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PHASE 2: GROUND INVESTIGATION REPORT

AMETHYST HOMES

PROPOSED RESIDENTIAL DEVELOPMENT

SPRING VILLE

EAST SLEEKBURN

BEDLINGTON

NORTHUMBERLAND

NE22 7AZ

Project No: 21-168

Prepared By:

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Date: 03/07/2021

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Date: 03/07/2021

The information and/or advice contained in this Ground Investigation Report is based solely on, and is limited to, the boundaries of the site, the immediate area around the site, and the historical use(s) unless otherwise stated. This 'Report' has been prepared in order to collate information relating to the physical, environmental and industrial setting of the site, and to highlight, where possible, the likely problems that might be encountered when considering the future development of this site for the proposed end use. All comments, opinions, diagrams, cross sections and/or sketches contained within the report, and/or any configuration of the findings is conjectural and given for guidance only and confirmation of the anticipated ground conditions should be considered before development proceeds. Agreement for the use or copying of this report by any Third Party must be obtained in writing from Arc Environmental Limited (ARC). If a change in the proposed land use is envisaged, then a reassessment of the site should be carried out.

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1.0 Introduction

July 2021

As requested by Amethyst Homes, ground investigation works have been carried out on an area of undeveloped land accessed from Brock Lane, East Sleekburn, Bedlington, where it is proposed to develop the site in the near future for housing. The proposed development will comprise the construction of residential dwellings with private gardens, an area of public open space and associated infrastructure.

A Phase 1 Desk Top Study Report (ref 13-554 – November 2013) & Phase 2 Ground Investigation Report (ref 13-554 January 2013) have previously been completed for this site by Arc Environmental Ltd in 2013, no change in terms of development etc., have occurred on site since the completion of the previous reports with this being confirmed during these supplementary works with the site remaining undeveloped. The previous borehole and trial pit logs along with the laboratory results (geotechnical and ground contamination) have been included within this updated Phase 2 Ground Investigation Report.

The previous intrusive investigation works comprised 5 no. windowless sampling boreholes (BH01 – BH05), and 12 no. mechanically excavated trial pits (TP01 – TP12). These supplementary investigation works comprised 16 no. mechanically excavated trial pits (TP101 – TP116). The positions of all the exploratory locations can be seen on the Borehole & Trial Pit Location Plan, a copy of which can be seen in Appendix II. It should be noted that although these recent trial pit locations have been surveyed in and are accurately marked up on the Borehole & Trial Pit Location Plan, the previous exploratory locations shown are approximate. Therefore, this plan should be used for orientating purposes only.

2.0 Site Details

Table 2.1

N = north, S = south, E = east, W = west

Site Name & Address:	Spring Ville – Land off Brock Lane, East Sleekburn, Bedlington, Northumberland, NE22 7AZ.
OS Grid Reference:	428740, 583590 (representative of central portion of the site).
Description of Location	Site situated within a mixed rural/residential setting on the northern outskirts of the village of East Sleekburn.
Site Boundaries:	N & E = Brock Lane, , S = Housing and allotment gardens, W = Dual Carriageway and slip road (A189).
Site Shape, Size & Development Details:	Irregular shaped site with an area of c.1.42 Ha. The proposed development will comprise the construction of 48 no. residential dwellings with private gardens, public open space and associated infrastructure.
General Topography:	The site is generally level.
Approximate Ground Levels:	c.13.00m to c.13.75m AOD.
Site Surface(s):	Predominantly rural grassland.
Above Ground Structures:	None present on site.
Sub-surface Structures:	There are no buildings on site although overhead and underground electrical cables are recorded on the statutory service plans obtained (See Appendix IV)

3.0 Scope of Works

Table 3.1

Client:	Amethyst Homes.
Project Type:	Proposed Residential Development.
Site Location Plans:	See Appendix I.
Layout Plan (Existing):	See Appendix I.
Layout Plan (Proposed):	See Appendix I.
Laboratory Testing:	Geotechnical & Generic Ground Contamination.
CLEA Classification:	<i>Residential.</i>
Reporting:	Factual & Interpretative.

3.0 Scope of Works (Cont'd)

The information contained in this report is limited to the area of the site as indicated on the Existing Site Plan shown in Appendix I, and to those areas accessible during the ground investigation. The depths of strata on the record sheets are recorded from current ground level.

4.0 Investigation Rationale

This ground investigation has been designed to provide information on the general ground and groundwater conditions around the proposed development areas and potential areas of geotechnical concern. The rationale behind the location of each exploratory hole is summarised in Table 4.1 below.

Table 4.1

<u>Potential issue</u>	<u>Exploratory hole</u>
Geotechnical considerations around areas of proposed development	BH01 – BH10, TP01 – TP12 & TP101 – TP116
General site wide contamination assessment	BH01 – BH10, TP01 – TP12 & TP101 – TP116

4.1 Contamination Related Sampling & Site Protocols: -

All works associated with this ground contamination assessment and investigations have generally been completed in accordance with BS10175:2011 + A2:2017: British Standard Code of Practice for the Investigation of Potentially Contaminated Sites (2011) & Environment Agency (EA) Land Contamination Risk Management (LCRM), October 2020, which superseded CLR11, with the following precautions specific to this project.

4.1.1 Ground Contamination Sampling: -

Samples were recovered by a representative of ARC Environmental Ltd. during the intrusive investigation works. All samples were stored at approximately 2°C - 8°C using cool boxes and ice packs prior to delivery to a UKAS/MCERTS accredited laboratory. Sampling was carried out in accordance with 'Technical Policy Statement 63: UKAS Policy on Deviating Samples'.

4.1.2 Avoiding Cross-Contamination between Sample Locations: -

To avoid possible cross-contamination of materials between soil horizons in the boreholes, drill casing was used to seal off the made ground. In addition, disposable plastic liners were used to collect samples from the windowless sampling boreholes carried out. With regards to the trial pits, the samples were recovered manually using dedicated disposable plastic gloves, replaced between each sample recovery.

5.0 Ground Conditions

For an accurate description of the ground conditions encountered at each investigation position, reference should be made to the borehole & trial pit record sheets attached in Appendix II. It should be noted that there is always the possibility of variation in the ground conditions around and between the investigation locations.

5.1 Soil Profile:-

A summary of the soil profile for this site can be found in Table 5.1, on the following page.

5.0 Ground Conditions (Cont'd)

5.1 Soil Profile (Cont'd):-

Table 5.1

BGL = Below ground level.

Type of Strata	Depths Recorded (BGL)	Description & General Comments
MADE GROUND:	From 0.00m up to c.0.20m to c.2.50m**	Made ground typically comprised unmanaged grass overlying sandy soil and sandy gravelly clay with brick, slate and concrete fragments. An ash filled service trench was noted within TP11. Some ash was also noted within BH02. The made ground was typically c.<0.60m thick. ** Zones of deeper made ground were recorded within BH02 (2.10m) and BH05 (2.80m) which appeared to be associated with infilled trenches for drain runs, although no drainage networks were recorded on site from the statutory service plans obtained (See Appendix IV).
DRIFT DEPOSITS: (Glacial Till)	From c.0.20m to c.2.80m up to c.>5.00m	The drift deposits comprised stiff locally firm (high strength) sandy gravelly CLAY with occasional coal and sandstone fragments/cobbles.
SOLID GEOLOGY: (Middle Coal Measures)	Greater than c.20m	Not encountered.

There was no visual evidence of significant ground contamination (i.e. fuel-derived contaminants, etc.) present within the majority of the exploratory positions undertaken across the site. However, fragments of ash were recorded within the made ground at TP11, TP111 and BH02 only. There was anecdotal evidence that the site was historically used as temporary site compound associated with the construction of the adjacent by-pass resulting in red shale and contaminated spoil possibly being present. However, from the results of the intrusive investigation there was no evidence of red shale or significant contamination.

5.2 Groundwater:-

No water ingresses/strikes were recorded with the majority of the exploratory positions remaining dry. However, water ingress was recorded within BH05, at c.2.50m, & TP111 at c.1.90m bcgl (associated with suspected relic drains). A standing level was recorded at a depth of c.1.30m within TP111 after c.10 mins. A minor ingress was also noted within TP05 at c.2.00m from an unrecorded relic drain.

6.0 Insitu Testing

6.1 Insitu Hand Shear Vane Tests:-

Insitu hand vane tests were carried out using a portable Controls insitu hand vane tester on the cohesive made ground (re-worked clays) and natural clay deposits encountered. The insitu hand vane tester takes direct readings of shear strength.

Three vane sizes allow for the direct determination of undrained shear strength of extremely low to high strength clays. The peak vane value is determined by a calibrated scale ring built into the head assembly. The cross handle is used both to push the vane to the desired test depth and apply the shearing torque.

The results are summarised in Table 6.1 on the following page and can also be found adjacent to the appropriate sample level, on the graphic borehole record sheets in Appendix II.

6.0 Insitu Testing (Cont'd)

6.1 Insitu Hand Shear Vane Tests (Cont'd):-

Table 6.1

Type of Strata	Range of Shear Strength Values (kN/m ²)	Result Details
MADE GROUND	80N/m ² & 90kN/m ²	Stiff deposits
SANDY GRAVELLY CLAY	78N/m ² to >120kN/m ² (upper limit of testing equipment)	High strength deposits

6.2 Insitu Equivalent California Bearing Ratio (CBR) Tests:-

Insitu equivalent CBR tests were carried out using a MEXE Cone Penetrometer, in accordance with the manufacturer's instructions, in order to estimate the insitu CBR values of the initial natural clay deposits, noted within the trial pits at depths of between c.0.50m and c.0.75m below ground level. In each case a series of tests were carried out and an average of the results noted can be seen on the graphic trial pit record sheets, adjacent to the appropriate sample level.

