated)										
EC >5-EC6 (unspeciated)	S4UL	42	<LoD							
EC >6-EC7 (unspeciated)	S4UL	70	<LoD							
EC >7-EC8 (unspeciated)	S4UL	100	<LoD							
EC >08-EC10 (unspeciated)	S4UL	27	2.5							
EC >10-EC12 (unspeciated)	S4UL	74	16							
EC >12-EC16 (unspeciated)	S4UL	140	20							
EC >16-EC21 (unspeciated)	S4UL	260	37							
EC >21-EC35 (unspeciated)	S4UL	1100	130							

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Acute human health risk (soils)

Scenario	Occupational exposure (construction worker)
Critical receptor	Adult female worker
Oral exposure	Ingestion of soil and dusts over a single working day
Demal exposure	Soil being left on the skin for several hours, assumed no PPE worn
Inhalation exposure	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Topsoil
Made Ground
Devensian Till

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location		DTS01	DTS01	DTS03	DTS04	DTS05	DTS08	DTS09	DTS10	DTS11	DTS12	DTS13	DTS14	DTS15	DTS16	DTS17	DTS18	DTS19	DTS21	DTS22	DTS23	DTS24	DTS24	DTS25	DTS26	DTS27	DTS30	DTS32
						Offsite																												
					Depth (m)		0.10	0.50	0.10	0.80	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.50	0.10	0.10	0.10	0.10	0.10
					Date		31/08/17	31/08/17	31/08/17	31/08/17	31/08/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	21/09/17
Inorganics																																	
Arsenic	AGAC	Oral	7,000	160			27	6.4	14	7.2	11	16	16	15	21	13	16	17	22	21	8.6	17	18	11	16	18	18	9	20	22	20	18	18
Cadmium	AGAC	Oral	12,000	2			0.41	0.14	0.24	< 0.10	0.15	0.46	0.34	0.37	0.43	0.33	0.44	0.43	0.46	0.47	0.2	0.38	0.39	0.17	0.25	0.4	0.43	< 0.10	0.43	0.49	0.48	0.31	0.42
Cyanide - Free	AGAC	Oral & Inhalation	1,400	0.5			< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organics																																	
Benzene	AGAC	Inhalation	240	<LoD																													
Phenol	AGAC	**sat.**	**sat.**	<LoD			< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

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Acute human health risk (soils)

Scenario	Occupational exposure (construction worker)
Critical receptor	Adult female worker
Oral exposure	Ingestion of soil and dusts over a single working day
Demal exposure	Soil being left on the skin for several hours, assumed no PPE worn
Inhalation exposure	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS33	DTS34	DTS35	DTS36	DTS36	DTS38	DTS39	DTS40	DTS41	DTS44	DTS47	DTS47	DTS48	DTS49	DTS50	DTS51	DTS52	DTS53	DTS55	DTS55	DTS56	DTS58	DTS60	DTS61	DTS62	DTS63	DTS65
					Depth (m)	0.10	0.10	0.10	0.10	0.50	0.50	0.10	0.10	0.10	0.10	0.20	0.30 - 1.00	0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.30	0.20	0.20	0.30	0.20	0.20	0.20	0.20
					Date	21/09/17	21/09/17	21/09/17	21/09/17	21/09/17	22/09/17	22/09/17	22/09/17	22/09/17	22/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	26/09/17	26/09/17	26/09/17	26/09/17	26/09/17	27/09/17	27/09/17	27/09/17	27/09/17	27/09/17
Inorganics																																
Arsenic	AGAC	Oral	7,000	160		20	23	18	20	9.9	7.1	32	25	23	26	32	26	18	27	18	39	27	21	21		20	20	35	160	17	21	20
Cadmium	AGAC	Oral	12,000	2		0.35	0.41	0.36	0.45	0.12	< 0.10	0.52	0.37	0.45	0.46	0.42	< 0.10	0.24	0.42	0.31	0.56	0.28	0.36	0.39		0.48	0.65	0.72	0.71	0.34	0.39	0.49
Cyanide - Free	AGAC	Oral & Inhalation	1,400	0.5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organics																																
Benzene	AGAC	Inhalation	240	<LoD									< 0.001		< 0.001		< 0.001							< 0.001								
Phenol	AGAC	**sat.**	**sat.**	<LoD		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

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Acute human health risk (soils)

Scenario	Occupational exposure (construction worker)
Critical receptor	Adult female worker
Oral exposure	Ingestion of soil and dusts over a single working day
Demal exposure	Soil being left on the skin for several hours, assumed no PPE worn
Inhalation exposure	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS67	DTS68	DTS69	DTS70	DTS71	DTS73	DTS74	DTS75	DTS76	DTS78	DTS79	DTS83	HP201	HP202	HP204	HP206	WS201	WS202	WS203	WS204
					Depth (m)	0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.10	1.00	0.40	0.20	0.60	0.80	0.50 - 1.00	0.80	0.10
					Date	28/09/17	28/09/17	28/09/17	28/09/17	28/09/17	28/09/17	29/09/17	29/09/17	29/09/17	29/09/17	29/09/17	29/09/17	27/03/24	27/03/24	27/03/24	27/03/24	26/03/24	26/03/24	20/03/24	20/03/24
Inorganics																									
Arsenic	AGAC	Oral	7,000	160		20	24	17	21	14	14	20	28	27	20	21	12	3.9	7.8	24	12	24	8.5	16	17
Cadmium	AGAC	Oral	12,000	2		0.34	0.48	0.35	0.45	0.14	0.23	0.47	0.56	0.64	0.37	0.41	0.13	< 0.10	< 0.10	2	< 0.10	0.95	< 0.10	< 0.10	0.24
Cyanide - Free	AGAC	Oral & Inhalation	1,400	0.5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organics																									
Benzene	AGAC	Inhalation	240	<LoD							< 0.001														
Phenol	AGAC	**sat.**	**sat.**	<LoD		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

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Phytotoxicity

Scenario	
Land use	Planting

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS01	DTS01	DTS03	DTS04	DTS04	DTS05	DTS08	DTS09	DTS10	DTS11	DTS12	DTS12	DTS13	DTS14	DTS15	DTS16	DTS17	DTS17	DTS18	DTS19	DTS21	DTS22	DTS23	DTS24
				Depth (m)	0.10	0.50	0.10	0.80	1.70	0.10	0.10	0.10	0.10	0.10	0.10	1.50	0.10	0.10	0.10	0.10	0.10	1.20	0.10	0.10	0.10	0.10	0.10	0.10
				Date	31/08/17	31/08/17	31/08/17	31/08/17	31/08/17	31/08/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	18/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	19/09/17	20/09/17	20/09/17
Soil parameters																												
pH	BSI-u	8.5	8.3		5.2	7.2	6.1	5.8	6.4	5.3	8.2	8.2	8.3	8.3	8.1	6.4	8.1	8	8.1	8.1	8	7.3	8	8.1	7.8	5.7	7.9	7.9
pH	BSI-l	5.5	4.5		5.2	7.2	6.1	5.8	6.4	5.3	8.2	8.2	8.3	8.3	8.1	6.4	8.1	8	8.1	8.1	8	7.3	8	8.1	7.8	5.7	7.9	7.9
Potentially toxic element																												
Arsenic	SSIA	50			27	6.4	14	7.2		11	16	16	15	21	13		16	17	22	21	8.6		17	18	11	16	18	18
Cadmium	SSIA	3	2		0.41	0.14	0.24	< 0.10		0.15	0.46	0.34	0.37	0.43	0.33		0.44	0.43	0.46	0.47	0.2		0.38	0.39	0.17	0.25	0.4	0.43
Chromium (III)	SSIA	400	38		20	13	21	24		20	33	31	25	23	19		22	26	25	22	12		22	27	27	32	23	28
Lead	SSIA	300	300		130	11	45	19		33	100	56	52	84	53		65	61	66	65	33		52	57	26	46	60	50
Mercury	SSIA	1	1.2		0.23	< 0.10	0.1	< 0.10		< 0.10	0.41	0.34	0.28	0.27	0.21		0.25	0.22	0.24	0.24	0.14		0.7	0.2	0.13	0.18	0.21	0.21
Selenium	SSIA	3	1.8		0.24	< 0.20	< 0.20	< 0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Potentially toxic element (pH 5.5 to <6.0)																												
Copper	SSIA	100	250		120			26		42																49		
Nickel	SSIA	60	67		27			18		19																28		
Zinc	SSIA	200	230		130			38		77																67		
Potentially toxic element (pH 6.0 to <7.0)																												
Copper	SSIA	135	150				47																					
Nickel	SSIA	75	77				40																					
Zinc	SSIA	200	490				98																					
Potentially toxic element (pH >7.0)																												
Copper	SSIA	200	290			20					88	61	51	84	50		66	75	90	79	44		59	67	34		86	63
Nickel	SSIA	110	84			24					34	27	24	24	17		23	23	26	25	12		22	26	21		25	27
Zinc	SSIA	300	160			77					120	88	83	110	79		110	100	110	110	66		84	100	47		110	100

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Phytotoxicity

Scenario	
Land use	Planting

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS24	DTS25	DTS26	DTS27	DTS30	DTS32	DTS33	DTS34	DTS35	DTS36	DTS36	DTS36	DTS38	DTS39	DTS40	DTS41	DTS44	DTS47	DTS47	DTS47	DTS48	DTS49	DTS50	DTS51
				Depth (m)	0.50	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.50	1.00	0.50	0.10	0.10	0.10	0.10	0.20	0.30 - 1.00	1.80 - 2.00	0.20	0.20	0.20	0.20
				Date	20/09/17	20/09/17	20/09/17	20/09/17	20/09/17	21/09/17	21/09/17	21/09/17	21/09/17	21/09/17	21/09/17	21/09/17	22/09/17	22/09/17	22/09/17	22/09/17	22/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17	25/09/17
Soil parameters																												
pH	BSI-u	8.5	8.3		7.6	7.6	7.5	7.7	7.4	6.4	6.3	7.4	8	7.6	7.2	7.5	7.5	6.5	6.4	7.5	7.3	5.4	4.5	5	7	7.3	5.8	5.2
pH	BSI-l	5.5	4.5		7.6	7.6	7.5	7.7	7.4	6.4	6.3	7.4	8	7.6	7.2	7.5	7.5	6.5	6.4	7.5	7.3	5.4	4.5	5	7	7.3	5.8	5.2
Potentially toxic element																												
Arsenic	SSIA	50			9	20	22	20	18	18	20	23	18	20	9.9		7.1	32	25	23	26	32	26		18	27	18	39
Cadmium	SSIA	3	2		< 0.10	0.43	0.49	0.48	0.31	0.42	0.35	0.41	0.36	0.45	0.12		< 0.10	0.52	0.37	0.45	0.46	0.42	< 0.10		0.24	0.42	0.31	0.56
Chromium (III)	SSIA	400	38		38	23	25	25	28	29	27	29	30	28	29		38	28	29	24	28	29	6.6		38	34	32	37
Lead	SSIA	300	300		12	62	72	63	48	70	57	63	46	48	17		7.1	210	47	70	92	66	26		22	55	60	80
Mercury	SSIA	1	1.2		< 0.10	0.22	0.28	0.28	0.2	0.26	0.19	0.22	0.23	0.18	0.1		< 0.10	0.27	0.16	0.22	0.2	0.2	0.17		0.11	0.2	0.13	0.2
Selenium	SSIA	3	1.8		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20		< 0.20	0.4	< 0.20	< 0.20	0.2	0.29	1.4		< 0.20	< 0.20	< 0.20	0.24
Potentially toxic element (pH 5.5 to <6.0)																												
Copper	SSIA	100	250																			120	30				51	81
Nickel	SSIA	60	67																			34	12				37	39
Zinc	SSIA	200	230																			98	16				76	120
Potentially toxic element (pH 6.0 to <7.0)																												
Copper	SSIA	135	150							58	67							120	60						34			
Nickel	SSIA	75	77							26	27							39	32						29			
Zinc	SSIA	200	490							97	84							130	79						63			
Potentially toxic element (pH >7.0)																												
Copper	SSIA	200	290		28	80	91	84	69			81	62	67	23		10			92	110					78		
Nickel	SSIA	110	84		38	25	28	29	24			30	25	24	25		22			26	32					30		
Zinc	SSIA	300	160		61	110	130	120	92			87	89	110	38		27			130	120					93		

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Phytotoxicity

Scenario	
Land use	Planting

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS52	DTS53	DTS55	DTS56	DTS58	DTS60	DTS61	DTS61	DTS62	DTS63	DTS65	DTS67	DTS68	DTS69	DTS70	DTS70	DTS71	DTS73	DTS74	DTS75	DTS76	DTS78	DTS79	DTS81
				Depth (m)	0.20	0.20	0.10	0.20	0.20	0.30	0.20	1.00	0.20	0.20	0.20	0.20	0.20	0.20	0.20	1.50	0.20	0.20	0.10	0.10	0.10	0.10	0.10	1.50
				Date	25/09/17	26/09/17	26/09/17	26/09/17	26/09/17	27/09/17	27/09/17	27/09/17	27/09/17	27/09/17	27/09/17	28/09/17	28/09/17	28/09/17	28/09/17	28/09/17	28/09/17	28/09/17	29/09/17	29/09/17	29/09/17	29/09/17	29/09/17	29/09/17
Soil parameters																												
pH	BSI-u	8.5	8.3		5.4	6.2	6.1	6.6	6.7	5.2	4.9	6.2	6.1	5.9	5.8	5.5	5.7	5.5	6	8.3	7.3	6.2	8.2	7.6	6.1	5.6	5.2	7.3
pH	BSI-l	5.5	4.5		5.4	6.2	6.1	6.6	6.7	5.2	4.9	6.2	6.1	5.9	5.8	5.5	5.7	5.5	6	8.3	7.3	6.2	8.2	7.6	6.1	5.6	5.2	7.3
Potentially toxic element																												
Arsenic	SSIA	50			27	21	21	20	20	35	160		17	21	20	20	24	17	21		14	14	20	28	27	20	21	
Cadmium	SSIA	3	2		0.28	0.36	0.39	0.48	0.65	0.72	0.71		0.34	0.39	0.49	0.34	0.48	0.35	0.45		0.14	0.23	0.47	0.56	0.64	0.37	0.41	
Chromium (III)	SSIA	400	38		30	27	31	26	31	23	19		25	25	30	24	32	26	27		32	36	21	25	32	32	25	
Lead	SSIA	300	300		52	44	49	65	50	100	300		59	72	64	74	80	54	69		26	26	31	130	86	53	61	
Mercury	SSIA	1	1.2		0.18	0.17	0.21	0.21	0.16	0.23	0.32		0.18	0.19	0.16	0.17	0.21	0.14	0.19		0.12	0.14	< 0.10	0.21	0.22	0.17	0.16	
Selenium	SSIA	3	1.8		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.63	1.8		< 0.20	< 0.20	0.27	0.2	0.28	< 0.20	0.31		< 0.20	< 0.20	< 0.20	0.2	< 0.20	< 0.20	< 0.20	
Potentially toxic element (pH 5.5 to <6.0)																												
Copper	SSIA	100	250		72					95	250			79	66	62	64	47								61	66	
Nickel	SSIA	60	67		30					40	67			27	29	28	35	27								35	30	
Zinc	SSIA	200	230		88					130	230			100	98	87	96	72								85	83	
Potentially toxic element (pH 6.0 to <7.0)																												
Copper	SSIA	135	150			63	66	150	62				67						52			34			74			
Nickel	SSIA	75	77			25	35	29	33				26						30			37			40			
Zinc	SSIA	200	490			76	81	130	110				97						93			55			130			
Potentially toxic element (pH >7.0)																												
Copper	SSIA	200	290																		290		19	91				
Nickel	SSIA	110	84																		40		32	36				
Zinc	SSIA	300	160																		54		52	160				

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Phytotoxicity

Scenario	
Land use	Planting

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	DTS83	HP201	HP202	HP204	HP206	WS201	WS202	WS203	WS204
				Depth (m)	0.10	1.00	0.40	0.20	0.60	0.80	0.50 - 1.00	0.80	0.10
				Date	29/09/17	27/03/24	27/03/24	27/03/24	27/03/24	26/03/24	26/03/24	20/03/24	20/03/24
Soil parameters													
pH	BSI-u	8.5	8.3		7.3	7	5.6	7	6.4	6.7	7.2	7.5	7.3
pH	BSI-l	5.5	4.5		7.3	7	5.6	7	6.4	6.7	7.2	7.5	7.3
Potentially toxic element													
Arsenic	SSIA	50			12	3.9	7.8	24	12	24	8.5	16	17
Cadmium	SSIA	3	2		0.13	*< 0.10*	*< 0.10*	2	*< 0.10*	0.95	*< 0.10*	*< 0.10*	0.24
Chromium (III)	SSIA	400	38		33	22	0.6	32	8.2	22	11	24	32
Lead	SSIA	300	300		17	34	55	260	37	98	32	28	62
Mercury	SSIA	1	1.2		0.13	0.05	*< 0.05*	0.33	0.05	1.2	0.16	0.11	0.2
Selenium	SSIA	3	1.8		*< 0.20*	*< 0.25*	*< 0.25*	1.6	0.86	0.51	*< 0.25*	1.4	0.58
Potentially toxic element (pH 5.5 to <6.0)													
Copper	SSIA	100	250				25						
Nickel	SSIA	60	67				2.6						
Zinc	SSIA	200	230				33						
Potentially toxic element (pH 6.0 to <7.0)													
Copper	SSIA	135	150			28		140	57	120			
Nickel	SSIA	75	77			26		77	17	33			
Zinc	SSIA	200	490			70		490	84	140			
Potentially toxic element (pH >7.0)													
Copper	SSIA	200	290		26						39	210	71
Nickel	SSIA	110	84		44						9.7	84	30
Zinc	SSIA	300	160		45						44	70	110

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Asbestos in Soil and Construction & Demolition Materials

Project Reference	STN3680NM
Site Name	Florida Farm, St Helens
Client	Barratt Homes Manchester
Run by	SCD
Date	25.11.24
Scenario details	

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	1
Extent of degradation of ACMs at outset of work	Weathered (Slight degradation in ACM; material still retains its basic integrity)	2
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - >0.1 %wt/wt	4
Sub-total		**8**

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Exposure Factors

			Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.001 fibres/ml		0
Anticipated duration of exposure to asbestos	< 2 hours in a 7 day period for all persons involved (e.g. Short Duration Work)		1
Activity type and effect on deterioration of ACMs during work	Low intensity, no or minimal deterioration expected		0
Best description of primary host material matrix (soil/made ground)	Coarse to Fine Gravel		3
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Very low		1
Sub-total			**5**
Exposure ranking			Very low
Combined hazard and exposure ranking		**13**	Low

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Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

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Asbestos in Soil and Construction & Demolition Materials

Decision Support Tool for Receptor Risk Ranking

Stage 1

Hazard Identification		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	0
Extent of degradation of ACMs	Weathered (Slight degradation in ACM; material still retains its basic integrity)	2
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Asbestos fibre type	Chrysotile alone	0
Sub-total		**3**
Hazard ranking		**Very Low**

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It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Emission Factors		Score
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - ≥0.1 %wt/wt	4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Very low	1
Activity type and effect on deterioration of ACMs	Low disturbance, minimal deterioration expected	2
Best description of primary host material matrix	Coarse to Fine Gravel	3
Sub-total		**10**
Exposure ranking		**Medium**

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Stage 3

Pathway and Receptor Sensitivity		Score	
Receptor category	Residential	No score required	
Age of Receptor	Infant (under 5)	4	
Duration of exposure/site occupancy	< 1 hour in any single day (e.g. frequent but short exposure event)	1	
Receptor ranking		**5**	**Medium**
Combined hazard, exposure and receptor ranking			**Low**
Pathway: Distance of Receptor from Source	>10m of edge of area of disturbance	3	
Pathway: Depth to impacted material	Material buried at shallow depth, potential to be disturbed by excavation	C	
Pathway ranking		3C	**Low**
Overall ranking			**Very Low**

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Project Reference	STN3680NM

Site Name	Florida Farm, St Helens
Client	Barratt Homes Manchester

Run by	SCD
Date	25.11.24
Reviewed by	

Characterisation of scenario being evaluated	

Interpretation of scenario ranking by DST	

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Initial Conceptual Model

Current site use commercial/industrial
Proposed site use residential

Source	Pathway										Receptor		Risk assessment to CIRIA C552	
	Humans						Vegetation	Water					Consequence of risk occurring via most likely pathway	Risk
	Ingestion of air-borne dusts	Ingestion of soil	Ingestion of vegetables and soil attached to vegetables	Inhalation of air-borne dusts	Inhalation of vapours	Dermal contact with soil and dust	Root uptake, deposition to shoots and foliage contact	Percolation of water through contaminated soils	Near-surface water run-off through contaminated	Saturation of contaminated soils by flood waters				
Soils														
Mining activities – shafts, pits, possible quarry - reworked natural soils with coal, ash. Metals and PAHs likely.	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low
	Likely	Likely	Likely	Likely	Likely	Likely	-	-	-	-	Proposed site users	Child	Mild	Low/moderate
	-	-	-	-	-	-	High likelihood	-	-	-	Vegetation (current & proposed)	-	Minor	Low/moderate
	-	-	-	-	-	-	-	Unlikely	Likely	Likely	Water (current and proposed)	-	Mild	Low/moderate
General Made Ground associated with minor areas of development across the site - Metals, ACM, PAHs	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low
	Likely	Likely	Likely	Likely	Likely	Likely	-	-	-	-	Proposed site users	Child	Mild	Low/moderate
	-	-	-	-	-	-	High likelihood	-	-	-	Vegetation (current & proposed)	-	Minor	Low/moderate
	-	-	-	-	-	-	-	Unlikely	Likely	Likely	Water (current and proposed)	-	Mild	Low/moderate
Infilled ground in western and north-eastern parts of the site - reworked natural soils with coal, ash. Metals and PAHs likely.	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low
	Likely	Likely	Likely	Likely	Likely	Likely	-	-	-	-	Proposed site users	Child	Mild	Low/moderate
	-	-	-	-	-	-	High likelihood	-	-	-	Vegetation (current & proposed)	-	Minor	Low/moderate
	-	-	-	-	-	-	-	Unlikely	Likely	Likely	Water (current and proposed)	-	Mild	Low/moderate
Historic and recent use of fertilisers/pesticides/ insecticides - persistent metals and PAHs	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low
	Likely	Likely	Likely	Likely	Likely	Likely	-	-	-	-	Proposed site users	Child	Mild	Low/moderate
	-	-	-	-	-	-	High likelihood	-	-	-	Vegetation (current & proposed)	-	Minor	Low
	-	-	-	-	-	-	-	Unlikely	Likely	Likely	Water (current and proposed)	-	Mild	Low/moderate
Leachate														
Leachable concentrations of total contaminants as outlined above and associated with same sources	-	-	-	-	-	-	-	Unlikely	Likely	Likely	Water (current and proposed)	-	Mild	Low/moderate

Title
Initial Conceptual Site Model

Table number
1

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Updated Conceptual Model

Current site use commercial/industrial
Proposed site use residential

Source	Pathway										Receptor		Risk assessment to CIRIA C552	
	Humans						Vegetation	Water					Consequence of risk occurring via most likely pathway	Risk
	Ingestion of air-borne dusts	Ingestion of soil	Ingestion of vegetables and soil attached to vegetables	Inhalation of air-borne dusts	Inhalation of vapours	Dermal contact with soil and dust	Root uptake, deposition to shoots and foliage contact	Percolation of water through contaminated soils	Near-surface water run-off through contaminated	Saturation of contaminated soils by flood waters				
Soils														
Mining activities – shafts, pits, possible quarry - reworked natural soils with coal, ash. Metals and PAHs likely.	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Current site users	Adult	Minor	Very low
	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Proposed site users	Child	Mild	Very low
	-	-	-	-	-	-	Unlikely	-	-	-	Vegetation (current & proposed)	-	Minor	Very low
	-	-	-	-	-	-	-	Unlikely	Unlikely	Unlikely	Water (current and proposed)	-	Mild	Very low
General Made Ground associated with minor areas of development across the site - Metals, ACM, PAHs	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Current site users	Adult	Minor	Very low
	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Proposed site users	Child	Mild	Very low
	-	-	-	-	-	-	Unlikely	-	-	-	Vegetation (current & proposed)	-	Minor	Very low
	-	-	-	-	-	-	-	Unlikely	Unlikely	Unlikely	Water (current and proposed)	-	Mild	Very low
Infilled ground in western and north-eastern parts of the site - reworked natural soils with coal, ash. Metals and PAHs likely.	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Current site users	Adult	Minor	Very low
	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Proposed site users	Child	Mild	Very low
	-	-	-	-	-	-	Unlikely	-	-	-	Vegetation (current & proposed)	-	Minor	Very low
	-	-	-	-	-	-	-	Unlikely	Unlikely	Unlikely	Water (current and proposed)	-	Mild	Very low
Historic and recent use of fertilisers/pesticides/ insecticides - persistent metals and PAHs	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Current site users	Adult	Minor	Very low
	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	-	-	-	-	Proposed site users	Child	Mild	Very low
	-	-	-	-	-	-	Unlikely	-	-	-	Vegetation (current & proposed)	-	Minor	Low
	-	-	-	-	-	-	-	Unlikely	Unlikely	Unlikely	Water (current and proposed)	-	Mild	Very low
Hydrocarbon contamination in areas of RBH05-TP09 and RBH13-TP07	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low
	LIkely	LIkely	LIkely	LIkely	LIkely	LIkely	-	-	-	-	Proposed site users	Child	Mild	Low/moderate
	-	-	-	-	-	-	Unlikely	-	-	-	Vegetation (current & proposed)	-	Minor	Very low
	-	-	-	-	-	-	-	Unlikely	Unlikely	Unlikely	Water (current and proposed)	-	Mild	Very low
Elevated metals and PAHs in shallow soils local to existing farm house (DTS61 and DTS74)	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low
	LIkely	LIkely	LIkely	LIkely	LIkely	LIkely	-	-	-	-	Proposed site users	Child	Mild	Low/moderate
	-	-	-	-	-	-	Unlikely	-	-	-	Vegetation (current & proposed)	-	Minor	Very low
	-	-	-	-	-	-	-	Unlikely	Unlikely	Unlikely	Water (current and proposed)	-	Mild	Very low
Leachate														
Leachable concentrations of total contaminants as outlined above and associated with same sources	-	-	-	-	-	-	-	Unlikely	Unlikely	Unlikely	Water (current and proposed)	-	Mild	Very low

Title
Updated Conceptual Site Model

Table number
2

United Utilities
Water for the North West

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Your Ref: STN3680NM
Our Ref: UUPS-ORD-556754
Date: 21/03/2024

Soiltechnics

Soiltechnics
Cedar Barn,
Walgrave,
NN6 9PY

FAO:

Dear Sirs

Location: Florida Farm

I acknowledge with thanks your request dated 15/03/2024 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

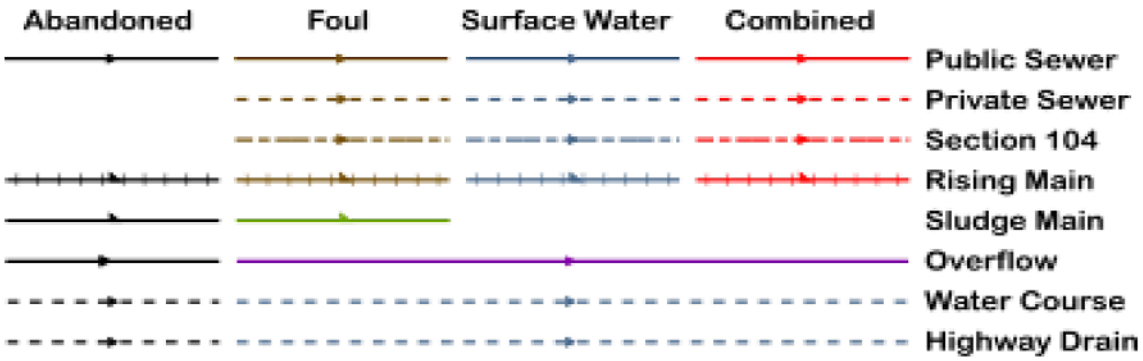
TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

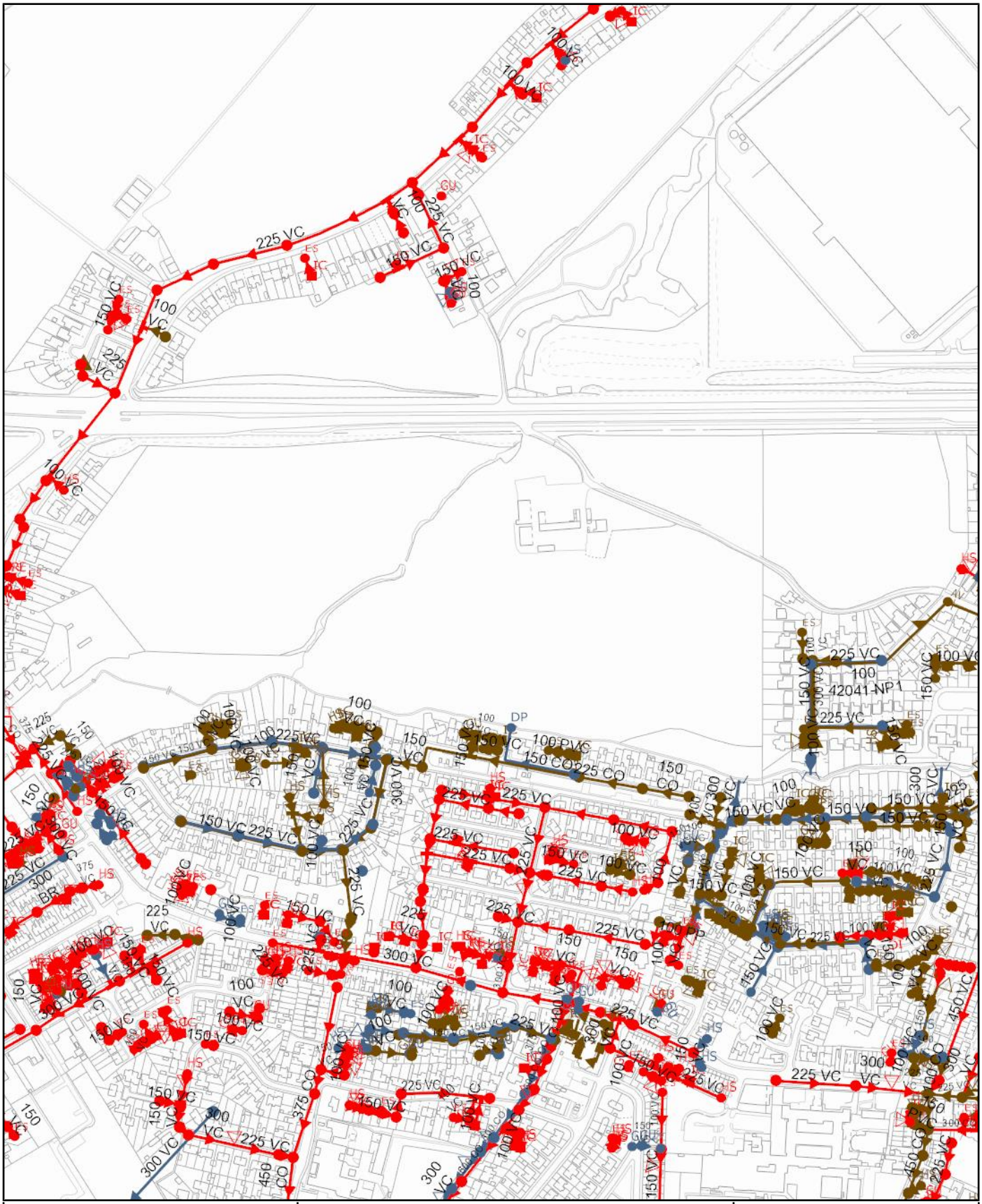
United Utilities
Water for the North West

Wastewater Symbology



All point assets follow the standard colour convention: red – combined, brown - foul, blue – surface water, purple - overflow

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- VC Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- ST Septic Tank
- CK Control Kiosk
- Change of Characteristic



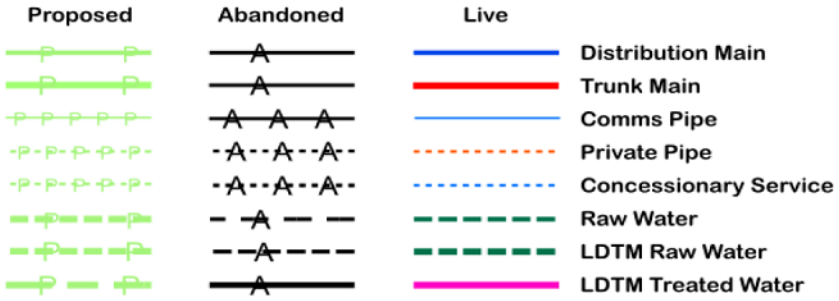
Scale:	1:5203	**SEWER RECORDS**	United Utilities Water for the North West
Date:	21/03/2024		
Address or Site Reference:	Florida Farm		
Printed by:	Property Searches		

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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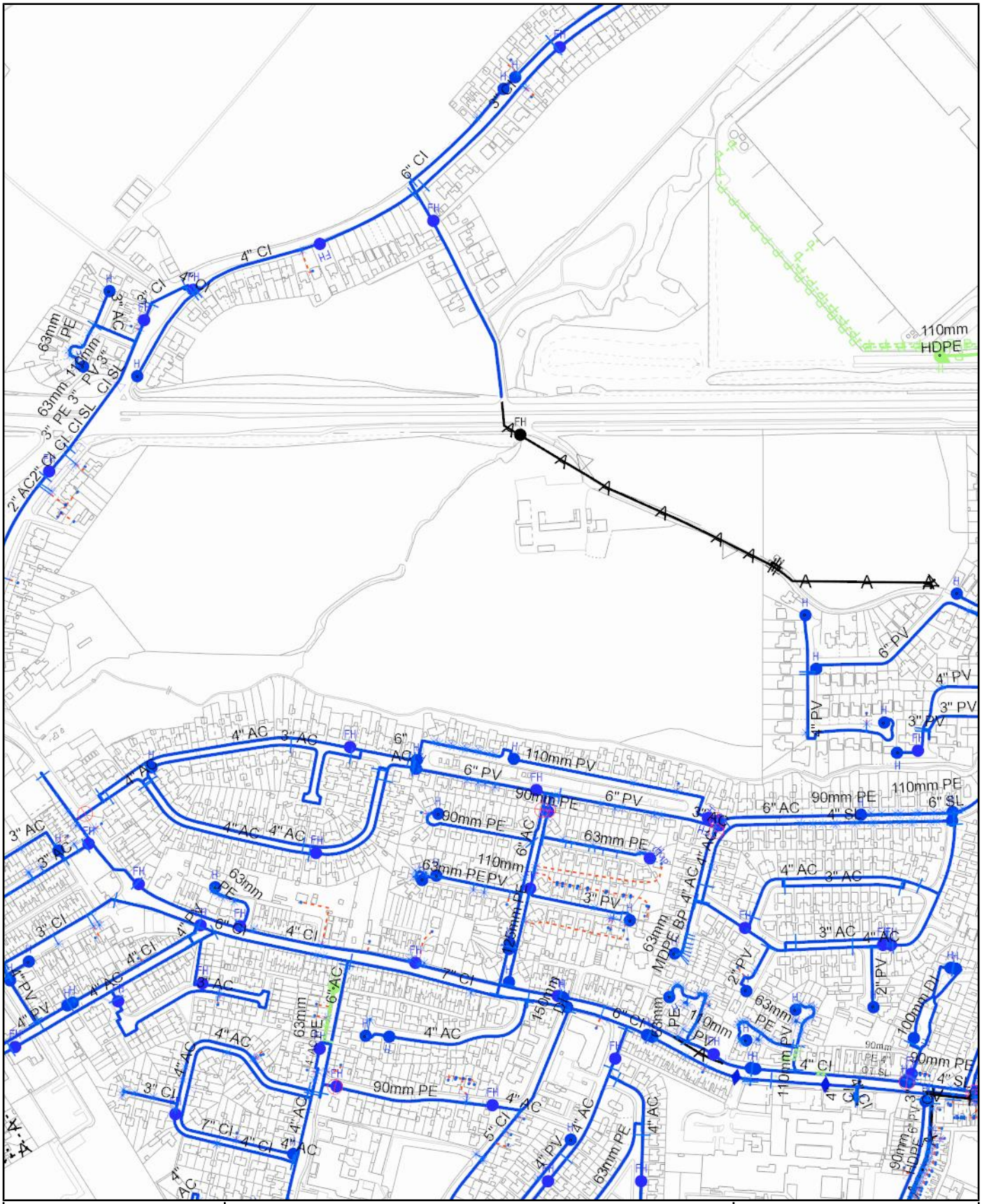
United Utilities
Water for the North West

Clean Water Symbology





Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black



Scale:	1:5203
Date:	21/03/2024

WATER MAINS RECORDS

United Utilities
Water for the North West

Address or Site Reference: Florida Farm

Printed by: Property Searches

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LOAD
250 scmh / 2700 kW

LOAD
277 scmh / 3000 kW

FUTURE LOAD
28 scmh / 300 kW

LOCATION PLAN
SCALE 1:2000

Unit 1

Attenuation Pond

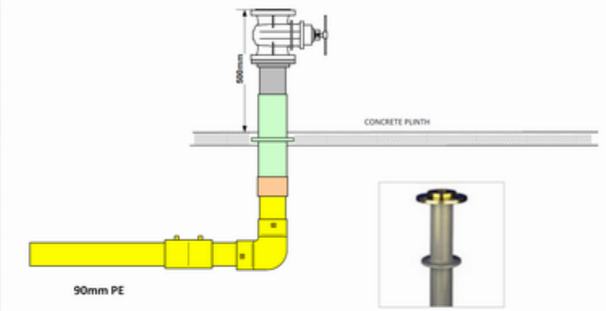
APPROVED
By FPL at 9:51 am, Oct 16, 2018

9109027 (7115a)

PLAN
SCALE 1:500

IMAGE NOT TO SCALE

Vertical inlet connection height :-
500mm to outlet flange face



P93942 80mm - 90mm Governor Entry Fitting (flanged) – AD2026

SITE LAYOUT / DEVELOPERS DRAWING:
18124 P2011 REV D

REVISIONS
GAS TRANSPORTER
FULCRUM

GAS KEY

LANDOWNER
BERICOTE PROPERTIES LTD
8 HAMILTON TERRACE
LEAMINGTON SPA
CV32 4LY

DEVELOPER
BERICOTE PROPERTIES LTD
8 HAMILTON TERRACE
LEAMINGTON SPA
CV32 4LY

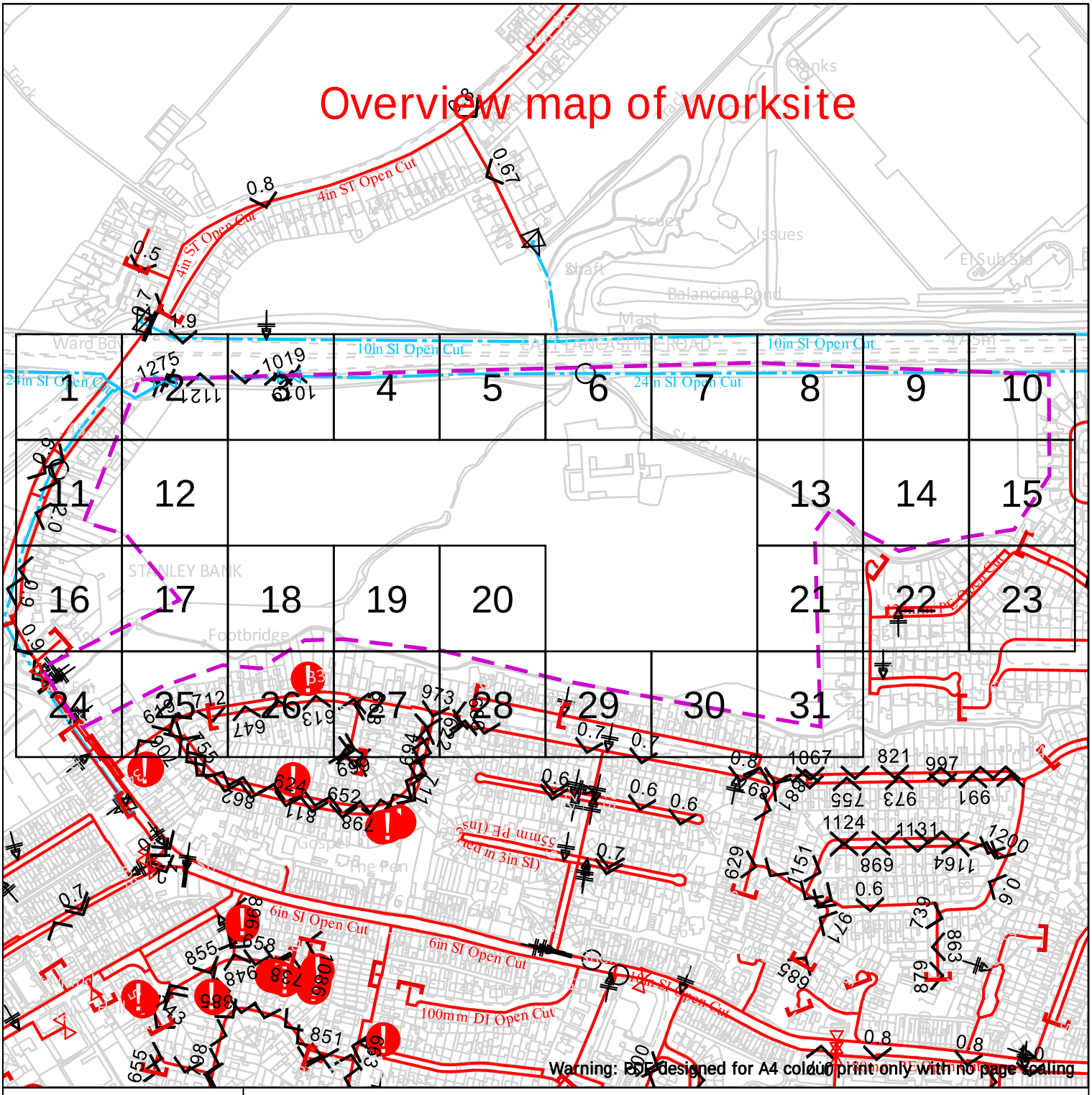
GAS
CONSTRUCTION
DRAWING

HAYDOCK LANE
HAYDOCK
WA11 9TN

SCHEME No: PND-7115
DRAWING No: PND/7115/01G
REVISION: 1

P N DALY

Overview map of worksite



Cadent
Your Gas Network

Dig Sites

Area:

Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information.

Out-of-standard service symbology may be used to indicate one or more of the following:

- Identification of shallow services
- Identification of dual services
- Recording of non-perpendicular services

A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.

Date Requested: 15/03/2024
Job Reference: 32807110
Site Location: 354793 397212
Requested by: Miss Lauren Wenham

Your Scheme/Reference: STN3680NM

View extent: 100m, 100m

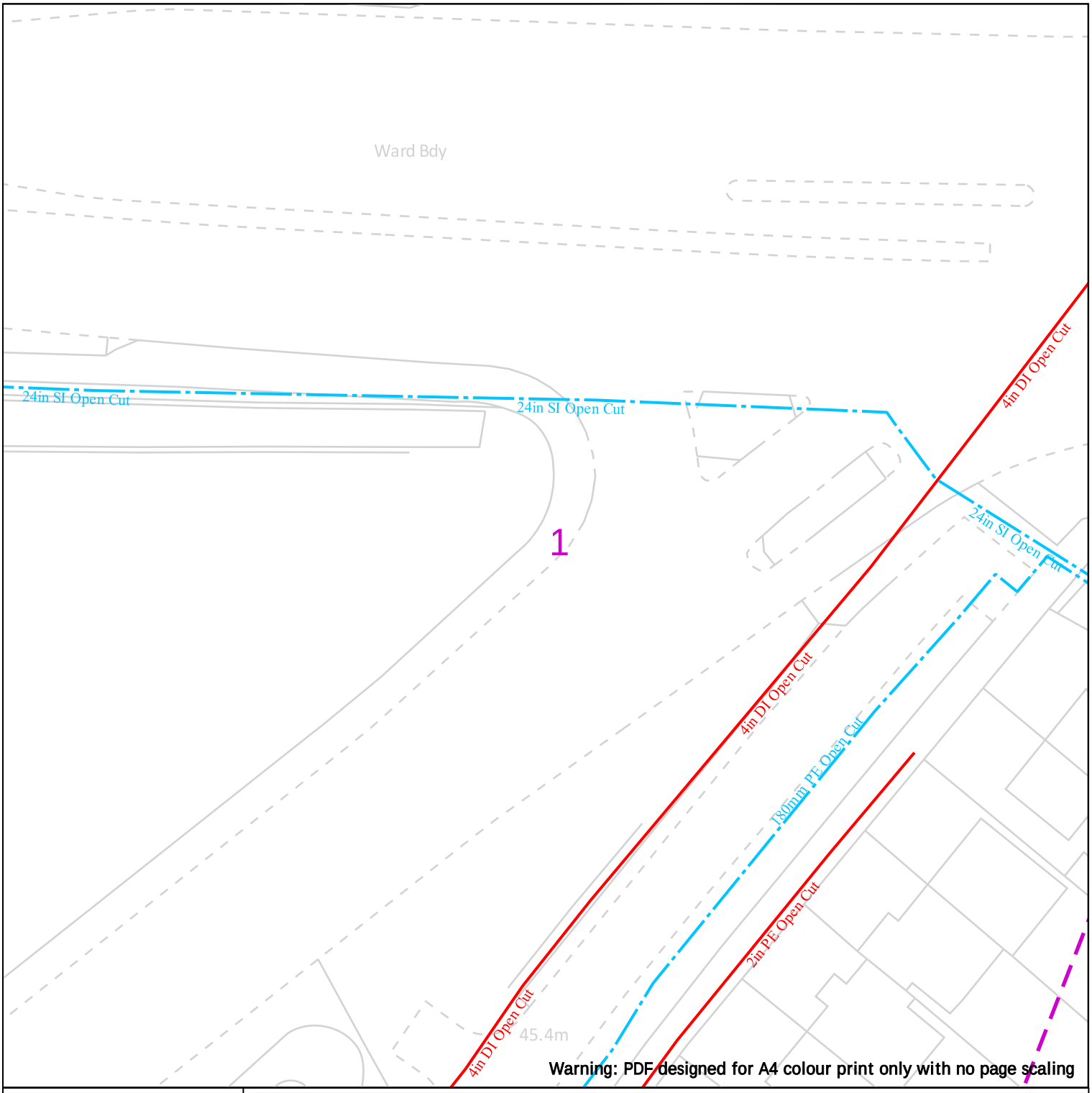
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In case of emergency call - 0800 111 999

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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

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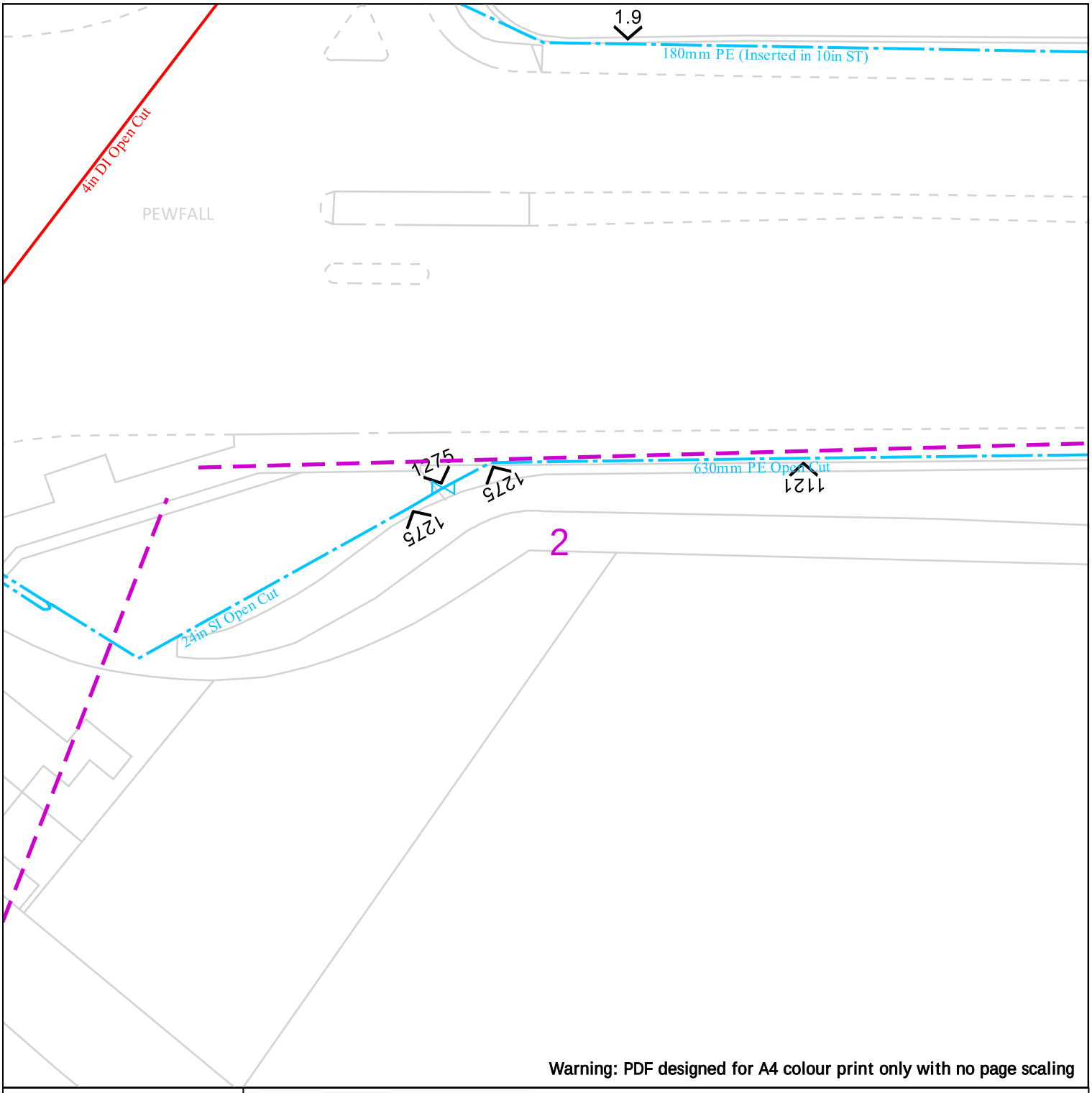
Scale: 1:500 (When plotted at A4)

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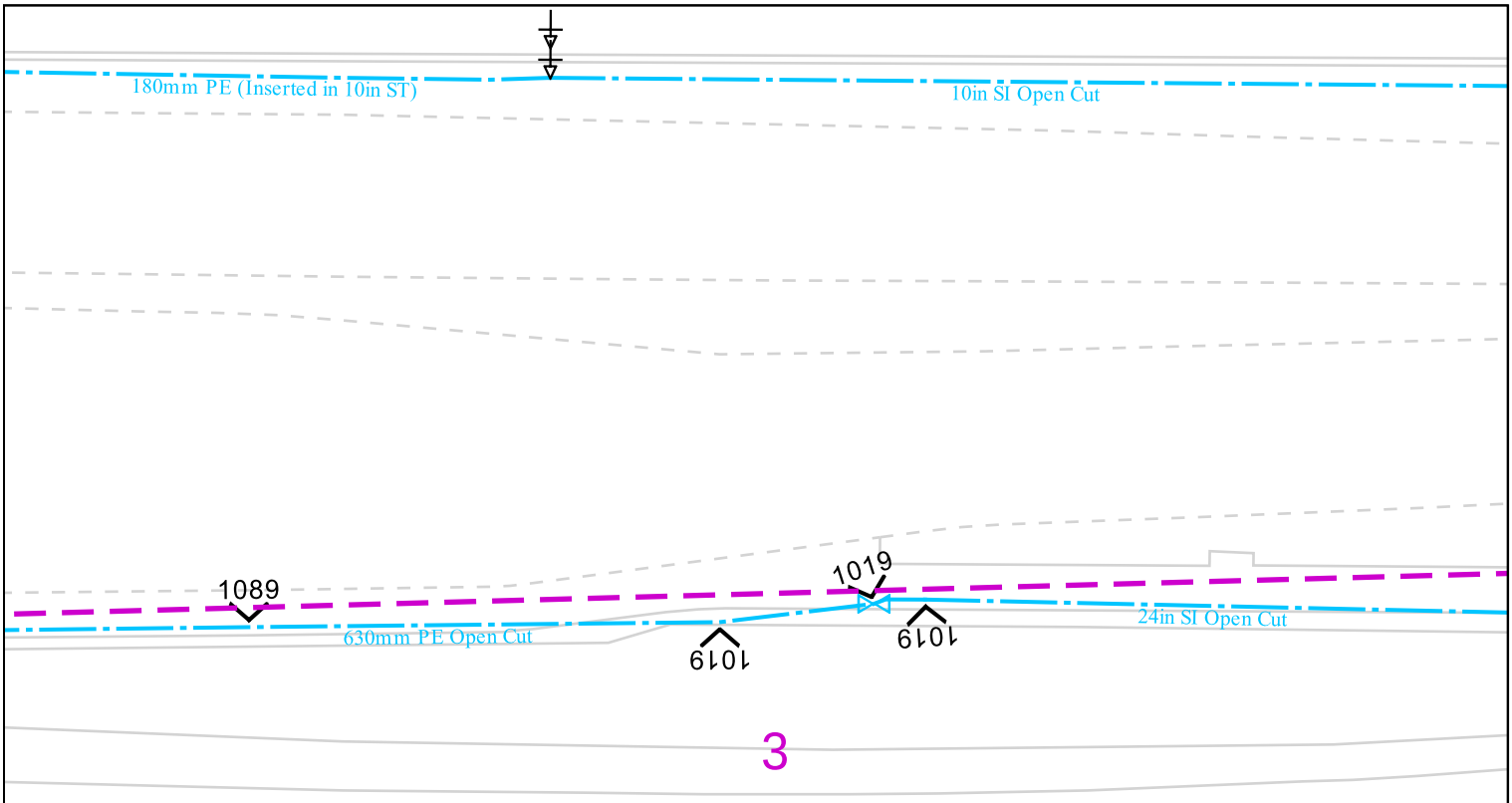
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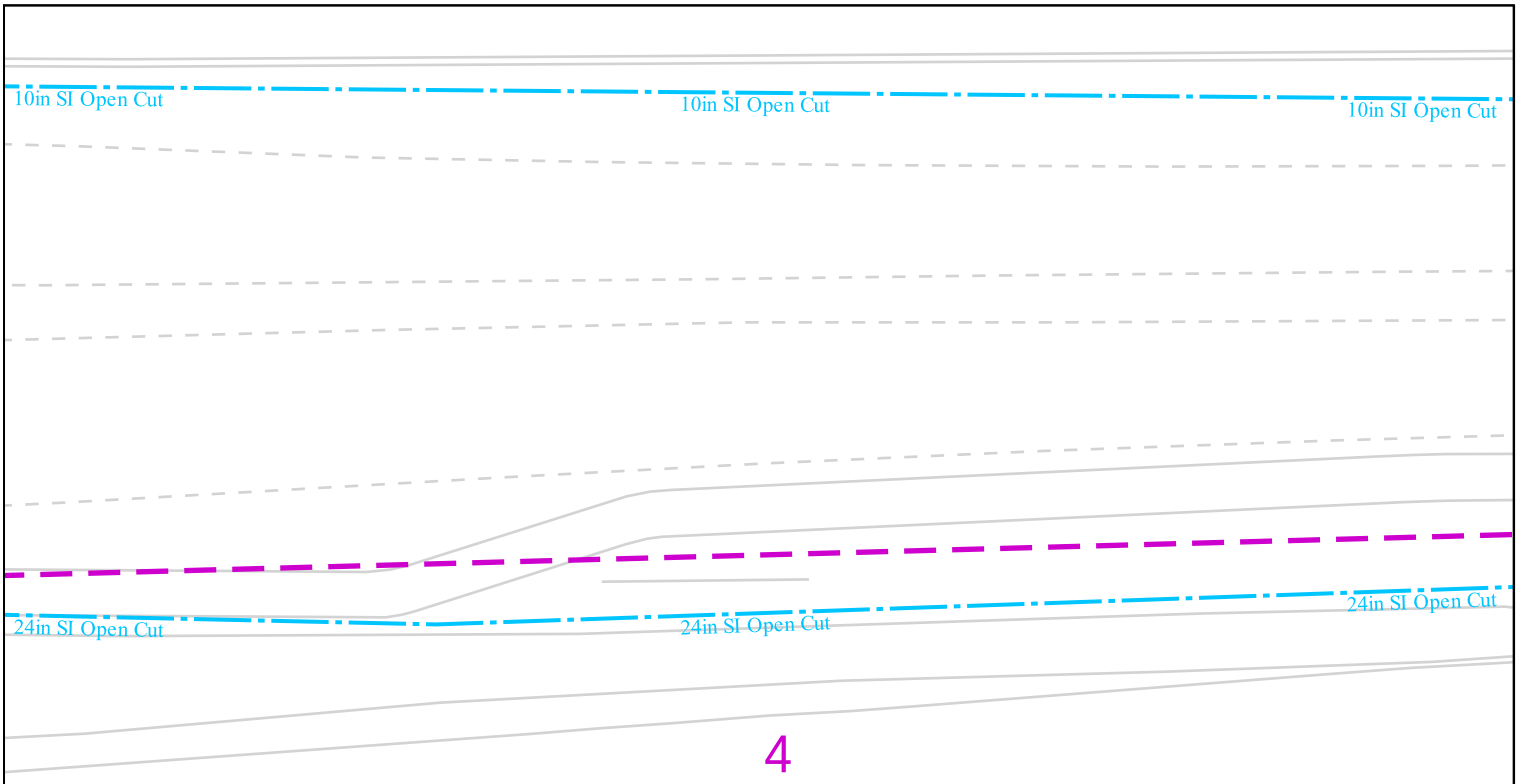
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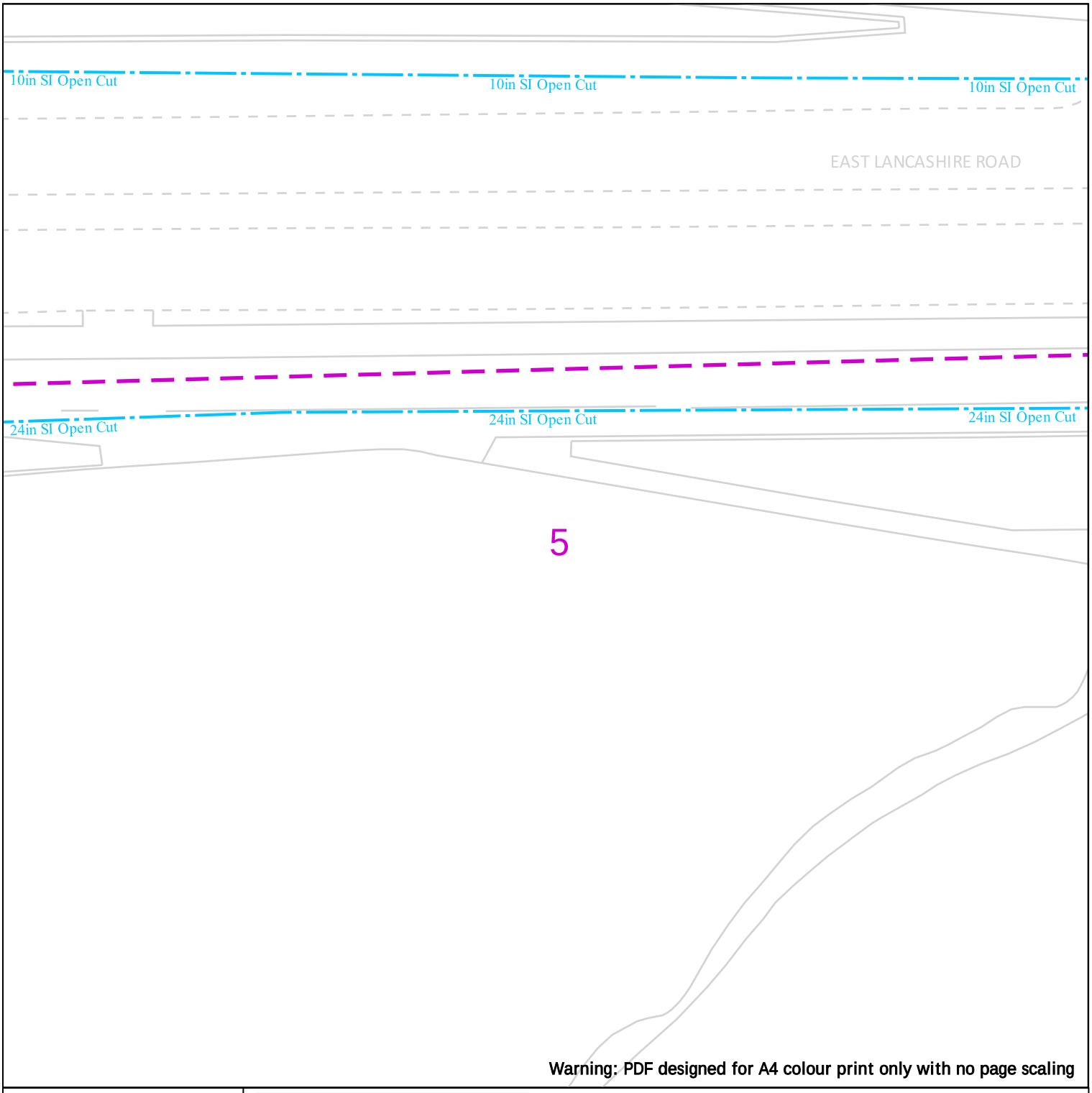
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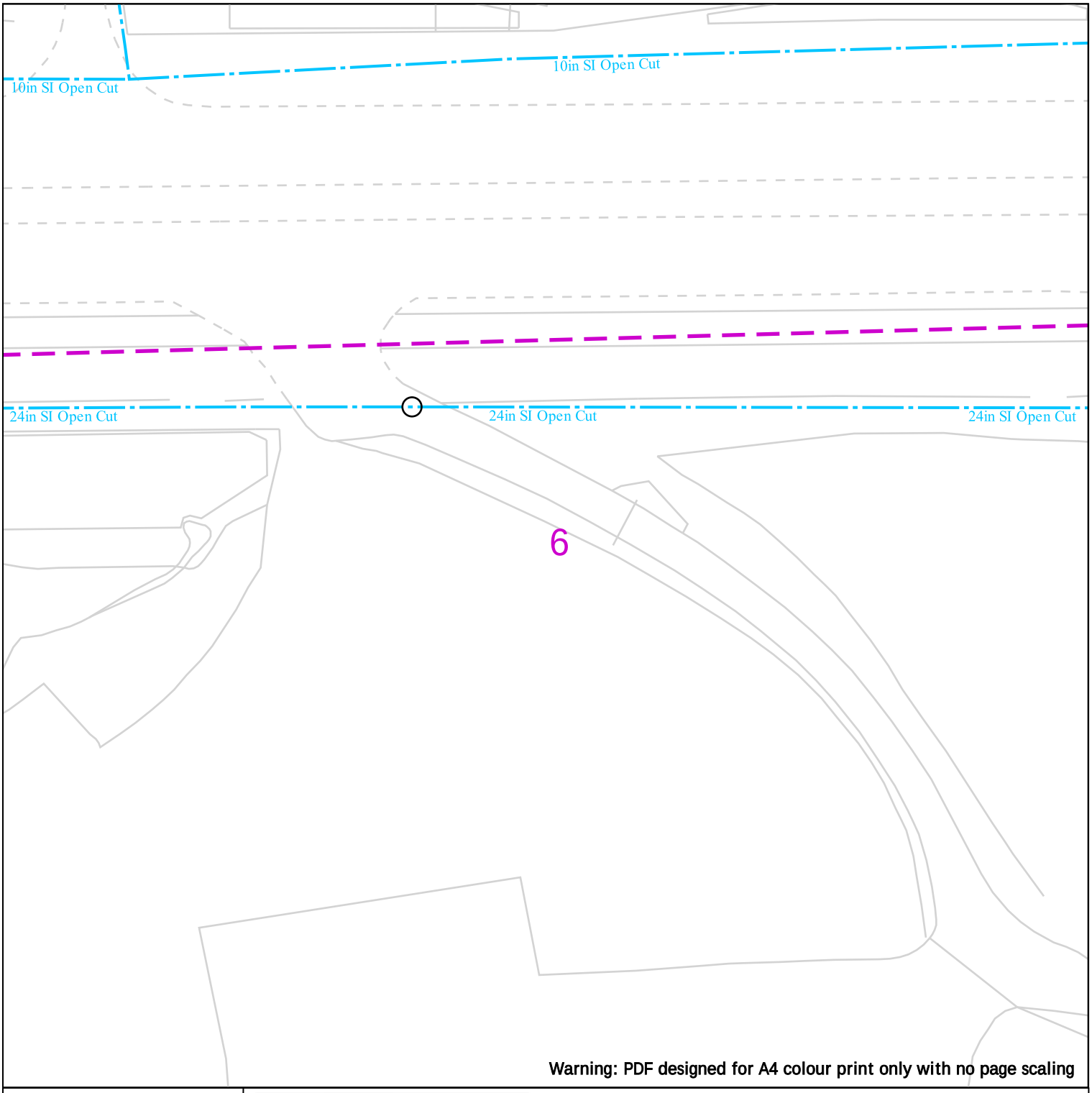
Scale: 1:500 (When plotted at A4)

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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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- Identification of shallow services
- Identification of dual services
- Recording of non-perpendicular services

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Cadent
Your Gas Network

Date Requested: 15/03/2024
Job Reference: 32807110
Site Location: 354793 397212
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STN3680NM

View extent: 100m, 100m

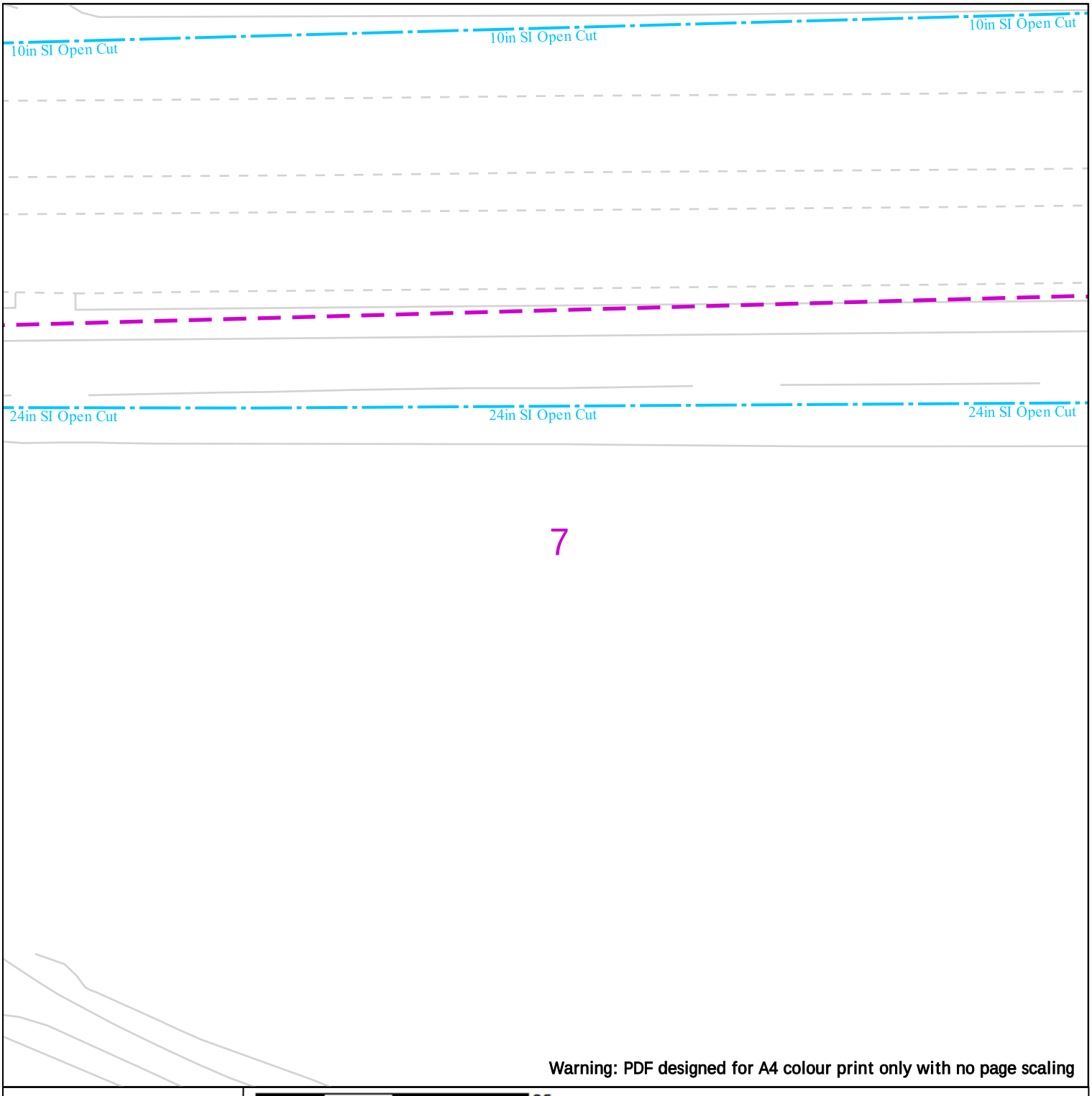
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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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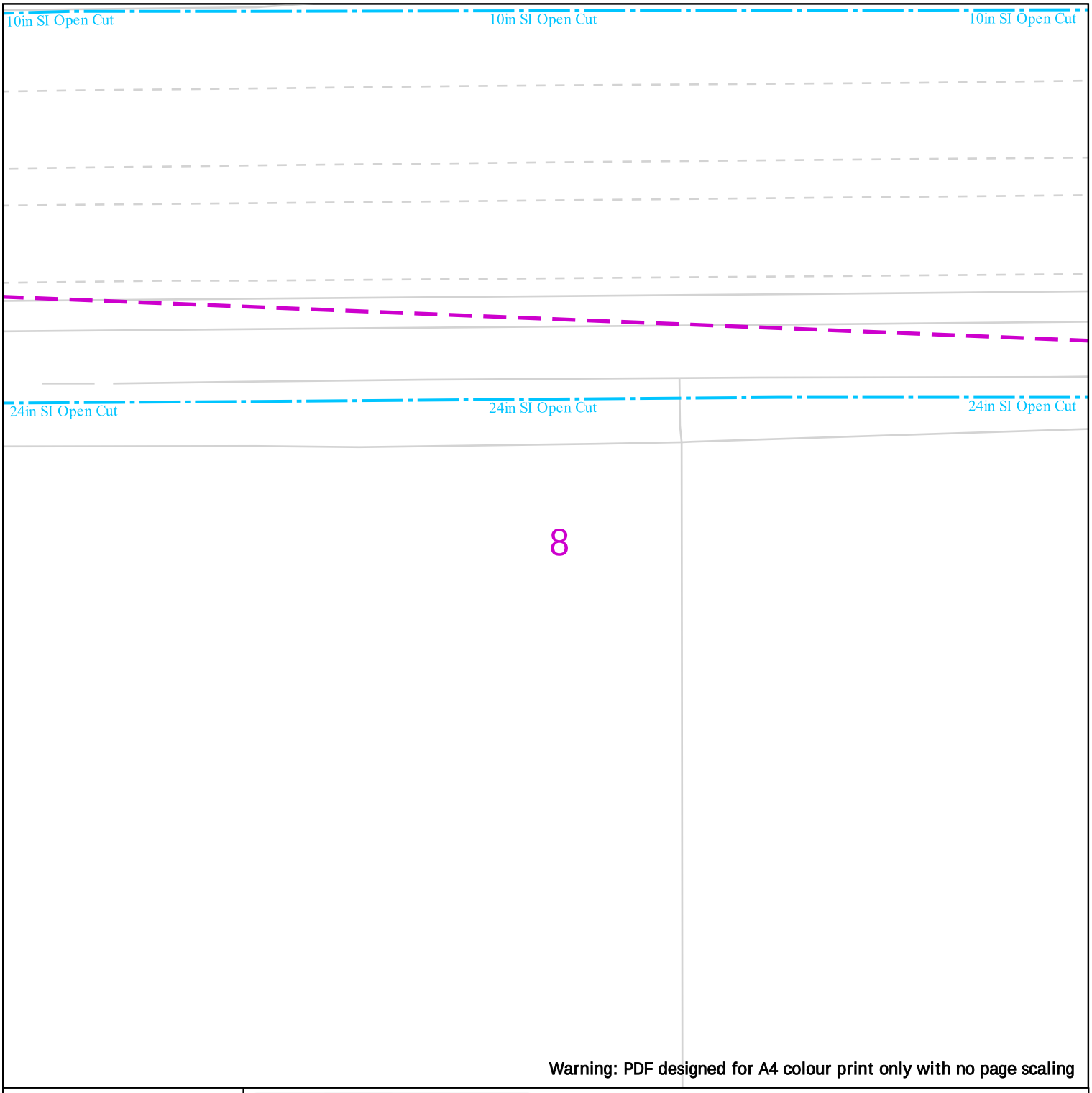
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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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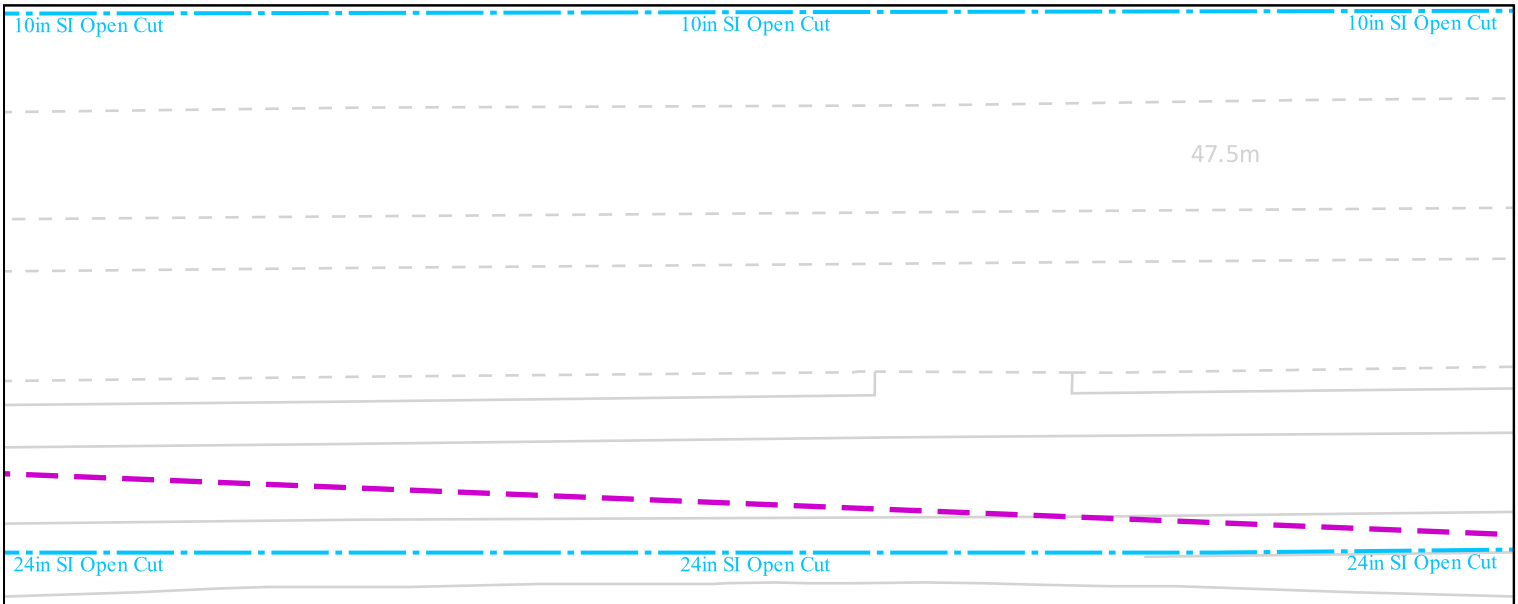
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9

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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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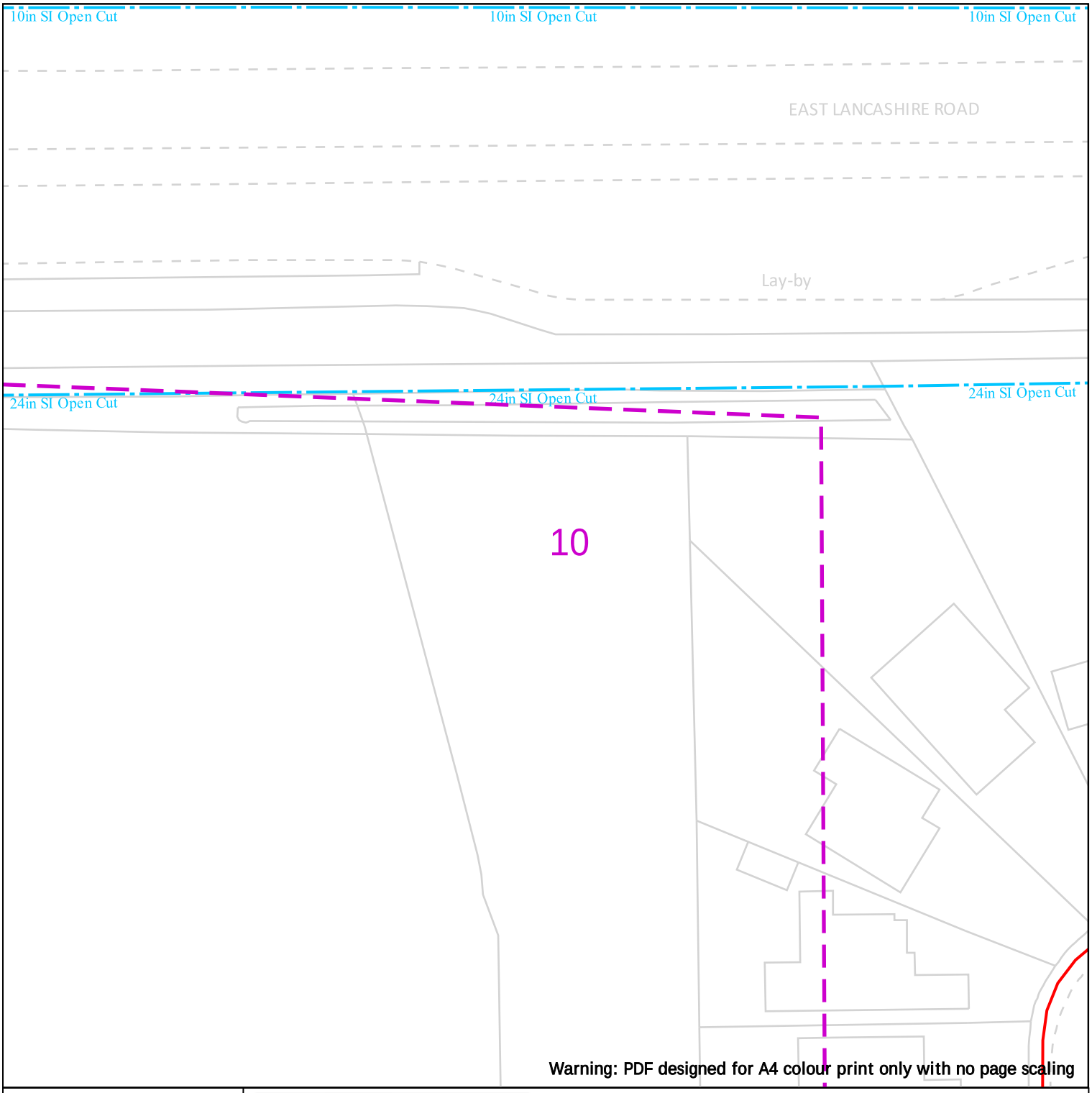
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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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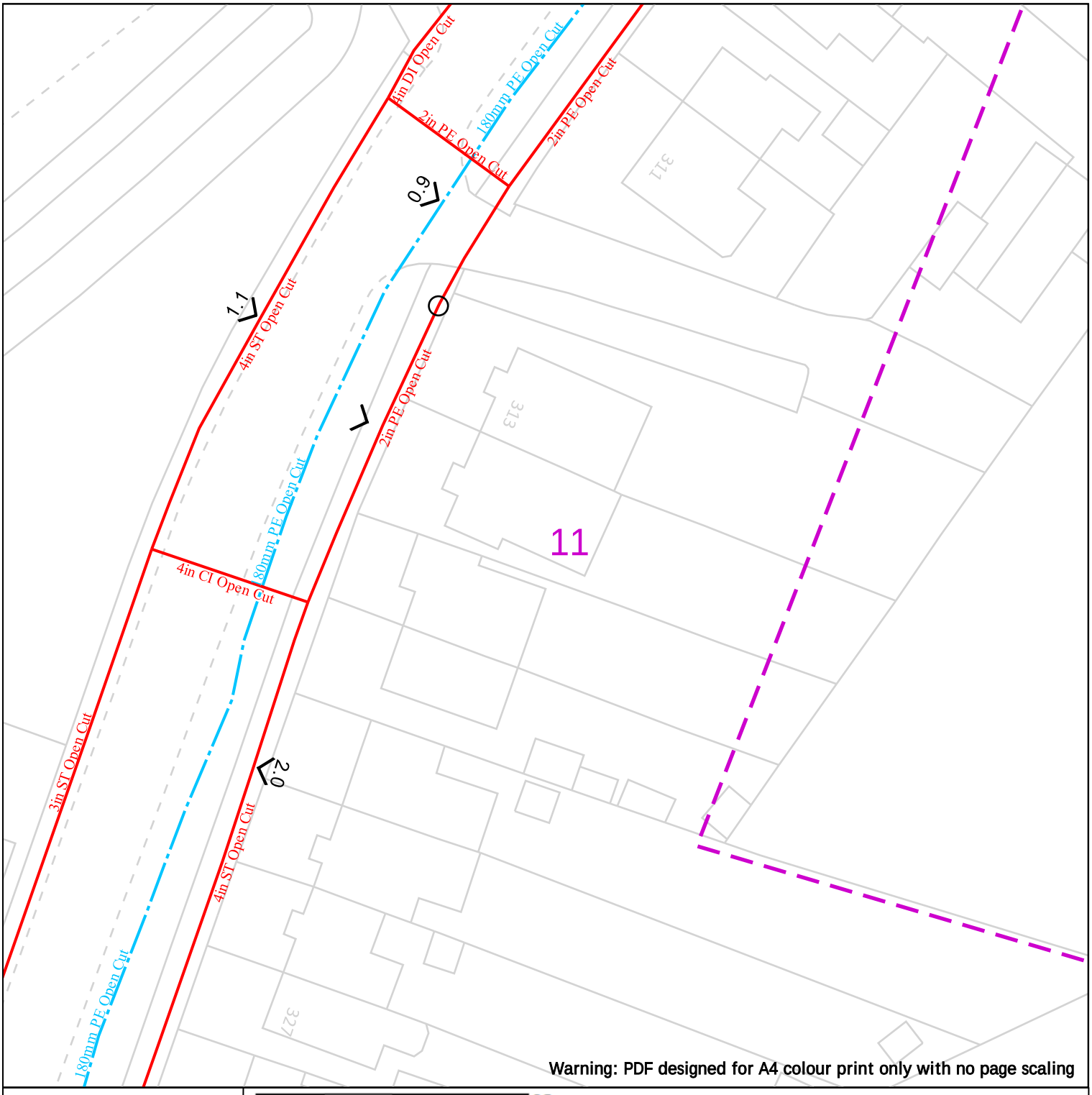
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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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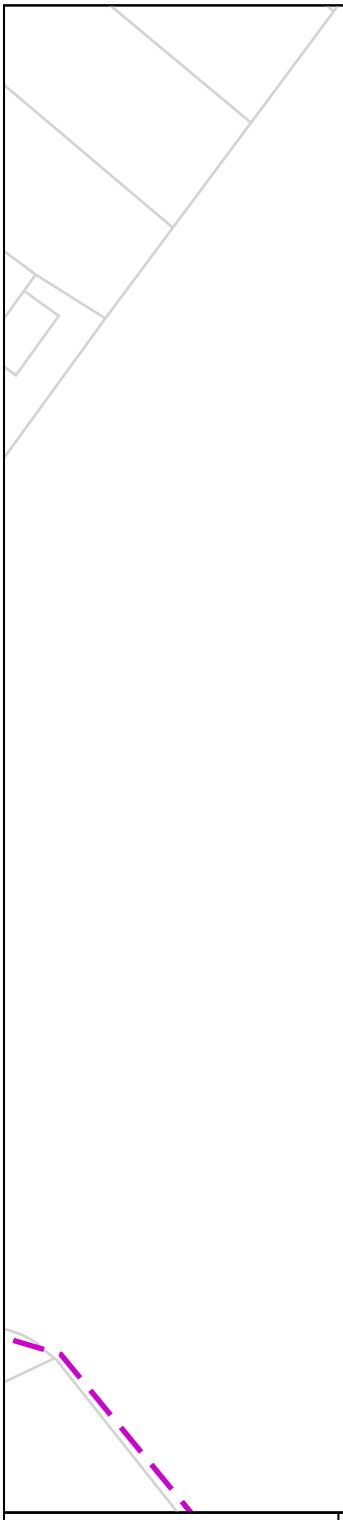
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12