In summary, from the results of the tests completed, CBR values ranging from 3.5% to 5% were recorded. Therefore, where the initial natural clay deposits are to be used as an undisturbed subgrade, it is felt that a characteristic design CBR value of 4.0% should be taken.

7.0 Laboratory Testing

All geotechnical testing was carried out in accordance with BS1377-1:2016 unless otherwise stated, at a UKAS accredited laboratory. Ground contamination screening was undertaken by a suitably experienced and qualified laboratory (UKAS and MCERTS accredited, unless otherwise stated).

7.1 Determination of pH & SO₄:-

Eighteen representative samples of the made ground and natural clays encountered in the investigation were tested in order to determine their acidic (pH) and soluble sulphate (SO₄) levels. The results are shown in Table 7.1 below and are also contained in the Chemtech Environmental Limited Analytical Reports Ref nos. 49557(1) & 97483, copies of which can be seen in Appendix III.

Table 7.1

Position	Depth (m)	pH	SO ₄ (mg/l)	Design SO ₄ Class	ACEC Class
BH01	1.00-2.00	8.2	36	DS-1	AC-1
TP01	0.50	6.9	24	DS-1	AC-1
TP02	1.50	8.2	53	DS-1	AC-1
TP04	0.30	6.8	<10	DS-1	AC-1
TP06	0.30	5.6	12	DS-1	AC-2z
TP07	1.00	8.1	38	DS-1	AC-1
TP08	0.30	6.3	20	DS-1	AC-2z
TP10	0.75	7.1	35	DS-1	AC-1
TP11	0.25	6.2	20	DS-1	AC-2z
TP12	0.20	6.8	11	DS-1	AC-1
TP101	0.00-0.20	7.6	20	DS-1	AC-1
TP102	0.30-0.50	8.6	48	DS-1	AC-1
TP103	0.10-0.30	8.4	39	DS-1	AC-1
TP105	0.00-0.20	8.0	22	DS-1	AC-1
TP106	0.00-0.30	8.2	68	DS-1	AC-1
TP111	0.40-0.60	8.0	46	DS-1	AC-1
TP113	0.20-0.40	8.4	51	DS-1	AC-1
TP115	0.10-0.30	6.7	35	DS-1	AC-1

ACEC = Aggressive Chemical Environment for Concrete site classification

7.0 Laboratory Testing (Cont'd)

7.1 Determination of pH & SO₄ (Cont'd):-

From these results it can be seen that the pH values for the samples tested range from 5.6 up to 8.6 and the amount of soluble sulphate present falls within the negligible range (i.e. <500mg/l).

Therefore, in accordance with BRE Special Digest 1: 2005 (3rd Edition), the site can be given a classification of Class DS-1. When considering the acidic nature of the materials tested and assuming mobile groundwater the assessment of the Aggressive Chemical Environment for Concrete (ACEC) for the site overall, is AC-2z, due to the acidic nature of some of the soils tested.

7.2 Determination of Liquid & Plastic Limits:-

Six representative samples of the natural clay deposits recorded were tested in order to determine their liquid and plastic limits, so these materials could be classified. The results can be seen in Table 7.2 below and also within the PSL analytical report ref no. PSL13/4560 in Appendix III.

Table 7.2

<u>Position</u>	<u>Depth(m)</u>	<u>M/C (%)</u>	<u>LL</u>	<u>PL</u>	<u>PI</u>	<u>Class</u>	<u>% Passing 425µm Sieve</u>
TP01	1.00	19	50	21	29	CH	72
TP02	1.50	19	48	20	28	CI	75
TP05	1.00	22	54	23	31	CH	78
TP06	2.50	17	47	20	27	CI	72
TP09	1.50	20	46	20	26	CI	76
BH04	3.00-4.00	20	46	27	27	CI	82

M/C = Moisture Content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

From these results, the samples tested are generally of an inorganic nature, and when plotted on the plasticity chart, fall within intermediate and high plasticity ranges, and from the resulting plasticity indices, have a moderate volume change potential, when taking into account the amount passing the 425µm sieve. When comparing the moisture contents to the plastic limits there is evidence that the glacial soils have moisture contents equal to or less than the plastic limits i.e. the soils appear over-consolidated and are in a semi-plastic or solid state.

It can be seen that some of these materials may undergo significant changes in volume, if large changes in their natural moisture content were to occur due to seasonal variations or the like, and if new foundations were to be based within these materials, they would need to be taken down to a minimum depth of c.0.90m below finished ground levels.

However, an increase in founding depth below the influencing depth of trees/vegetation or an alternative foundation solution may be required if dwellings are within close proximity to existing or envisaged vegetation. This is to ensure that, even if trees/vegetation are removed, any additional future shrinkage and swelling will not affect foundations. Reference should be made to BS5837: 2012, "Trees in Relation to Design, Demolition and Construction" along with the NHBC Standards, 'Building near trees'.

7.3 Contamination Screening/Screening Strategy:-

Representative samples of the made ground were passed onto Chemtech Environmental of Consett, Co. Durham, so that generic and targeted soil contamination screening could be carried out. The results of all the testing (both from the original and these supplementary works can be found in the Chemtech Environmental Limited Reports (Ref Nos. 49557(1) & 97483), copies of which are attached in Appendix III.

7.0 Laboratory Testing (Cont'd)

7.3 Contamination Screening/Screening Strategy (Cont'd):-

In total 14 no. samples were screened using a standard generic contamination suite (based on the current CLEA SGV listed analytes with historical additions), which is used to assess typical made ground (disturbed natural strata mixed with anthropogenic debris), of an unknown source. In addition, these results can be used to help with a preliminary assessment for off-site disposal classification.

Although no significant evidence of any fuel /oil type contamination was noted within the exploratory positions carried out, fragments of ash were noted along with some demolition type materials i.e. brick and concrete. Therefore, for completeness samples of the made ground were targeted for Speciated PAH (Polycyclic Aromatic Hydrocarbons), Speciated TPH (Total Petroleum Hydrocarbons) and asbestos screening.

Taking into account the former agricultural land use representative samples of made ground were also screened for pesticides.

The generic and targeted contamination results have been used to carryout Level 1 Quantitative Human Health Risk Assessment for the ground contamination present and are discussed in Section 8.0. The total analysis carried out is summarised below:

- 14 no. Generic Soils Suite (suite comprises; Arsenic, Cadmium, Chromium III & VI, Copper, Lead, Mercury, Nickel, Selenium, Zinc, pH, Soluble Sulphate, Total Sulphur, free Cyanide, and Total Organic Carbon (TOC)).
- 14 no. soil samples targeted for speciated PAH (USEPA 16).
- 6 no. soil samples targeted for speciated TPH (8 carbon band split).
- 8 no. samples screened for Speciated Total Petroleum Hydrocarbons (full Aliphatic & Aromatic split)
- 8 no. samples screened for BTEX (Benzene, Toluene, Ethylbenzene, m & p-Xylene & o-Xylene)
- 14 no. soil samples targeted for Asbestos.
- 2 no. soil samples targeted for Organochlorine and Organophosphate Pesticides.

8.0 Level 1 Ground Contamination Risk Assessment

8.1 Methodology: -

Following completion of the contamination screening undertaken on various samples from this site, a Level 1 generic quantitative ground contamination risk assessment has been undertaken, generally in accordance with Environment Agency (EA) Land Contamination Risk Management (LCRM), October 2020, which superseded CLR11: Model Procedures for the Management of Land Contamination.

This quantitative ground contamination risk assessment uses the current UK practice for assessing the risks from land contamination, which is based on the established *source-pathway-receptor* pollutant linkage methodology and 'suitable for use' approach (Part IIA, EPA 1990 - inserted through Section 57 EA 1995).

Based Conceptual Site Model (CSM) for this site (described further in the following Section 8.2), a site specific screening strategy for the site has been developed (see Section 7.3) and the risks from potential contaminants have been assessed for both human health and controlled waters.

The results of the risk assessments can be found in Sections 8.3 (Human Health) and 8.4 (Controlled Waters).

8.0 Level 1 Ground Contamination Risk Assessment (Cont'd)

8.2 Conceptual Site Model (CSM): -

From the findings of the intrusive investigation works, a Conceptual Site Model (CSM) has been developed for this site, Table 8.1 below summarises the various contaminant *sources*, plausible migration *pathways* and potentially sensitive *receptors* identified for this site, assuming no remediation, additional protection measures and/or removal of the *sources* contamination takes place

Table 7.1

Sources (S)		Pathways (P)		Receptors (R)	
S1	Made ground comprising disturbed natural strata with anthropogenic debris (i.e. brick, ash, etc).	P1	Ingestion	R1	Human health: Site Occupants (residents and construction workers*)
S2	Agricultural uses (most significantly pesticides)	P2	Plant uptake and attached soils.		
		P3	Air-inhalation of vapours and direct contact with dust.	R2	Building materials*
		P4	Migration through existing services	R3	Adjacent sites*
		P5	Direct contact with building materials	R4	Flora and fauna*
		P6	Infiltration & surface runoff	R5	Controlled waters** (Groundwater)

* = Not considered within the Human Health and Controlled Waters Risk Assessment

** = The >20m of low permeability drift deposits (Boulder Clay), will afford significant protection to the underlying Secondary A Aquifer

8.2.1 Sources: -

The site is covered by a layer of made ground (typically <0.60m in thickness) which represents the primary potential source of ground contamination for this site. The majority of the made ground contains some anthropogenic debris mixed with disturbed natural strata, and these materials have been assessed using the standard generic soil suites, with the site considered as a single averaging area for these analytes.