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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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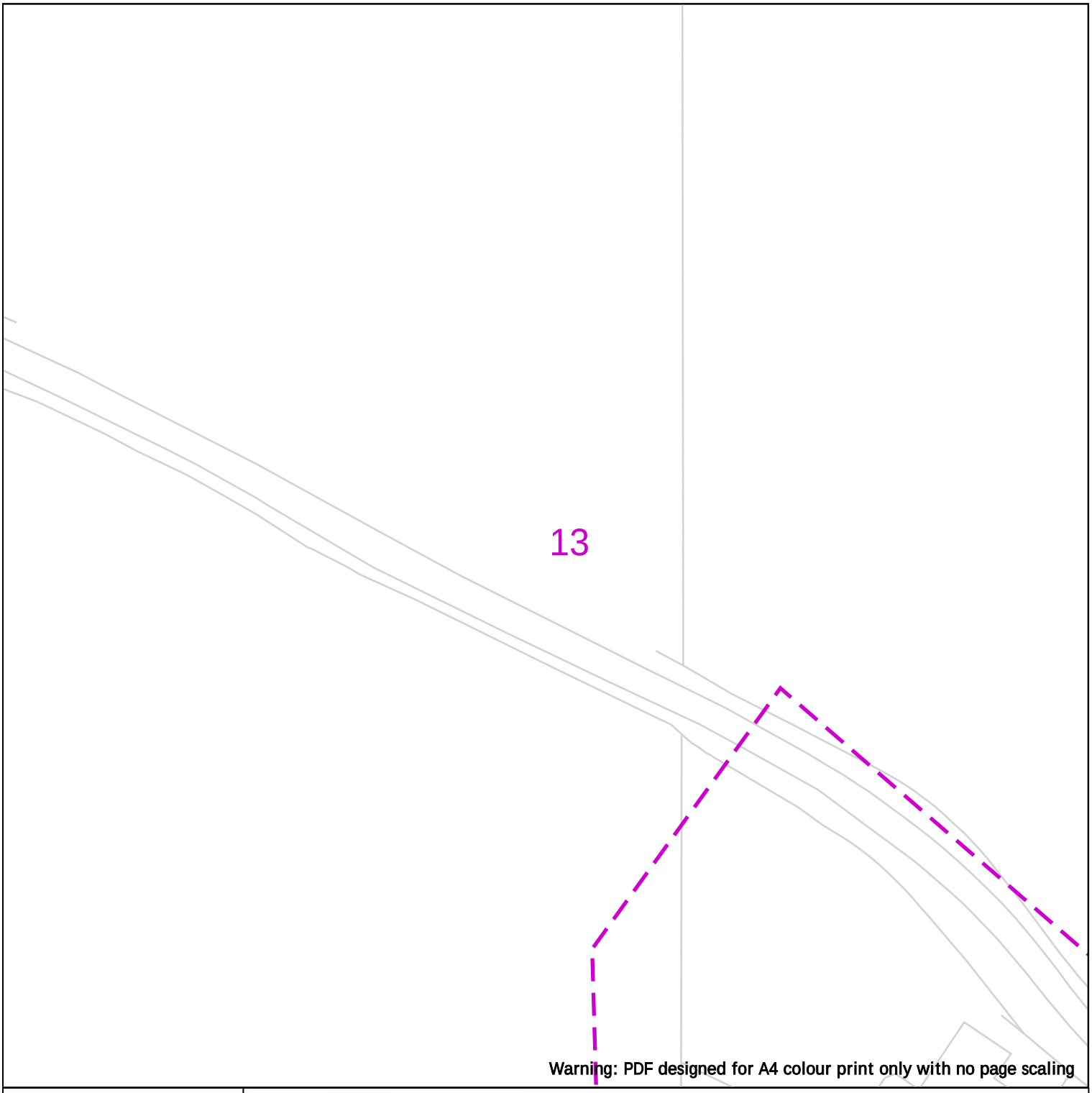
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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
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Valve
Depth of cover
Syphon

Diameter Change
Material Change
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14



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25m

Dig Sites Area: Line:

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MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
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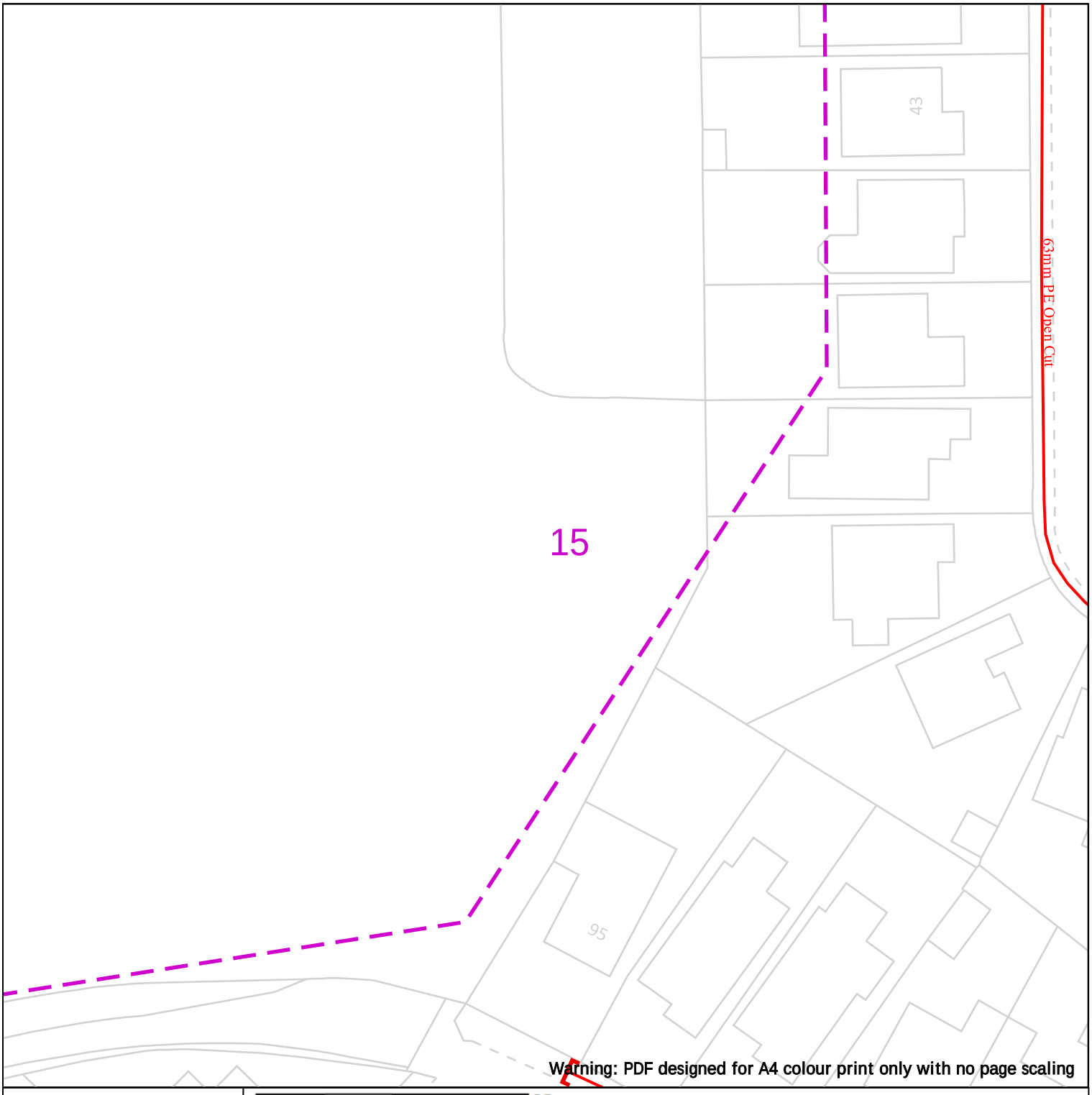
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25m

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Valve
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Syphon

Diameter Change
Material Change
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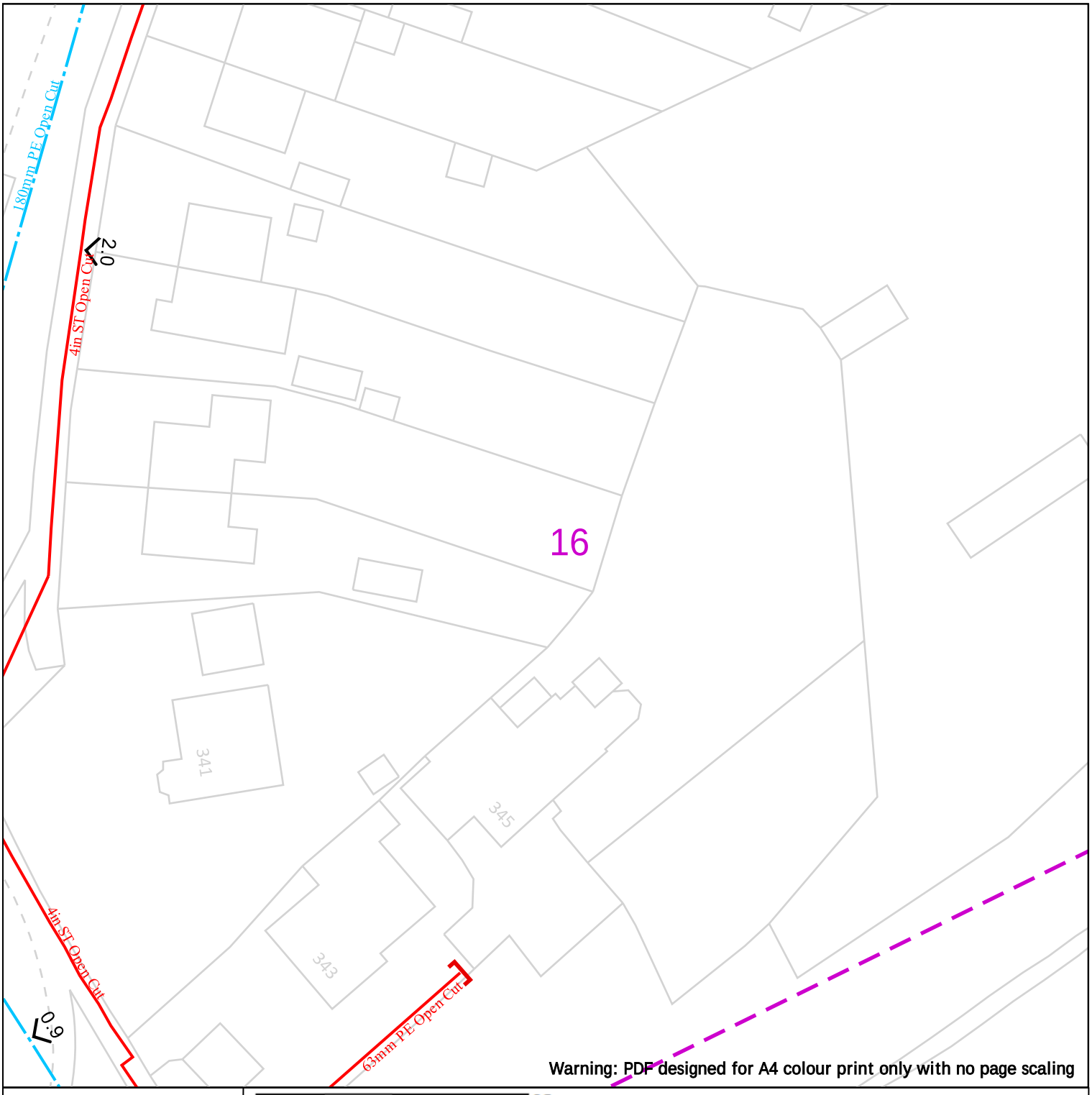
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25m

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Valve
Depth of cover
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Diameter Change
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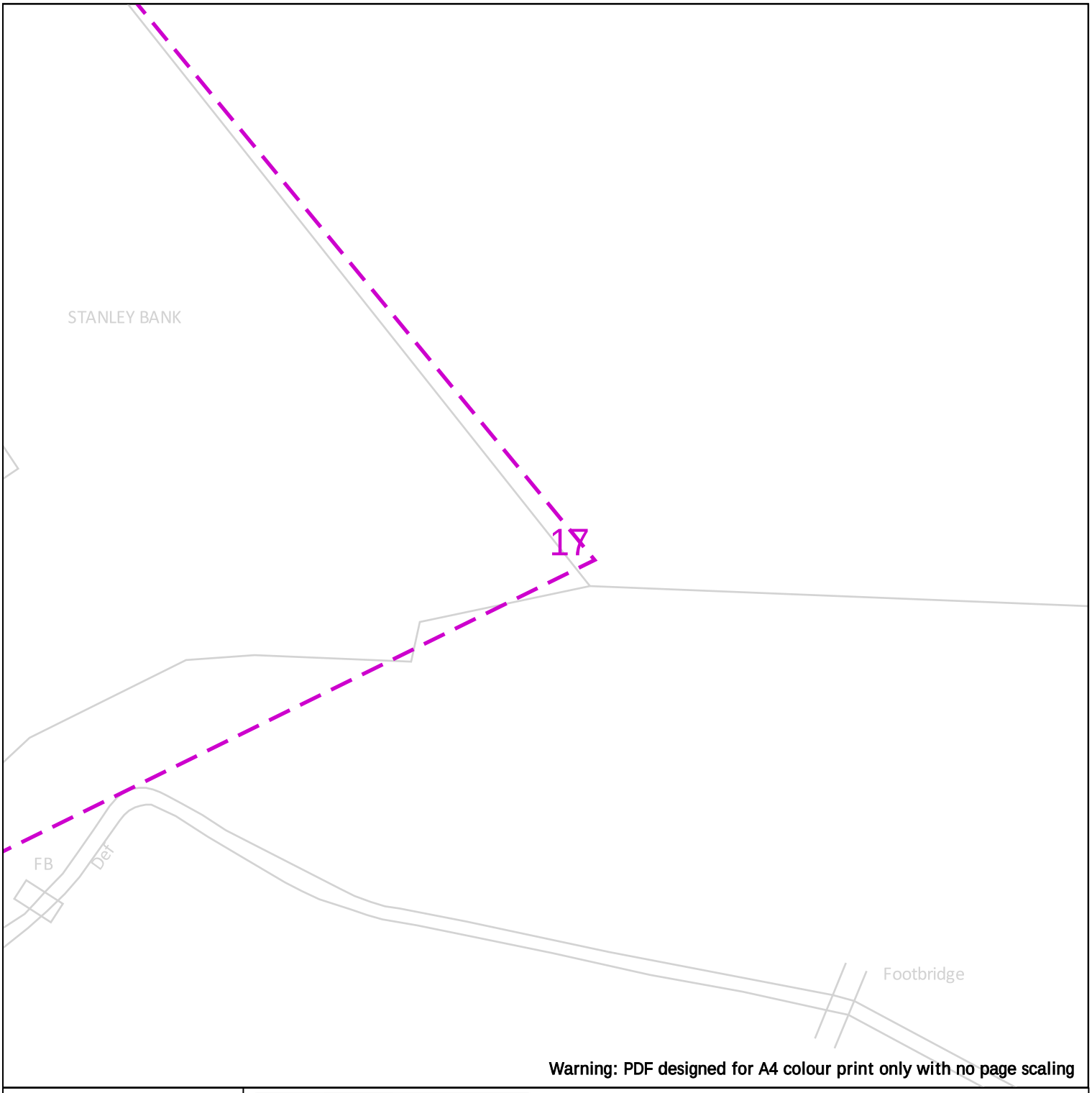
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25m

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Valve
Depth of cover
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Date Requested: 15/03/2024
Job Reference: 32807110
Site Location: 354793 397212
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STN3680NM

View extent: 100m, 100m

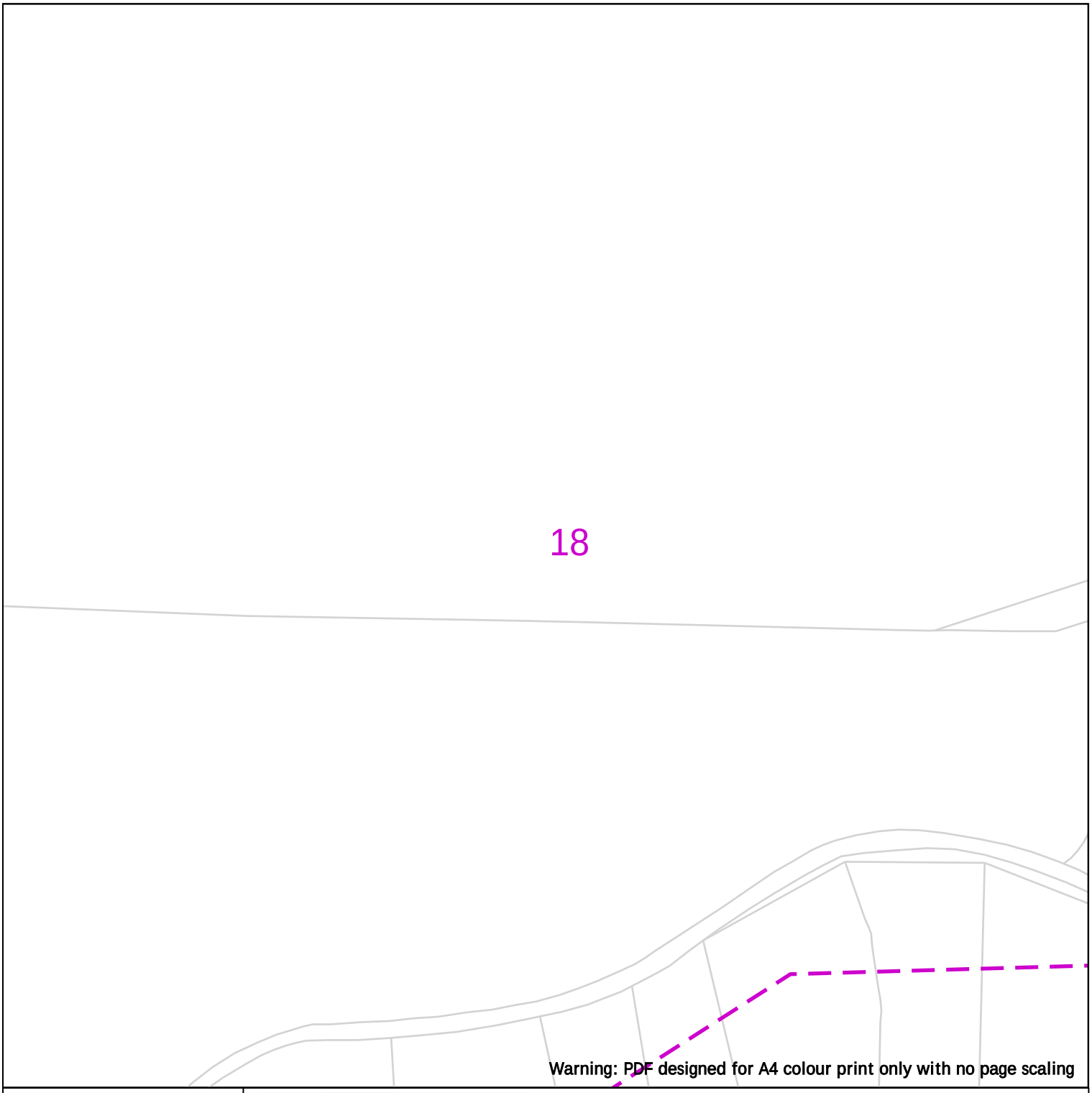
Scale: 1:500 (When plotted at A4)

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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

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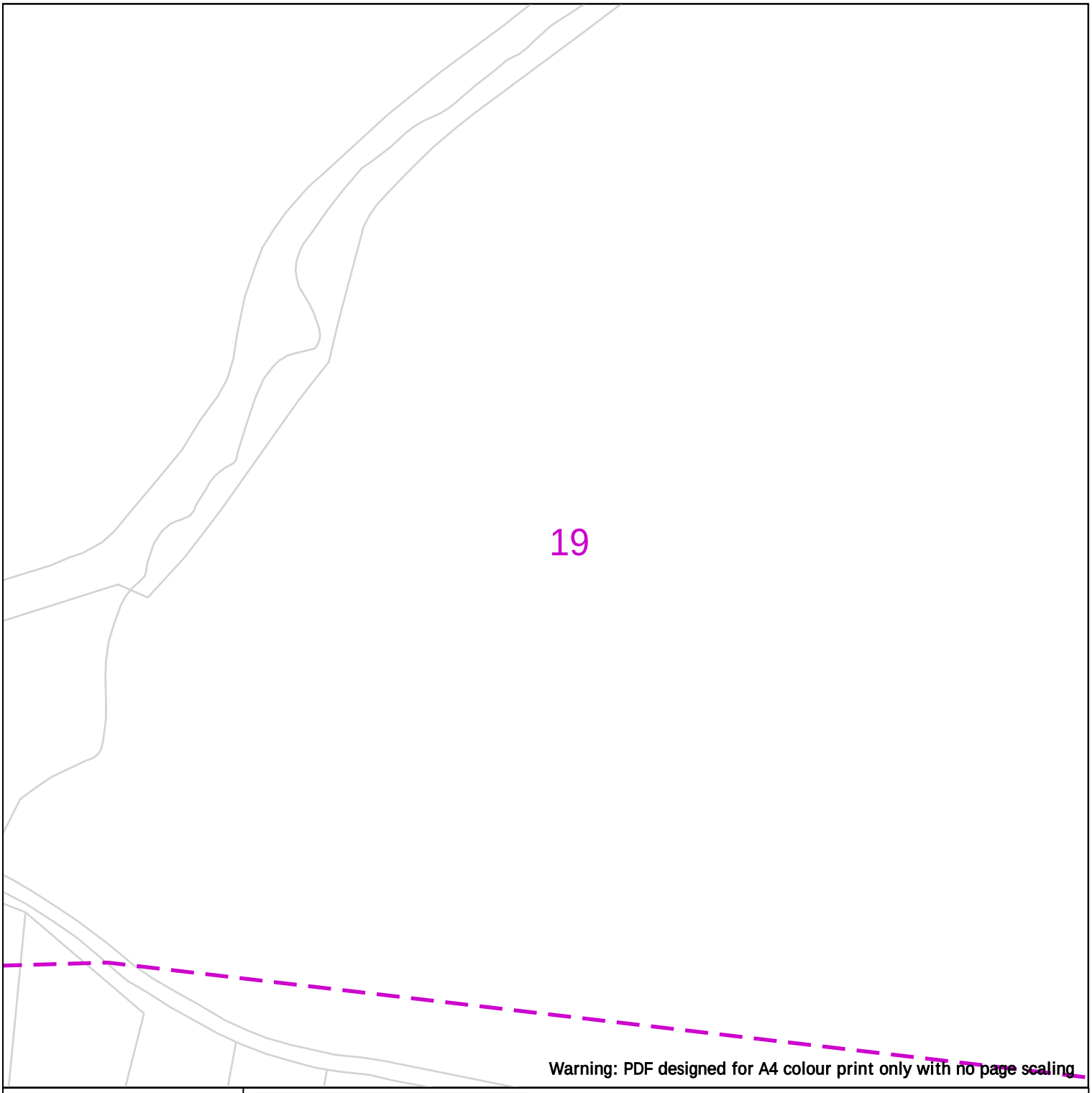
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LP Mains
MP Mains
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Valve
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Syphon

Diameter Change
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20

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Dig Sites Area: Line:

LP Mains
MP Mains
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LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
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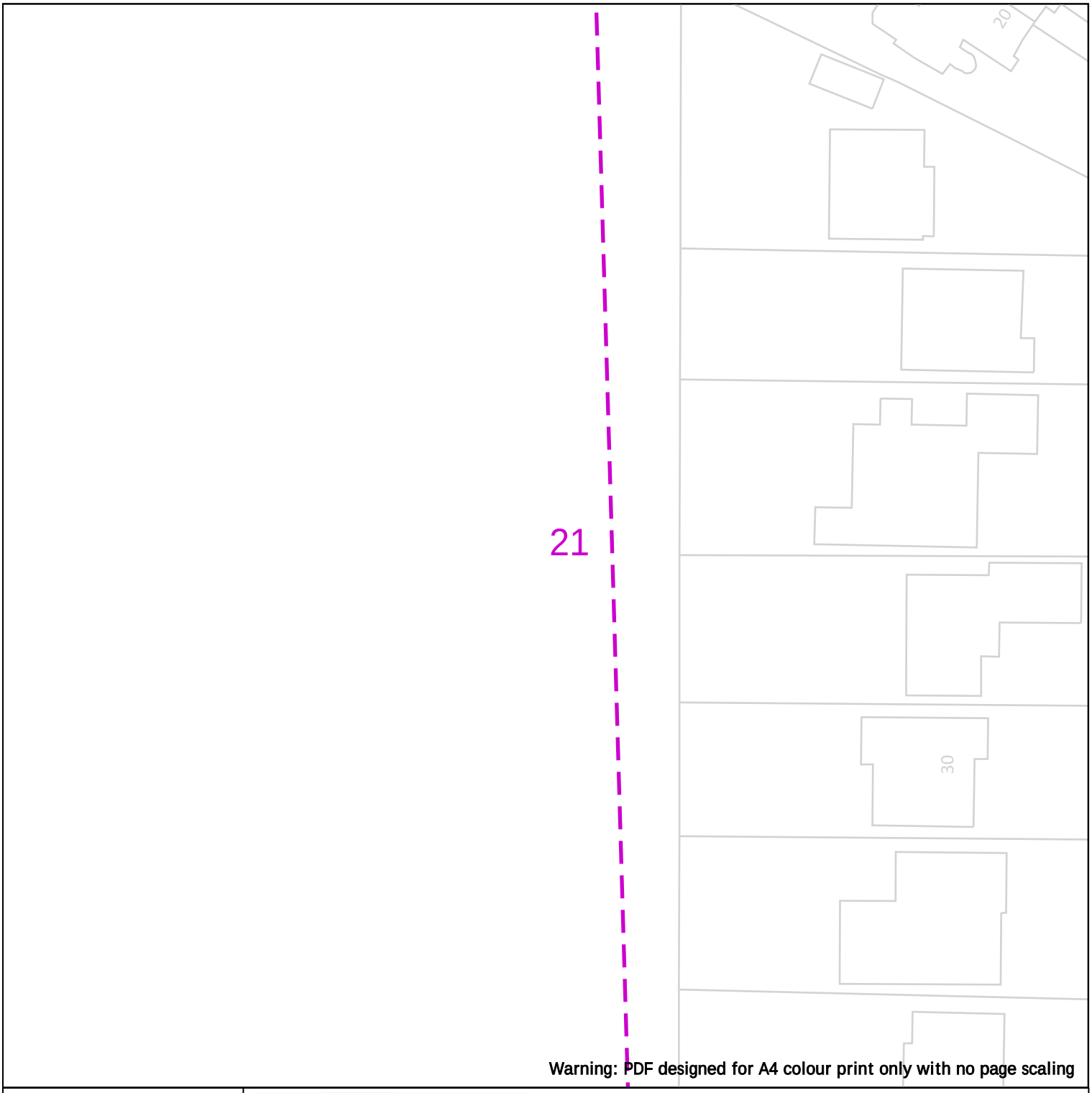
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25m

Dig Sites Area: Line:

LP Mains
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Valve
Depth of cover
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Diameter Change
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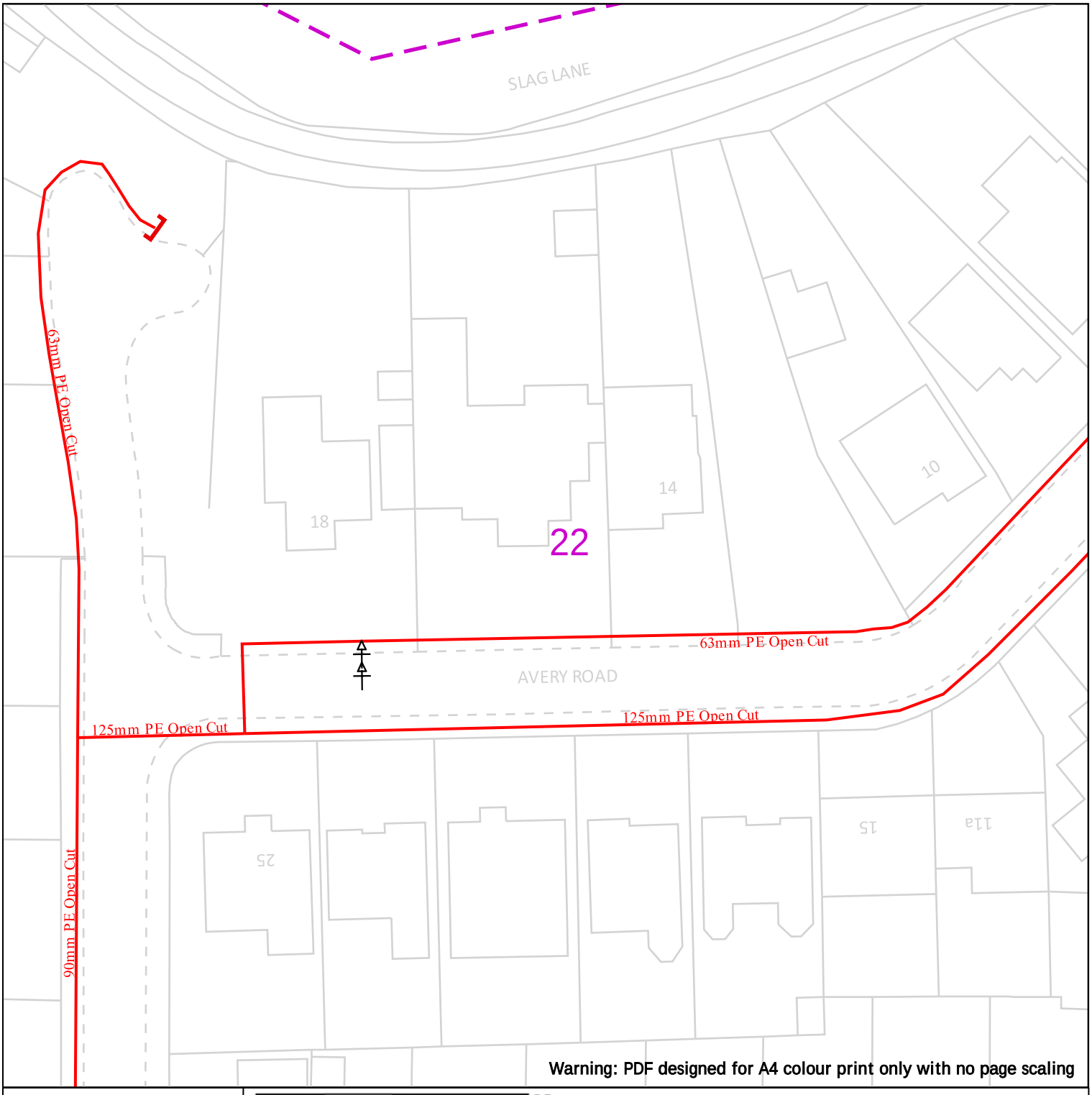
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25m

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LP Mains
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Valve
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Diameter Change
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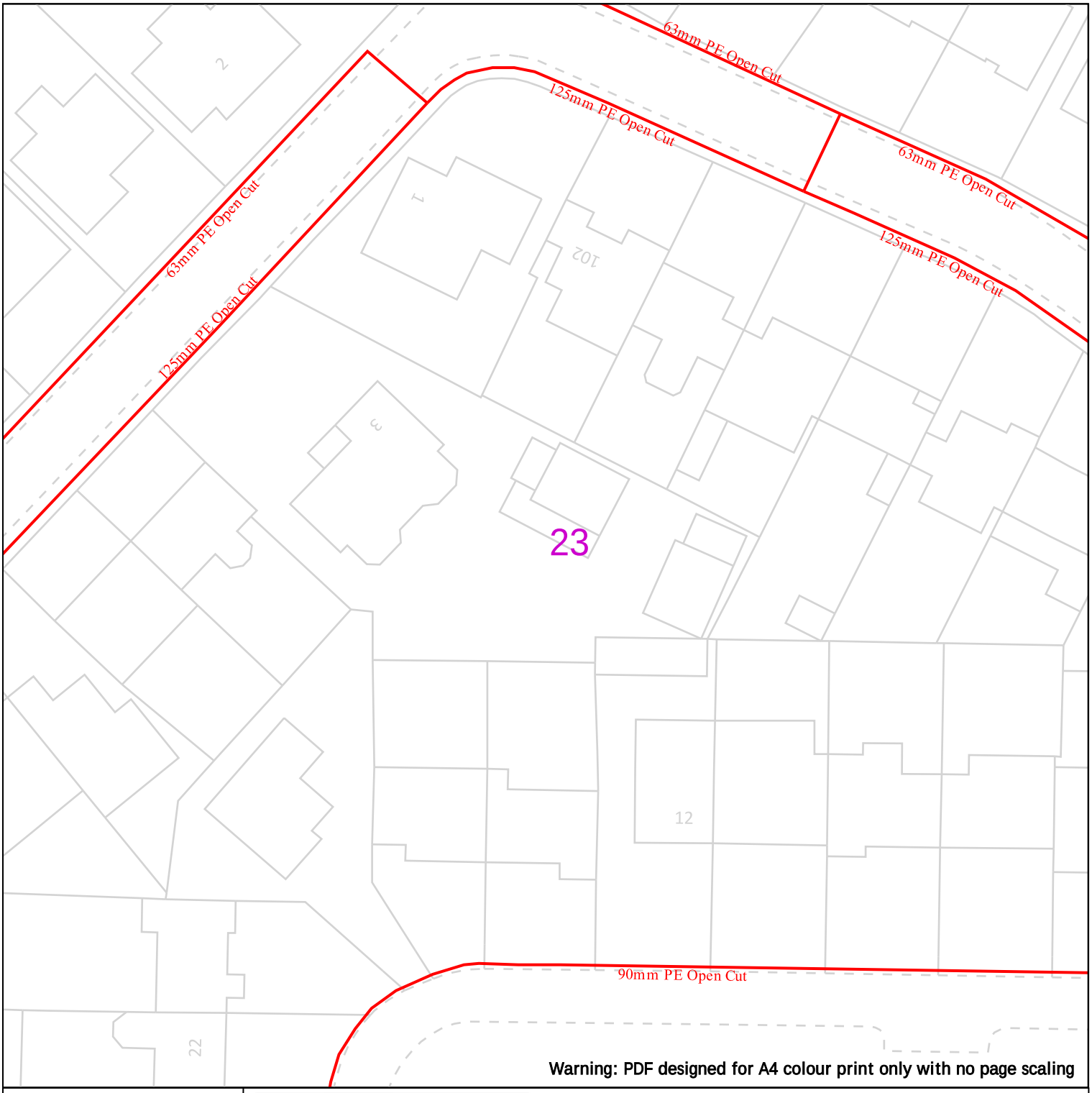
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25m

Dig Sites Area: Line:

LP Mains
MP Mains
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Valve
Depth of cover
Syphon

Diameter Change
Material Change
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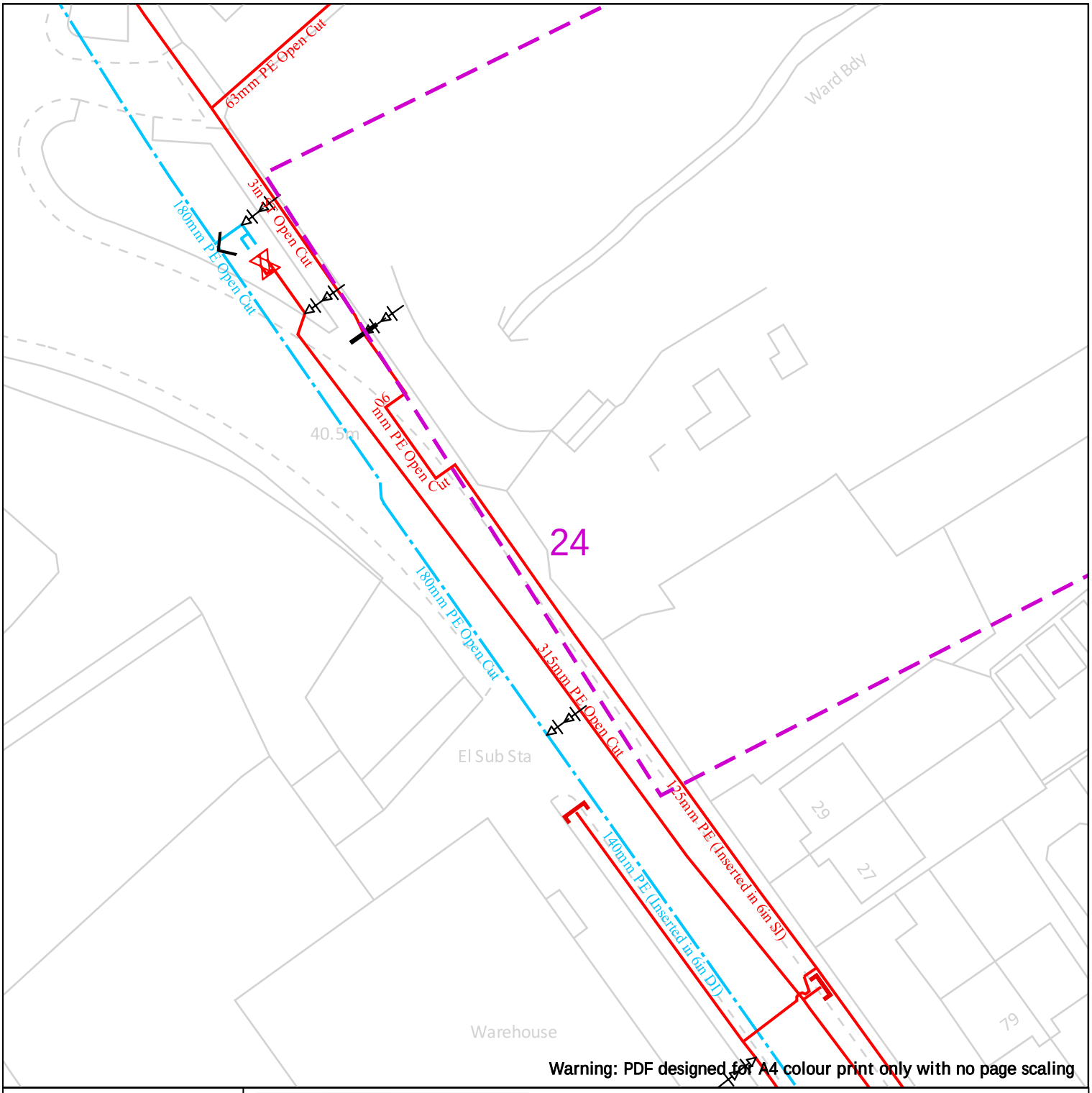
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25m