There was no significant visual, olfactory or analytical evidence of significant heavy or gross contamination, such as waste oils, fuels, etc. However, fragments of ash were locally noted within the made ground therefore, for completeness and to aid in an assessment for off site disposal classification, the potential for organic based contamination (PAH's & TPH's) for this site have also been assessed. Similarly, due to some demolition type materials (i.e. brick and concrete) being noted, screening for asbestos has also been undertaken.

Although not suspected, from the results of the fieldworks, given the former agricultural nature of the site, representative samples of the made ground were screened for pesticides.

8.2.2 Pathways: -

When considering the proposed end use (*Residential*), without considering treatment, removal or protection measures, there are some potential plausible pathways available for inhalation, wind (dust / particulate) and volatilization within the proposed structure.

Within the CLEA Risk Assessment Model for Human Health, there are 3 exposure mediums considered for on site receptors, comprising ingestion of soil containing contaminants, inhalation of contaminated dust/vapours and dermal contact, with up to 10 no. exposure pathways considered, as show below.

8.0 Level 1 Ground Contamination Risk Assessment (Cont'd)

8.2 Conceptual Site Model (CSM) (Cont'd): -

8.2.2 Pathways (Cont'd): -

- 1. *Ingestion of soil and indoor dust* 2. *Consumption of homegrown produce and attached soil* 3. *Dermal contact (indoor)* 4. *Dermal contact (outdoor)* 5. *Inhalation of dust (indoor)* 6. *Inhalation of dust (outdoor)* 7. *Inhalation of vapour (indoor)* 8. *Inhalation of vapour (outdoor)* 9. *Oral background intake* 10. *Inhalation background intake.*

Where the future site has hard cover and below new structures and areas of hardstanding, a number of these pathways may not be available.

When considering the potential pathways for leachate migration, where either hard cover and/or future surface water drainage systems are present, the potential effects of surface infiltration or contaminated surface water runoff will be greatly reduced. Similarly, when considering the construction work force, exposure pathways through direct contact, ingestion and dust inhalation will be available during part of the construction process, and therefore adequate PPE should be provided to protect the work force during this period.

8.2.3 Receptors: -

Within the CLEA Risk Assessment Model for Human Health, the potential receptors are assessed initially on site end use, followed by a delineation of age category (i.e. child or adult), with default settings for *Residential*, *Allotment* and *Public Open Space (Park)* end uses based on a child aged 0 to 6 years, *Public Open Space (Residential)* based on a child aged 3 to 9 and *Commercial* end uses based upon a working exposure period of up to 49 years (i.e. 16 to 65).

Key generic assumptions for *Residential* and *Public Open Space (Residential)* are based upon a typical residential property, consisting of a two-storey small terraced house, with private garden, and a *Commercial* end use based upon a typical commercial or light industrial property, consisting of a three-storey office building (pre-1970). No buildings are anticipated for *Allotment* or *Public Open Space (Park)* end uses. Within the CLEA Risk Assessment Model for Human Health there are 6 no. generic end use categories presently in use, as follows;

- 1) *Residential - with home grown produce,*
- 2) *Residential - without home grown produce,*
- 3) *Allotments,*
- 4) *Commercial*
- 5) *Public Open Space – Residential,*
- 6) *Public Open Space - Park*

Therefore, for this Level 1 Risk Assessment, the best fit end use category for this site has been taken as:

- 1) *Residential - with home grown produce*

For controlled waters, the primary receptor for the Level 1 Risk Assessment is the groundwater at depth within the solid geology.

8.3 Level 1 Risk Assessment (Soils):-

8.3.1 Human Health – Heavy Metals:-

The generic soil screening results have been assessed by comparing the maximum values recorded for each analyte to the critical concentration values chosen for this site. The results of the analysis and risk assessment have been summarised in Table 8.2 on the following page and have identified the following:

8.0 Level 1 Ground Contamination Risk Assessment (Cont'd)

8.3 Level 1 Risk Assessment (Soils) (Cont'd):-

8.3.1 Human Health – Heavy Metals (Cont'd):-

Table 8.2

Analyte	Critical Conc. (C _C) mg/kg	No. of Samples Screened	Max. Conc. (C _M) recorded mg/kg	Does C _M exceed C _C	No. of Samples > C _C
Arsenic	37 ⁽¹⁾	14	18	NO	0
Cadmium	11 ⁽¹⁾	14	1.4	NO	0
Chromium III	910 ⁽¹⁾	14	80	NO	0
Chromium VI	6 ⁽¹⁾	14	<1*	NO	0
Copper	2400 ⁽¹⁾	14	105	NO	0
Lead	200 ⁽²⁾	14	173	NO	0
Mercury	40 ⁽¹⁾	14	<0.5*	NO	0
Nickel	130 ⁽¹⁾	14	70	NO	0
Selenium	250 ⁽¹⁾	14	2.5	NO	0
Zinc	3700 ⁽¹⁾	14	556	NO	0
Cyanide	34 ⁽³⁾	14	<1*	NO	0

⁽¹⁾ = LQM CIEH Suitable 4 Use Levels (S4UL Nov 2014 (Revised August 2015)) – (Residential with homegrown produce, ⁽²⁾ = C4SL Values (Residential with homegrown produce), ⁽³⁾ = ATRISK^{SOIL} SSV. * = Site Value (C_M) less than analytical detection limit

- The maximum concentration (C_M) values for all of the analytes screened for fall below the critical concentration values (C_C) for this site.
- When considering these results, the made ground below the site does not represent a potential risk to the end users from heavy metals, and therefore no treatment, removal, protection measures and / or further detailed quantitative risk assessment will be required.

8.3.2 Human Health – PAH, TPH & Pesticide Screening:-

Although no visual, olfactory or analytical evidence of significant heavy or gross contamination, such as waste oils, fuels, etc. was noted, fragments of ash were recorded within the made ground. Therefore, representative samples of the made ground were recovered and screened for Speciated PAH's & Speciated TPHs. A summary of the results for the Level 1 Risk Assessment based on the results of the soil concentrations for the end users can be seen in Tables 8.3 & 8.4 below and on the following page and have identified the following:

Table 8.3 – PAH Screening

Analyte	Target Conc. (C _C) mg/kg	No. of samples tested	Max. Conc. (C _M) (mg/kg)	Has C _M exceeded C _C	No. of Samples > C _C
Acenaphthene	510 ⁽¹⁾	14	0.16	NO	0
Acenaphthylene	420 ⁽¹⁾	14	0.06	NO	0
Anthracene	5400 ⁽¹⁾	14	0.53	NO	0
Benzo(a)anthracene	11 ⁽¹⁾	14	1.93	NO	0
Benzo(a)pyrene	2.7 ⁽¹⁾	14	1.63	NO	0
Benzo(b)fluoranthene	3.3 ⁽¹⁾	14	2.11	NO	0
Benzo(ghi)perylene	340 ⁽¹⁾	14	1.08	NO	0
Benzo(k)fluoranthene	93 ⁽¹⁾	14	0.85	NO	0
Chrysene	22 ⁽¹⁾	14	2.08	NO	0
Dibenz(ah)anthracene	0.28 ⁽¹⁾	14	0.25	NO	0
Fluoranthene	560 ⁽¹⁾	14	3.92	NO	0
Fluorene	400 ⁽¹⁾	14	0.22	NO	0
Indeno(123cd)pyrene	36 ⁽¹⁾	14	1.34	NO	0
Naphthalene	5.6 ⁽¹⁾	14	0.09	NO	0
Phenanthrene	220 ⁽¹⁾	14	2.17	NO	0
Pyrene	1200 ⁽¹⁾	14	3.21	NO	0

⁽¹⁾ = LQM/CIEH S4UL's – Residential with homegrown produce (2.5% SOM).

8.0 Level 1 Ground Contamination Risk Assessment (Cont'd)

8.3 Level 1 Risk Assessment (Soils) (Cont'd):-

8.3.2 Human Health – PAH, TPH & Pesticide Screening (Cont'd):-

Table 8.4 – TPH & Pesticide Screening

Analyte	Critical Conc. (C _C) mg/kg	No. of samples tested	Max. Conc. (C _M) (mg/kg)	Has C _M exceeded C _C	No. of Samples > C _C
BTEX					
Benzene	0.17 ⁽¹⁾	8	<0.01*	NO	0
Toluene	290 ⁽¹⁾	8	<0.01*	NO	0
Ethylbenzene	110 ⁽¹⁾	8	<0.01*	NO	0
m & p-Xylene	130 ⁽¹⁾	8	<0.02*	NO	0
o-Xylene	140 ⁽¹⁾	8	<0.01*	NO	0
Speciated TPH (8 Band)					
C5-C7	78 ⁽¹⁾	6	<0.1	NO	0
C6-C8	230 ⁽¹⁾	6	<0.1	NO	0
C8-C10	65 ⁽¹⁾	6	0.3	NO	0
C10-C12	180 ⁽¹⁾	6	1	NO	0
C12-C16	330 ⁽¹⁾	6	6	NO	0
C16-C21	540 ⁽¹⁾	6	15	NO	0
C21-C35	1500 ⁽¹⁾	6	18	NO	0
C35-C44	1500 ⁽¹⁾	6	<1	NO	0
Speciated TPH Ali / Aro Split					
VPH Aliphatic (>C5-C6)	78 ⁽¹⁾	8	<0.1*	NO	0
VPH Aliphatic (>C6-C8)	230 ⁽¹⁾	8	<0.1*	NO	0
VPH Aliphatic (>C8-C10)	65 ⁽¹⁾	8	<0.1*	NO	0
EPH Aliphatic (>C10-C12)	330 ⁽¹⁾	8	<4*	NO	0
EPH Aliphatic (>C12-C16)	2400 ⁽¹⁾	8	30	NO	0
EPH Aliphatic (>C16-C35)	92000 ⁽¹⁾	8	509	NO	0
EPH Aliphatic (>C35-C44)	92000 ⁽¹⁾	8	92	NO	0
VPH Aromatic (>EC5-EC7)	140 ⁽¹⁾	8	<0.01*	NO	0
VPH Aromatic (>EC7-EC8)	290 ⁽¹⁾	8	<0.01*	NO	0
VPH Aromatic (>EC8-EC10)	83 ⁽¹⁾	8	<0.01*	NO	0
EPH Aromatic (>EC10-EC12)	180 ⁽¹⁾	8	<1*	NO	0
EPH Aromatic (>EC12-EC16)	330 ⁽¹⁾	8	<1*	NO	0
EPH Aromatic (>EC16-EC21)	540 ⁽¹⁾	8	11	NO	0
EPH Aromatic (>EC21-EC35)	1500 ⁽¹⁾	8	11	NO	0
EPH Aromatic (>EC35-EC44)	1500 ⁽¹⁾	8	<1*	NO	0
Pesticides					
Organochlorine pesticides	0.01 ⁽²⁾	2	<0.01	NO	0
Organophosphate pesticides	0.01 ⁽²⁾	2	<0.01	NO	0

⁽¹⁾ = LQM/CIEH S4UL's – Residential with homegrown produce (2.5% SOM), ⁽²⁾ = Analytical detection limit. * = Site Value (C_M) less than analytical detection limit

- None of the individual PAH, TPH or Pesticide maximum concentration (C_M) values exceed the chosen critical concentration (C_C) values for this site.
- When considering these results, the made ground has not been impacted by hydrocarbon or pesticide type contaminants and does not represent a risk to the end users. As a result, the made ground can remain on site without the requirement for treatment, protection measures and / or further detailed quantitative risk assessment.

8.0 Level 1 Ground Contamination Risk Assessment (Cont'd)

8.3 Level 1 Risk Assessment (Soils) (Cont'd):-

8.3.3 Human Health – Asbestos Screening:-

When considering the presence of demolition type material within the made ground present on site, representative samples have been screened for asbestos fibres, to determine whether any unidentified asbestos was present within these materials. The results are summarised in Table 8.5 below and have identified the following:

Table 8.5 – Asbestos Screening

NAD = No Asbestos Detected

Position	Depth (m)	Chrysotile (white)	Amosite (brown)	Crocidolite (blue)	Anthophyllite	Actinolite	Tremolite
TP01	0.50	NAD	NAD	NAD	NAD	NAD	NAD
TP04	0.30	NAD	NAD	NAD	NAD	NAD	NAD
TP06	0.30	NAD	NAD	NAD	NAD	NAD	NAD
TP08	0.30	NAD	NAD	NAD	NAD	NAD	NAD
TP11	0.25	NAD	NAD	NAD	NAD	NAD	NAD
TP12	0.20	NAD	NAD	NAD	NAD	NAD	NAD
TP101	0.00-0.20	NAD	NAD	NAD	NAD	NAD	NAD
TP102	0.30-0.50	NAD	NAD	NAD	NAD	NAD	NAD
TP103	0.10-0.30	NAD	NAD	NAD	NAD	NAD	NAD
TP105	0.00-0.20	NAD	NAD	NAD	NAD	NAD	NAD
TP106	0.00-0.30	NAD	NAD	NAD	NAD	NAD	NAD
TP111	0.40-0.60	NAD	NAD	NAD	NAD	NAD	NAD
TP113	0.20-0.40	NAD	NAD	NAD	NAD	NAD	NAD
TP115	0.10-0.30	NAD	NAD	NAD	NAD	NAD	NAD

- No asbestos fibres have been detected and therefore the made ground below the proposed development area is not felt to represent a risk with regards to asbestos.

8.4 Level 1 Risk Assessment (Controlled Waters): -

The following hydrogeological and hydrological issues have been taken into consideration when assessing the risks towards controlled waters;

- A shallow continuous groundwater surface (water table) is not anticipated to be present below this site.
- No water samples were able to be obtained from the trial pits and boreholes as no shallow groundwater was encountered.
- The site is covered by at least 20m of low permeability drift deposits.
- Groundwater is anticipated at depth within the solid deposits (Secondary A Aquifer).
- The site is not located within a Source Protection Zone (SPZ).
- There are no groundwater abstractions recorded within c.500m of the site.
- The River Blyth is located c.88m south west of the site on the other side of East Sleekburn Village.
- Low soils results.

When taking into account the above site setting and based on the soil screening results the risk of significant contamination being present below the site and impacting groundwater is felt to be very low/negligible and therefore no leachate screening was deemed necessary.

9.0 Conclusions & Recommendations

9.1 Ground Conditions:-

From the information gained during the previous and recent intrusive ground investigation works undertaken by Arc Environmental Ltd, made ground has been recorded to typical depths of <0.60m. Zones of deeper made ground were recorded within BH02 (2.10m) and BH05 (2.50m) which appeared to be associated with infilled trenches for drain runs, although no drainage networks were recorded on site from the Statutory service plans obtained.

The made ground generally comprised unmanaged grass overlying sandy soil and sandy gravelly clay with brick, slate and concrete fragments. Ashy soils and an ash filled service trench was noted within TP11. Some ash was also noted within BH02 & TP111. There was anecdotal evidence that the site was historically used as temporary site compound associated with the construction of the adjacent by-pass resulting in red shale and contaminated spoil possibly being present. However, from the results of the intrusive investigation there was no evidence of red shale or significant contamination.

The underlying natural clay deposits comprised stiff locally firm (high strength) sandy gravelly clay (Glacial Till) with occasional coal and sandstone fragments/cobbles to depths of at least c.5.00m, the terminal depth of the boreholes.

From the results of the Phase 1: Desk Top Study Report previously carried out, the site is not considered to be at risk from shallow coal mining activities, as the thickness of overlying competent rock cover is felt to be sufficient as to prevent any possible crown hole migration resulting from potential mine working collapses. Taking this into account, no further intrusive works or remedial works were deemed necessary.

9.2 Groundwater:-

No water ingresses/strikes were recorded with the majority of the exploratory positions remaining dry. However, water ingress was recorded within BH05, at c.2.50m, & TP111 at c.1.90m bcgl (associated with suspected relic drains). A minor ingress was also noted within TP05 at c.2.00m from an unrecorded relic drain. Subsequently, significant shallow water ingress should not be problematic with regards to future excavations. However, it would be prudent to allow for the introduction of suitable groundwater control measures, in order to take care of any localised ingresses of groundwater which may occur during the construction period, especially during the wetter periods of the year.

9.3 Gas Protection Measures:-

Following the results of the Phase 1: Desk Top Study Report there are no potential sources of significant ground gas recorded on or within plausible migration distance to this site and as such the site is not considered to be at significant risk from hazardous ground gas migration. However, when considering Northumberland County Councils (NCC) methodology and approach for sites in the Northumberland Coalfield, gas protection measures will be required within the proposed development. Correspondence with NCC should be sought with regards to the level of protection required (likely CS2 / Amber 1 classification).

9.4 Foundation Options:-

When considering the ground conditions recorded and proposed development, it is felt that strip or pad foundations should be suitable for the proposed development with foundations taken down through the full thickness of made ground and be based within the stiff sandy gravelly clays at a minimum depth of c.0.90m below finished ground levels where a maximum allowable bearing pressure of 175kN/m² is available. Where housing plots may be influenced by existing or proposed trees and vegetation then reference should be made to BS5837: 2012, "Trees in Relation to Design, Demolition and Construction" along with the NHBC Standards, 'Building near trees'.

9.0 Conclusions & Recommendations (Cont'd)

9.4 Foundation Options (Cont'd):-

When considering the design of hardstanding areas it is recommended that a characteristic design CBR value of 4% can be taken for the natural clay where it is to be utilised as an undisturbed sub-grade

From the results of the pH and soluble sulphate testing, it can be seen that future foundations and buried concrete should be constructed utilising a concrete design class of DS-1 and ACEC class of AC-2z. For proposed buried services routes, recourse to the relevant utility supplier should be made for their advice/comments regarding pipe material/backfill selection.

9.5 Ground Contamination:-

From the results of the contamination screening carried out, the made ground can remain on site without representing a risk to the end users and will not require any removal, treatment or protection measures to be installed. Similarly, the made ground does not represent a risk towards controlled waters and adjacent sites.

When considering the risks to the construction workforce, adequate PPE will be required to provide protection against the levels of contaminants recorded during these investigation works. Similarly, the results can also be used by the Main Contractor / Project Coordinator, when devising an adequate Site Health & Safety Plan, in accordance with current CDM Regulations. If during future redevelopment works, any excavated materials are to be removed from this site as a waste and disposed of at a landfill, reference should be made to the notes on off-site disposal within Appendix IV, particularly when assessing the likely classification of these materials prior to disposal.