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Valve
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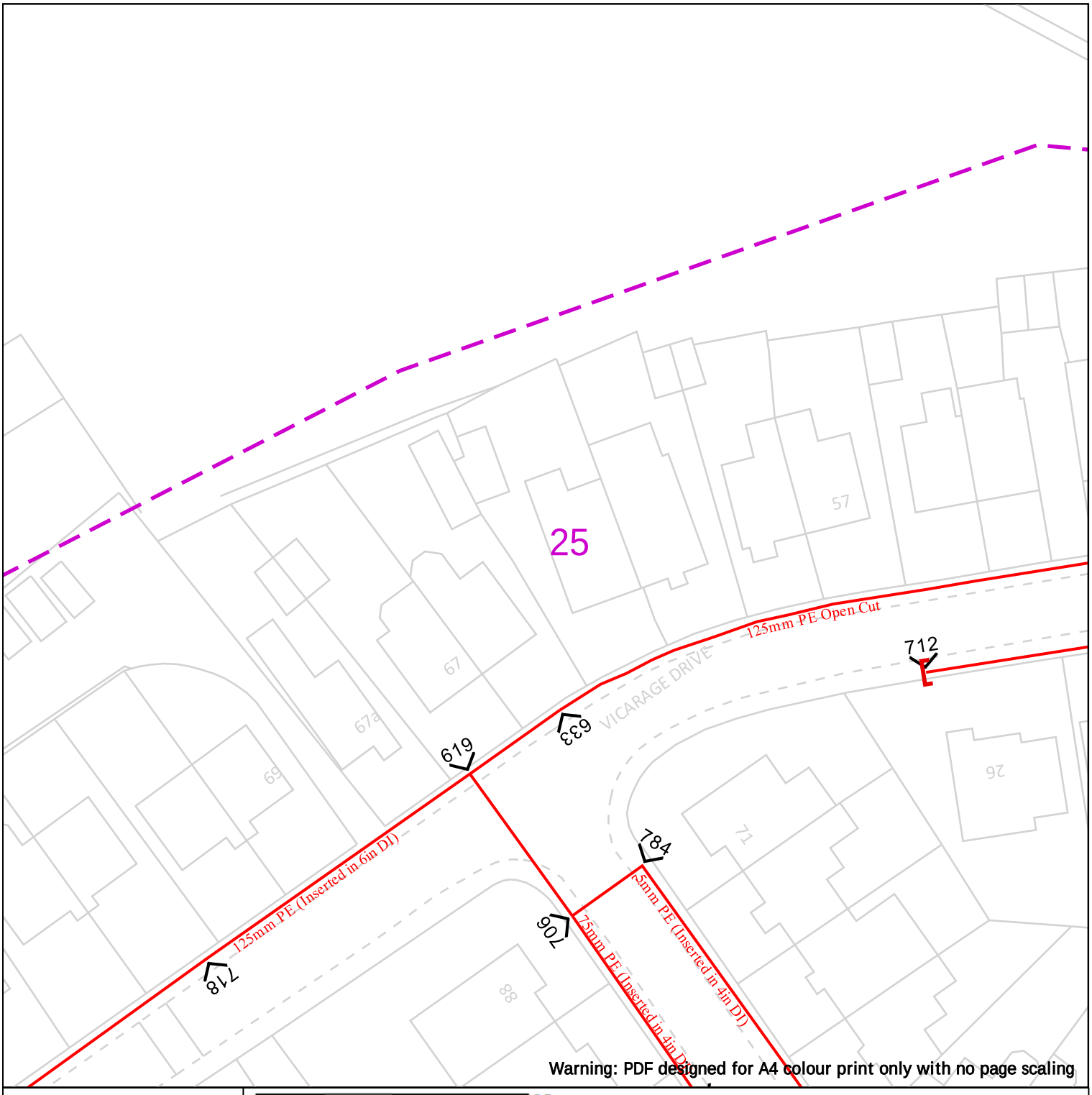
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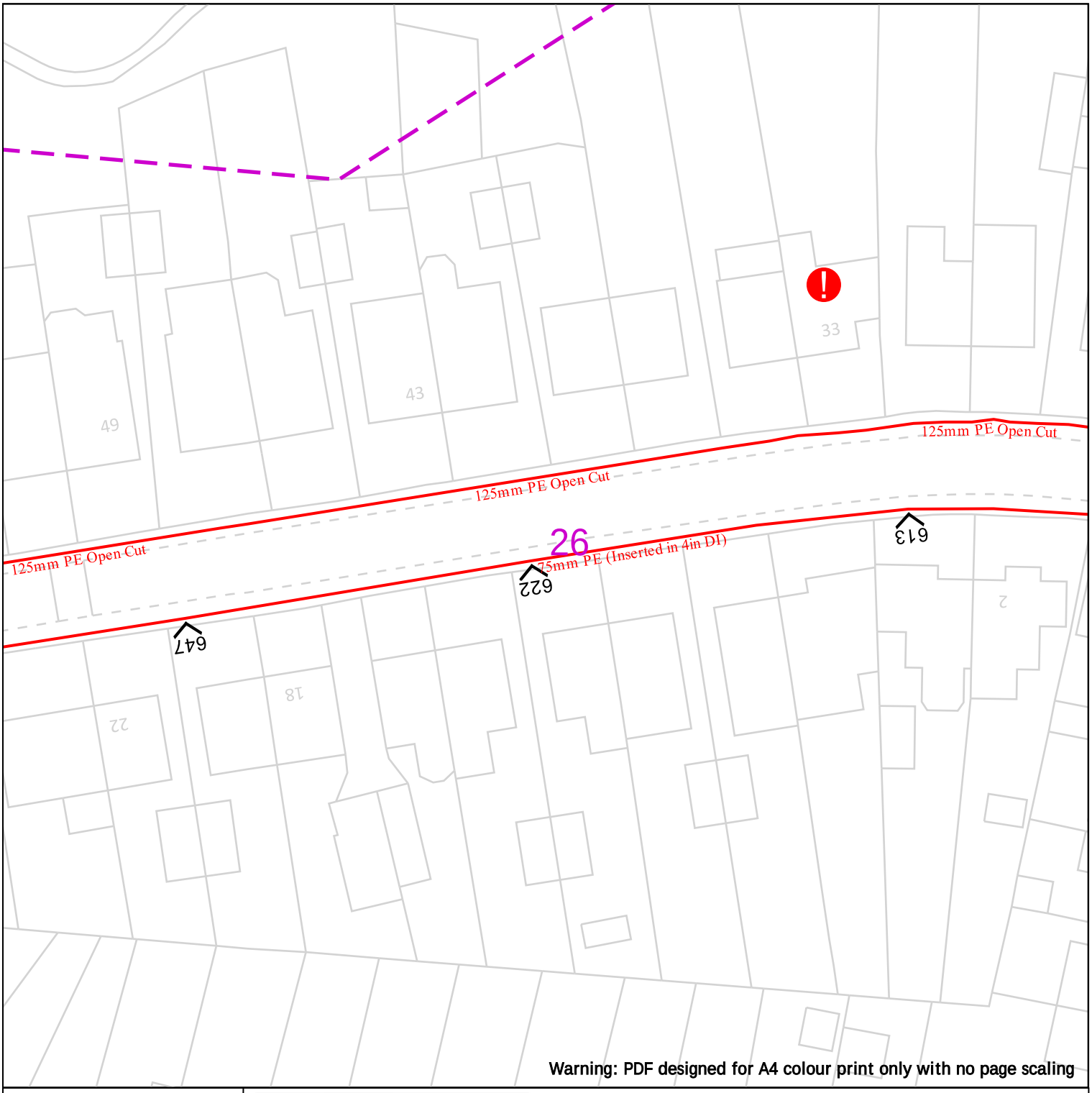
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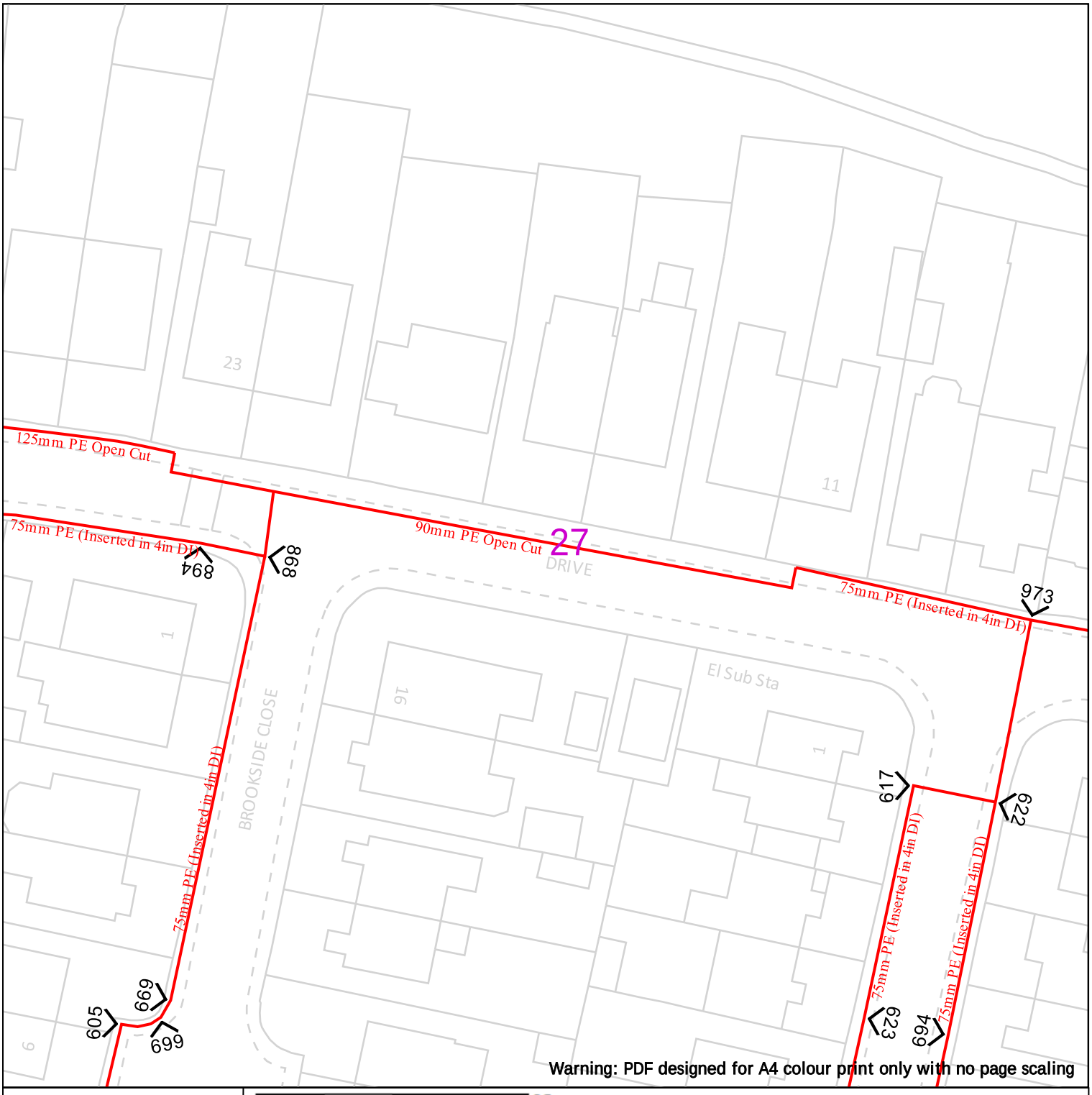
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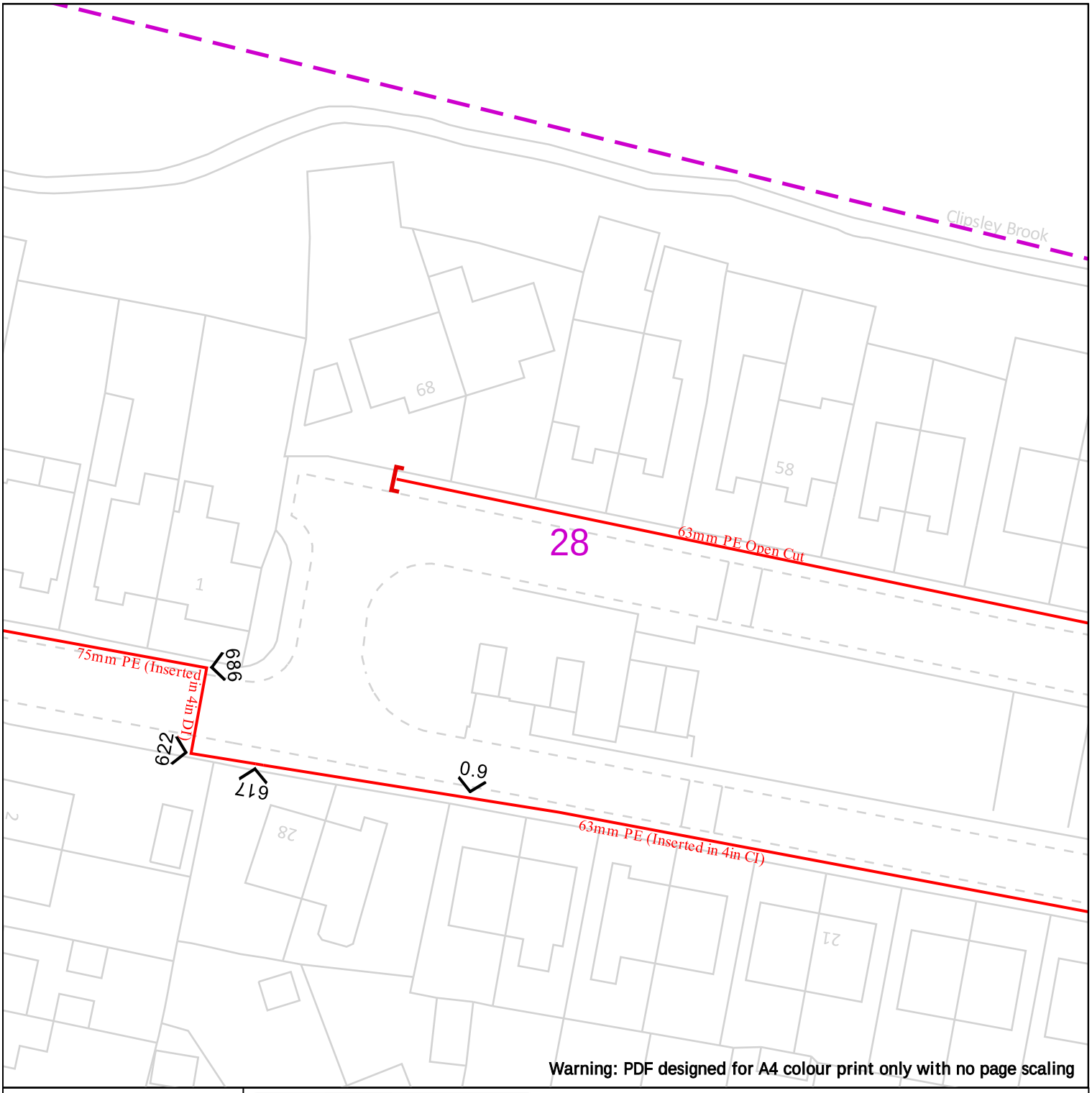
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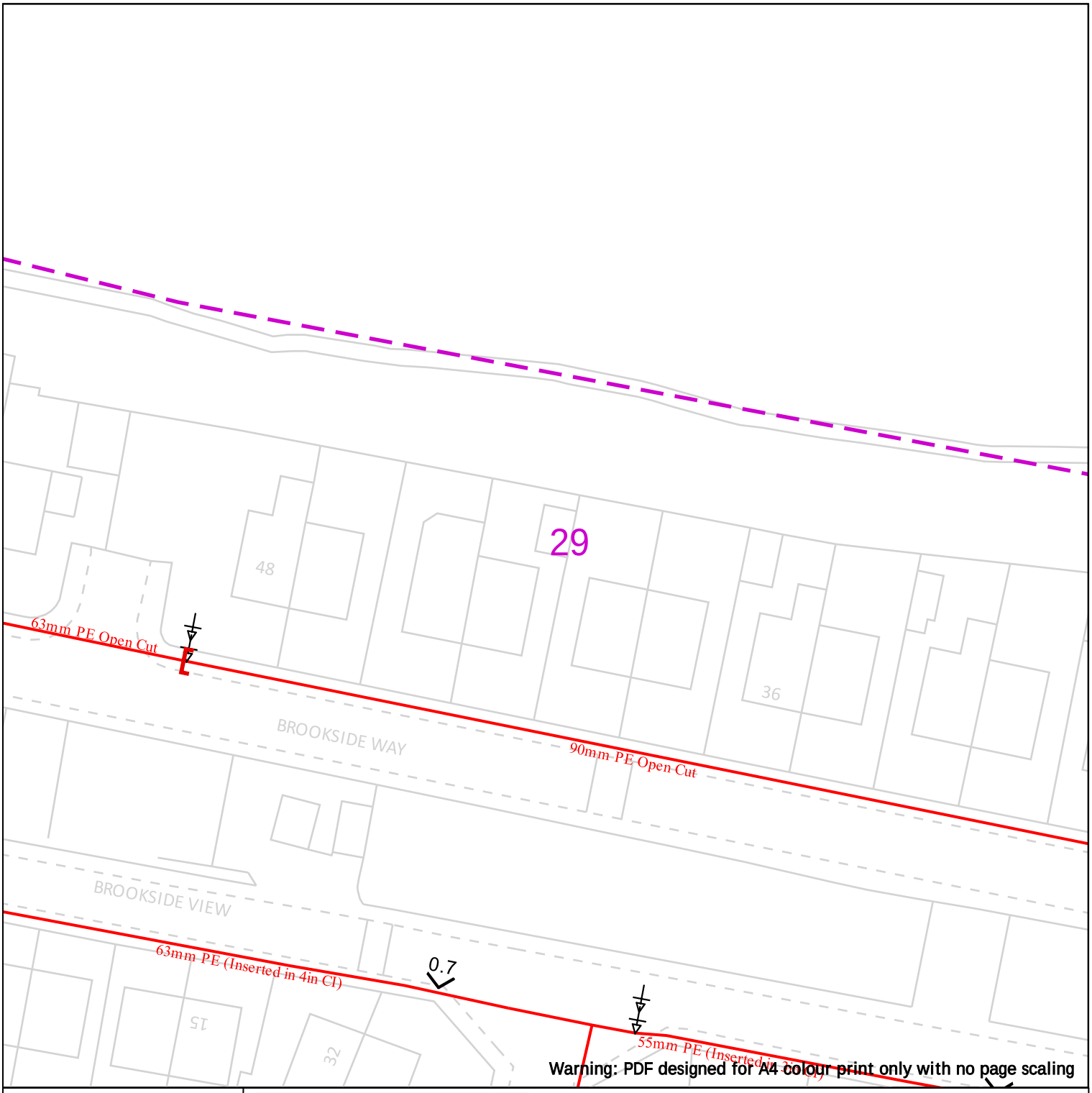
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In case of emergency call - 0800 111 999

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25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information.
Out-of-standard service symbology may be used to indicate one or more of the following:
• Identification of shallow services
• Identification of dual services
• Recording of non-perpendicular services
A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.

Cadent
Your Gas Network

Date Requested: 15/03/2024
Job Reference: 32807110
Site Location: 354793 397212
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STN3680NM

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)

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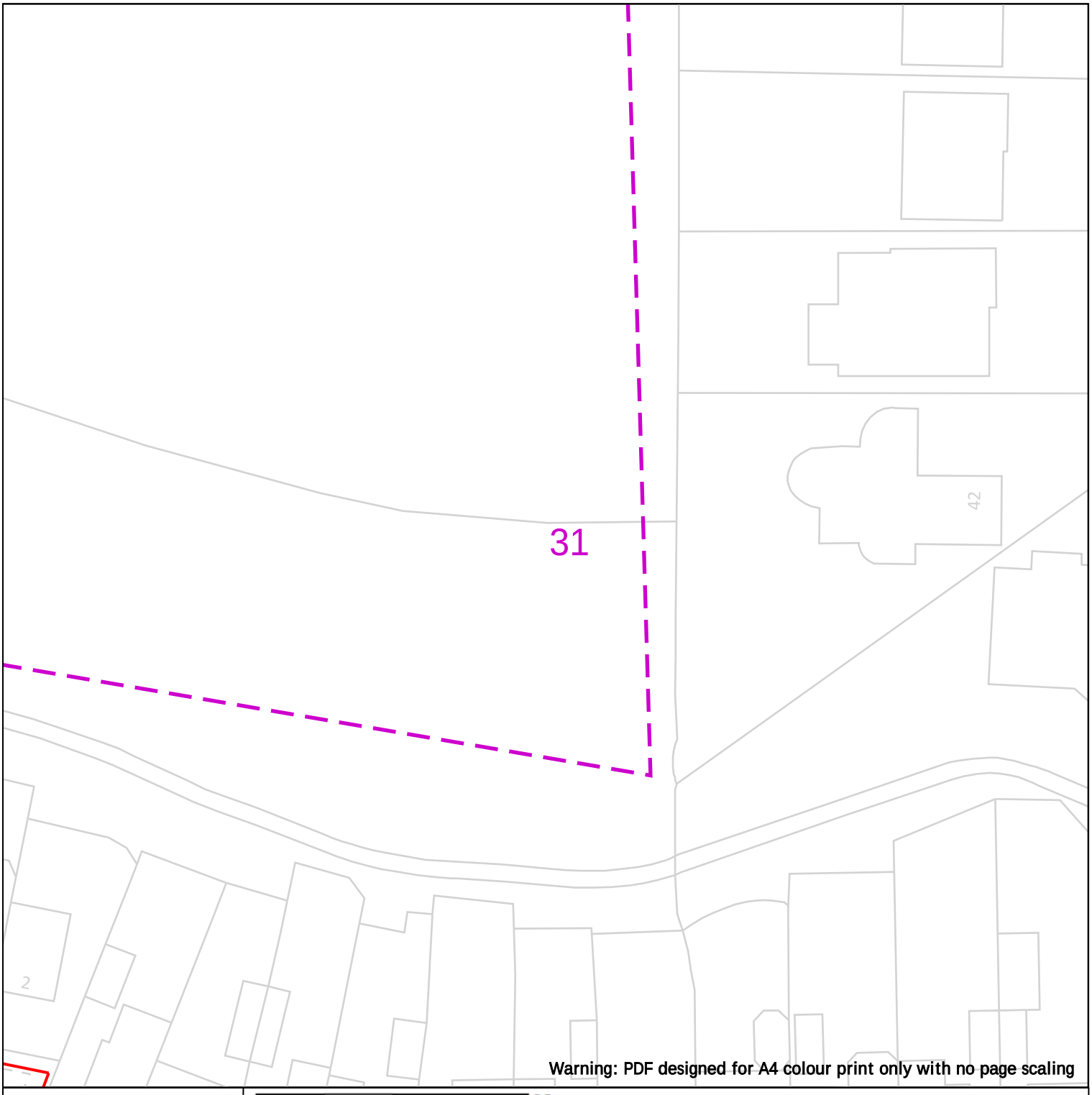
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View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)

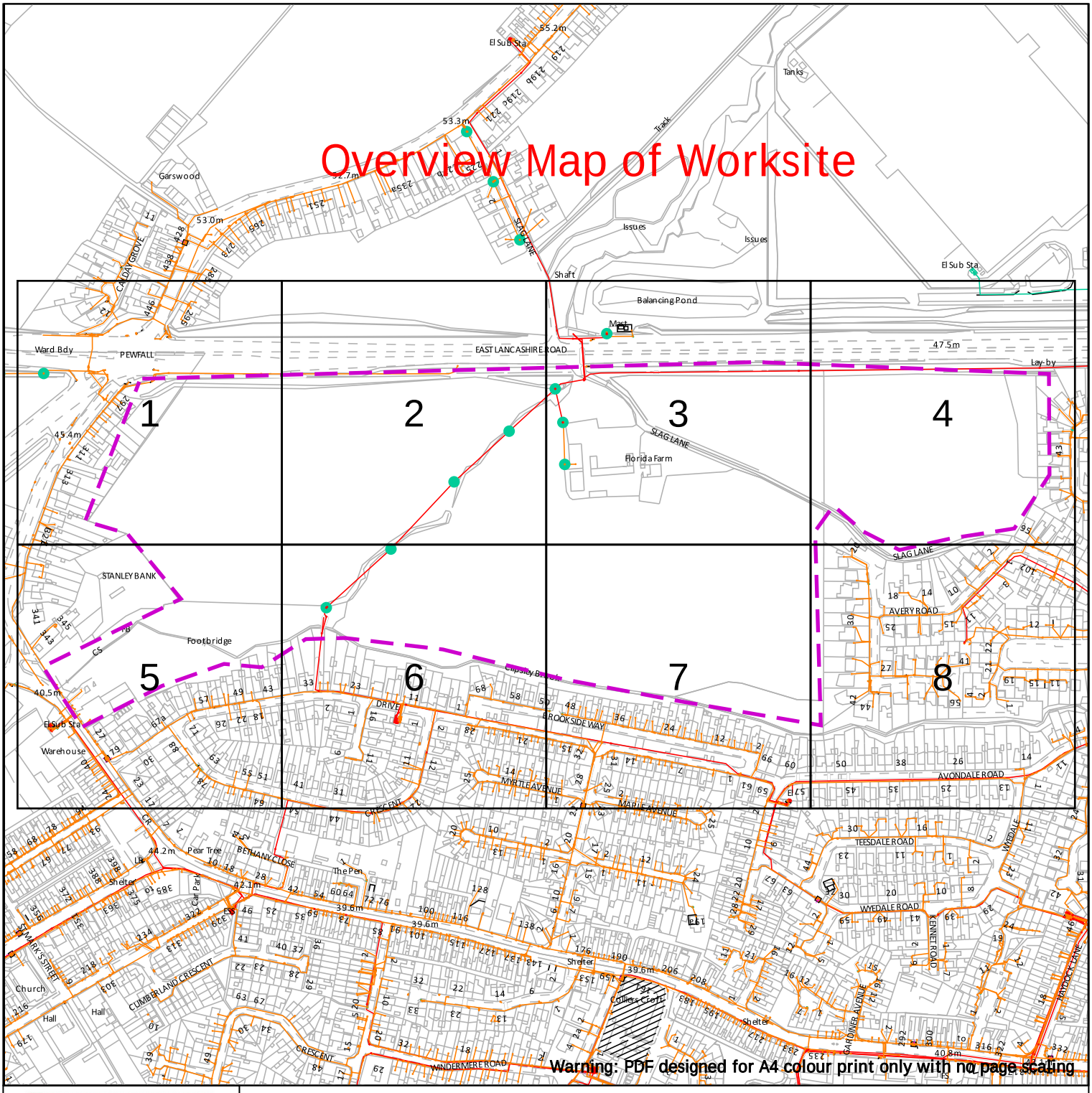
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Overview Map of Worksite



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Cheshire, SK1 2 JD
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Email: planrequest@enwl.co.uk

Operating Voltage	Colour Code	Line Colour
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11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

In an emergency call 105, 24 hours a day

Dig Sites

Line: - - - -

Area: - - - -

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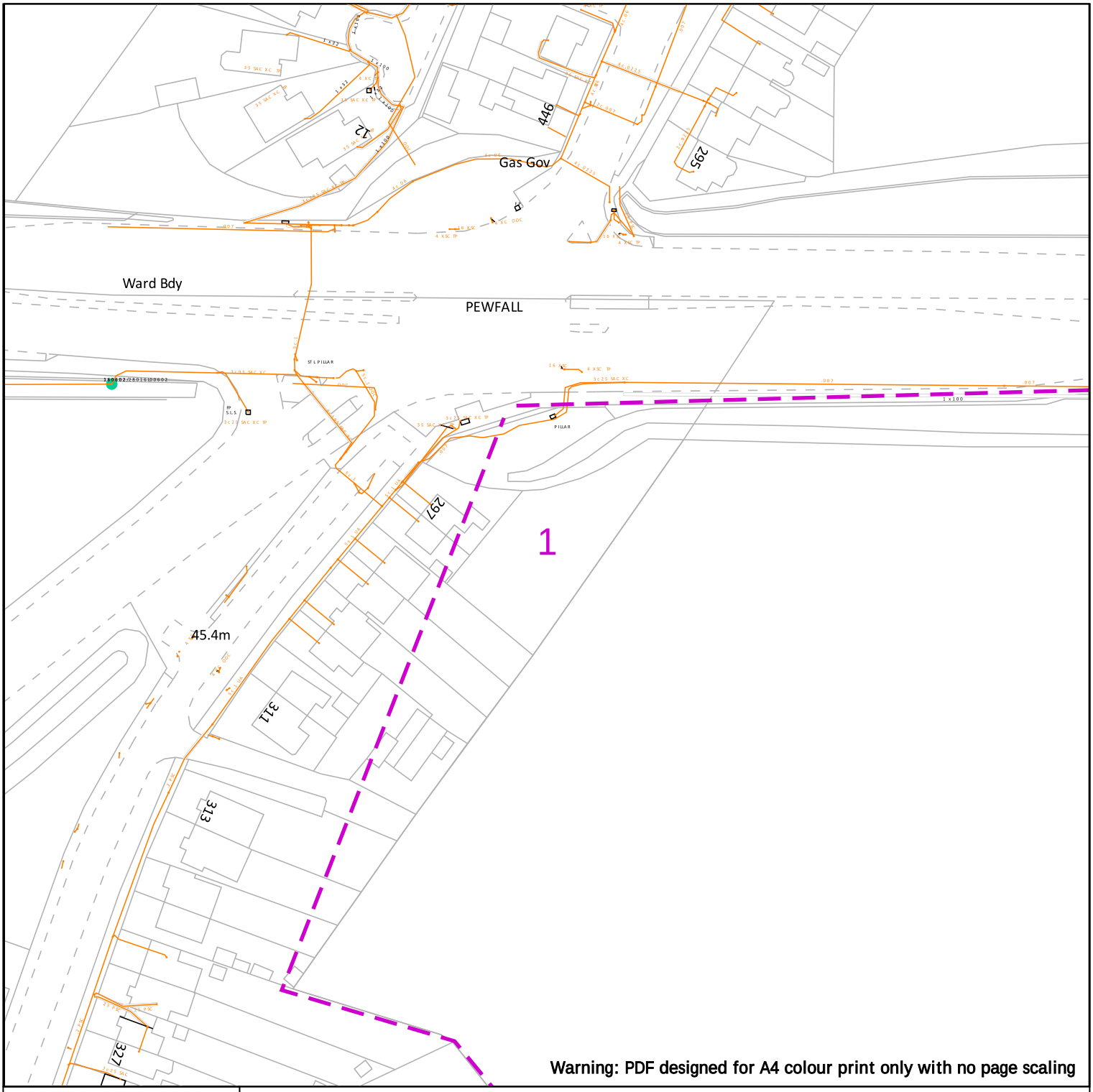
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Scale: 1:5125 (When plotted at A4)

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Scale: 1:1250 (When plotted at A4)

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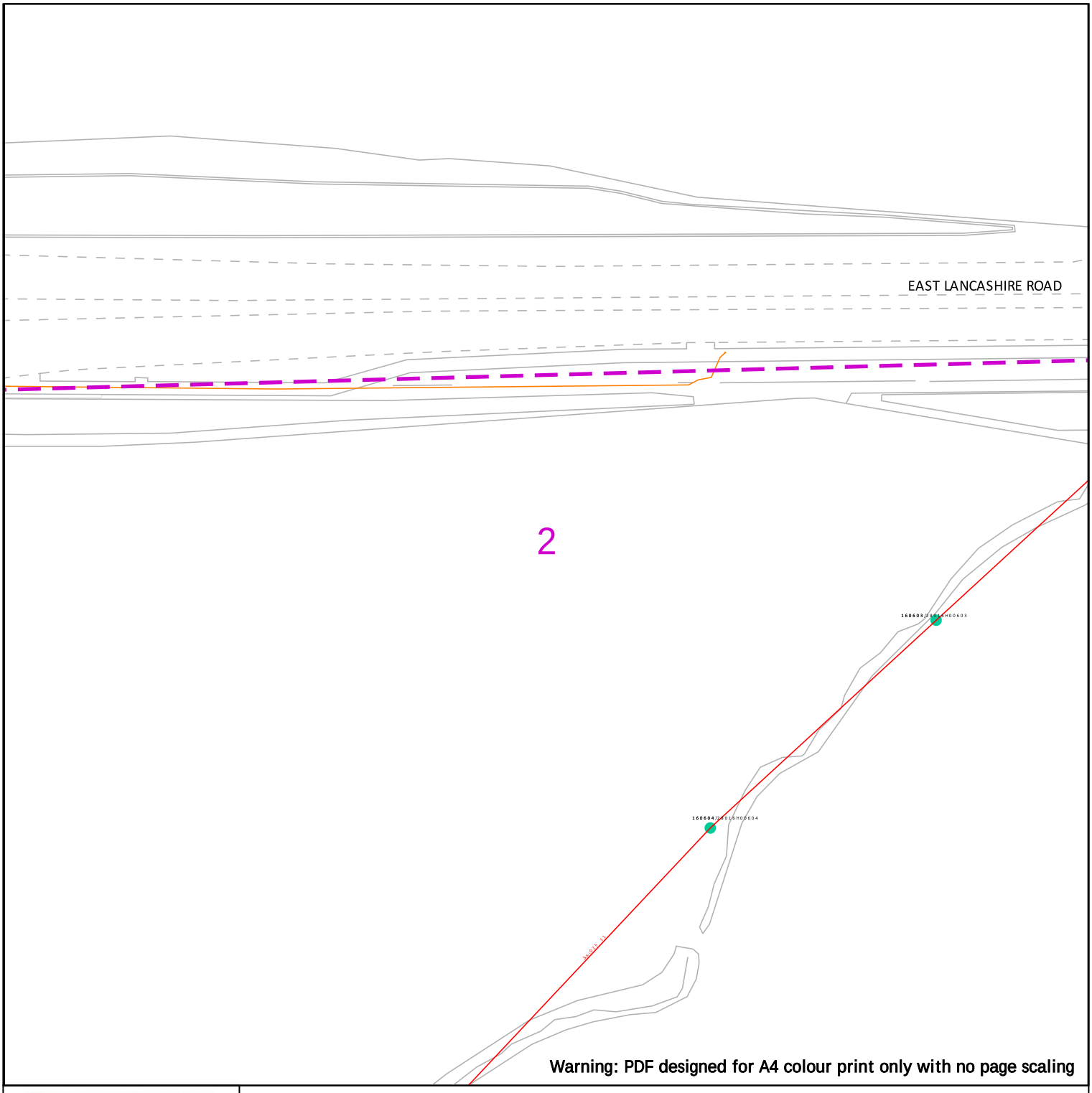
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Dig Sites
Line:
Area:

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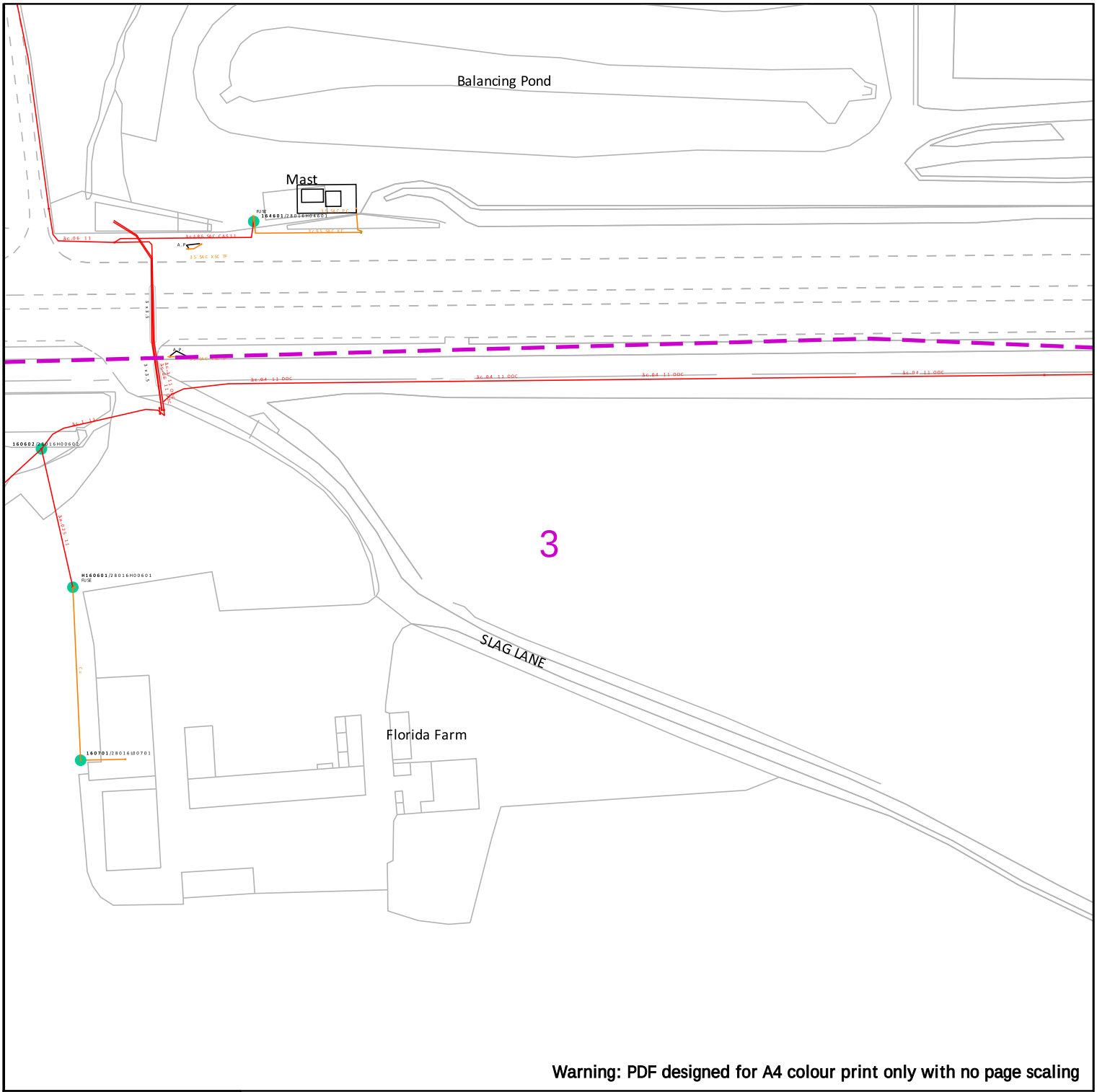
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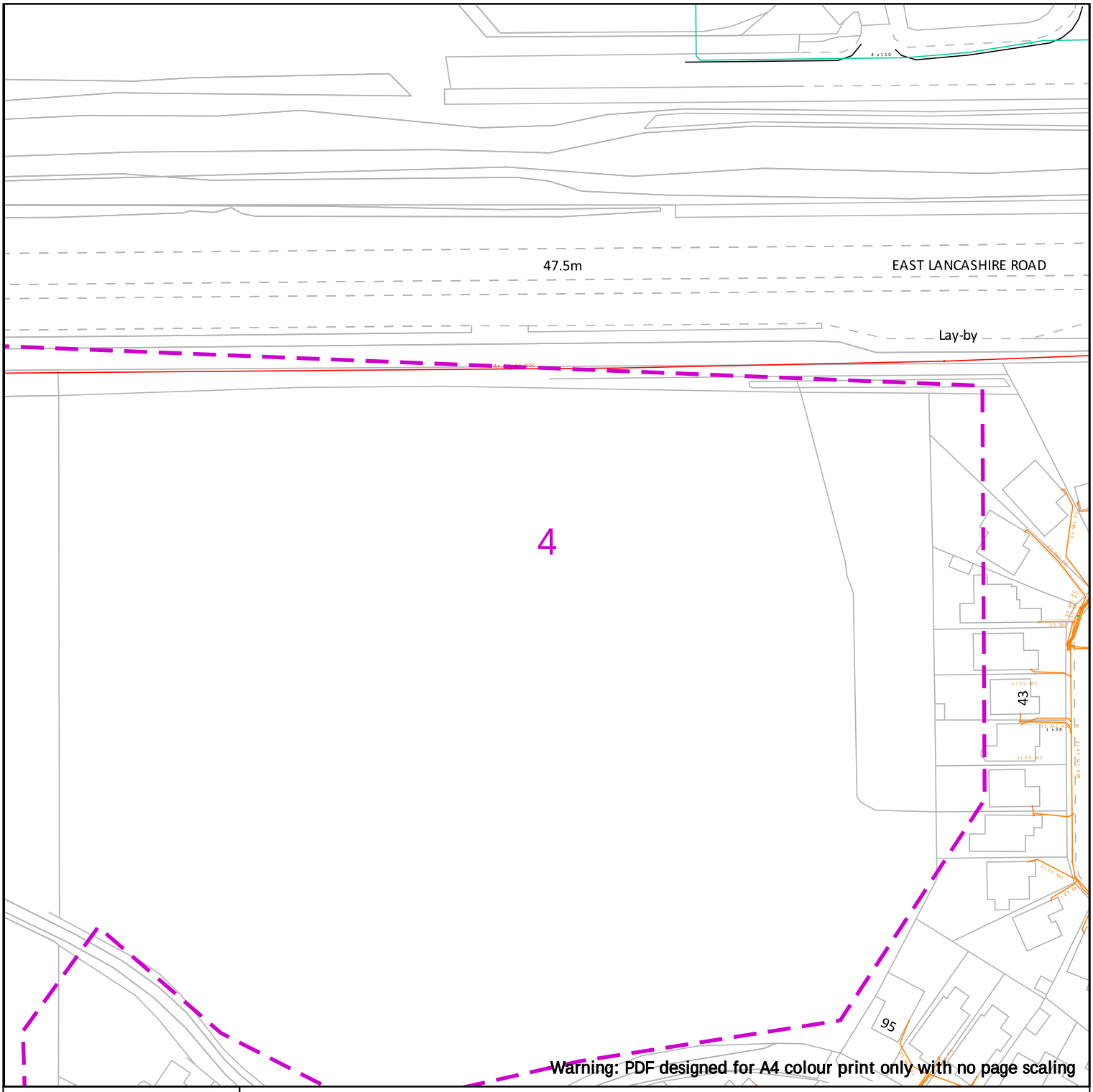
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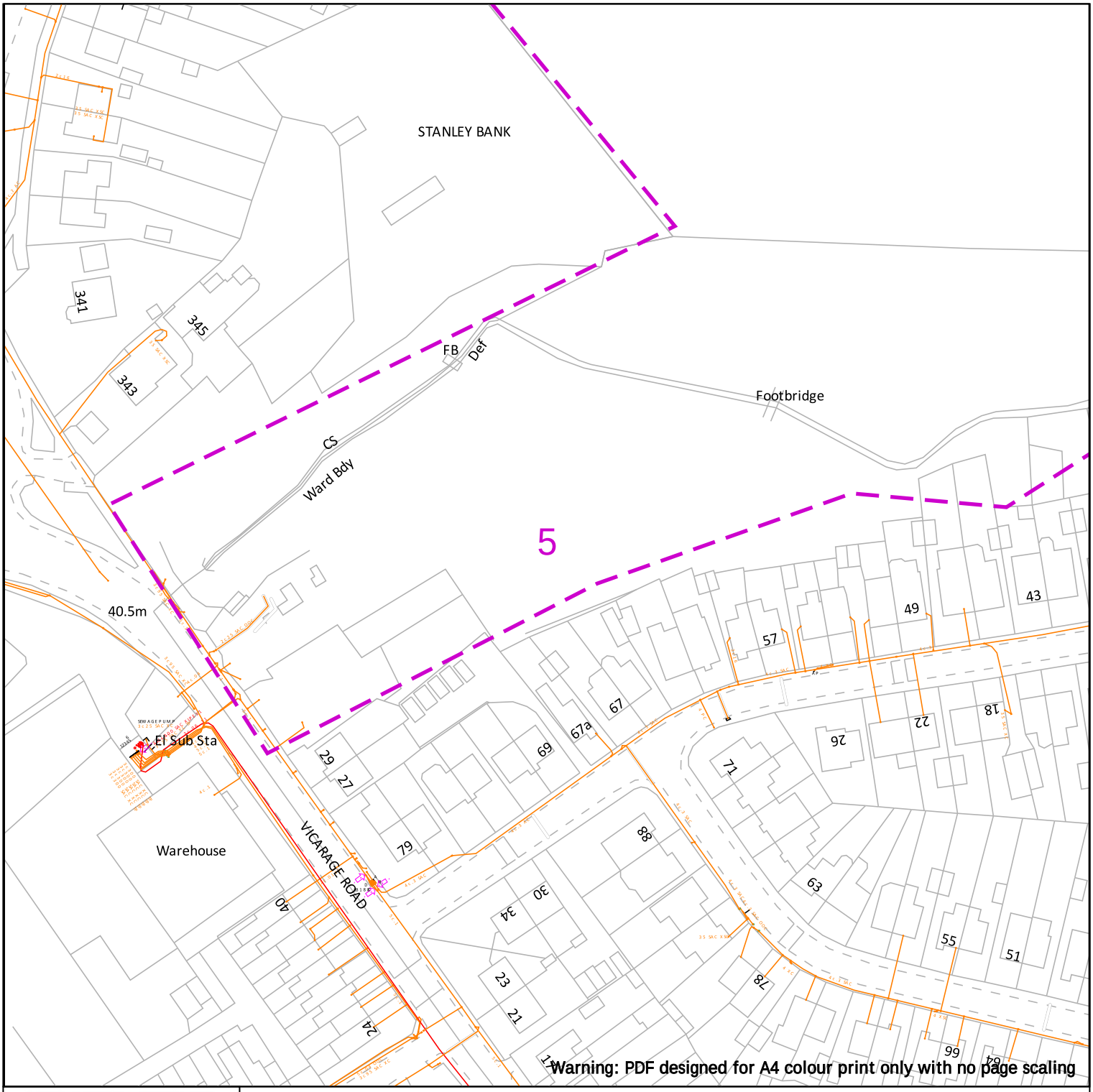
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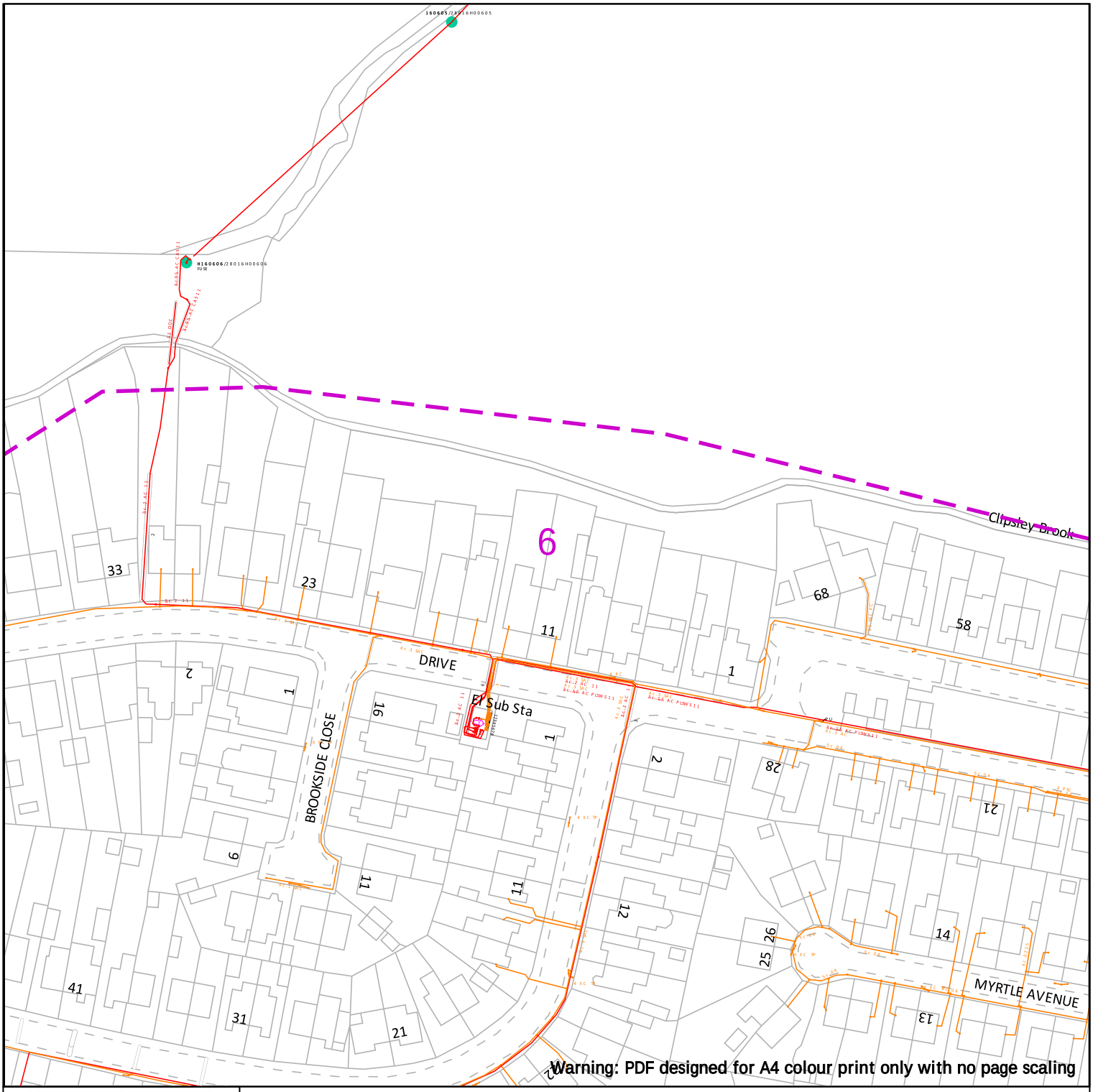
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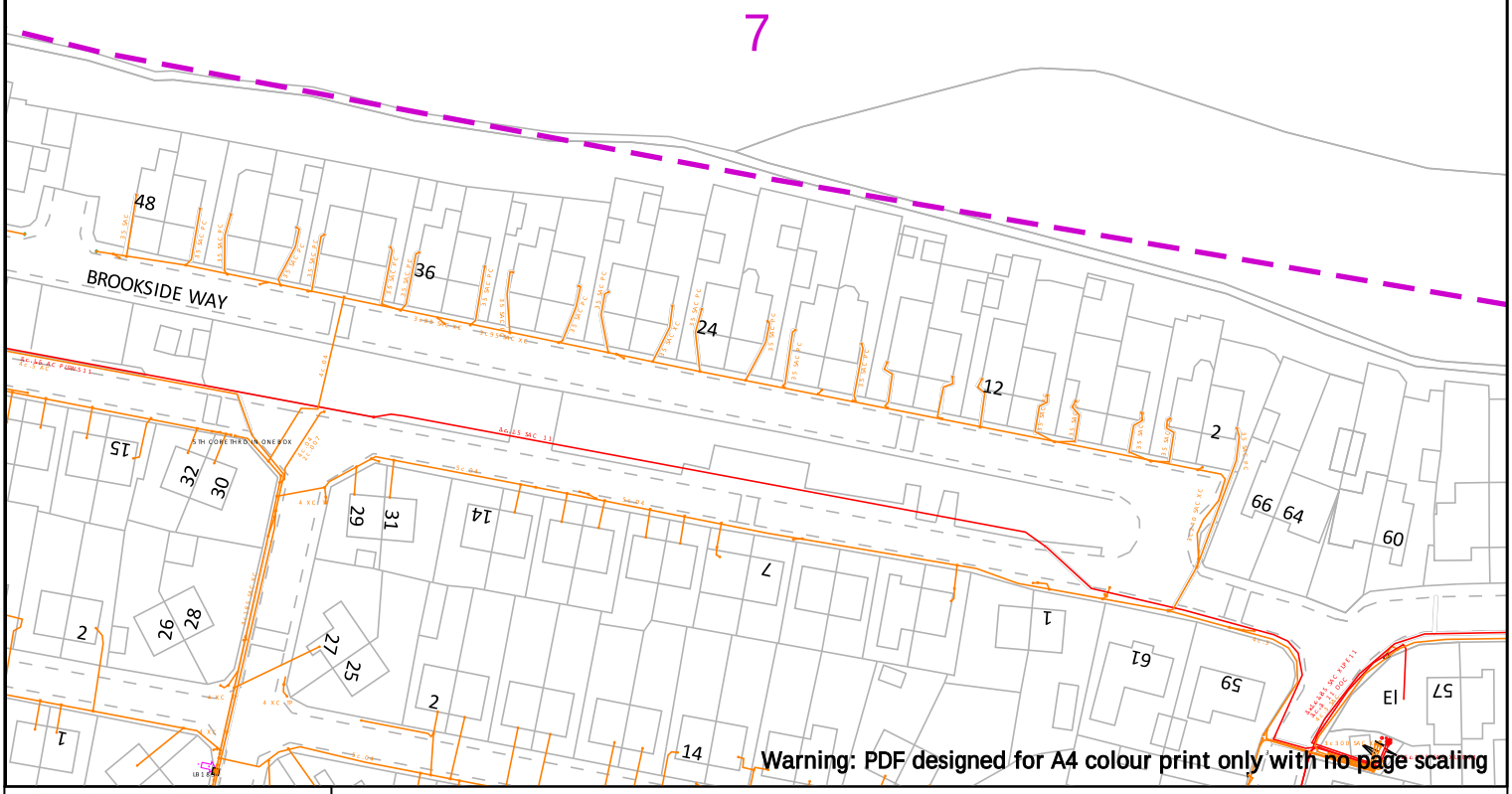
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LV	Orange	
Unknown Voltage	Brown	

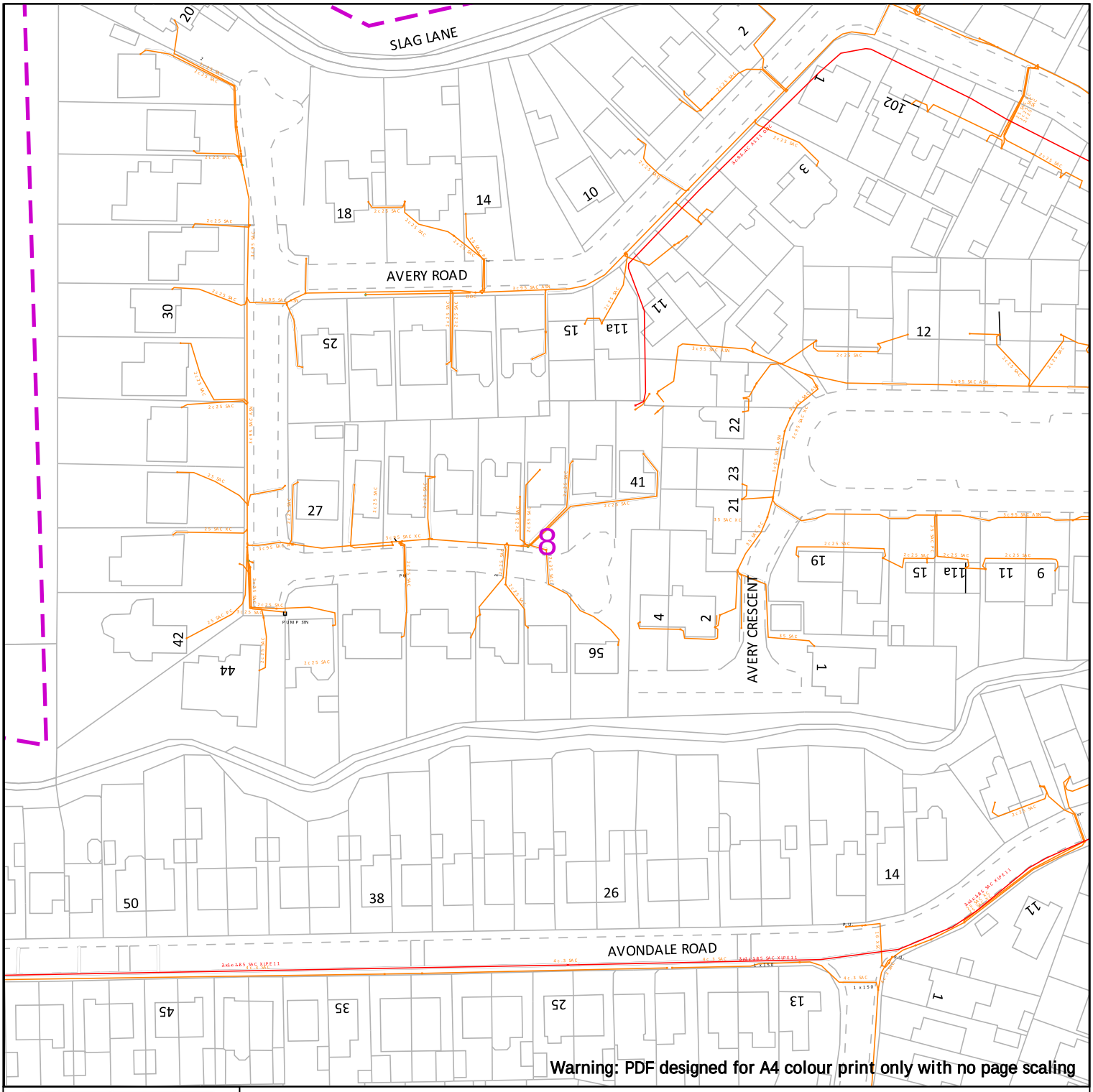
In an emergency call 105, 24 hours a day

Dig Sites
Line:
Area:

IMPORTANT INFO

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electricity north west
Bringing energy to your door

Electricity North West
Borron Street
Portwood, Stockport
Cheshire, SK1 2 JD
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 15/03/2024
Job Reference: 32807110
Site Location: 354793 397212
Requested by: Miss Lauren Wenham

Your Scheme/Reference: STN3680NM

Scale: 1:1250 (When plotted at A4)

Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

In an emergency call 105, 24 hours a day

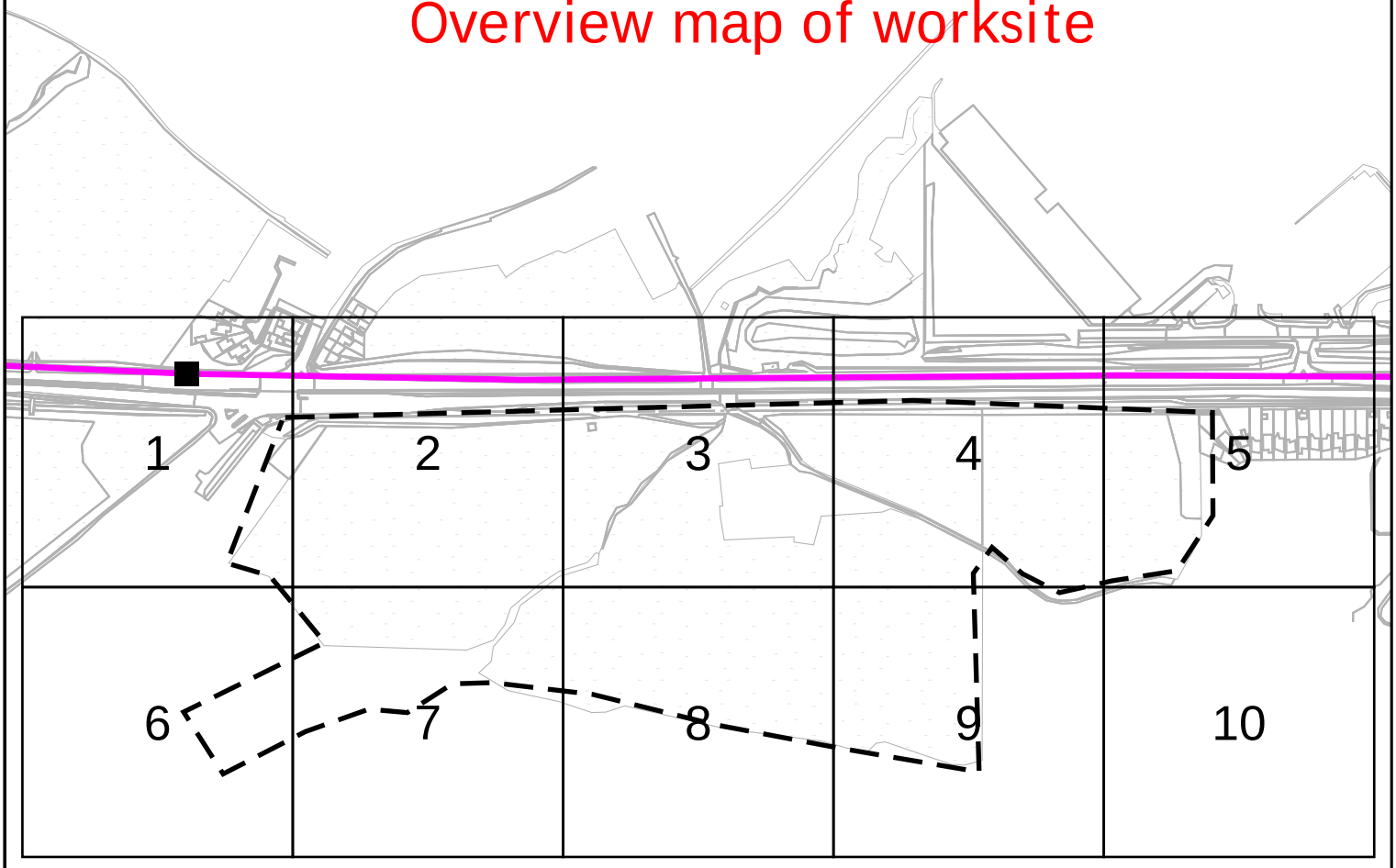
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Overview map of worksite



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Job Reference: 32807110
Site Location: 354793 397212
Requested by: Miss Lauren Wenham

Your Scheme/Reference: STN3680NM

Scale: 1:6406 (When plotted at A4)

Dig Sites Line: – – – – Area: ⊐ ⊏ ⊐ ⊏

Key

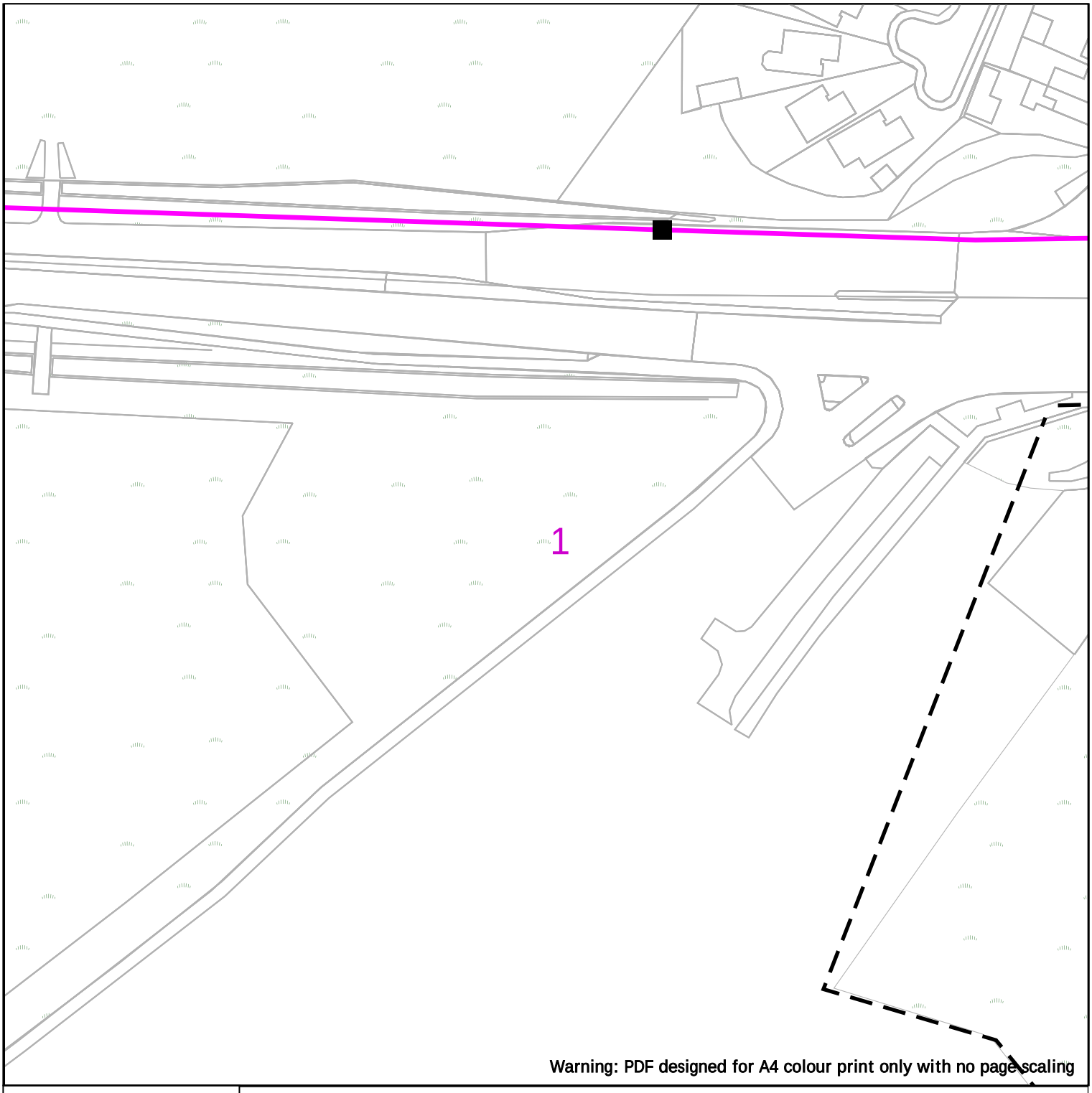
Duct ——— Long-haul (LHN) Duct ——— Chamber Location ■

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100m Dig Sites Line: Area:

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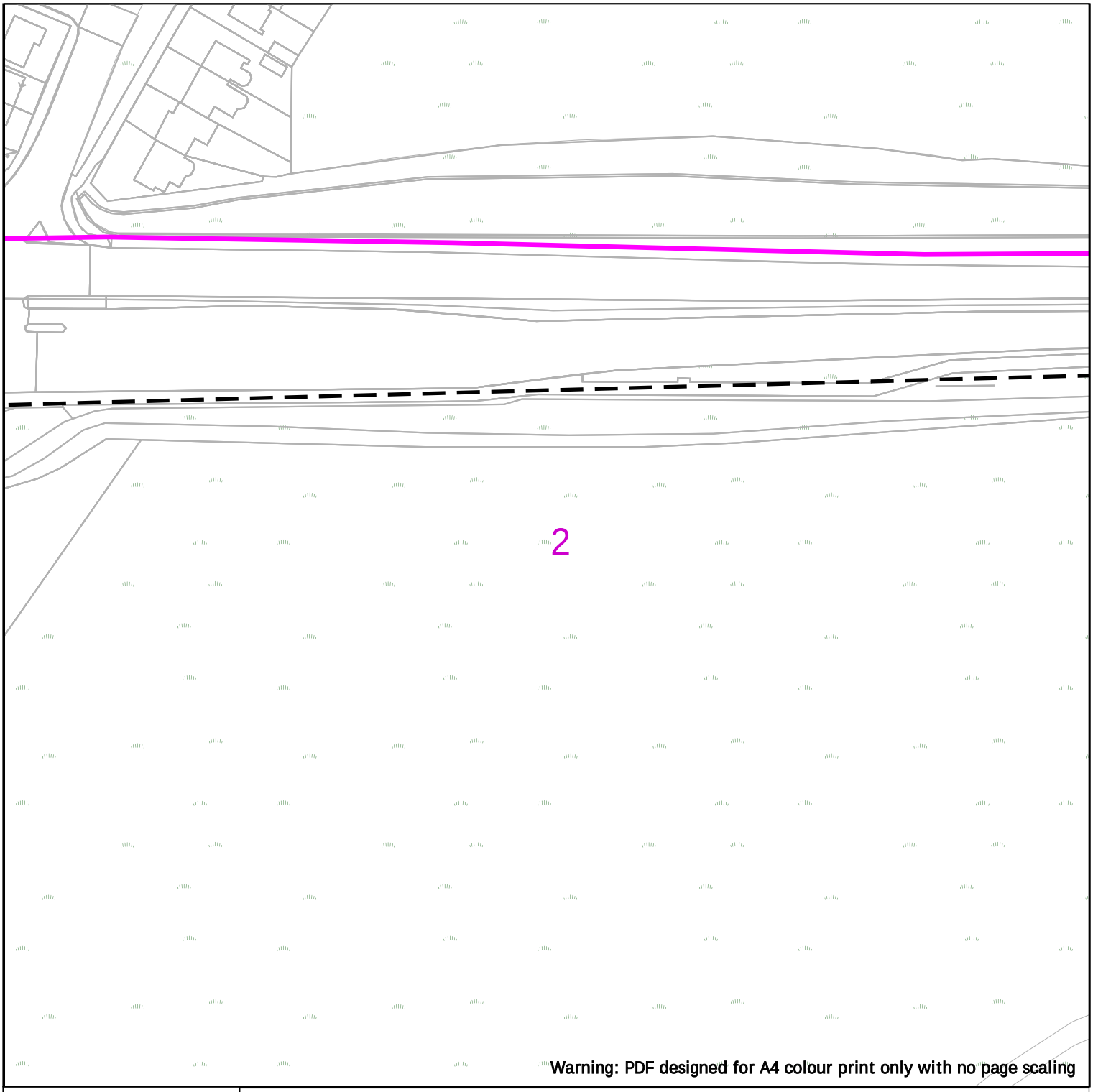
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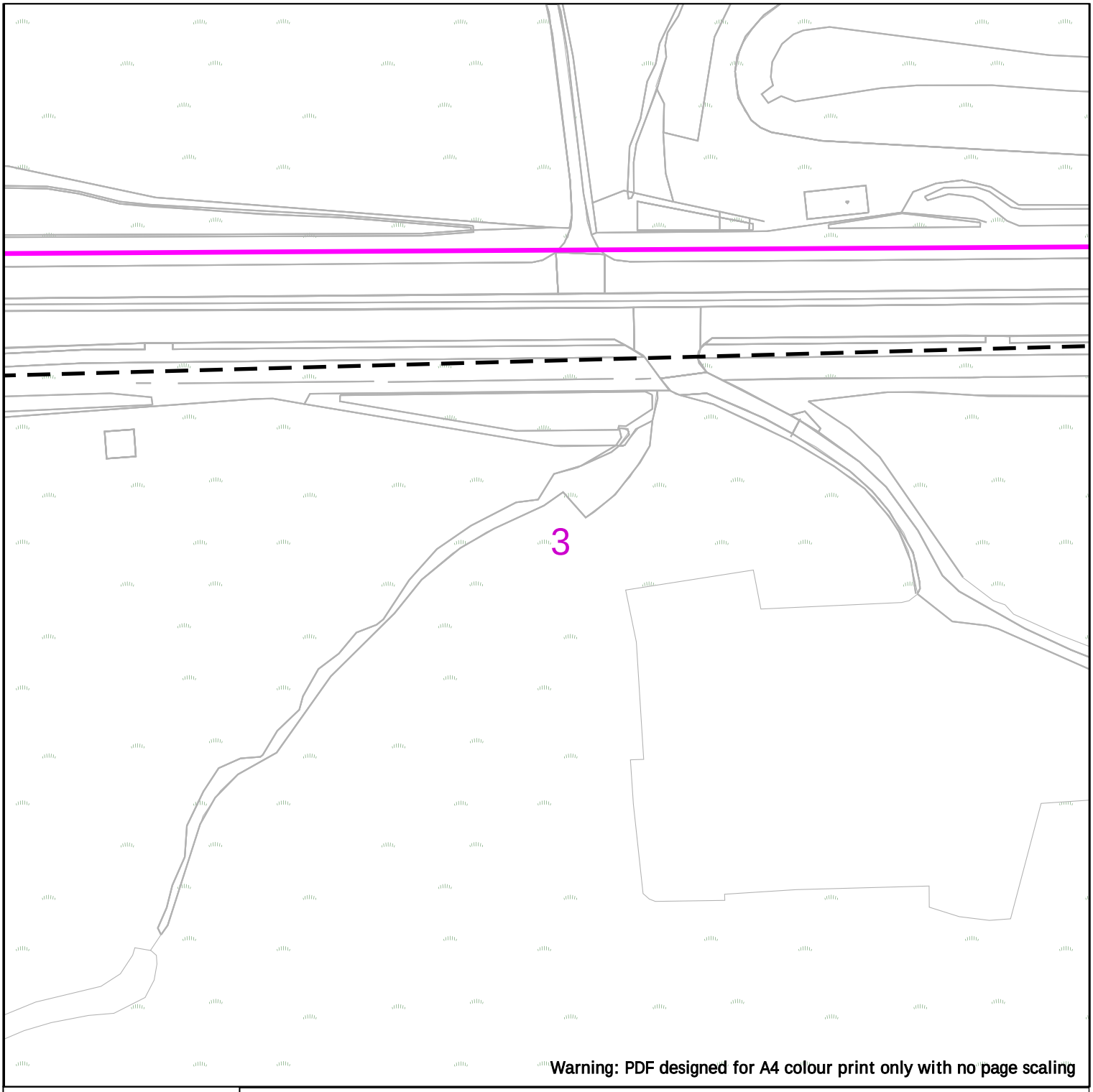
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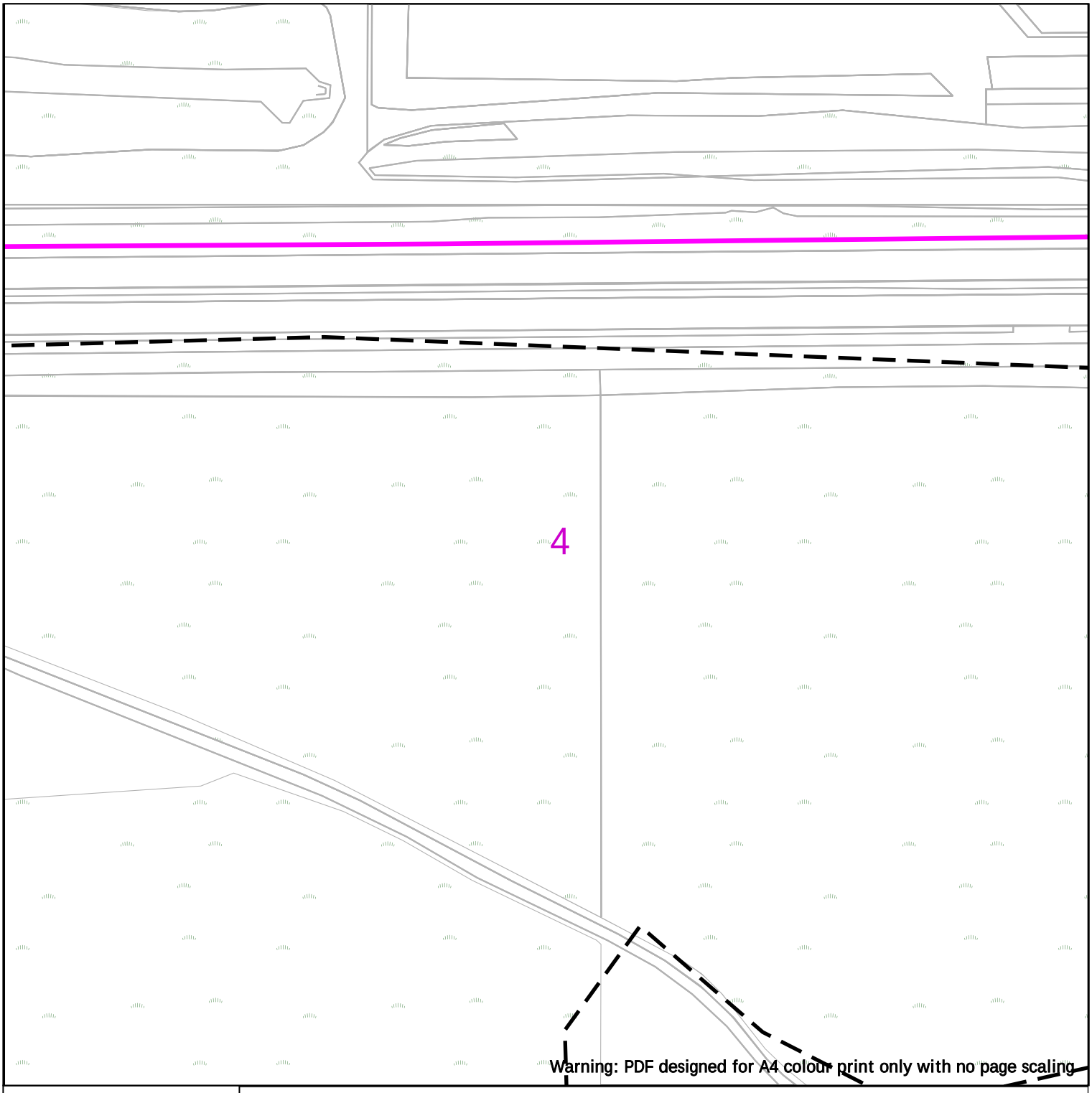
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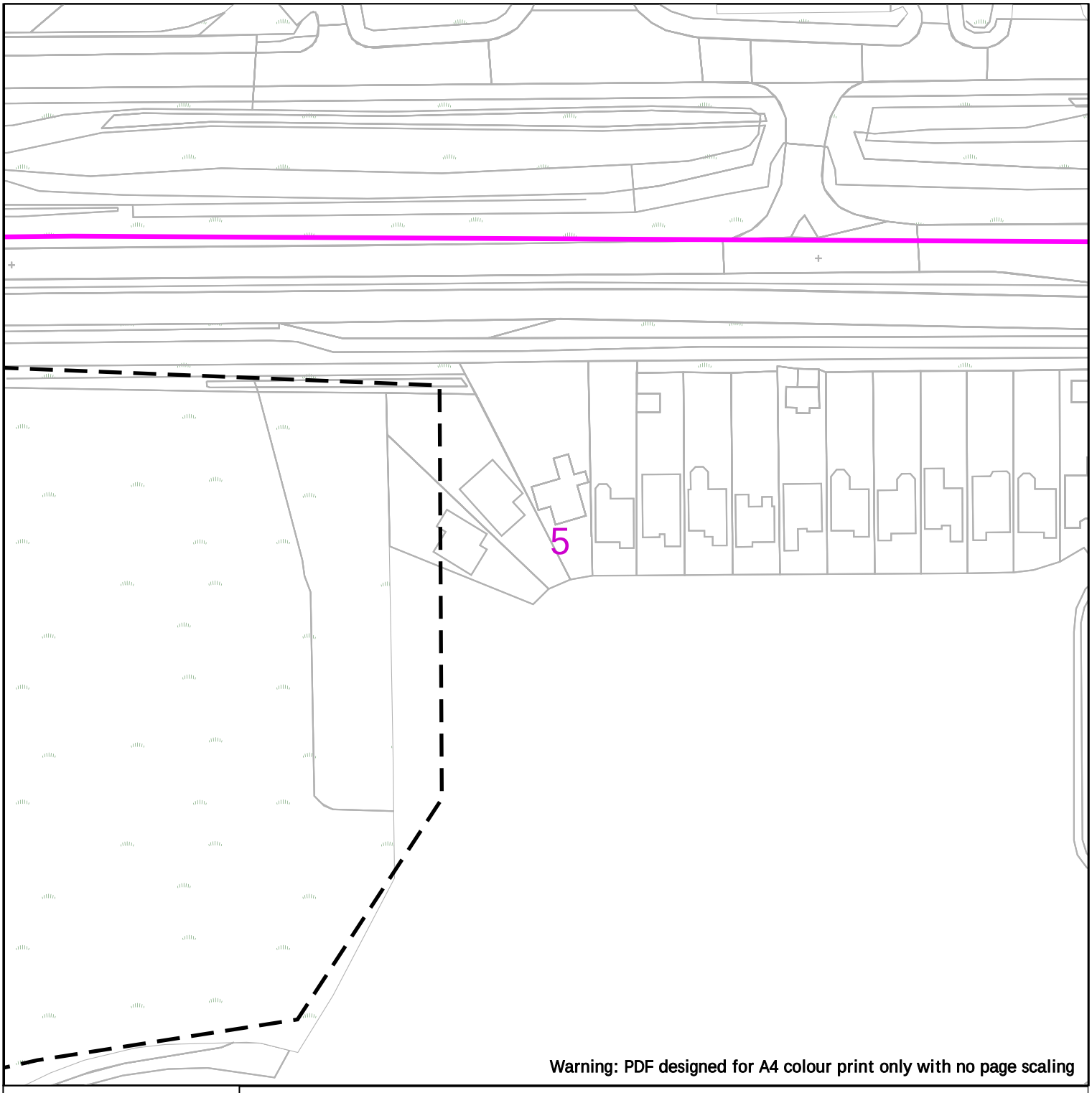
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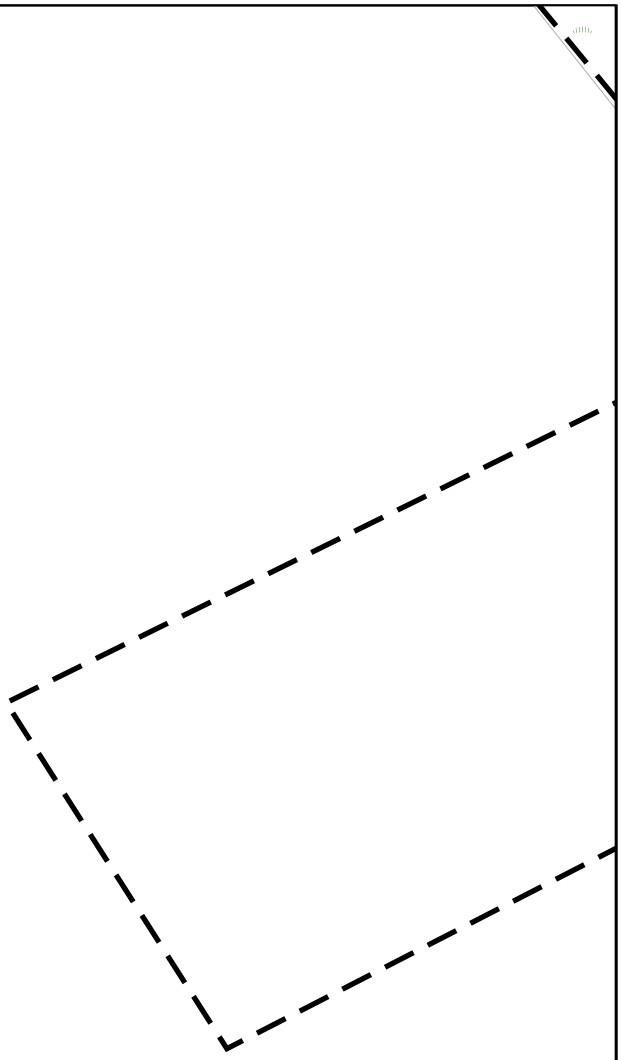
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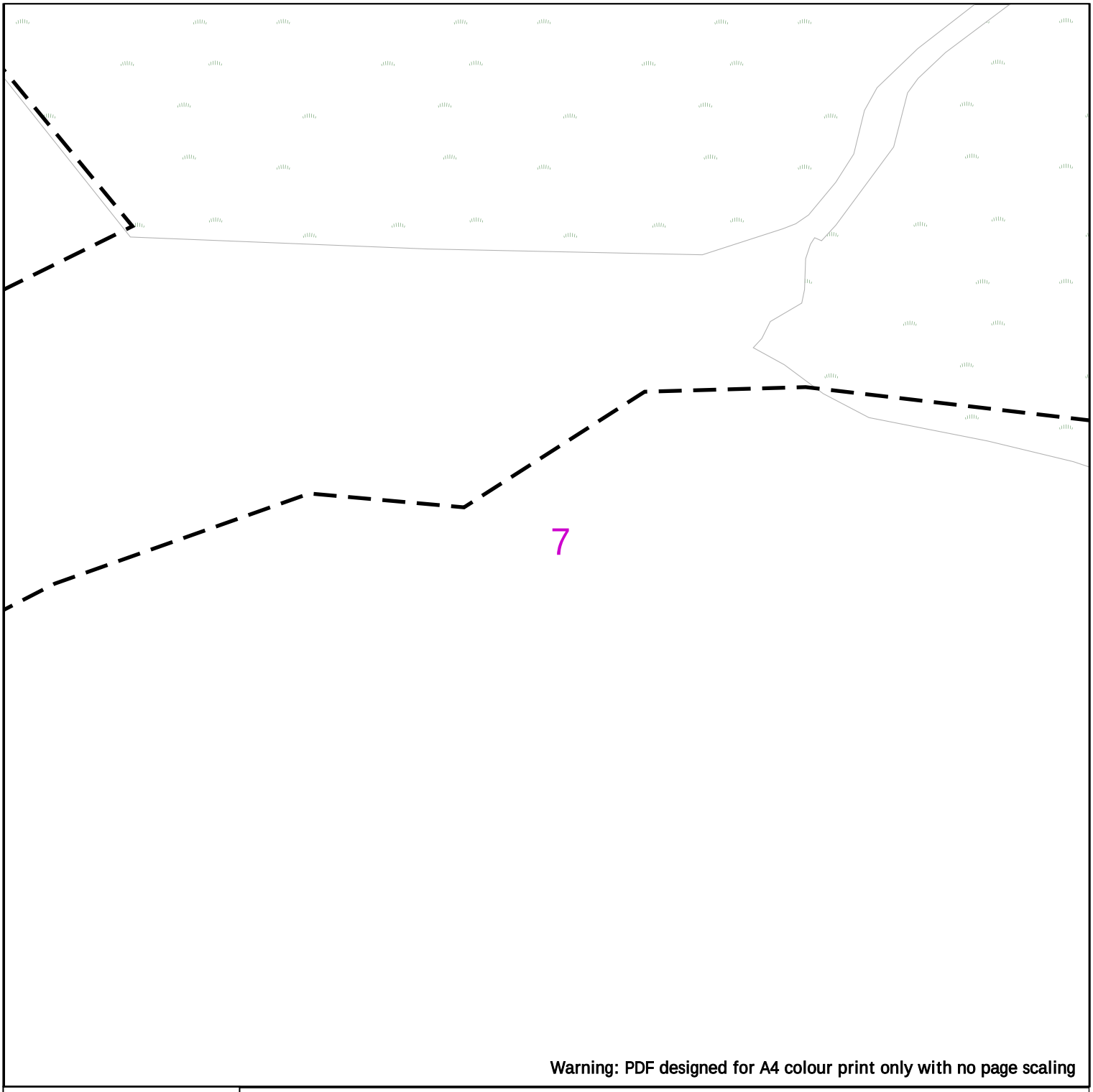
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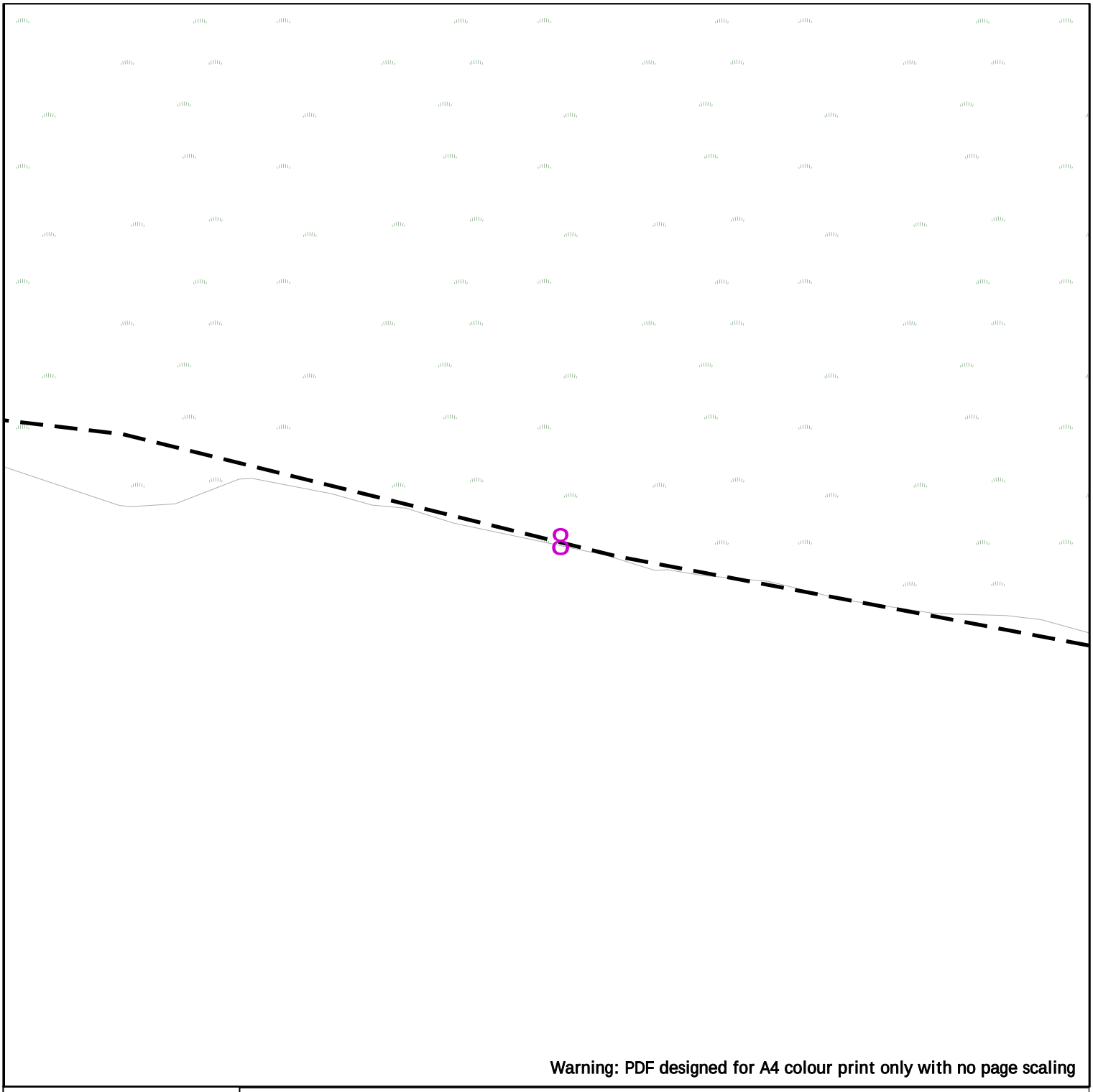
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Duct Long-haul (LHN) Duct Chamber Location