9.6 General Comments:-

When considering the potential for a Sustainable Urban Drainage System (SUDS) to be incorporated into the proposed development, due to the presence of deep impermeable drift deposits, soakaways will not be suitable for the proposed development.

Where possible, removal of materials from site as a 'waste' should be kept to a minimum and ideally excavated materials should all be reused on site. However, if excavated materials have to be discarded to accommodate finished ground levels etc., it should be noted that additional analysis and screening is likely to be required once each specific waste stream has been identified and the volume of material to be disposed of has been calculated, since the amount of screening required, including any pre-disposal WAC screening, will be dependent upon the final volume of material to be disposed of.

Where we have sampled and tested for asbestos this is discussed in the report. Whilst we would target any asbestos sampling and testing in accordance with a Conceptual Site Model and site findings, there is always the possibility, along with other contamination, that undiscovered asbestos exists between sample locations and the possibility of unknown asbestos exists on all sites, particularly brownfield sites where previous buildings have been demolished, where there were previous features that were infilled (old hollows, pits etc) or where significant quantities of materials such as demolition and brick rubble exist.

It is not uncommon for historical asbestos wastes to be deliberately buried on derelict sites or imported old demolition rubble which could contain asbestos to be imported for use as hardstanding / hardcore. Unless otherwise stated we have not assessed any above or below ground features such as existing buildings, service ducts, basements, culverts, partly demolished or dilapidated structures, spoil heaps, fly tipped materials, security bunds, etc.

9.0 Conclusions & Recommendations (Cont'd)

9.6 General Comments (Cont'd):-

Adequate lateral trench support will be required for excavations, to prevent trench wall collapse or over excavations, as well as to create a safe working environment, and any excavations on this site should remain open for as short a period as possible, since some of these materials may be susceptible to deterioration, if left open to the natural elements for any significant period.

It is also recommended for any new developments, adequate surface drainage should be designed and installed by a competent contractor, to prevent surface water 'ponding' or collection, during and post construction, particularly where the existing surface drainage system is disrupted or damaged.

END OF REPORT

APPENDIX I

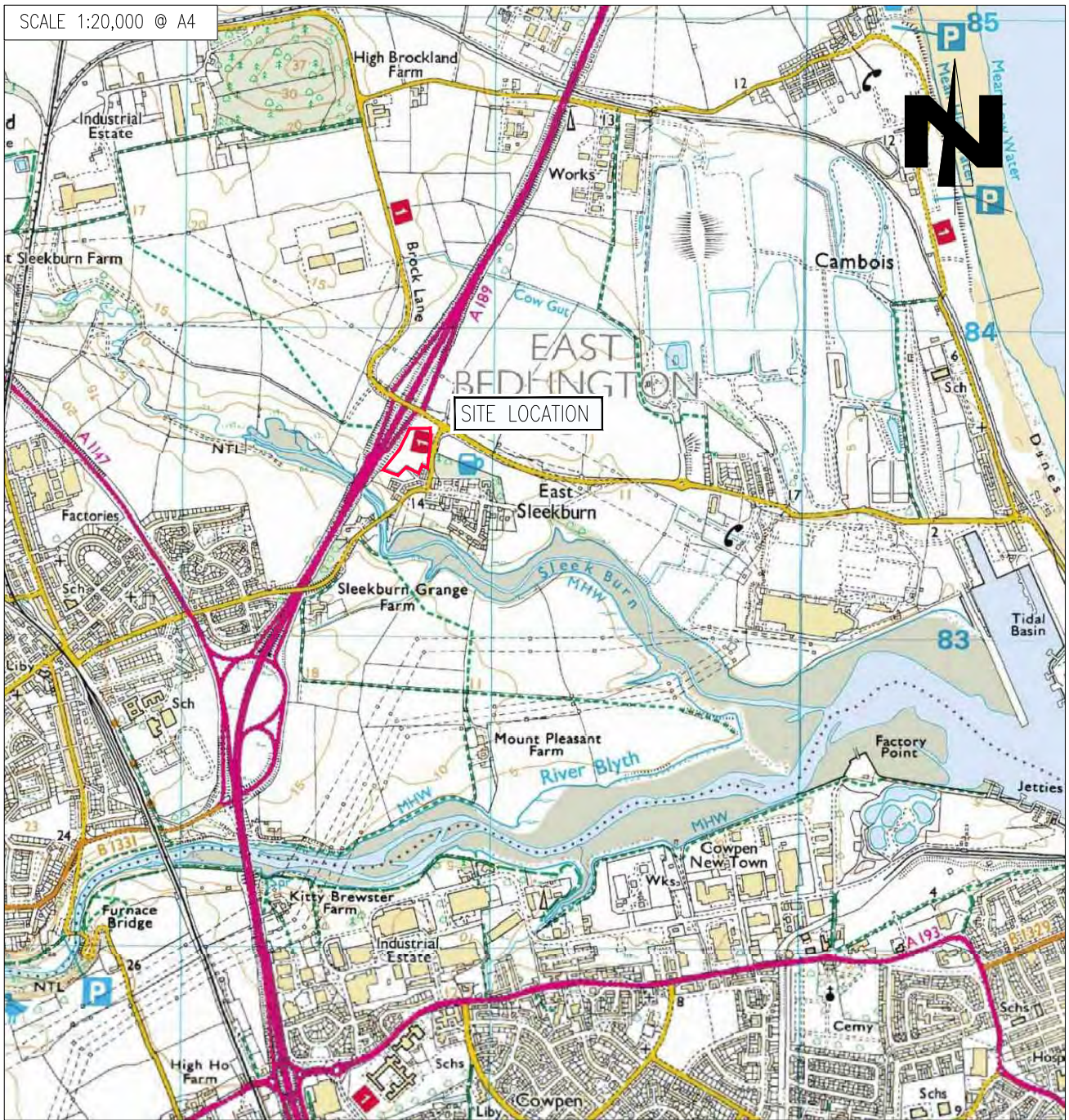
Location Plan

Aerial Photograph

Existing Site Layout Plan

Proposed Development Layout Plan

SCALE 1:20,000 @ A4



Client:

AMETHYST HOMES

Project Title:
Proposed Residential Development
Land at Springville / Brock Lane
East Sleekburn, Northumberland

Drawing Title:
Location Plan

Job Reference:
21-168

Drawing Number:
-

Revision:
-

Drawn by:
P.D

Date:
01.07.21

Scale at A4:
As Shown

Checked by:
D.M

Approved by:
D.M

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rev.	date	amendments	drawn	chkd

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KEY	
	INDICATIVE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

Client:
AMETHYST HOMES

Project Title:
 Proposed Residential Development
 Land at Springville / Brock Lane
 East Sleekburn

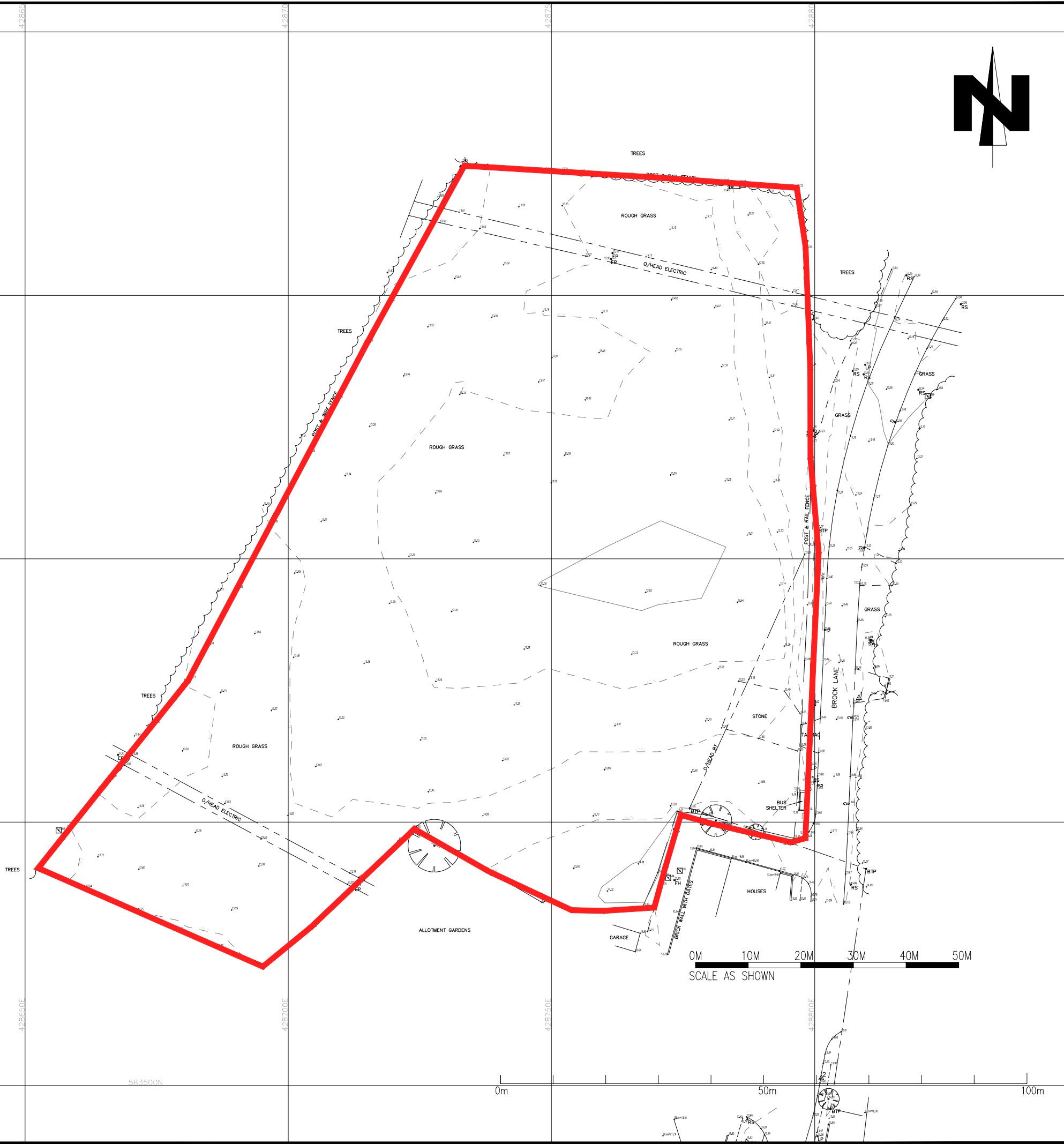
Drawing Title:
 Aerial Photograph

Scale at A3: As Shown	Date: 11.06.21	Drawn by: P.D	Approved by: D.M
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Job Ref: 21-168	Drg no: —	Rev: —
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KEY	
PM	PARKING METER
BD	BOLLARD
BS	BUS STOP
BT	BT COVER
BTP	BT POLE
CTV	CABLE TV COVER
EC	ELECTRIC COVER
EP	ELECTRIC POLE
ER	EARTHING ROD
FH	FIRE HYDRANT
G	GULLY
IC	INSPECTION COVER
JB	JUNCTION BOX
K	KERB OFFLET (GULLY)
LP	LAMP POST
MC	MANHOLE COVER
MK	MARKER POST
P	POST (SCALEABLE DIA)
RS	ROAD SIGN
SN	SIGN
SV	WATER STOP VALVE

TS	TRAFFIC SIGNAL
WM	WATER METER
+	SPOT LEVEL
Elev	EAVES LEVEL
RLev	RIDGE LEVEL
△3	SURVEY STATION
—x—x—	FENCE
(Tree symbol)	INDIVIDUAL TREE (SCALEABLE SPREAD & TRUNK)
(Bush symbol)	INDIVIDUAL BUSH (SCALEABLE SPREAD)
(Cloud symbol)	EDGE OF TREE SPREAD
—	TOP OR BTM OF BANK
—	OVER HEAD CABLES
—	DRAINAGE



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KEY	
	INDICATIVE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

Client:
AMETHYST HOMES

Project Title:
 Proposed Residential Development
 Land at Springville / Brock Lane
 East Sleekburn

Drawing Title:
 Existing Site Layout Plan

Scale at A3:	Date:	Drawn by:	Approved by:
As Shown	11.06.21	P.D	D.M

Job Ref:	Drg no:	Rev:
21-168	-	-

- KEY**
- PM PARKING METER
 - BD BOLLARD
 - BS BUS STOP
 - BT BT COVER
 - BTP BT POLE
 - CTV CABLE TV COVER
 - EC ELECTRIC COVER
 - EP ELECTRIC POLE
 - ER EARTHING ROD
 - FH FIRE HYDRANT
 - G GULLY
 - IC INSPECTION COVER
 - JB JUNCTION BOX
 - K KERB OFFSET (GULLY)
 - LP LAMP POST
 - MC MANHOLE COVER
 - MK MARKER POST
 - P POST (SCALEABLE DIA)
 - RS ROAD SIGN
 - SN SIGN
 - SV WATER STOP VALVE
 - TS TRAFFIC SIGNAL
 - WM WATER METER
 - SPOT LEVEL
 - EAVES LEVEL
 - RIDGE LEVEL
 - SURVEY STATION
 - FENCE
 - INDIVIDUAL TREE (SCALEABLE SPREAD & TRUNK)
 - INDIVIDUAL BUSH (SCALEABLE SPREAD)
 - EDGE OF TREE SPREAD
 - TOP OR BTM OF BANK
 - OVER HEAD CABLES
 - DRAINAGE

Existing dense tree lined boundaries to North and west

Secure Boundary treatment - to woodland fringe on northern and western boundaries. All to L.A. approval.

2.5 storey townhouses (room-in-roof) framing views at ends of culs-de-sac.

Mixture of 1.8m high brick walls and 1.8m high close boarded fence, between brick piers, to exposed rear garden boundaries.

Overhead power lines dropped to earth, via new poles, and taken underground along public highways and easements in private driveways.

Larger housing units at ends of culs-de-sac.

Secure Boundary treatment - to enclose rear gardens of plots to southern boundaries against allotments. All to L.A approval

Overhead power lines dropped to earth, via new poles, and taken underground along public highways

Secure Boundary treatment - to southern boundaries against allotments. All to L.A approval

Proposed Public Open Space near entrance. Overlooked by adjacent semi-detached houses.

Allotment Gardens

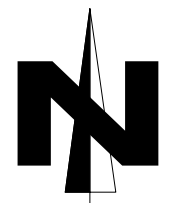
Shared Surface

Courtyard

P.O.S

Larger housing units at ends of culs-de-sac.

views at ends of culs-de-sac.



BROCK LANE

Springville



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KEY	
	INDICATIVE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

Client:
AMETHYST HOMES

Project Title:
 Proposed Residential Development
 Land at Springville / Brock Lane
 East Sleekburn

Drawing Title:
 Proposed Development Layout Plan

Scale at A3:	Date:	Drawn by:	Approved by:
As Shown	11.06.21	P.D	D.M

Job Ref:	Drng no:	Rev:
21-168	-	-

APPENDIX II

Borehole & Trial Pit Location Plan

Borehole Record Sheets

Trial Pit Record Sheets

KEY	
PM	PARKING METER
BD	BOLLARD
BS	BUS STOP
BT	BT COVER
BTP	BT POLE
CTV	CABLE TV COVER
EC	ELECTRIC COVER
EP	ELECTRIC POLE
ER	EARTHING ROD
FH	FIRE HYDRANT
G	GULLY
IC	INSPECTION COVER
JB	JUNCTION BOX
K	KERB OFFLET (GULLY)
LP	LAMP POST
MC	MANHOLE COVER
MK	MARKER POST
P	POST (SCALEABLE DIA)
RS	ROAD SIGN
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SV	WATER STOP VALVE
TS	TRAFFIC SIGNAL
WM	WATER METER
+	SPOT LEVEL
Elev	EAVES LEVEL
RLev	RIDGE LEVEL
△3	SURVEY STATION
---	FENCE
○	INDIVIDUAL TREE (SCALEABLE SPREAD & TRUNK)
○	INDIVIDUAL BUSH (SCALEABLE SPREAD)
☁	2.5 storey townhouses (room-in-roof) framing views at ends of culs-de-sac.
---	TOP OR BTM OF BANK
---	OVER HEAD CABLES
---	DRAINAGE

views at ends of cuis-de-sac.

Larger housing units at ends of cuis-de-sac.

Existing dense tree lined boundaries to North and west

Secure Boundary treatment - to woodland fringe on northern and western boundaries. All to L.A. approval.

Mixture of 1.8m high brick walls and 1.8m high close boarded fence, between brick piers, to exposed rear garden boundaries.

Overhead power lines dropped to earth, via new poles, and taken underground along public highways and easements in private driveways.

Larger housing units at ends of cuis-de-sac.

Secure Boundary treatment - to enclose rear gardens of plots to southern boundaries against allotments. All to L.A. approval

Overhead power lines dropped to earth, via new poles, and taken underground along public highways

Secure Boundary treatment - to southern boundaries against allotments. All to L.A. approval

Proposed Public Open Space near entrance. Overlooked by adjacent semi-detached houses.



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KEY	
	INDICATIVE SITE BOUNDARY
	MECHANICALLY EXCAVATED TRIAL PIT POSITION (JUNE 2021)
	PREVIOUS MECHANICALLY EXCAVATED TRIAL PIT POSITION (NOV 2013)
	PREVIOUS WINDOWLESS SAMPLING BOREHOLE POSITION (NOV 2013)

rev.	date	amendments	drawn	chckd

Client:
AMETHYST HOMES

Project Title:
 Proposed Residential Development
 Land at Springville / Brock Lane
 East Sleekburn

Drawing Title:
 Combined Exploratory Hole Location Plan

Scale at A3:	Date:	Drawn by:	Approved by:
As Shown	12.07.21	P.D	L.J

Job Ref:	Drg no:	Rev:
21-168	-	-



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BOREHOLE LOG

Project Spring Ville, East Sleekburn, Bedlington				BOREHOLE No BH01	
Job No 13-554	Date 06-11-13	Ground Level (m) 13.41	Co-Ordinates () E 428,738.1 N 583,655.5		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)		
0.00-0.40	D			[Cross-hatch pattern]	(0.40) 0.40	Grass overlying dark brown clayey sandy soil (MADE GROUND)		
0.40-1.00	D		13.01	[Mottled pattern]		Stiff (high strength) brown mottled light brown and grey sandy slightly gravelly CLAY with occasional sandstone cobbles. Occasional coal fragments (GLACIAL TILL)		
1.00-2.00	D							
1.00	V	>120kN/m ²						
2.00-3.00	D				(4.60)			
2.00	V	>120kN/m ²						
3.00-4.00	D							
3.00	V	120kN/m ²						
4.00-5.00	D							
4.00	V	100kN/m ²						
5.00	V	100kN/m ²	8.41		5.00			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: BH remained 'dry'.