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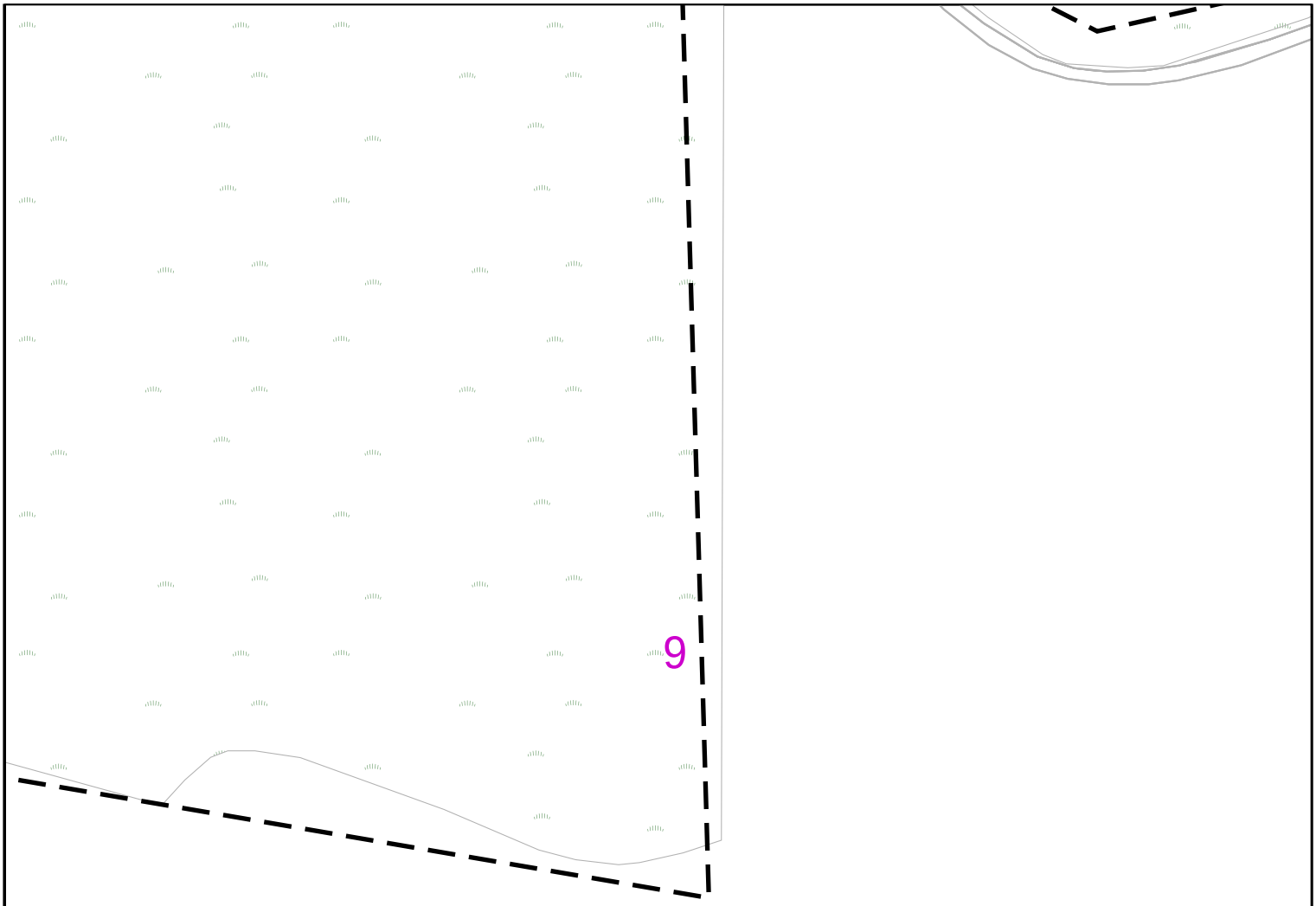
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100m Dig Sites Line: Area:

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Duct Long-haul (LHN) Duct Chamber Location

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100m Dig Sites Line: Area:

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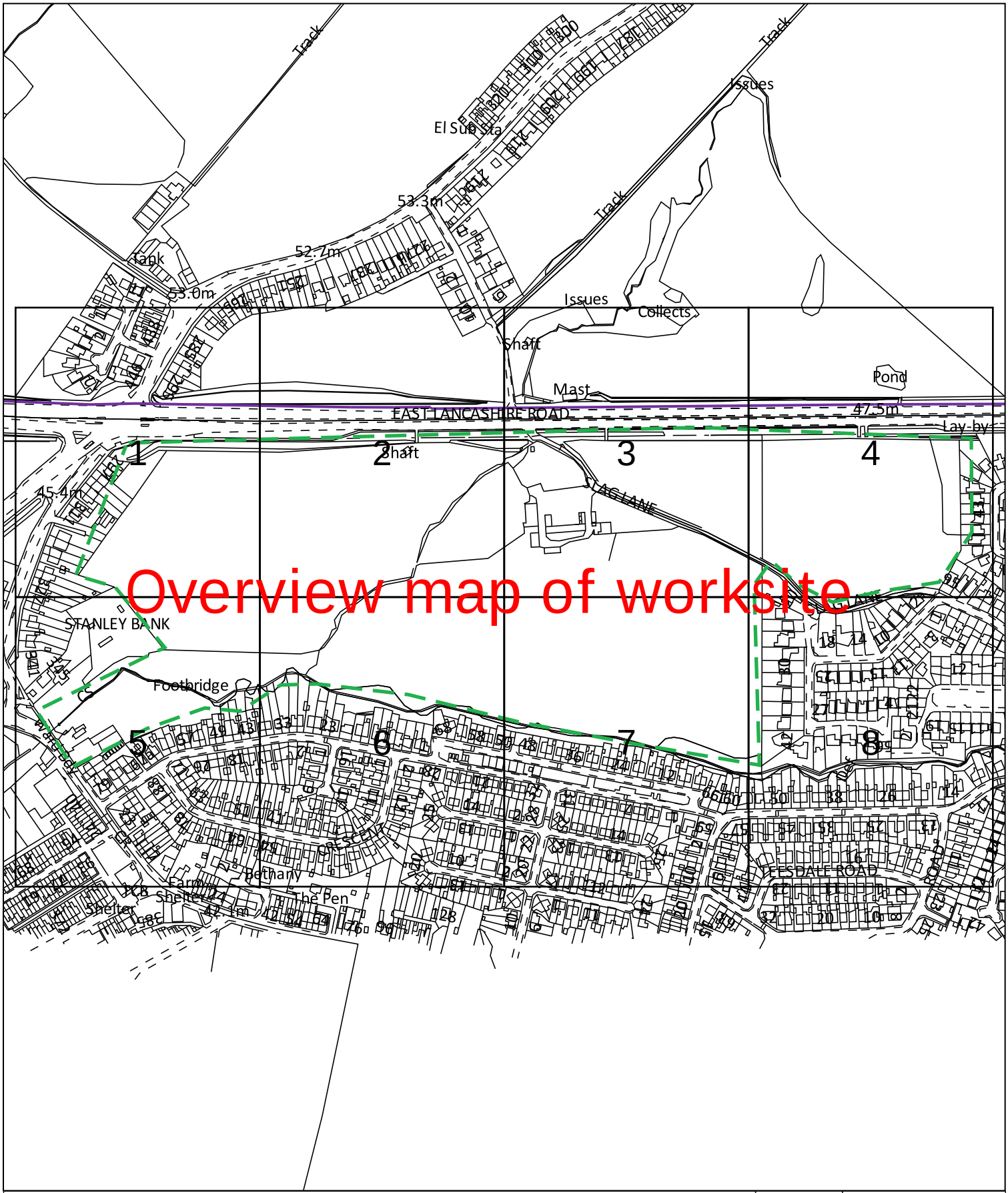
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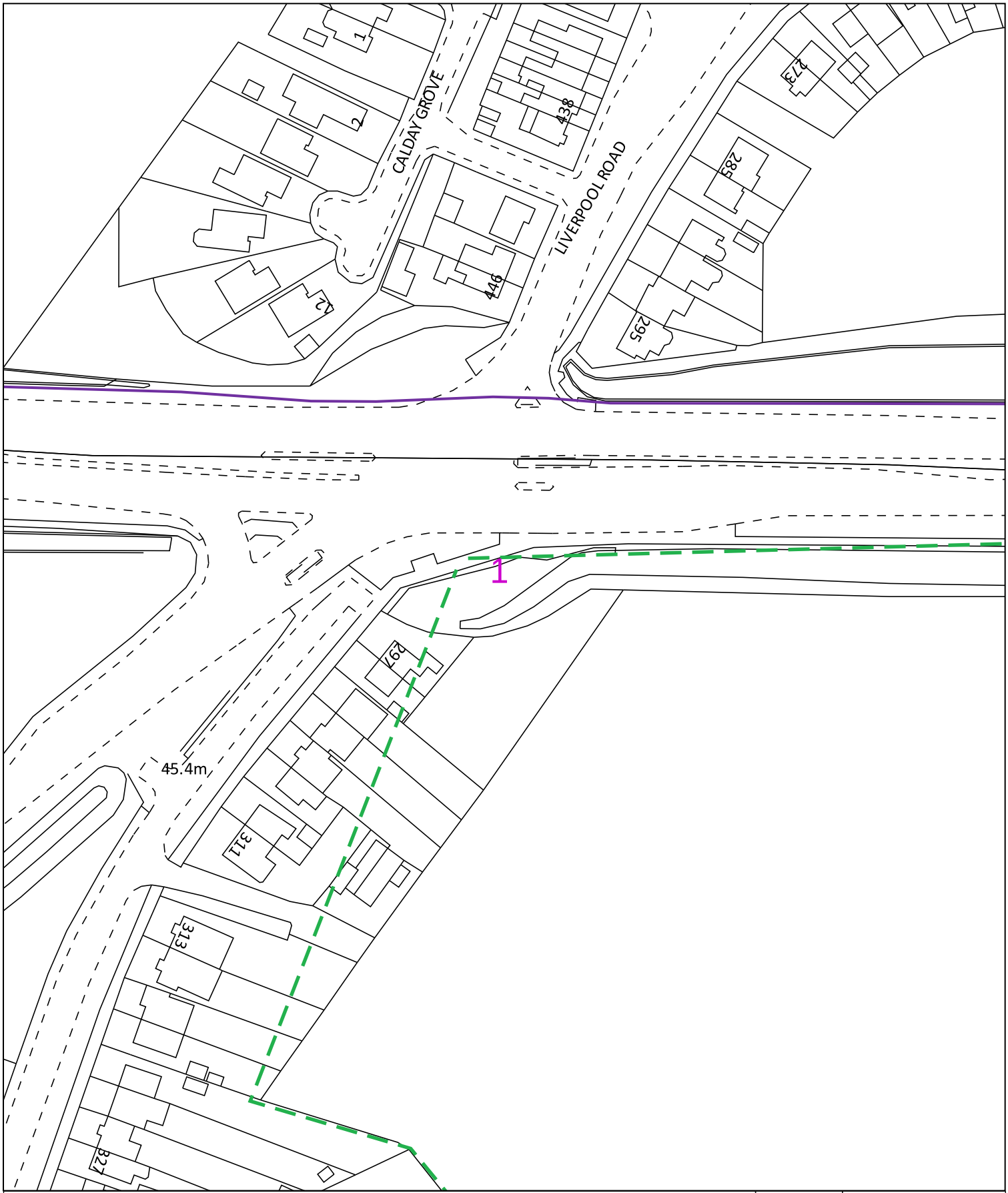
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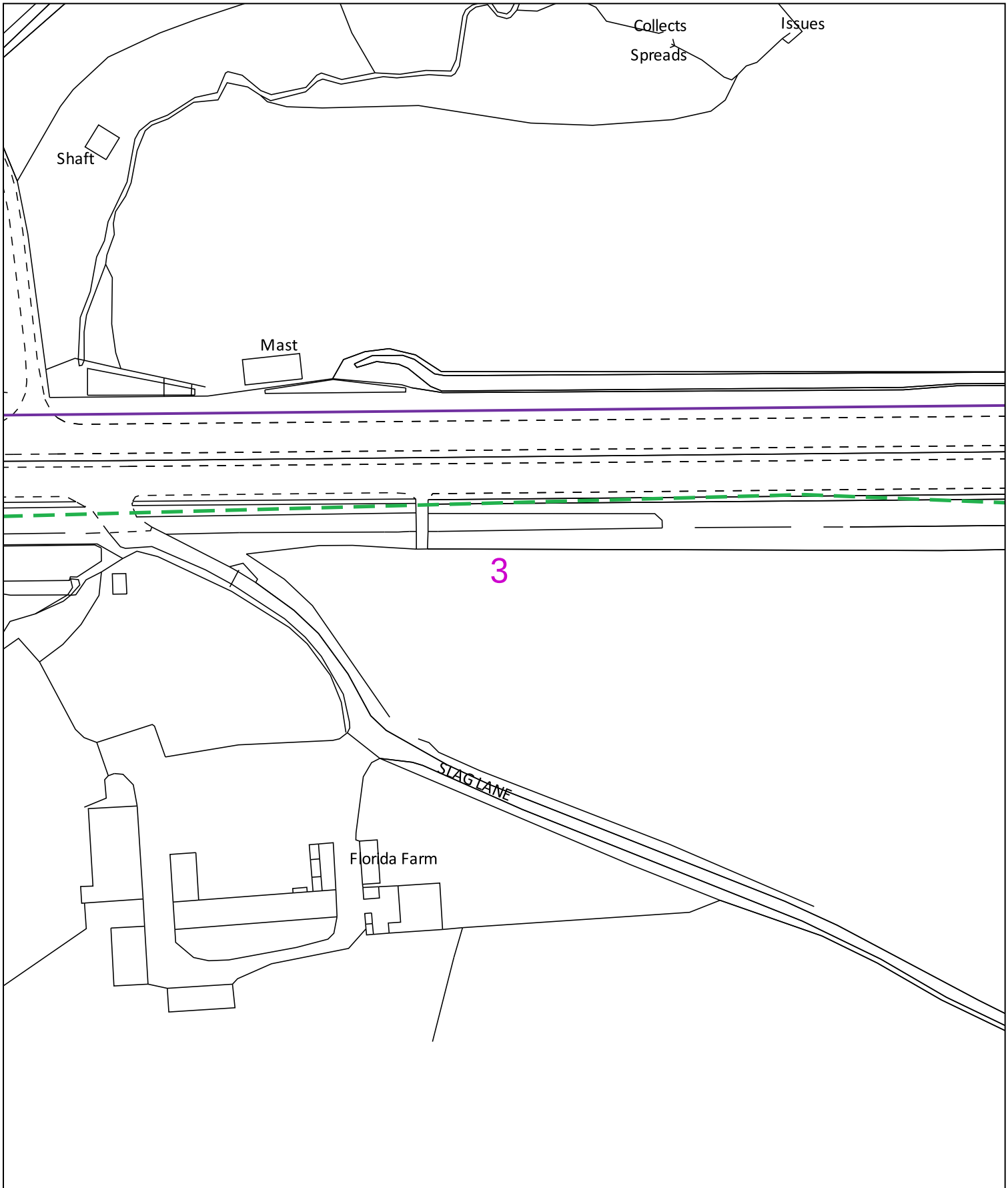
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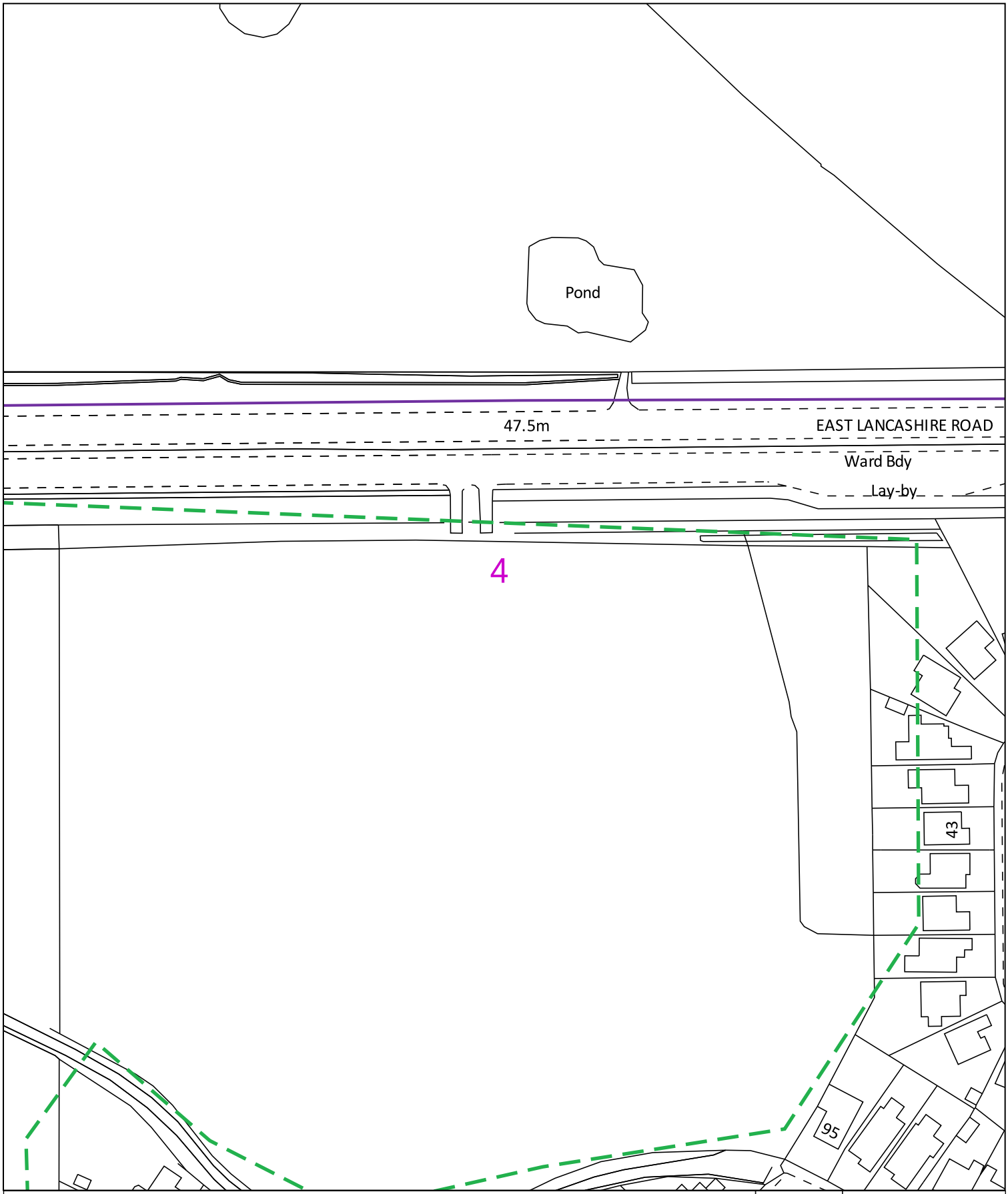
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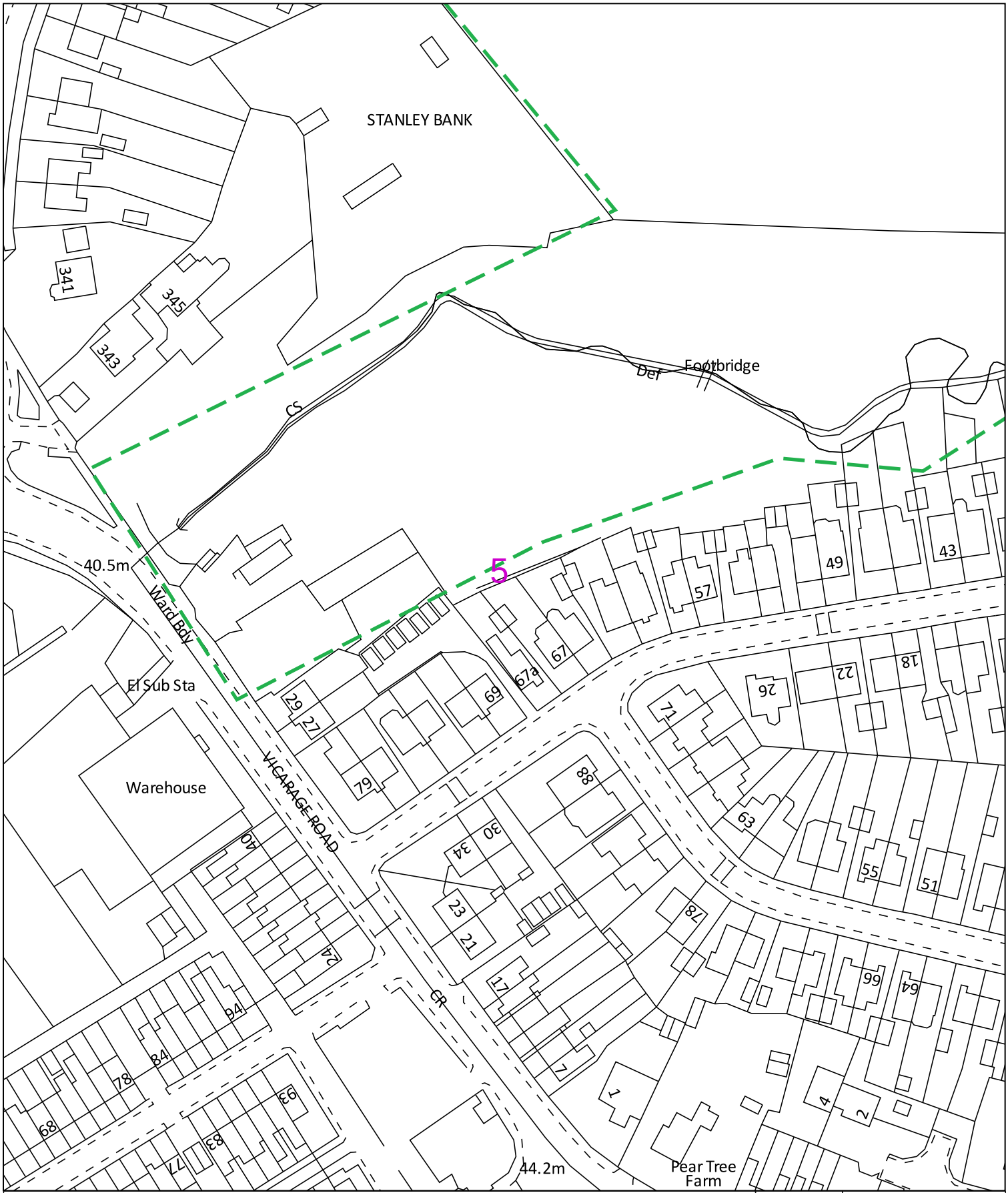
Scale: 1:1250 (When plotted at A4)

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Neos Networks Underground Route **Emergency Number: 0345 305 3337**

Registered Office:
Inveralmond House,
200 Dunkeld Road,
Perth, PH1 3AQ

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0 50m Dig Sites Area: Line:

The quality and accuracy of any print will depend on your printer, your computer and its print settings. Measurements scaled from this plan may not match measurements between the same points on the ground.

Date Requested: 15/03/2024
Job Reference: 32807110
Site Location: 354793 397212

Requested by: Miss Lauren Wenham

Your Scheme/Reference: STN3680NM

Scale: 1:1250 (When plotted at A4)

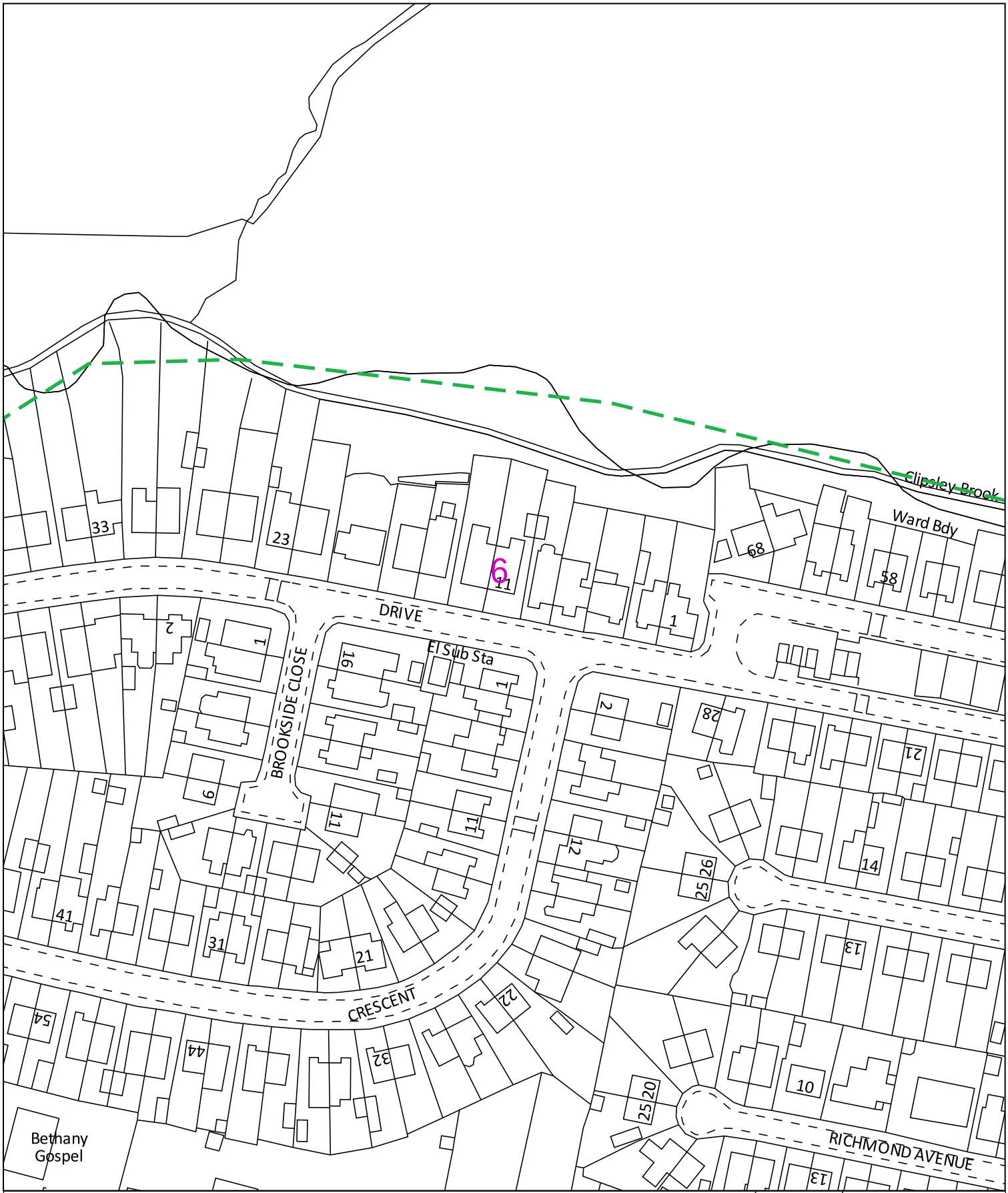
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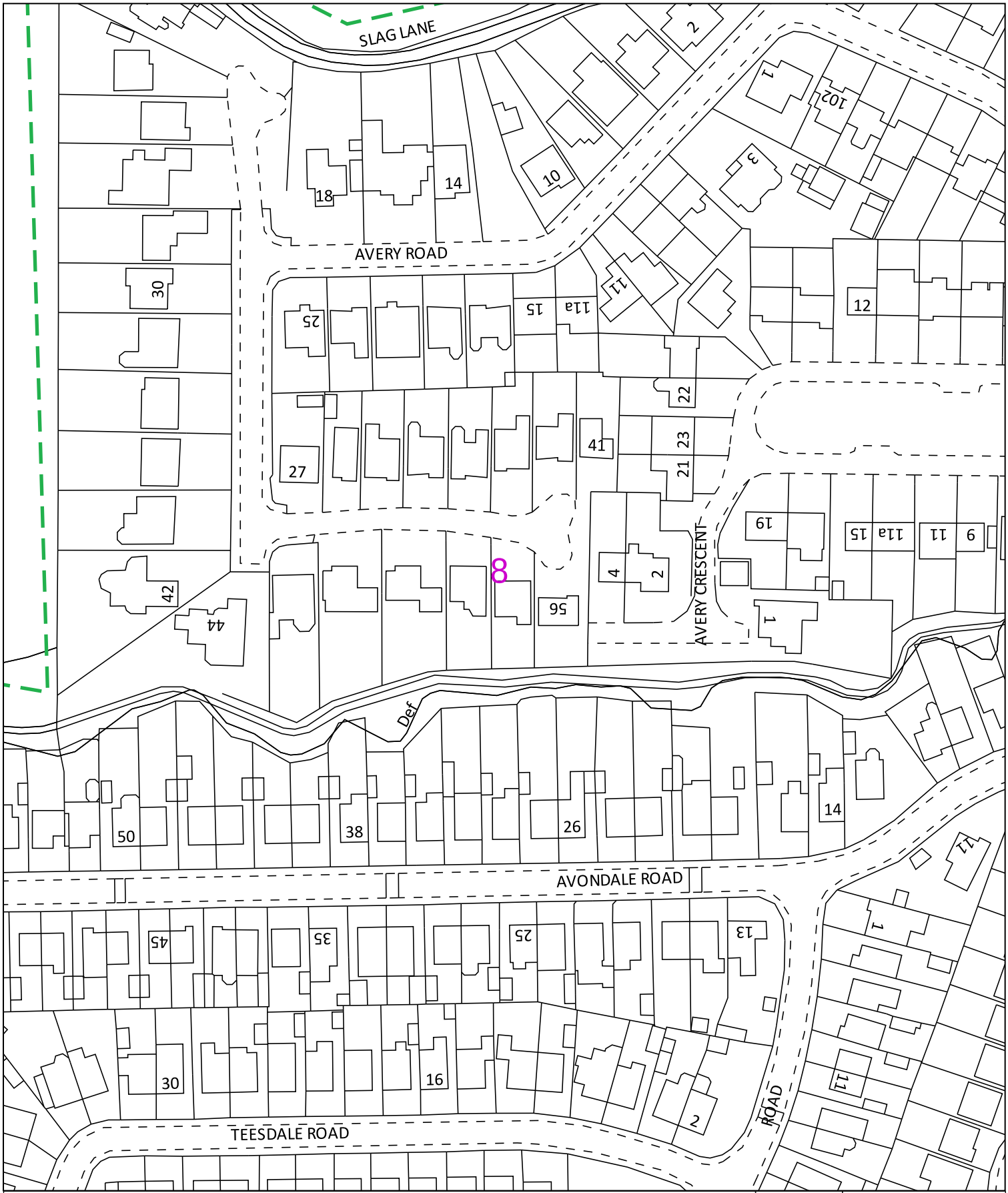
Scale: 1:1250 (When plotted at A4)

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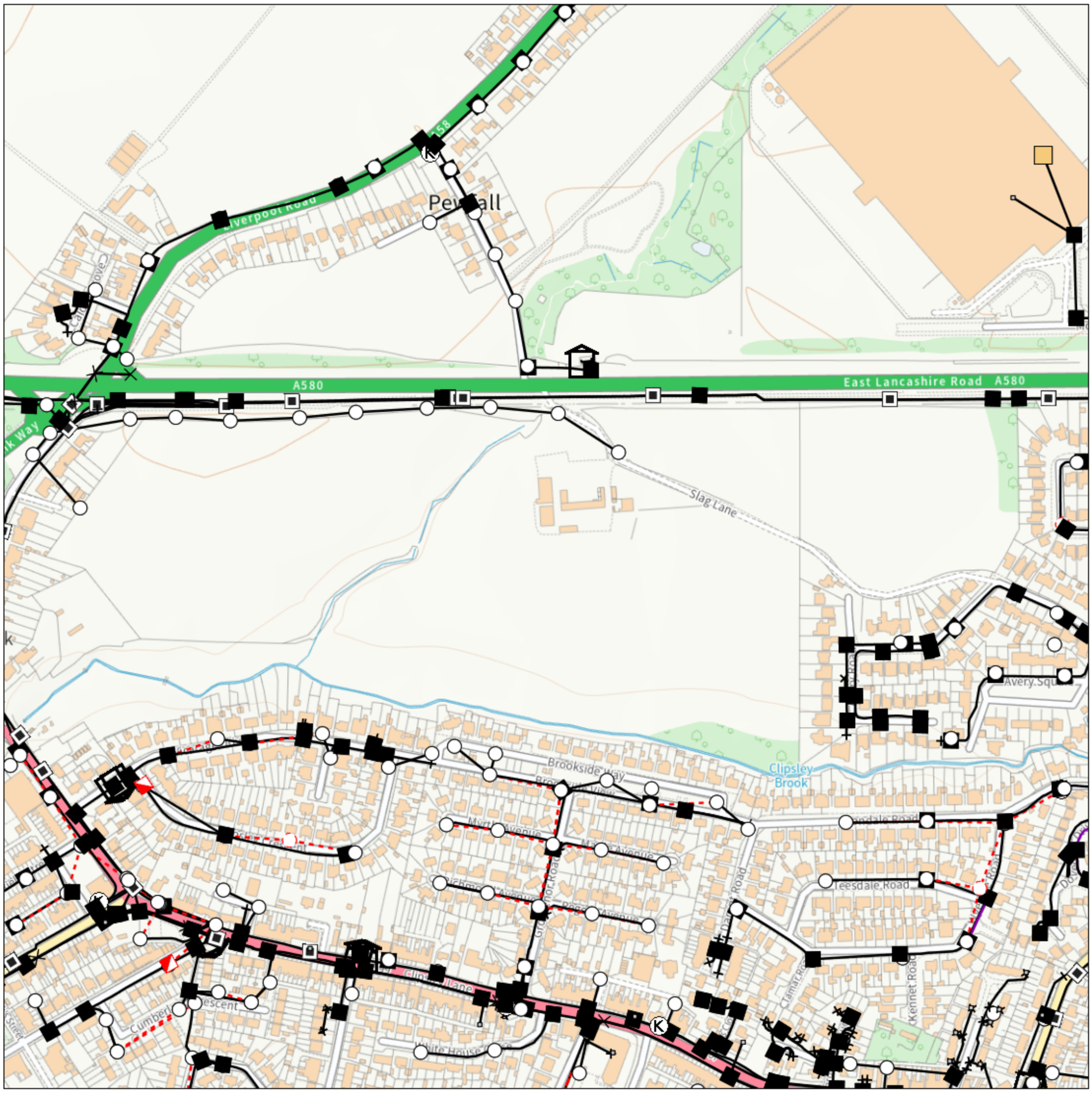
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Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

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KEY TO BT SYMBOLS

	Planned	Live
PCP		
Pole		
Box		
Manhole		
Cabinet		

Change Of State	+	Hatchings	
Split Coupling	×	Built	
Duct Tee	▲	Planned	
Building		Inferred	
Kiosk	K	Duct	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	In Place	Pending Remove	Not In Use
Power Cable				
Power Duct				N/A

BT Ref : ADD04306F
Map Reference : (centre) SJ5480597371
Easting/Northing : (centre) 354805,397371
Issued : 15/03/2024 16:30:09

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

Enquiry Confirmation

LSBUD Ref: 32807110

Date of enquiry: 15/03/2024
Time of enquiry: 16:22

Enquirer

Name	Miss Lauren Wenham	Phone	01604 781877
Company	Soiltechnics Ltd	Mobile	Not Supplied
Address	Cedar Barn White Lodge Walgrave NTH NN6 9PY		
Email	admin@soiltechnics.net		

Enquiry Details

Enquiry type	Planned Works
Work category	Development Projects
Work type	Piling
Work type buffer*	150 metres
Start date	16/03/2024
End date	22/03/2024
Scheme/Reference	STN3680NM
Search location	WA119RU
Confirmed location	354793 397212
Site size	0 metres square
Site Contact Name	Admin Soiltechnics
Site Phone No.	01604781877
Description of Works	Boreholes

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map



Please note that the above map only displays the location of the proposed work site and will not display any of the Members' pipes and cables. It is imperative that this area accurately reflects the proposed work site.