All dimensions in metres Scale 1:37.5	Client Dysart Group	Method/ Plant Used Dynamic Sampling	Logged By ADS
--	----------------------------	---	-------------------------

AGS3 UK BH TP LOGS.GPJ AGS3 ALL GDT 7/1/14



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BOREHOLE LOG

Project Spring Ville, East Sleekburn, Bedlington				BOREHOLE No BH02	
Job No 13-554	Date 06-11-13	Ground Level (m) 13.47	Co-Ordinates () E 428,789.6 N 583,646.1		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		
0.00-0.20	D	80kN/m ²	13.27		0.20	Grass overlying dark brown clayey sandy soil (MADE GROUND)		
0.20-0.70	D				(0.50)	Black and reddish brown sandy ash and brick fragments (MADE GROUND)		
0.70-1.00	D			12.77		0.70	Dark brown sandy gravelly clay (MADE GROUND)	
1.00-2.10	D			12.47		(0.30) 1.00	Stiff brown sandy slightly gravelly clay with occasional sandstone cobbles. Occasional coal fragments (MADE GROUND)	
1.00	V					(1.10)		
2.00	V	80kN/m ²	11.37		2.10	Stiff (high strength) brown mottled light brown and grey sandy slightly gravelly CLAY with occasional sandstone cobbles. Occasional coal fragments (GLACIAL TILL)		
2.10-3.00	D	>120kN/m ²						
3.00-4.00	D					(2.90)		
3.00	V							
4.00-5.00	D	120kN/m ²						
4.00	V							
5.00	V	110kN/m ²	8.47		5.00			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: BH remained 'dry'.

All dimensions in metres Scale 1:37.5	Client Dysart Group	Method/ Plant Used Dynamic Sampling	Logged By ADS
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AGS3 UK BH TP LOGS.GPJ AGS3 ALL GDT 7/1/14



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BOREHOLE LOG

Project Spring Ville, East Sleekburn, Bedlington				BOREHOLE No BH03	
Job No 13-554	Date 06-11-13	Ground Level (m) 13.10	Co-Ordinates () E 428,721.5 N 583,609.6		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		
0.00-0.30	D			12.80		(0.30) 0.30	Grass overlying dark brown clayey sandy soil (MADE GROUND)	
0.30-1.00	D						Stiff (high strength) brown mottled light brown and grey sandy slightly gravelly CLAY with occasional sandstone cobbles. Occasional coal fragments (GLACIAL TILL)	
1.00-2.00 1.00	D V	>120kN/m ²						
2.00-3.00 2.00	D V	>120kN/m ²				(4.70)		
3.00-4.00 3.00	D V	110kN/m ²						
4.00-5.00 4.00	D V	90kN/m ²						
5.00	V	90kN/m ²		8.10		5.00		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: BH remained 'dry'.

All dimensions in metres Scale 1:37.5	Client Dysart Group	Method/ Plant Used Dynamic Sampling	Logged By ADS
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AGS3 UK BH TP LOGS.GPJ AGS3 ALL GDT 7/1/14



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BOREHOLE LOG

Project Spring Ville, East Sleekburn, Bedlington				BOREHOLE No BH04	
Job No 13-554	Date 06-11-13	Ground Level (m) 13.27	Co-Ordinates () E 428,776.2 N 583,578.4		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		
0.00-0.30	D		12.97		(0.30) 0.30	Grass overlying dark brown clayey sandy soil (MADE GROUND)		
0.30-1.00	D					Stiff (high strength) brown mottled light brown and grey sandy slightly gravelly CLAY with occasional sandstone cobbles. Occasional coal fragments (GLACIAL TILL)		
1.00-2.00	D							
1.00	V	>120kN/m ²						
2.00-3.00	D							
2.00	V	>120kN/m ²			(4.70)			
3.00-4.00	D							
3.00	V	110kN/m ²						
4.00-5.00	D							
4.00	V	90kN/m ²						
5.00	V	90kN/m ²	8.27		5.00			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: BH remained 'dry'.

All dimensions in metres Scale 1:37.5	Client Dysart Group	Method/ Plant Used Dynamic Sampling	Logged By ADS
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BOREHOLE LOG

Project Spring Ville, East Sleekburn, Bedlington				BOREHOLE No BH05	
Job No 13-554	Date 06-11-13	Ground Level (m) 13.59	Co-Ordinates () E 428,664.4 N 583,540.3		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		
0.00-0.30	D			[Cross-hatch pattern]	(0.30) 0.30	Grass overlying dark brown clayey sandy soil (MADE GROUND)		
0.30-1.00	D			[Cross-hatch pattern]		Stiff brown sandy gravelly clay with brick and coal fragments (MADE GROUND)		
1.00-2.00 1.00	D V	90kN/m ²		[Cross-hatch pattern]	(2.20)			
2.00-2.50 2.00	D V	80kN/m ²		[Cross-hatch pattern]				
2.50-2.80	D			[Cross-hatch pattern]	(0.30) 2.80	Brown saturated gravel with possible drainage fragments (MADE GROUND)		
2.80-4.00 3.00	D V	80kN/m ²		[Stippled pattern]	(2.20)	Stiff (high strength) brown sandy slightly gravelly CLAY with occasional coal fragments (GLACIAL TILL)		
4.00-5.00 4.00	D V	90kN/m ²		[Stippled pattern]				
5.00	V	90kN/m ²		[Stippled pattern]	8.59 5.00			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: Water ingress from suspected relic drain at 2.50m.

All dimensions in metres Scale 1:37.5	Client Dysart Group	Method/ Plant Used Dynamic Sampling	Logged By ADS
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP01
Job No 13-554	Date 06-11-13	Ground Level (m) 13.56	Co-Ordinates () E 428,734.2 N 583,668.3	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Grass overlying dark brown clayey sandy soil with some fine to medium brick fragments. Some roots (MADE GROUND)	0.20	B	
0.30-0.60		Stiff dark brown sandy gravelly clay with occasional half/whole bricks. Locally very sandy with occasional slate (MADE GROUND)	0.50	B	
0.60-2.90		Stiff (high strength) brown mottled light brown and grey sandy slightly gravelly CLAY with occasional sandstone cobbles. Occasional coal fragments (GLACIAL TILL)	0.80	V	110kN/m ²
			1.00	B	
			1.00	V	100kN/m ²
			1.70	V	80kN/m ²
			2.20	B	
			2.20	V	>120kN/m ²
			2.50	V	110kN/m ²
			2.90	B	

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP02
Job No 13-554	Date 06-11-13	Ground Level (m) 13.26	Co-Ordinates () E 428,772.8 N 583,666.6	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0				0
1				1
2				2
3				3
4				4

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Grass overlying dark brown clayey sandy soil with some fine to medium brick fragments. Some roots (MADE GROUND)			
0.30-0.60		Dark brown very sandy gravelly clay with occasional fine to medium brick fragments. Occasional sandstone cobbles (MADE GROUND)	0.50	B	82kN/m ²
0.60-2.30		Stiff (high strength) light brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles. Becomes brown mottled grey from c.0.70m (GLACIAL TILL)	0.60	V	
			0.75	B	
			1.10	V	117kN/m ²
			1.50	B	
2.30		Note, corroded metal pipe at 0.60m trending N-S	2.30	B	

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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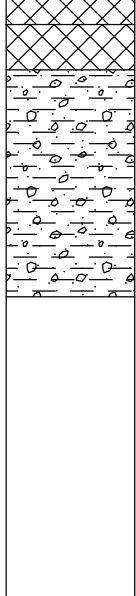
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP03
Job No 13-554	Date 06-11-13	Ground Level (m) 13.08	Co-Ordinates () E 428,751.3 N 583,648.4	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0				0
1				
2				2
3				3
4				4

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Grass overlying dark brown clayey sandy soil with some fine to medium brick fragments. Some roots (MADE GROUND)			
0.20-0.50		Stiff dark brown, locally dark grey, sandy gravelly clay with many brick and drainage fragments (MADE GROUND)	0.35	B	
0.50-2.00		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and coal fragments (GLACIAL TILL)	0.50	V	4% 106kN/m ²
			0.50	B	
			0.60	B	
			1.15	V	112kN/m ²
			1.20	B	
2.00		Field drainage noted at 0.75m - minor water ingress from pipe	2.00	B	
			2.00	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;">  </div>	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP04
Job No 13-554	Date 06-11-13	Ground Level (m) 13.40	Co-Ordinates () E 428,720.5 N 583,635.7	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.38		Grass overlying dark brown clayey sandy soil with occasional fine to medium brick fragments. Some roots (MADE GROUND)	0.30	B	112kN/m ² 119kN/m ²
0.38-2.00		Stiff (high strength) brown mottled grey sandy slightly gravelly CLAY with occasional sandstone cobbles. Occasional coal fragments (GLACIAL TILL)	0.60	V	
			1.00	B	
			1.10	V	
2.00		Field drainage noted at 0.7m - dry	2.00	B	

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP05
Job No 13-554	Date 06-11-13	Ground Level (m) 13.01	Co-Ordinates () E 428,778.0 N 583,611.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0	0	0	0	
1	1	1	1	
2	2	2	2	
3	3	3	3	
4	4	4	4	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.45		Grass overlying dark brown clayey sandy soil with some fine to medium brick fragments. Some roots (MADE GROUND)			
0.45-2.00		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and occasional coal fragments (GLACIAL TILL)	0.35	B	
			0.75	CBR	3%
			0.75	V	90kN/m ²
			1.00	B	
			1.20	V	112kN/m ²
2.00		Relic 200mm to 250mm dia. clay pipe at 2.00m trending N-S - top slightly damaged - slight water seepage	2.00	B	