Affected LSBUD members

(LSBUD Members who have assets registered on LSBUD within the vicinity of your search area.)

Asset Owner	Phone/Email	Emergency Only	Status
Cadent Gas	0800688588	0800111999	Await response
Electricity North West Limited	08001954141	08001954141	Await response
EUNetworks Fiber UK Limited	02031788003	02031788003	Await response
Fulcrum Pipelines Limited	03330146455	0800111999	Await response
Neos Networks	03453053337	03453053337	Await response

Status explanation

Await Response means that the asset owner will contact you. This is typically by sending the plan response but they may ask for further information before being able to do so, particularly if any payments or authorisations are required.

Email Additional Info means that the asset owner needs further information about your works to assess your enquiry before providing a response. Please provide any details you have available including plans, method statements etc. if available.

Enquiry Confirmation
LSBUD Ref: 32807110

Date of enquiry: 15/03/2024
Time of enquiry: 16:22

Important notices

It is very important that you correctly understand what the service does and the procedures in order for you to work safely. Please refer to the LSBUD Support Page (www.lsbud.co.uk/linesearchbeforeudig-support) for further guidance.
This information includes how to provide additional information to the LSBUD Members who request it to provide a response to your enquiry.
Validity and search criteria. The results of this enquiry are based on the confirmed information you entered and are valid only as at the date and time of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LinesearchbeforeUdig (LSBUD) accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.
Terms and Conditions. Please note that this enquiry is subject always to our standard terms and conditions available at www.lsbud.co.uk ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

List of not affected LSBUD members
(LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area.)

Angus Energy	AWE Pipeline	B & D Energy Limited
Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)	Box Broadband
BP Exploration Operating Company Limited	BPA	Cambridgeshire County Council Climate Change and Energy Services
CATS Pipeline c/o Wood Group PSN	Cemex	Centrica Storage Ltd
CNG Services Ltd	Concept Solutions People Ltd	ConocoPhillips (UK) Teesside Operator Ltd
D.S.Smith	Diamond Transmission Corporation	DIO (MOD Abandoned Pipelines)
DIO (MOD Live Pipelines)	Drax Power Limited	E.ON UK CHP Limited
EDF Energy Renewables Ltd	EirGrid	Eleclink Limited
Energy Assets Networks	ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited
EP Langage Limited	ESB CCGT Power station (Carrington Gas Pipeline)	ESP Utilities Group
ESSAR	Esso Petroleum Company Limited	EXA Infrastructure
Exolum Pipeline System	Fulcrum Electricity Assets Limited	Gamma
Gas Networks Ireland (UK)	Gateshead Energy Company	Gigaclear Ltd
Harbour Energy	Heathrow Airport LTD	Humbly Grove Energy
IGas Energy	INEOS FPS Pipelines	INEOS Manufacturing (Scotland and TSEP)
INOVYN ChlorVinyls Limited	INOVYN Enterprises Limited	Intergen (Coryton Energy or Spalding Energy)
Jurassic Fibre Ltd	Kensa Utilities	Last Mile
Mainline Pipelines Limited	Manchester Jetline Limited	Manx Cable Company
Marchwood Power Ltd (Gas Pipeline)	Melbourn Solar Limited	MUA Group Limited
National Gas Transmission	National Grid Electricity Distribution	National Grid Electricity Transmission
National Grid Ventures	Northern Gas Networks Limited	Northumbrian Water Group
NPower CHP Pipelines	NTT Global Data Centers EMEA UK Ltd	NYnet Ltd
Ogi	Oikos Storage Limited	Ørsted
Palm Paper Ltd	Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos
Phillips 66	Portsmouth Water	Premier Transmission Ltd (SNIP)
Redundant Pipelines - LPDA	RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)	RWEnpower (Little Barford and South Haven)
SABIC UK Petrochemicals	SAS Utility Services Ltd	Scottish and Southern Electricity Networks
Scottish Power Generation	Seabank Power Ltd	SES Water
SGN	Shell	Shell NOP
SP Energy Networks	Spring Fibre Limited	Squire Energy Networks
SSE Generation Ltd	SSE Transmission	SSE Utility Solutions Limited

Enquiry Confirmation
LSBUD Ref: 32807110

Date of enquiry: 15/03/2024
Time of enquiry: 16:22

Storengy	Tata Communications (c/o JSM Construction Ltd)	TfL – London Underground HV Cables (Road Side Cables)
toob Limited	Total Colnbrook Pipelines	Total Finaline Pipelines
Transmission Capital	Trojan Energy Limited	UK Power Networks
Uniper UK Ltd	University of Cambridge Granta Backbone Network	Vattenfall
Veolia ES SELCHP Limited	Veolia ES Sheffield Ltd	Voneus Limited
VPI Power Limited	Wales and West Utilities	Welsh Power
West of Duddon Sands Transmission Ltd	West Sussex OpenNetwork (Cooperative National Infrastructure)	Westminster City Council
Zayo Group UK Ltd c/o JSM Group Ltd		

Non-LSBUD members (Asset owners not registered on LSBUD)
(The following Non-LSBUD Members may have assets in your search area. It is YOUR RESPONSIBILITY to contact them before proceeding.
Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.)

Asset Owner	Preferred contact method	Phone	Status
Arelion UK Ltd	check-network@arelion.com		Not Notified
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08000232023	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Equans	nrswa.uk@equans.com	0800 130 3600	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
Lumen Technologies	plantenquiries@ocugroup.com	02087314613	Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
Sky UK Limited	nrswa@sky.uk	02070323234	Not Notified
Sota	sota.plantenquiries@ocugroup.com		Not Notified
United Utilities	WastewaterDeveloperServices@uuplc.co.uk	08707510101	Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified

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The results of this Enquiry are personal to the Enquirer and shall not be shared with or relied upon by any other party. The asset information on which the Enquiry results are based has been provided by LSBUD Members, therefore LSBUD will provide no guarantee that such information is accurate or reliable nor does it monitor such asset information for accuracy and reliability going forward. There may also be asset owners which do not participate in the enquiry service operated by LSBUD, including but not exclusively those set out above. Therefore, LSBUD cannot make any representation or give any guarantee or warranty as to the completeness of the information contained in the enquiry results or accept any responsibility for the accuracy of the mapping images used. LSBUD and its employees, agents and consultants accept no liability (save that nothing in this Enquiry Confirmation excludes or limits our liability for death or personal injury arising from our negligence, or our fraud or fraudulent misrepresentation, or any other liability that cannot be excluded or limited by English law) arising in respect thereof or in any other way for errors or omissions including responsibility to any person by reason of negligence.

Is the site or any adjacent sites recorded on your contaminated land register and why is it registered (under Environmental Protection Act 1990, Part IIA)

Neither the site, nor any adjoining sites are recorded on the Councils contaminated land public register.

If the site or adjacent sites are registered has any remedial action taken place or are there any current notices served under (EPA IIA)

Not applicable.

Are there any landfill sites close to the site.

The Council holds the following information regarding landfill/ tipping in the vicinity of the site;

Name	Distance from Site	Direction	Details
Leigh Pit	18m	SE	Potential Colliery Spoil Tip
Princess Pit	170m	SE	Potential Colliery Spoil Tip
Clipsey Lane, St. Helens	600m	SE	Former railway cutting. Records indicate the site was in filled before the controls imposed under the Control of Pollution Act. Tipping had started by June 1974 and tipping finished between March 1979 and July 1984.

Do you have any knowledge of chemical/gaseous contamination in the area.

There are numerous historic industrial uses in the area including former collieries, mine shafts and associated spoil tips, rail lines associated with the collieries, small quarries, brick fields, ponds, agricultural machinery works, engineering works and associated fuel tanks. Each of these are regarded as potentially contaminative. Whilst there is no knowledge of actual contamination or ground gas issues the potential exists and would need to be considered and assessed as part of any future planning permission.

MACC International Ltd, Camilla Court, Nacton, Ipswich, Suffolk, IP10 0EU, UK

Ms Rachel Brown
Senior Administrator
Soiltechnics Ltd

Your Reference:

Our Reference: JM/3536/274

Email 1st Instance: rachel.brown@soiltechnics.net

Date: 05/09/2017

Unexploded Ordnance Preliminary Risk Review
Florida Farm East Lancashire WA11 0UZ

MACC International Ltd (MACC) has conducted a preliminary risk review for the site footprint. The review has drawn on open source and in-house information, references have been provided where available (See Annex A).

The review has been conducted to provide Soiltechnics Ltd with a review of the risk which may be posed by UXO while conducting investigations on the site.

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Records indicate both air raids and a military presence in the area. Given the history of the site and the level of post war development, it is considered that there is a credible likelihood of encountering UXO on the site. Consequently, the UXO risk is considered to be Medium within the site boundary.

It is recommended that a detailed UXO study is conducted or alternatively; the stated preliminary risk level is accepted and the following mitigation procedures are implemented:

1. All site personnel are provided with a UXO Safety Awareness Talk before intrusive works are commenced.
2. All intrusive investigations into post war un-worked ground should be supported by a UXO specialist.

I trust this document has provided you with sufficient information to meet your immediate needs, should you require anything further, please do not hesitate to contact me.

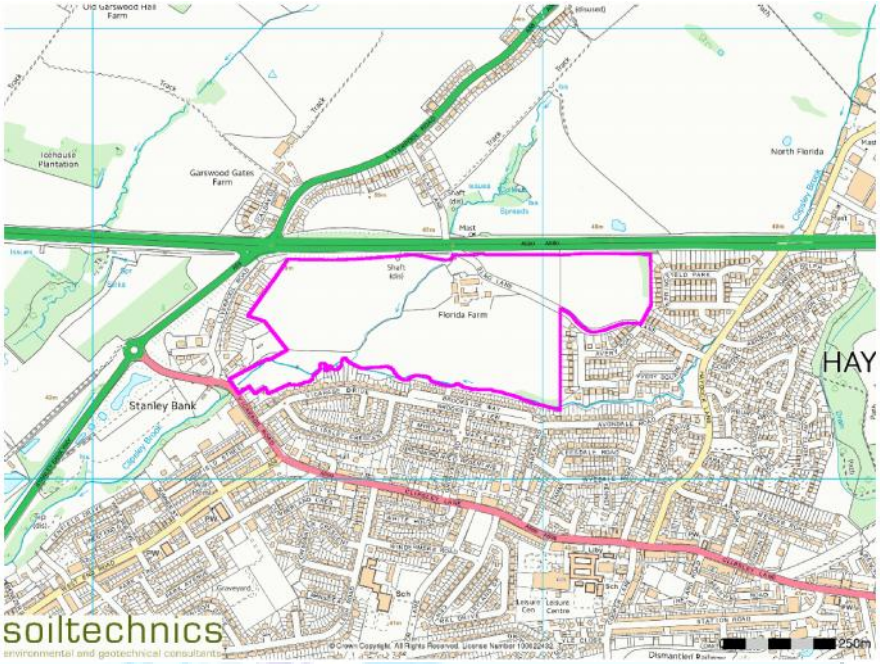
Yours Sincerely

John Morrison
Operations Manager

Tel: +44 (0)1473 655127 Fax: +44 (0)1473 655098
E-mail: info@macc-eod.com Web: www.macc-eod.com
Registered in England: No. 3014471

Annex 'A' to
Document JM/3536/274
Dated 05/09/17

Unexploded Ordnance Preliminary Risk Review

Site location	Site Address: Florida Farm East Lancashire WA11 0UZ Grid Reference: 354806, 397403 
Scope of Intended works	Preliminary review of the risk that may be posed by UXO to geotechnical investigations.
History	Records indicate that the immediate surrounding area has formerly been used by the military. RAF Haydock was a Communications and Signals Base located just north east of the site at Haydock Lane. A Prisoner of War Camp was also located to the north east of the site at Warrington Road, Ashton-in-Makerfield.
Wartime History	Records indicate that air raids on the St Helens area caused damage and loss of life during WWII. Anecdotal evidence also suggests that bombs were occasionally dropped on open farmland near the village of Billinge and the surrounding area by enemy aircraft returning from attacks on Liverpool. Given the limited level of development within the site footprint, this source of UXO contamination is considered to be credible.
Unexploded Ordnance (UXO) Finds	No reports were found to confirm that items of UXO have been found or recovered from within the site footprint.
Post War Development	The site has undergone a limited level of post-war development.

UNEXPLODED ORDNANCE DESK STUDY

Florida Farm
East Lancashire WA11 0UZ

Prepared for: Soiltechnics Ltd

Project Number: 4912

Version: 1.1

Dated: 29/09/2017

DISTRIBUTION

Project Number: 4912

Version: Issue version 1.1

Dated: 29/09/2017

Copy 1 SOILTECHNICS LTD

Copy 2 MACC INTERNATIONAL LTD

Authors

Project Director: K Burrows

Project Manager: J Morrison

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Camilla Court
Nacton Ipswich
IP10 0EU

Telephone Number: 01473 655127

Fax Number: 01473 655098

Email: macc@macc-eod.com

Registered in England Company Registration Number 3014471

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Post Mitigation Risk and Intent	10

Annexes:

A. Site Mapping

B. UXO Safety Information

REFERENCES

Publications

Sources of information used in the compilation of this study included:

German Air Raids on Britain 1914-18. Morris 1925

Unexploded Ordnance (UXO) – A guide for the Construction Industry. CIRIA C681

Dangerous Energy. Cocroft 2000

The Blitz Then and Now Volumes 1 to 3. Ramsey 1987

Advanced German Weapons WW2. Ford 2000

Dealing with Munitions in Marine Aggregates. UMA 2008

United Nations International Mine Action Standards (IMAS). UN 2010

Military Engineering Volume XII. War Office 1956

German Bomb Fuzes. USN 1945

Fields of Deception & Anti Aircraft Command. Dobinson 1988

Target Reconnaissance Photography. Luftwaffe 1939-44

Battle Stations Volume 3 DJ Smith 1980

Local Bomb Damage Maps

Internet Information

Additional information was provided through the following credible internet sites, their assistance is credited where appropriate:

Army EOD Incidents

RAF EOD Incidents & Air Situation Reports 1939-45

Luftwaffe Strategy & Tactics

Luftwaffe Bomber Specifications

WO Defence Arrangements 1939-45

News Reports Witness Accounts 1939-45

Latest News Reports

Project Information

Site and project information was provided by Soiltechnics Ltd.

TERMS AND DEFINITIONS

Anti Aircraft Ammunition (AAA)
High Explosive shells ranging from 30mm to 155mm used by air defence batteries to attack or deter enemy air attack.

Air Dropped Munition
A bomb or container dropped from an aircraft which is designed to detonate at a pre determined altitude, on impact or using a delay mechanism; after impact.

Air Dropped Sub-Munitions (Bomblet)
Small sub-munitions dispensed from a larger carrier which may be fixed to the aircraft or dropped as a single container munition which was designed to open above the target spreading its contents over a large area. Some designs are extremely dangerous and fitted with anti-handling devices.

Area Clearance
This is the term used for the systematic clearance of explosive ordnance from land, including military property, firing and bombing ranges, airfields and training areas. When the land is a former wartime battle ground, the term used is Battle Area Clearance (BAC)

Blast Zone
This term refers to the area around an explosive detonation where the explosive overpressure (Blast) can cause damage, injury or death.

Explosive Ordnance (EO)
All manufactured or improvised items designed to contain explosive, propellant, pyrotechnic and fissionable material or biological or chemical agents or pre-cursers which when coupled with an initiation or dispersal system are designed to cause damage, injury or death.

Explosive Ordnance Disposal (EOD)
A series of recognised procedures and protocols which are used by specialists in the detection, identification, evaluation, risk assessment, render safe, recovery and disposal of any item of explosive ordnance or improvised explosive device.

Fragmentation Zone
This is the term which refers to the danger area in which a piece of an item of explosive ordnance will travel on detonation. This zone is normally greater than the blast zone.

Geophysical Survey
The use of magnetometers, ground penetrating radar or other geophysical data gathering systems, which is then used for evaluation, risk assessment and to quantify further mitigation requirements.

High Explosive (HE)
High explosives react/detonate at a rate of around 9,000 metres per second, to all intents and purposes, instantaneously.

Imperial War Museum (IWM)
Wartime records source based in Lambeth Road London.

Incendiary Bomb (IB)

Incendiary bombs ranged from 1kg in size to 500kg the larger sizes were designated as Oil Bombs. Fills range from Thermite mixtures, Phosphorus, Kerosene or other pyrotechnic mixtures.

Intrusive Search

This term refers to the process of introducing a specialist magnetometer by pushing or drilling the sensor in to the ground to a pre determined depth, thus allowing construction activities such as: piling, soil testing and deep intrusive ground works to be conducted safety.

Land Service Ammunition (LSA)

LSA is a term that refers to all items containing explosives, pyrotechnic or noxious compounds which are placed, thrown or projected during land battles.

Local Records Office (LRO)

Wartime records source charged with maintaining the records for the Region, County, Borough or City.

National Archive (NA)

Wartime records source housed in Kew Gardens London.

Oil Bomb (OB)

Large airdropped bomb or modified ordnance container containing flammable material and accelerant, these weapons normally range in weight from 250 – 500kg.

Parachute Mine (PM)

Air-dropped mine designed to detonate at a pre set altitude above the ground. Essentially a large blast bomb with an explosive content of 1600 kg commonly fitted with anti-handling or anti-removal fuzes.

Unexploded Bomb (UXB)

Any air dropped bomb that has failed to function as designed.

Unexploded Ordnance (UXO)

Explosive ordnance that has been primed, fused, armed or otherwise prepared for use or used. It may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other cause.

War Office (WO)

This was the United Kingdom Government department responsible for defence of the realm, forerunner of the Ministry of Defence (MoD).

White Phosphorus (WP)

Munitions filled with WP_4 are designed for signalling, screening and incendiary purposes. They achieve their effect by dispersing WP, which burns on contact with the air.

World War One or Two (WWI or WW2)

Period of multi-national conflict, specifically: WW1; 1914-1918 or WWII; 1939-1945.

1 INTRODUCTION

1.1 Instruction & Scope

MACC International Ltd was commissioned by Soiltechnics Ltd to conduct an Unexploded Ordnance (UXO) Risk Assessment for Florida Farm, East Lancashire WA11 0UZ (See Annex 'A'). The scope of the assessment is to determine the likelihood of an encounter with UXO within the context of the execution of ground investigations and any subsequent building works.

1.2 Methodology & Purpose

The methodology used in the study complies with the United Nations (IMAS) standards for UXO/Mine Level 1 Survey (Desk Top Study), the CIRIA C681 "Unexploded Ordnance (UXO) – A guide for the Construction Industry" and the recognised best practice advocated by the Health and Safety Executive (HSE). The quality and environmental aspects of the study comply with UKAS Accredited ISO 9001:2008 and ISO 14001:2004 standards. The purpose of the study is that of evaluation and to provide an aid in decision making by our client.

2 DETERMINING THE LIKELIHOOD OF ENCOUNTER

2.1 Aim, Research Restrictions & Indemnity

This study has drawn upon archive records which are within the public domain; however, these are acknowledged to be incomplete. Consequently, some incidents may have occurred where the records no longer exist or could not be located. The Secretary of State of the United Kingdom and MACC International Ltd does not accept responsibility for the accuracy or completeness of the information contained within the records. Some records regarding the UXO situation on some sites may not yet be within the public domain. Consequently, such information was not available for evaluation by MACC International Ltd. Research of the site history, regarding military usage, bombing raids and bomb impacts has been undertaken to establish the following:

- Frequency and location of enemy bombing raids and damage sustained to the site.
- The potential for UXO to remain on the site.
- Records of UXO removal activities and encounters.

2.2 Relevant Publications & Credible Internet Information

Published sources of information used in the compilation of this study are listed within the reference section of this study including those provided by the client. Additional information was provided through credible internet sites; their assistance is credited where appropriate and details are listed within the reference section of this study.

3 THE SITE

The site is located in Haydock, St Helens at approximate grid reference 354806, 397403. The majority of the site has undergone little to no development since the end of WWII.

4 FUTURE INTENTIONS

Future intentions for the site were not disclosed. It has however been assumed that geo-environmental investigations will be conducted prior to the commencement of any subsequent building works.

5 HISTORICAL INFORMATION

5.1 British Archives

Prior to 1942 the United Kingdom did not operate a national recording system for EO/UXO incidents or military use of land. The records compiled during 1939-1942 were conducted under local arrangements and were only as detailed and accurate as the availability of time, personnel and the ease of access to information would allow. In April 1942, the Ministry of Home Security instigated a training programme for all personnel maintaining bomb census records, these standardised national records and greatly improved the accuracy of the information. Lack of exact bomb strike positions were most common where bombs fell on open ground well away from structures or buildings.

5.2 Manned Air Raids & Unmanned Rocket Attack Reports

Air raids on St Helens caused damage and loss of life during WWII, but the majority of these incidents occurred a considerable distance from the site towards the centre of the town. Records do indicate a raid on the Haydock area in May 1941 during which several bomb strikes were recorded close together c.a.500m south of the site. However, no records were found to indicate a bomb strike within the site footprint. Consequently, this source of UXO contamination is considered to be credible, albeit unlikely.

5.3 **Airdropped Sub-Munitions' Reports**

Records did indicate that enemy cluster/incendiary bombs were dropped in the Haydock area. However, given the low ground penetration potential for such weapons this source of UXO contamination is considered unlikely, but cannot be ruled out entirely.

5.4 **Anti-Aircraft Ammunition (AAA) Reports**

Local fixed and mobile Anti-aircraft batteries are known to have been positioned within the district to defend against air attacks and combat engagements with enemy aircraft did take place. Consequently, this source of UXO contamination is considered to be credible.

5.5 **Abandoned Bomb Reports**

No records were found to confirm or otherwise indicate that an unexploded bomb was abandoned within the site footprint.

5.6 **Migration of UXO**

It is considered possible; albeit unlikely, that a bomb was imported onto the site from other bomb sites. Additionally, where land ground levels have been increased or in-filled using Marine Dredged Aggregates there is a high potential for the aggregate to contain items of UXO. Consequently, these must be considered to have the potential to represent an additional source of UXO contamination.

5.7 **Bombing Decoys**

There were no bombing decoys in the immediate area. Consequently, these are not considered to be a credible source of additional UXO contamination.

5.8 **Military Use**

Records indicate that RAF Haydock, a former Communications and Signals Base, was located to the north east of the site at Haydock Lane. A Prisoner of War Camp was also located in the general area at Warrington Road, Ashton-in-Makerfield. However, on balance these are not considered to credible sources of additional UXO contamination.

5.9 **Downed / Crashed Military Aircraft**

No records were found to confirm that an armed aircraft crashed within the site footprint.

6 DETERMINING THE NATURE OF RISK

6.1 General

While HE warheads are very unlikely to detonate if left undisturbed they remain inherently dangerous and may function if subjected to suitable stimuli. The most common of these stimuli is shock, friction or heat which may cause the fuze to function or unstable explosive materials such as Picric Acid (2-4-6 Trinitrophenol (TNP)) to explode. However, in the case of incendiary bombs containing White Phosphorus (WP_4) exposure of the WP to the oxygen in the air will result in its violent ignition and combustion which may cause any HE content within the munition to detonate.

6.2 German Bombing Tactics

The tactics employed by the German Air Force during WWII show that they had a wide variety of bombs at their disposal. The most common ranged in weight from 50 kg through to 500 kg. Some models in this range of bombs were designed to be “carrier” bombs. These containers could hold potentially hundreds of smaller sub-munitions (anti personnel or incendiary bomblets). Although dropped in lesser quantities, the German arsenal also included larger bombs and parachute mines up to 1,400 kg in weight. Unmanned attacks were also mounted by the Germans using V1 Rockets and V2 Missiles, each with a warhead around 1,000 kg in weight.

6.3 Bomb Trajectory & Ground Penetration

During WWII, the Ministry of Home Security undertook a major study on bomb penetration depths using 1,328 actual bomb impact events to provide statistical analysis of penetration potential. As a result, they determined the expected behaviour of a range of bomb weights through different geological strata around the Capital. Their findings remain the only empirical gained figures to have been gathered to date for England. A summary of their findings can be found in Table 1 of this study. A number of factors will influence the behaviour of a bomb on impact with the target and its trajectory through the ground. Relevant factors include: Height and speed of release of the bomb, aerodynamic qualities of the bomb, the angle of flight and impact and the nature of impact surface and sub soil.

6.3.1 In determining the potential bomb penetration depths into the ground, using the historic geotechnical information, other factors considered were: Release height 4,545 metres (15,000 ft). Most common GP Bomb used of 500 kg in weight and an impact Angle Range of 90° (tail vertical) to 0° (tail horizontal)

6.3.2 Table 1. Extract of Ministry of Home Security Bomb Penetration Study

	Bomb Weights			
Sub Soil Type	50kg	250kg	500kg	1000kg
Soft Rock or Made Ground	2.442	5.016	6.006	7.062
Gravel	2.442	5.016	6.006	7.062
Dry Clay	3.7	7.6	9.1	10.7
Average Offset (m)	0.8-1.6	1.6-3.7	3-4.5	3.4-5.3

6.3.3 Bombs on penetration of the surface do not tend to follow a straight line trajectory, due to a number of factors, shape, angle of entry, weight and speed; they tend to arc or curve; known as a "J" curve. With the horizontal distance from the entry point to the resting point known as the offset. The typical offset is generally taken to be $^{1}/_{3}^{rd}$ of the penetration depth. However, this distance can vary greatly if the bomb strikes an obstacle just below the surface. With this mechanism of offset, it is therefore a possibility that a bomb could enter the ground outside a building and come to rest within its footprint. Having reviewed the bomb penetration information and having provided a reasonable safety factor it is considered that:

- The maximum bomb penetration depth is estimated at 10.5 metres from the 1941 ground level. The expected offset from impact point is estimated to be 3.5 metres.
- The maximum ground penetration for an AA Artillery Shell is estimated at 1.5 metre below the 1941 ground level.

7 ENVIRONMENTAL IMPACT FROM UXO

7.1 Ground Contamination & Health Risk vectors

The amount of explosive material within the most common bombs is not considered sufficient to pose a significant widespread environmental risk. Nevertheless, it should be noted that the following components are commonly used in the manufacture of a high explosive bomb and may pose a localised contamination risk to health:

- Lead (Pb)
- Zinc (Zn)
- Copper (Cu)
- Iron (Fe)
- Mercury (Hg)
- Silver Fulminate (AgCNO)
- Aluminium (Al)
- Trinitrophenol ($C_6H_3N_3O_7$)
- Trinitrotoluene ($C_7H_5N_3O_6$)
- Trimethylene ($N(CH_3)_3$)
- Trinitramine ($C_3H_6N_6O_6$)
- Ammonium (NH_4)
- Sodium Nitrate ($NaNO_3$)
- Nitro-glycerine ($C_3H_5N_3O_9$)
- White Phosphorus (WP_4). This chemical may pose a significant immediate risk of spontaneously combusting when exposed to the oxygen in the air. WP will generate large quantities of toxic white smoke when ignited.

7.2 It is recommended that specialist environmental and medical advice be sought to identify any health or other risks posed by these and other chemical compounds.

8 RISK ASSESSMENT

8.1 Risk Source

Records did not confirm a bomb strike within the site footprint. Records are acknowledged to be incomplete and include errors; the possibility that items of UXO may have found their way onto the site and remain there to the present day is considered credible.

8.2 Risk Pathway

The risk pathway is considered to be ground intrusive investigations and earth works.

8.3 Consequence

The consequences of a UXB detonation on site during construction works are considered to be a factor of the size of the blast and the proximity of assets and individuals to the point of detonation. These will include potential to kill or seriously injure personnel destroy or damage high value site assets, nearby public and private property and infrastructure.

8.4 Risk Rating

H = A figure derived from assessing the history of the site weighing up factors such as recorded bomb damage, threat weapon type, military use and the scope of any post conflict development.

W = A figure derived from assessing the type of the process to be undertaken without putting in place any UXO mitigation measures. A low figure is assigned where the process is relatively non aggressive (minimal ground or point shock). A high figure is used where the work is considered aggressive (significant ground or point shock).

L = A figure derived by multiplying figures H and W to provide an overall likelihood of an encounter with UXO.

S = A figure derived by assessing the scope or extent of the works; a low figure is assigned where the volume of risk material is limited. A high figure is used where for example the volume of risk material is considerable such as “bulk digs” or shafting.

P = A Figure derived from assessing the result of an explosion, including primary and secondary risk pathways and receptors. A high figure is attributed for example in a gas works while a low figure is applied to a remote, rural open space.

C = A figure derived by multiplying figures S and P to provide an overall consequence of an encounter with UXO.

8.5 Table 2 Risk Level – From all potential UXO contamination sources

UXO RISK RATING (Post War Worked Ground)			
Activity	Likelihood (H x W = L)	Consequence (S x P = C)	Risk Rating (L x C = R)
Hand dug excavations	1 x 1 = 1	1 x 5 = 5	1 x 5 = 5
Limited mechanical excavations or trenching	1 x 2 = 2	2 x 5 = 10	2 x 10 = 20
Drilling, sampling, bulk excavations or piling	1 x 3 = 3	3 x 5 = 15	3 x 15 = 45
UXO RISK RATING (Post War Un-Worked Ground)			
Activity	Likelihood (H x W = L)	Consequence (S x P = C)	Risk Rating (L x C = R)
Hand dug excavations	2 x 1 = 2	1 x 5 = 5	2 x 5 = 10
Limited mechanical excavations or trenching	2 x 2 = 4	2 x 5 = 10	4 x 10 = 40
Drilling, sampling, bulk excavations or piling	2 x 3 = 6	3 x 5 = 15	6 x 15 = 90
1= Minimal 5=significant	LOW 0-100	MEDIUM 100-200	HIGH 200+

9 STUDY FINDINGS

9.1 Risk Levels

The desk study has determined the UXO risk within the site boundary. The UXO risk is considered to be lowest in post war worked ground increasing within the un-worked post war ground for some processes. When viewed from likelihood versus consequence standpoint; it is considered prudent to recommend a suitable degree of UXO mitigation to permit the work to proceed in the safest “acceptable” manner in compliance with current legislation and best practices.

9.2 Determining Acceptable Level of Risk

The meaning of the term “acceptable” in the context of this study is considered to be in keeping with the Health & Safety Executive directive which identifies the acceptable level as that which is; “As Low as Reasonably Practicable” (ALARP) to achieve.

10 RECOMMENDATIONS FOR RISK MITIGATION

10.1 All Risk Level Activities

Execution of the following Risk Mitigation Measures are recommended:

- Risk Communication & Safety Planning: Stakeholders should be made aware of the UXO risk levels within the project boundary and the possible impact an encounter may have on the project and third parties. Consequently, a UXO Safety Plan should be drawn up and included within the overall project safety planning.
- Safety Training: In keeping with CDM Regulations concerning all sub-surface hazards, UXO Safety Induction Training should be provided to everyone working or visiting the site. The training should be commensurate with the individual's responsibilities and duties on site. The training should be provided by a competent individual (preferably a trained EOD Engineer) and delivered as a separate module of the Site Safety Induction Course or as a Toolbox Talk.



11 POST MITIGATION RISK

11.1 Overview

Prudent execution of the recommended risk mitigation strategy will reduce the risk however, it is emphasised that zero risk is not achievable given the possible variables. The study has confirmed the UXO risk level based on the nature of the work to be undertaken and has recommended suitable mitigation. An effective risk mitigation strategy will require detailed scoping to achieve its desired results in providing an acceptable level of risk. For further information concerning any part of this study please contact MACC International Ltd.

11.2 Intent & Use

This document has been produced in the United Kingdom by MACC International Limited and meets the requirements of CIRIA C681 “Unexploded Ordnance (UXO) – A guide for the Construction Industry”. It has been provided solely for the purpose of assessment and evaluation. It is not intended to be used by any person for any purpose other than that specified. Any liability arising out of use by a third party of this document for purposes not wholly connected with the above shall be the responsibility of that party, who shall indemnify MACC International Limited against all claims, costs, damages and losses arising out of such use.

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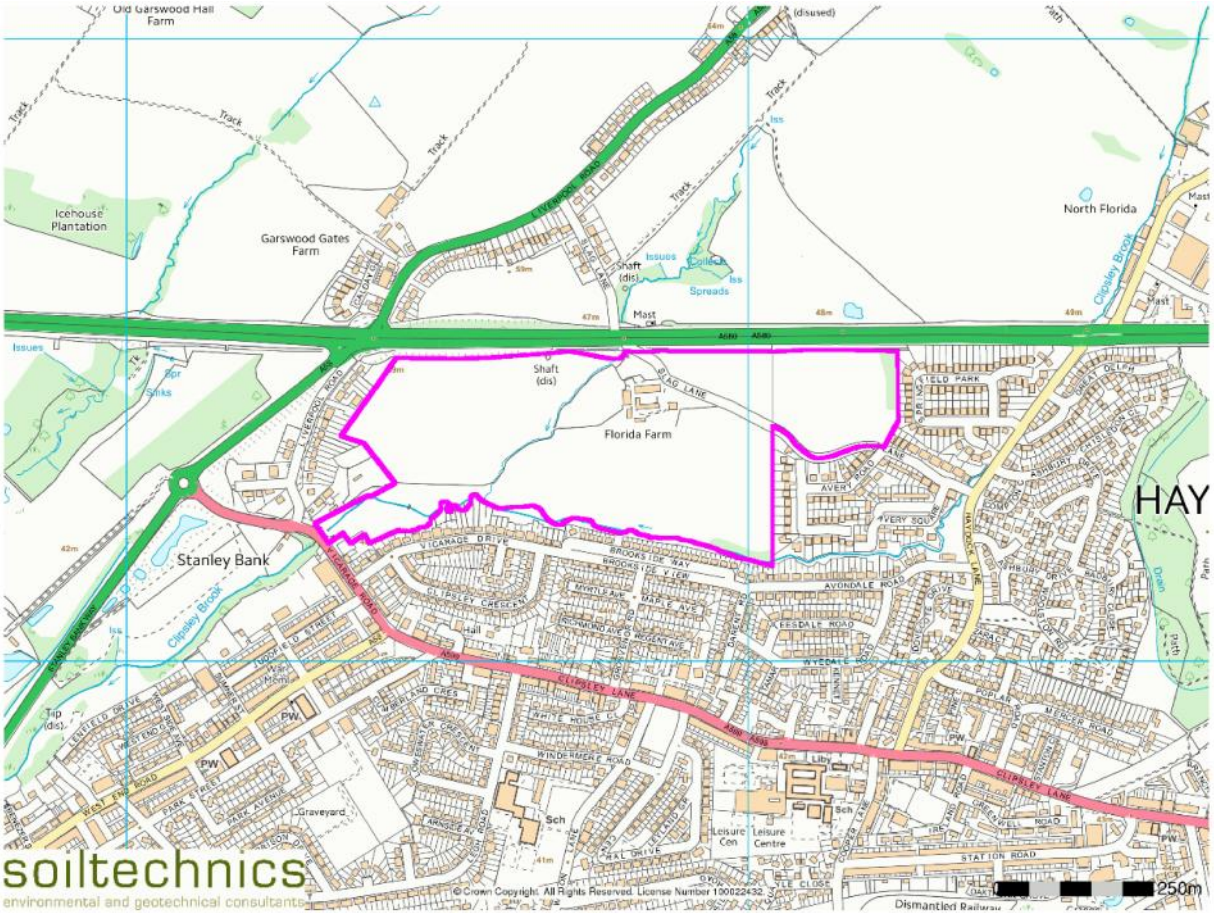
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Annex A

SITE MAPPING

Site Boundary:



Annex B

EXPLOSIVE ORDNANCE SAFETY INFORMATION

1 UNEXPLODED ORDNANCE

Since WWII the number of incidents in the UK where EO has detonated has been minimal, though a significant number of bombs have been discovered and safely disposed of without serious consequences. More commonly on mainland Europe (France, Germany and Belgium) incidents have occurred where ground workers have been killed or injured as a result of striking buried UXO or mishandling items of UXO found during excavation and piling work.

The threat to any proposed investigation or development on the site may arise from the effects of a partial or full detonation of a bomb or item of ordnance. The major effects are typically; ground shock, blast, heat and fragmentation. For example, the detonation of a 50kg buried bomb could damage brick/concrete structures up to 16m away and unprotected personnel on the surface up to 70m away from the blast. Larger ordnance is obviously more destructive. Table B-1 shows the MOD's recommended safe distance for UXO. However, it should be noted that the danger posed by primary and secondary fragmentation may be significantly greater. Almost 60% of civilian casualties sustained in London during the blitz were the result of flying glass.

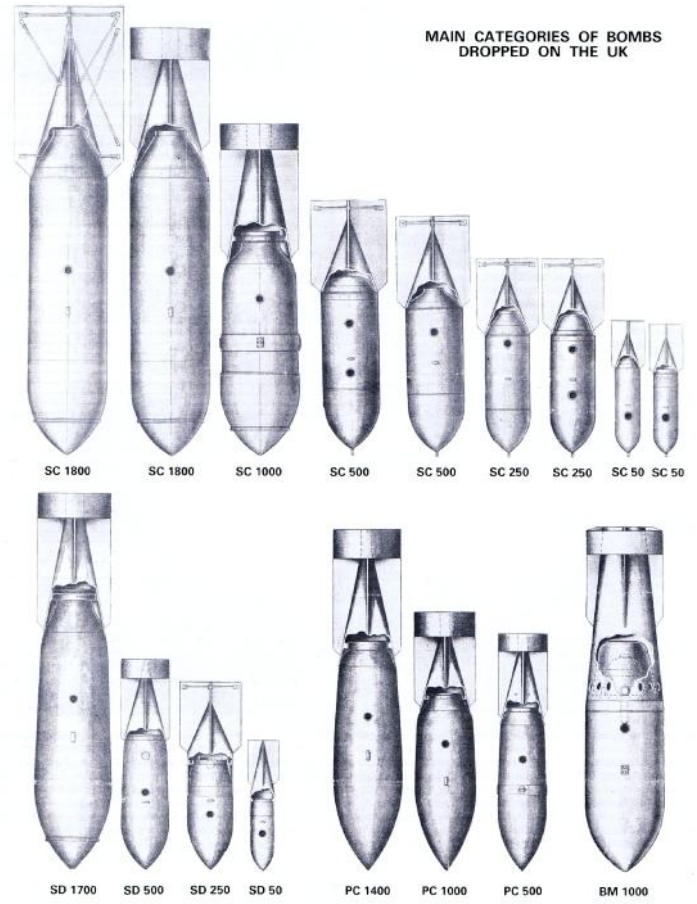
TABLE B-1 SAFETY DISTANCES FOR PERSONNEL

	Safety Distances (m)			
	Surface UXO		Buried UXO	
UXO (Kg)	Protected	Unprotected	Protected	Unprotected
2	20	200	10	20
10	50	400	20	50
50	70	900	40	70
250	185	1100	120	185
500	200	1250	140	200
1000	275	1375	185	275
3000	450	1750	300	450
5000	575	1850	400	575

Explosives rarely become inert or lose effectiveness with age. Over time some explosive materials can become more sensitive and therefore more prone to detonation. This applies equally to items that have been submersed in water or embedded in silt, clay, peat or similar materials.

2 TYPES OF GERMAN AIRDROPPED BOMBS & MINES

2.1 HE Bombs



German 250kg Bomb found by MACC below a pre-war cellar floor in Bethnal Green London 10 August 2015



2.2 Incendiary, Anti-Personnel Bombs & Parachute Landmines



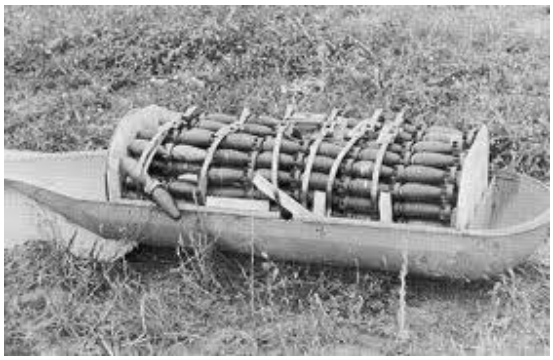
1kg incendiary Bomblet (Top as found today)



Flam c500, c250 & c50 Oil Bombs



SD1 Anti-Personnel Bomblets



SD1 Container Bomb





Parachute Mines

2.3 British Anti-Aircraft Shells & Rockets

Examples of British Anti-Aircraft shells, rockets and components can be seen below.





Typical shell and rocket fuzes (Above left Proximity Fuzes found by MACC in 2017)

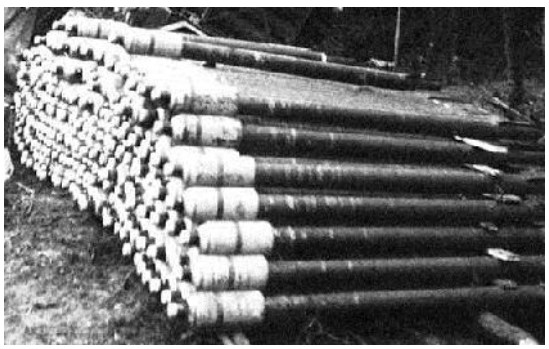




Typical shells (Above left 3.7” Shell found by MACC in 2017)







Typical rockets

3 UXO ENCOUNTER SAFETY PROCEDURE

3.1 All site personnel should be instructed on what action to take if they find an unidentified item which they suspect may be unexploded ordnance. The following actions are recommended until expert advice can be sought:

- **Stop Work**
- **Do not Touch**
- **Alert those around you and Evacuate the vicinity**
- **Call the UXO Specialist or Police (Dial 999)**

3.2 Where appropriate safety posters can be used to remind personnel of the safety procedure, an example can be seen below.

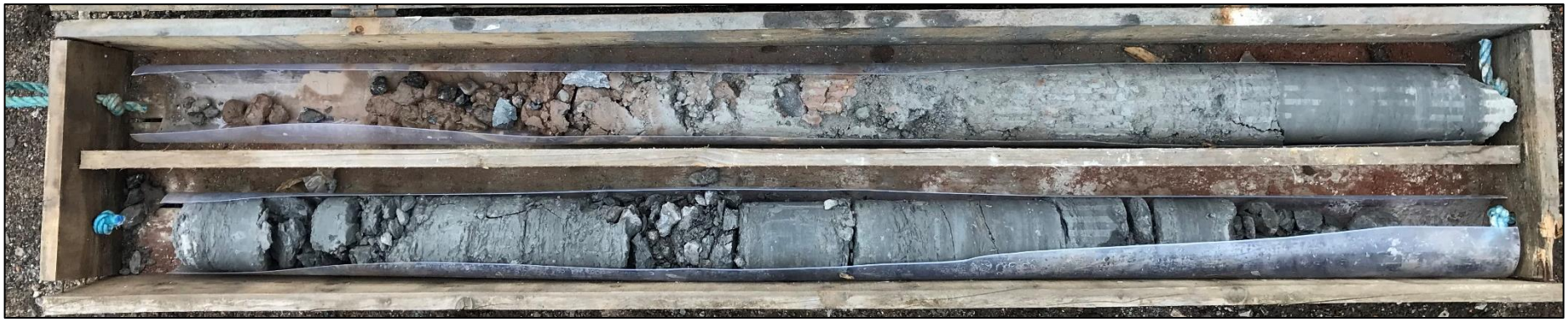


3.3 Where an item of UXO is found on site all work should be suspended until the UXO risk has been reassessed and if appropriate, suitable mitigation measures put in place.

ROTARY HOLE: RBH05

Depth: 6.5m to 9.5m

Core Runs 6.5m – 8.0m & 8.0m – 9.5m.



Depth: 9.5m to 12.5m

Core Runs 9.5m – 11.0m & 11.0m – 12.5m.



ROTARY HOLE: RBH13

Depth: 9.5m to 12.5m

Core Runs 9.5m – 11.0m & 11.0m – 12.5m.



Depth: 12.5m to 15.5m

Core Runs 12.5m – 14.0m & 14.0m – 15.5m.



ROTARY HOLE: RBH14

Depth: 5.0m to 8.0m

Core Runs 5.0m – 6.5m & 6.5m – 8.0m.



Depth: 8.0m to 11.0m

Core Runs 8.0m – 9.5m & 9.5m – 11.0m.



ROTARY HOLE: RBH15

Depth: 6.5m to 9.5m

Core Runs 6.5m – 8.0m & 8.0m – 9.5m.



Depth: 9.5m to 12.5m

Core Runs 9.5m – 11.0m & 11.0m – 12.5m.



ROTARY HOLE: RBH16

Depth: 3.0m to 6.0m

Core Runs 3.0m – 4.5m & 4.5m – 6.0m.



Depth: 6.0m to 9.0m

Core Runs 6.0m – 7.5m & 7.5m – 9.0m.



Depth: 9.0m to 12.0m

Core Runs 9.0m – 10.5m & 10.5m – 12.0m.



SCHEDULE OF ACCOMMODATION - DWH

SCHEDULE OF ACCOMMODATION

DWH Type	House Type	M4 (1)(2)(3)	Sqft	No	Total Sqft
Affordable Units					
SB32 - Averbury	1 Bed	M4(1)	471	3	1413
SB32 - Marlborough	2 Bed	M4(1)	675	3	2025
SB32 - Harlington	2 Bed	M4(1)	712	3	2136
SH75	1 Bed Affordable House	M4(1)	455	1	455
SH80	2 Bed Affordable House	M4(1)	643	1	643
ZB93 End	2 Bed Affordable House (M4(3)	M4(3)	1006	6	6036
ZB93 Mid	2 Bed Affordable House (M4(3)	M4(3)	1006	2	2012
SH50 End	2 Bed Affordable House	M4(2)	750	14	10500
SH50 Mid	2 Bed Affordable House	M4(2)	750	8	6000
SH52 End	3 Bed Affordable House	M4(2)	929	6	5574
SH52 Mid	3 Bed Affordable House	M4(2)	929	3	2787
SH55 End	3 Bed Affordable Dual Aspect House	M4(2)	957	1	957
		Affordable Total		**51**	**40538**
Private Sales Units					
P204 XI-7	2 Bed Mews House	M4(1)	621	**3**	1863
P204 XEH7	2 Bed Mews House	M4(1)	621	**6**	3726
P230-XI7 Wincham Mid	2 Bed Flyover Apartment	M4(1)	704	1	704
P382-XEH7 Archford End	3 Bed Mews House	M4(1)	832	20	16640
P382-XI7 Archford Mid	3 Bed Mews House	M4(1)	832	3	2496
P341-XEG7 Hadley End	3 Bed Dual Aspect Mews House	M4(1)	1001	5	5005
P341-XDG7 Hadley Det	3 Bed Mews House	M4(1)	1001	14	14014
P341-XWG7 Hadley Wide	3 Bed Wide Mews House	M4(1)	1001	1	1001
H351-XH7 Eckington	3 Bed Integral Garage Detached House	M4(1)	965	5	4825
T322-XEG7 Greenwood End	4 Bed 2.5 Storey Townhouse	M4(1)	1179	8	9432
T322-XEG7 Greenwood Mid	4 Bed 2.5 Storey Townhouse	M4(1)	1179	0	0
H403-XT7 Ingleby	4 Bed Detached House	M4(1)	1081	8	8648
H411-XH7 Milford	4 Bed Integral Garage Detached House	M4(1)	1335	11	14685
H442-XH7 Kirkdale	4 Bed Detached House	M4(1)	1354	18	24372
H456-XE7 Axindale	4 Bed Detached House	M4(2)	1491	6	8946
H469-XH7 Holden	4 Bed Detached House	M4(2)	1539	9	13851
		Private Total		**118**	**130208**
Total number of units and square footage				**169**	**170746**
Gross Site Area in Acres					**NA**
Open Space & Undevelopable Area in Acres					**NA**
Net Site Area in Acres					**10.53**
Density (Units per Acre)					**16**
Density (Units per Hectare)					**40**
Square Foot / Acre					**16,215**
Percentage M4(2) Compliant					**20.0%**
Percentage M4(3) Compliant					**5%**

SCHEDULE OF ACCOMMODATION - BARRATT HOMES

SCHEDULE OF ACCOMMODATION

Barratt Type	House Type	Sqft	No	Total Sqft
Affordable Units				
Garswood End	1 Bed Cat 3 Bungalow	587	4	2348
Garswood Mid	1 Bed Cat 3 Bungalow	587	1	587
Sankey	1 Bed NDSS Cat3 Apartment	688	3	2064
Broadoak	1 Bed NDSS Cat3 Apartment	688	6	4128
Havannah	2 Bed Apartment	688	6	4128
Pennford	2 Bed Apartment	688	12	8256
Type 50 - End	2 Bed Terraced House	750	14	10500
Type 50 - Mid	2 Bed Terraced House	750	7	5250
Type 52 - End	3 Bed Terraced House	929	16	14864
Type 52 - Mid	3 Bed Terraced House	929	5	4645
Type 55 - End	3 Bed Bed Semi / Mews House Duel Aspect End Unit	957	6	5742
Type 54 - End	3 Bed Bed Semi / Mews House	1103	2	2206
Type 54 - Mid	3 Bed Bed Semi / Mews House	1103	1	1103
		Affordable Total	**83**	
Private Sales Units				
Kenley - End	2 Bed Terraced House	624	8	4992
Kenley - Mid	2 Bed Terraced House	624	1	624
Maidstone - End	3 Bed Semi / Mews House	830	17	14110
Ellerton - Mid	3 Bed Semi / Mews House	830	2	1660
Ellerton - End	3 Bed Semi / Mews House	830	50	41500
Moresby - End	3 Bed Detached / Semi Detached Dual Aspect House	854	11	9394
Moresby	3 Bed Detached / Semi Detached Dual Aspect House	854	12	10248
Kingsville - End	4 Bed Townhouse	1072	20	21440
Kingsley	4 Bed Detached House	1085	12	13020
Ripon	4 Bedroom Int. Garage Detached House	1121	8	8968
Woodcote - End	4 Bed Townhouse	1217	18	21906
Alderney	4 Bed Dual Aspect Detached House	1225	12	14700
Halton	4 Bed Dual Aspect Detached House	1267	11	13937
Radleigh	4 Bed Detached House	1317	11	14487
		Private Total	**193**	
Total number of units and square footage			**276**	**256807**
Gross Site Area in Acres				
Open Space & Undevelopable Area in Acres				
Net Site Area in Acres				**16.00**
Density (Units per Acre)				**17**
Density (Units per Hectare)				**43**
Square Foot / Acre				**16,050**

Warning to House Purchasers

Buyers are warned that this is a working drawing and the contents of this drawing may be subject to change during the build process. The layout, form, content, and dimensions specified are included for general guidance only. Finishes or features shown may alter in respect of individual properties. Whilst we make every effort to ensure our drawings are up to date there may from time to time be an unavoidable delay in updating these due to changes in regulations and/or building practice. Consequently, we cannot guarantee that the information shown is accurate in every respect. The contents of this drawing do not constitute a contract, part of any contract or warranty unless specifically incorporated into the contract. They should not be relied upon for the purposes of entering into a contract to purchase any property.

Legend

- Application boundary
- Private plots
- Affordable/Intermediate plots
- CAT 3 Affordable plots
- Housetype Code and Name
- Plot Handings
- Vegetation to be retained
- Private drives * See Hard Landscaping Plan
- Red Tarmac Shared Streets * See Hard Landscaping Plan
- Mine Shaft
- Sheds/ Cycle Storage



P24	Design of LAP added, extents of RW shown	04/02/25	AA
P23	Updated to engineers spec / LPA comments/ Revised DWH layout. Application boundary amended to ownership extents	23/01/25	AA
P22	Revised to LPA comments.	20/11/24	GB
P21	Revised attenuation basins added	11/11/24	AA
P20	Revised to LPA comments re. levels separation	08/11/24	AA
P19	Revised combined LAP/LEAP design included	22/10/24	AA
P18	Detail of east lancs junction transition amended, noise bund north of plots B27-B44 re-profiled	17/10/24	AA
P17	Amended to design officers comments	14/10/24	AA
P16	Plots B170-B173 handed at engineers request	18/09/24	AA
P15	Footprints of B18-B44 amended. Parking court revised to suit.	16/09/24	AA
P14	Amended to JS/ JP comments	13/09/24	AA
P13	Amended to JS comments	06/09/24	AA
P12	Spine road traffic calming amended to engineers revised design	27/08/24	AA
P11	Traffic calming added to spine road, spine road integration with Vicarage Road access amended.	22/08/24	AA
P10	Application red edge updated to extent of revised junction design to East Lancs Road	20/08/24	AA
P09	Updated in line with latest Barratt and DWH layouts, updates to spine road and East Lancs junction	16/08/24	AA
P08	Updated in line with latest Barratt and DWH layouts	31/07/24	AA
P07	Updated in line with planning layout P07	11/04/24	AA
P06	Updated in line with planning layout P06	11/04/24	AA
P05	Archived Red edge to Stag Lane parcel removed	04/04/24	AA
P04	Red edge revised to Stag Lane parcel	27/03/24	AA
P03	Revised to match H0030-BAH-XX-XX-DR-UD-203001-P05 H8995-DWH-XX-XX-DR-UD-203001-P21	19/02/24	AA
P02	Revised to match PL01 RevD4	14/02/24	AA
P01	Revised to received comments	12/02/24	AA
Revision	Description	Date	Design By

Project: Fflorida farm				
Description: PLANNING LAYOUT COMBINED				
Design By: AA	Date: 19-02-24	Scale at A3: 1:1000	Revision: P24	
Project: H8993	Originator: BAH -	Functional: XX	Spatial - Form - XX - DR -	Discipline - UD - 203002

BARRATT HOMES

Do not scale from this drawing. Work to given dimensions only. Any discrepancies are to be reported to Originator.
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Ground gas and groundwater monitoring results

Notes

1) The instrument limit of detection has been adopted where no gas flows or concentrations have been recorded (indicated in grey italics).
2) Atmospheric temperature (*) data sourced from local weather station data.
3) CH4 = methane; CO2 = carbon dioxide; O2 = oxygen; PPM = parts per million CO = carbon monoxide; H2S = hydrogen sulphide.
4) Gas Screening Values (GSVs) are rounded to 3 decimal places.

								Worst case scenario	0.3	4.2	0.7	9.1	9.1	0.0	2.7	5	0	0.01	0.00	0.03	0.03	AMBER 1	AMBER 1	ONE	
								Average scenario	0.2	0.3	0.2	1.9	1.8	15.3	17.7	0	0	0.00	0.00	0.00	0.00	GREEN	GREEN	ONE	
Date	Time	Location	Install Reference	Install Response Zone		Atmospheric Pressure (mB)	Atmospheric Temperature (°C) *	Depth to Water (m)	Gas Steady Flow	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases (PPM)		GSV (CH_4)		GSV (CO_2)		Indicative NHBC Guideline		Indicative (steady) CIRIA Characteristic Situation	Notes
				Response Zone (mBGL)	Flooded				l/Hr	Peak	Steady	Peak	Steady	Minimum	Average	CO	H_2S	Peak	Steady	Peak	Steady	Peak	Steady		
03/04/2024	09:58	WS205	1	1.00 - 1.85	Yes	989	11	0.69	0.3	0.2	0.2	6.8	6.7	5.9	6.2			0.001	0.001	0.020	0.020	AMBER 1	AMBER 1	CS-1	Elevated carbon dioxide, consider CS-2.
18/04/2024	10:36	WS205	1	1.00 - 1.85	Yes	1019	8	0.90	0.3	0.2	0.2	0.9	0.9	19.8	19.8			0.001	0.001	0.003	0.003	GREEN	GREEN	CS-1	
03/05/2024	11:00	WS205	1	1.00 - 1.85	Yes	1002	12	0.76	0.2	0.2	0.2	0.8	0.8	3.0	20.4	3	0	0.000	0.000	0.002	0.002	GREEN	GREEN	CS-1	
17/05/2024	09:58	WS205	1	1.00 - 1.85	Yes	1005	16	0.86	0.3	0.2	0.2	1.0	0.9	19.7	19.7	2	0	0.001	0.001	0.003	0.003	GREEN	GREEN	CS-1	
03/04/2024	10:38	WS206	1	1.00 - 3.00	No	989	11	Dry	0.3	0.3	0.2	1.5	1.5	18.4	18.4			0.001	0.001	0.005	0.005	GREEN	GREEN	CS-1	
18/04/2024	10:48	WS206	1	1.00 - 3.00	No	1019	8	1.19	0.3	0.2	0.2	1.8	1.8	19.8	19.9			0.001	0.001	0.005	0.005	GREEN	GREEN	CS-1	
03/05/2024	11:16	WS206	1	1.00 - 3.00	No	1002	12	Dry	0.2	0.2	0.2	2.6	2.4	0.0	18.2	0	0	0.000	0.000	0.005	0.005	GREEN	GREEN	CS-1	
17/05/2024	10:07	WS206	1	1.00 - 3.00	Yes	1005	17	0.21	0.2	0.2	0.2	2.9	2.7	18.1	18.1	0	0	0.000	0.000	0.006	0.005	GREEN	GREEN	CS-1	
03/04/2024	10:51	WS207	1	1.00 - 2.00	Yes	989	11	0.67	0.3	0.3	0.2	1.5	1.5	19.1	19.1			0.001	0.001	0.005	0.005	GREEN	GREEN	CS-1	
18/04/2024	11:00	WS207	1	1.00 - 2.00	Yes	1019	8	0.61	0.3	0.2	0.2	0.5	0.5	20.3	20.3			0.001	0.001	0.002	0.002	GREEN	GREEN	CS-1	
03/05/2024	11:37	WS207	1	1.00 - 2.00	No	1002	12	Dry	0.2	0.2	0.2	2.1	2.0	1.0	10.1	1	0	0.000	0.000	0.004	0.004	GREEN	GREEN	CS-1	
17/05/2024	10:21	WS207	1	1.00 - 2.00	No	1007	17	Dry	0.2	0.1	0.1	2.3	2.3	12.3	12.3	0	0	0.000	0.000	0.005	0.005	GREEN	GREEN	CS-1	
03/04/2024	11:05	WS211	1	1.00 - 3.00	No	989	12	Dry	0.3	0.3	0.2	0.6	0.6	19.7	19.7			0.001	0.001	0.002	0.002	GREEN	GREEN	CS-1	
18/04/2024	11:18	WS211	1	1.00 - 3.00	No	1019	9	Dry	0.3	0.2	0.2	2.4	2.4	5.3	5.3			0.001	0.001	0.007	0.007	GREEN	GREEN	CS-1	
03/05/2024	11:00	WS211	1	1.00 - 3.00	No	1003	12	Dry	0.2	0.2	0.2	2.9	2.9	0.0	2.7	0	0	0.000	0.000	0.006	0.006	GREEN	GREEN	CS-1	
17/05/2024	10:39	WS211	1	1.00 - 3.00	No	1006	17	Dry	0.2	0.1	0.1	0.2	0.2	20.3	20.3	0	0	0.000	0.000	0.000	0.000	GREEN	GREEN	CS-1	
03/04/2024	11:24	WS212	1	1.00 - 3.00	Yes	989	12	0.20	0.3	0.3	0.2	0.9	0.9	16.4	16.4			0.001	0.001	0.003	0.003	GREEN	GREEN	CS-1	
18/04/2024	11:30	WS212	1	1.00 - 3.00	Yes	1019	9	0.62	0.3	0.8	0.7	2.5	2.2	19.2	19.5			0.002	0.002	0.008	0.007	GREEN	GREEN	CS-1	
03/05/2024	11:16	WS212	1	1.00 - 3.00	No	1003	12	2.51	0.2	0.5	0.5	7.5	7.3	0.0	10.8	0	0	0.001	0.001	0.015	0.015	AMBER 1	AMBER 1	CS-1	Elevated carbon dioxide, consider CS-2.
17/05/2024	10:52	WS212	1	1.00 - 3.00	No	1006	17	1.63	0.2	0.1	0.1	1.3	1.3	19.3	19.3	0	0	0.000	0.000	0.003	0.003	GREEN	GREEN	CS-1	
03/04/2024	11:38	WS213	1	2.00 - 3.00	Yes	989	12	0.56	0.3	4.2	0.5	2.7	0.3	19.3	21.0			0.013	0.002	0.008	0.001	AMBER 1	GREEN	CS-1	Elevated methane, consider CS-2.
18/04/2024	11:41	WS213	1	2.00 - 3.00	Yes	1019	9	1.25	0.3	0.3	0.2	0.2	0.2	20.9	21.2			0.001	0.001	0.001	0.001	GREEN	GREEN	CS-1	
03/05/2024	11:37	WS213	1	2.00 - 3.00	Yes	1003	12	1.70	0.2	0.2	0.2	0.6	0.6	0.0	20.6	0	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	
17/05/2024	11:02	WS213	1	2.00 - 3.00	Yes	1008	17	1.76	0.2	0.1	0.1	0.6	0.6	19.7	19.7	0	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	
03/04/2024	12:09	WS214	1	1.00 - 2.60	Yes	989	12	0.91	0.3	0.2	0.2	0.3	0.3	21.1	21.2			0.001	0.001	0.001	0.001	GREEN	GREEN	CS-1	
18/04/2024	12:08	WS214	1	1.00 - 2.60	Yes	1018	10	0.65	0.3	0.2	0.2	0.6	0.6	20.9	21.0			0.001	0.001	0.002	0.002	GREEN	GREEN	CS-1	
03/05/2024	12:36	WS214	1	1.00 - 2.60	Yes	1003	13	0.69	0.2	0.2	0.2	1.1	1.0	20.2	20.6	5	0	0.000	0.000	0.002	0.002	GREEN	GREEN	CS-1	
17/05/2024	11:32	WS214	1	1.00 - 2.60	Yes	1006	17	0.76	0.1	0.1	0.1	1.2	1.2	19.6	19.6	2	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	
03/04/2024	11:54	WS215	1	1.00 - 2.00	No	990	12	Dry	0.3	0.3	0.2	0.8	0.8	20.5	20.5			0.001	0.001	0.002	0.002	GREEN	GREEN	CS-1	
18/04/2024	11:56	WS215	1	1.00 - 2.00	Yes	1019	10	0.88	0.3	0.2	0.2	1.6	1.6	20.1	20.1			0.001	0.001	0.005	0.005	GREEN	GREEN	CS-1	

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Date	Time	Location	Install Reference	Install Response Zone		Atmospheric Pressure (mB)	Atmospheric Temperature (°C) *	Depth to Water (m)	Gas Steady Flow	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases (PPM)		GSV (CH_4)		GSV (CO_2)		Indicative NHBC Guideline		Indicative (steady) CIRIA Characteristic Situation	Notes
				Response Zone (mBGL)	Flooded				l/Hr	Peak	Steady	Peak	Steady	Minimum	Average	CO	H_2S	Peak	Steady	Peak	Steady	Peak	Steady		
03/05/2024	12:25	WS215	1	1.00 - 2.00	No	1003	13	1.10	0.2	0.2	0.2	2.3	2.2	21.0	19.6	2	0	0.000	0.000	0.005	0.004	GREEN	GREEN	CS-1	
17/05/2024	11:21	WS215	1	1.00 - 2.00	No	1006	17	1.52	0.1	0.1	0.1	2.2	2.1	18.9	18.9	1	0	0.000	0.000	0.002	0.002	GREEN	GREEN	CS-1	
03/04/2024	09:29	WS218	1	1.00 - 2.00	Yes	989	12	0.96	0.3	0.2	0.2	1.3	1.2	17.4	17.4			0.001	0.001	0.004	0.004	GREEN	GREEN	CS-1	
18/04/2024	09:39	WS218	1	1.00 - 2.00	Yes	1019	7	0.90	0.3	0.3	0.3	1.0	0.9	19.7	19.7			0.001	0.001	0.003	0.003	GREEN	GREEN	CS-1	
03/05/2024	10:15	WS218	1	1.00 - 2.00	No	1002	13	1.20	0.2	0.2	0.2	1.1	1.0	3.0	19.5	3	0	0.000	0.000	0.002	0.002	GREEN	GREEN	CS-1	
17/05/2024	09:08	WS218	1	1.00 - 2.00	Yes	1005	16	0.98	0.3	0.2	0.2	1.4	1.4	19.8	19.8	0	0	0.001	0.001	0.004	0.004	GREEN	GREEN	CS-1	
03/04/2024	09:46	WS219	1	1.00 - 2.60	Yes	989	12	0.99	0.3	0.2	0.2	0.8	0.8	20.6	20.6			0.001	0.001	0.002	0.002	GREEN	GREEN	CS-1	
18/04/2024	10:03	WS219	1	1.00 - 2.60	No	1019	7	1.19	0.3	0.3	0.2	4.7	4.7	12.0	12.0			0.001	0.001	0.014	0.014	GREEN	GREEN	CS-1	
03/05/2024	10:30	WS219	1	1.00 - 2.60	No	1002	13	Dry	0.2	0.3	0.2	9.1	9.1	1.0	4.4	1	0	0.001	0.000	0.018	0.018	AMBER 1	AMBER 1	CS-1	Elevated carbon dioxide, consider CS-2.
17/05/2024	09:27	WS219	1	1.00 - 2.60	No	1005	16	1.82	0.3	0.2	0.2	5.6	5.6	13.0	13.0	0	0	0.001	0.001	0.017	0.017	AMBER 1	AMBER 1	CS-1	Elevated carbon dioxide, consider CS-2.
03/04/2024	09:48	WS220	1	2.00 - 3.00	Yes	989	12	0.22	0.1	0.2	0.2	0.8	0.2	19.8	19.8			0.000	0.000	0.001	0.000	GREEN	GREEN	CS-1	
18/04/2024	10:19	WS220	1	2.00 - 3.00	Yes	1019	7	0.61	0.3	0.2	0.2	2.4	1.8	19.1	19.6			0.001	0.001	0.007	0.005	GREEN	GREEN	CS-1	
03/05/2024	10:41	WS220	1	2.00 - 3.00	Yes	1002	13	0.78	0.2	0.2	0.2	2.1	1.9	1.0	19.8	1	0	0.000	0.000	0.004	0.004	GREEN	GREEN	CS-1	
17/05/2024	09:38	WS220	1	2.00 - 3.00	Yes	1005	16	0.89	0.2	0.2	0.2	1.6	1.6	18.6	19.2	0	0	0.000	0.000	0.003	0.003	GREEN	GREEN	CS-1	
03/04/2024	13:16	WS225	1	1.00 - 2.00	Yes	989	12	0.79	0.3	0.3	0.3	1.1	1.1	19.8	19.8			0.001	0.001	0.003	0.003	GREEN	GREEN	CS-1	
18/04/2024	12:51	WS225	1	1.00 - 2.00	Yes	1017	10	0.94	0.3	0.3	0.3	0.7	0.7	20.4	20.4			0.001	0.001	0.002	0.002	GREEN	GREEN	CS-1	
03/05/2024	13:13	WS225	1	1.00 - 2.00	No	1003		Dry	0.2	0.3	0.3	1.1	1.1	20.2	20.2	1	0	0.001	0.001	0.002	0.002	GREEN	GREEN	CS-1	
17/05/2024	12:11	WS225	1	1.00 - 2.00	Yes	1006	18	0.93	0.1	0.1	0.1	1.3	1.3	19.1	19.1	1	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	
18/04/2024	12:41	WS226	1	1.00 - 2.00	Yes	1018	10	0.58	0.3	0.2	0.2	0.3	0.3	20.8	20.8			0.001	0.001	0.001	0.001	GREEN	GREEN	CS-1	
17/05/2024	11:57	WS226	1	1.00 - 2.00	Yes	1005	17	0.80	0.2	0.1	0.1	0.3	0.3	20.2	20.3	0	0	0.000	0.000	0.001	0.001	GREEN	GREEN	CS-1	

GeoReports

British Geological Survey

Admin Soiltechnics
Soiltechnics Ltd
White Lodge Farm
Walgrave
Northampton
NN6 9PY

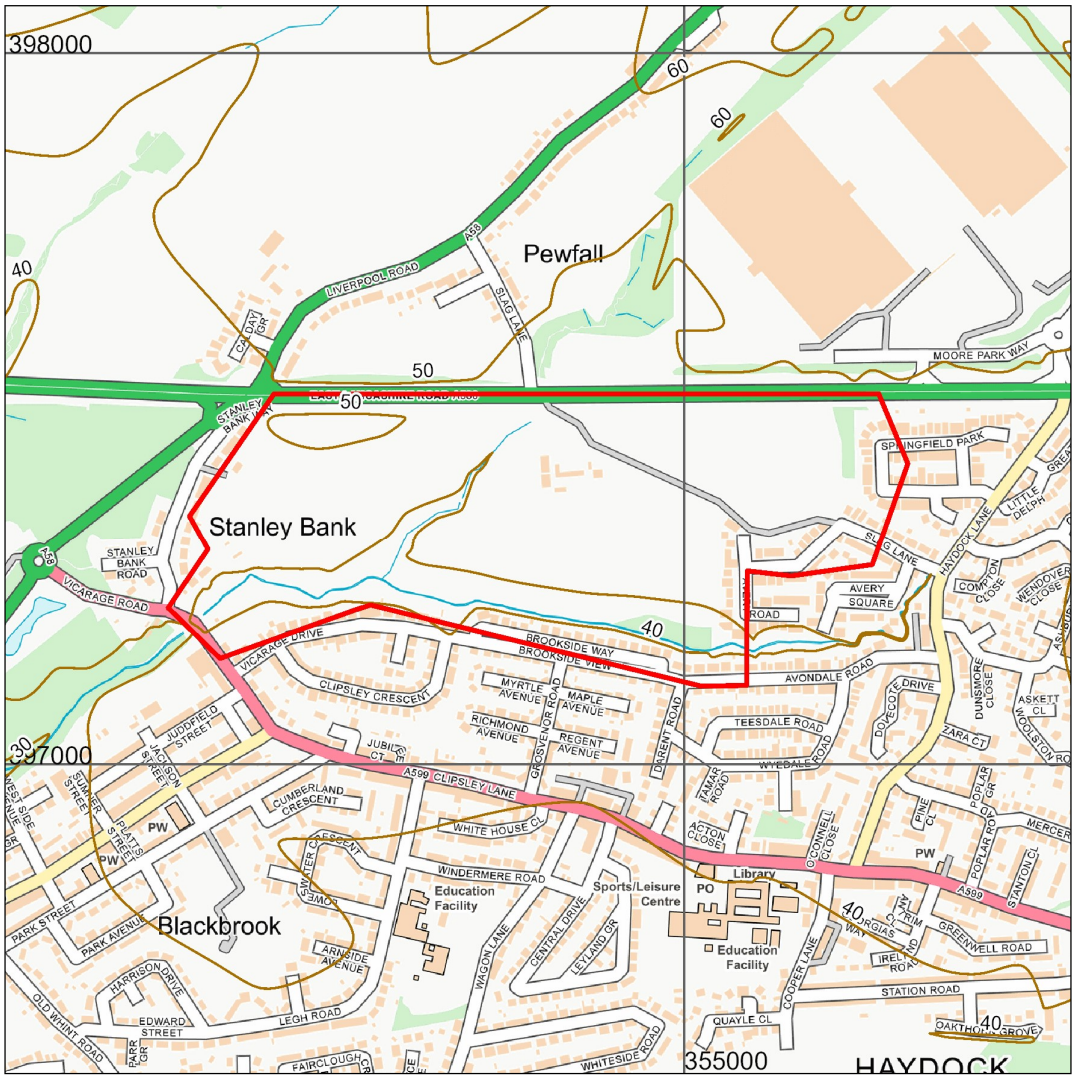
Radon Report

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: ***BGS_331190/42418***

Client reference: STN3680NM

Search location



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Search location indicated in red

This report describes a site located at National Grid Reference 354794, 397316. Note that for sites of irregular shape, this point may lie outside the site boundary. Where the client has submitted a site plan the assessment will be based on the area given.

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Radon Report: UK

When extensions are made to existing buildings in high radon areas, or new buildings are constructed in these areas, the Building Regulations for England, Wales, Scotland and Northern Ireland require that protective measures are taken against radon entering the building.

This report provides information on whether radon protective measures are required. Depending on the probability of buildings having high radon levels, the Regulations may require either:

1. No protective measures
2. Basic protective measures
3. Full protective measures

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2015 edition), which also provides guidance on what to do if the* result *indicates that protective measures are required.*

Is the property in an area where radon protective measures are required for new buildings or extensions to existing ones as described in publication BR211 (2015 edition) Radon: Guidance on protective measures for new buildings?

FULL RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.

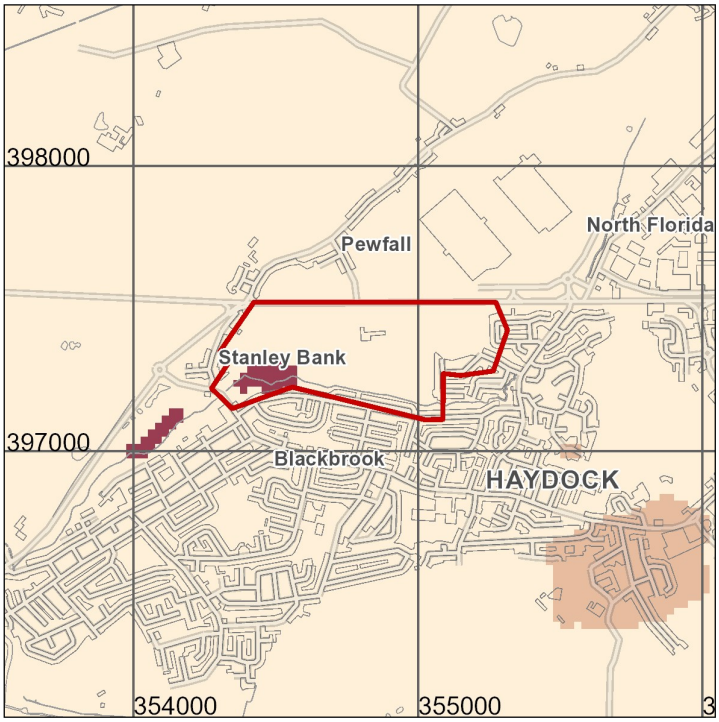
More details of the protective measures required are available in *BR211 Radon: Guidance on protective measures for new buildings (2015 Edition)*. Additional information and guidance is available from the Building Research Establishment website (http://www.bre.co.uk/radon/).

Whether or not the radon level in a building is above or below the radon Action Level can only be established by having the building tested. The UKHSA provides a radon testing service which can be accessed at www.ukradon.org or by telephone (01235 822622).

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.

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Radon Affected Area



% Homes estimated to be at or above the action level
0-1%
1-3%
3-5%
5-10%
10-30%
30-100%

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Scale: 1:25 000 (1cm = 250 m)
Search area indicated in red

Is the property in a radon Affected Area as defined by the UK Health Security Agency (UKHSA) and if so what percentage of homes are estimated to be at or above the Action Level? YES

Additional Information

THE PROPERTY IS IN A RADON AFFECTED AREA WHERE 10 TO 30% OF HOMES ARE ESTIMATED TO BE AT OR ABOVE THE ACTION LEVEL.

The UKHSA recommends a radon 'Action Level' of 200 Becquerels per cubic metre of air (Bq m^{-3}) for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to be at or above the Action Level the area should be regarded as a radon Affected Area.

This report informs you whether the property is in a radon Affected Area and the percentage of homes that are estimated to be at or above the radon Action Level at this location. Being in an Affected Area does not necessarily mean there is a high radon level within the property; the only way to determine the radon level is to carry out a radon measurement.

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The UKHSA advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels at or above the Action Level (200 Bq m^{-3}) should be remediated. Householders with levels between the Target Level (100 Bq m^{-3}) and Action Level should seriously consider reducing their radon level, especially if they are at greater risk, such as if they are current or ex smokers. Whether or not a home is in fact above or below the Action Level or Target Level can only be established by having the building tested. The UKHSA provides a validated radon testing service which can be accessed at www.ukradon.org.

The information in this report provides an answer to one of the standard legal enquiries on house purchase in England and Wales, known as Law Society CON29 Enquiries of the Local Authority (2016); 3.14 Radon Gas: Do records indicate that the property is in a “Radon Affected Area” as identified by the UKHSA. The data can also be used to advise house buyers and sellers in Scotland and Northern Ireland.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were at or above the radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and if the results of re-testing confirmed the effectiveness of the measures.

Further information on radon is available from the UKHSA at www.ukradon.org.

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What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.
Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level is at or above the Action Level, measures should be taken to reduce the concentration.

Radon in workplaces

The Ionising Radiation Regulations 2017 require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293)**: Radon in the workplace.** BRE publications may be obtained from the BRE Bookshop, Tel: 01923 664262, email: bookshop@bre.co.ukwebsite: www.brebookshop.com

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