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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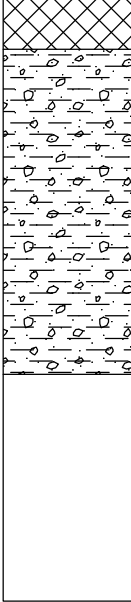
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP06
Job No 13-554	Date 06-11-13	Ground Level (m) 13.62	Co-Ordinates () E 428,694.3 N 583,594.8	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0			0	
1			1	
2			2	
3			3	
4			4	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		Grass overlying dark brown clayey sandy soil with occasional fine to medium brick fragments. Some roots (MADE GROUND)			
0.35-2.50		Stiff (high strength) brown mottled grey sandy slightly gravelly CLAY with occasional coal fragments (GLACIAL TILL)	0.30	B	
			0.80	V	118kN/m ²
			1.00	B	
			1.20	V	118kN/m ²
			2.00	B	
			2.00	V	>120kN/m ²
			2.50	B	

<p>Shoring/Support: Stability:</p> 	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP07
Job No 13-554	Date 06-11-13	Ground Level (m) 13.04	Co-Ordinates () E 428,750.3 N 583,596.3	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0			0	
1			1	
2			2	
3			3	
4			4	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Grass overlying dark brown clayey sandy soil with some fine to medium brick fragments. Some roots (MADE GROUND)	0.20	B	
0.30-0.40		Dark brown very sandy gravelly clay with occasional fine to medium brick fragments.	0.50	CBR	3.5%
0.40-2.40		Occasional concrete fragments (MADE GROUND) Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional coal fragments (GLACIAL TILL)	0.50	V	>120kN/m ²
			1.00	B	
			1.10	V	105kN/m ²
			2.00	B	

Shoring/Support: Stability: 	GENERAL REMARKS WATER: TP remained 'dry'.
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP08
Job No 13-554	Date 06-11-13	Ground Level (m) 13.02	Co-Ordinates () E 428,788.2 N 583,593.6	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		Grass overlying dark brown clayey sandy soil with occasional fine to medium brick fragments. Some roots (MADE GROUND) Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and occasional coal (GLACIAL TILL)	0.30	B	
0.35-2.20			0.75	V	80kN/m ²
			1.00	B	103kN/m ²
			1.10	V	103kN/m ²
2.20		Field drainage noted at 0.7m - dry	2.20	B	
			2.20	V	110kN/m ²

<p>Shoring/Support: Stability:</p>	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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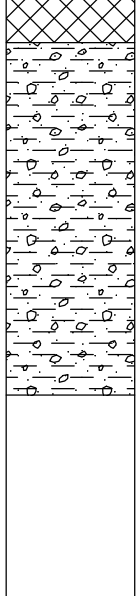
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP09
Job No 13-554	Date 06-11-13	Ground Level (m) 13.36	Co-Ordinates () E 428,726.2 N 583,583.6	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0			0	
1			1	
2			2	
3			3	
4			4	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.32		Grass overlying dark brown clayey sandy soil with occasional fine to medium brick fragments. Some roots (MADE GROUND)	0.20	B	
0.32-2.65		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional coal (GLACIAL TILL)	0.60	CBR	4%
			0.60	V	110kN/m ²
			0.75	B	
			1.10	V	>120kN/m ²
			1.50	B	
			2.50	B	
			2.50	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> 	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP10
Job No 13-554	Date 06-11-13	Ground Level (m) 13.66	Co-Ordinates () E 428,690.2 N 583,557.6	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend	
0					
4					

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		Grass overlying dark brown clayey sandy soil with occasional fine to medium brick fragments. Some roots (MADE GROUND)			
0.35-1.50		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and occasional coal. Occasional sand lenses (GLACIAL TILL)	0.30	B	
			0.70	CBR	5%
			0.70	V	100kN/m ²
			0.75	B	
			1.20	V	>120kN/m ²
1.50		Field drainage noted at 0.8m - dry	1.50	B	

Shoring/Support: Stability: 	GENERAL REMARKS WATER: TP remained 'dry'.
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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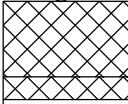
AGS3 UK TP LOGS.GPJ AGS3_ALL.GDT 7/1/14



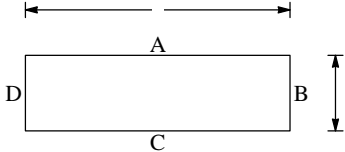
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP11
Job No 13-554	Date 06-11-13	Ground Level (m) 13.78	Co-Ordinates () E 428,756.4 N 583,548.4	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend
0			0	
1			1	
2			2	
3			3	
4			4	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		Grass overlying dark brown clayey sandy soil with many fine to medium brick fragments and much ash. Some roots (MADE GROUND)	0.25	B	
0.50-0.65 0.65		Firm brown sandy gravelly CLAY (GLACIAL TILL) - Disturbed Note, A visible trench scar filled with ash and slag was noted trending N-S with a cast iron pipe within - Trial pit abandoned.			

<p>Shoring/Support: Stability:</p> 	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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TRIAL PIT LOG

Project Spring Ville, East Sleekburn, Bedlington				TRIAL PIT No TP12
Job No 13-554	Date 06-11-13	Ground Level (m) 13.55	Co-Ordinates () E 428,692.5 N 583,529.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1

A	B	C	D	Legend

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Grass overlying dark brown clayey sandy soil with some fine to medium brick fragments. Some roots (MADE GROUND) Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and occasional coal fragments (GLACIAL TILL)	0.20	B	92kN/m ² 83kN/m ²
0.30-2.00			0.70	V	
			1.00	B	
			1.00	V	
2.00		Drainage fragments noted at 1.00m	2.00	B	102kN/m ²
			2.00	V	

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: TP remained 'dry'.</p>
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All dimensions in metres Scale 1:50	Client Dysart Group	Method/ Plant Used JCB(3CX)	Logged By JPD
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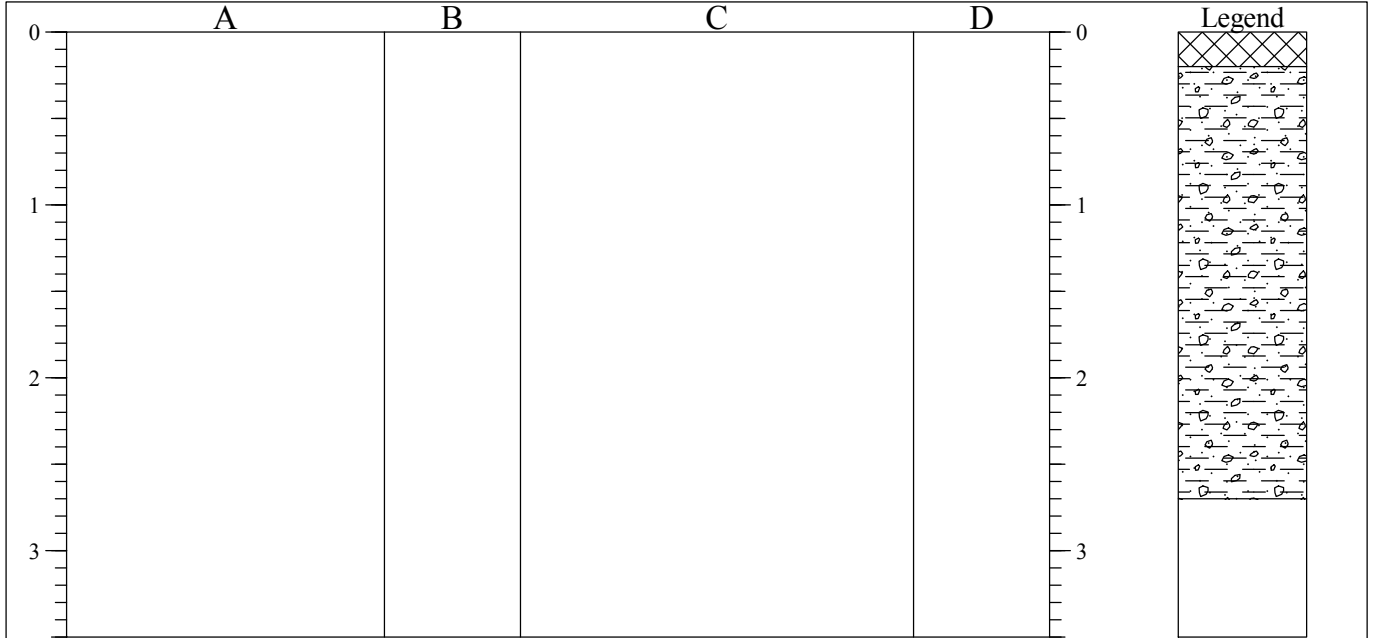
AGS3 UK TP LOGS.GPJ AGS3_ALL.GDT 7/1/14



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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP101
Job No 21-168	Date 07-06-21	Ground Level (m) 13.70	Co-Ordinates () E 428,669.0 N 583,537.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Unmanaged grass overlying dark brown clayey sandy soil with fine roots (MADE GROUND)	0.00-0.20	J	
0.20-2.70		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.60	CBR	3.0%
			1.00-1.20	B	
			1.00	V	82kN/m ²
			2.00	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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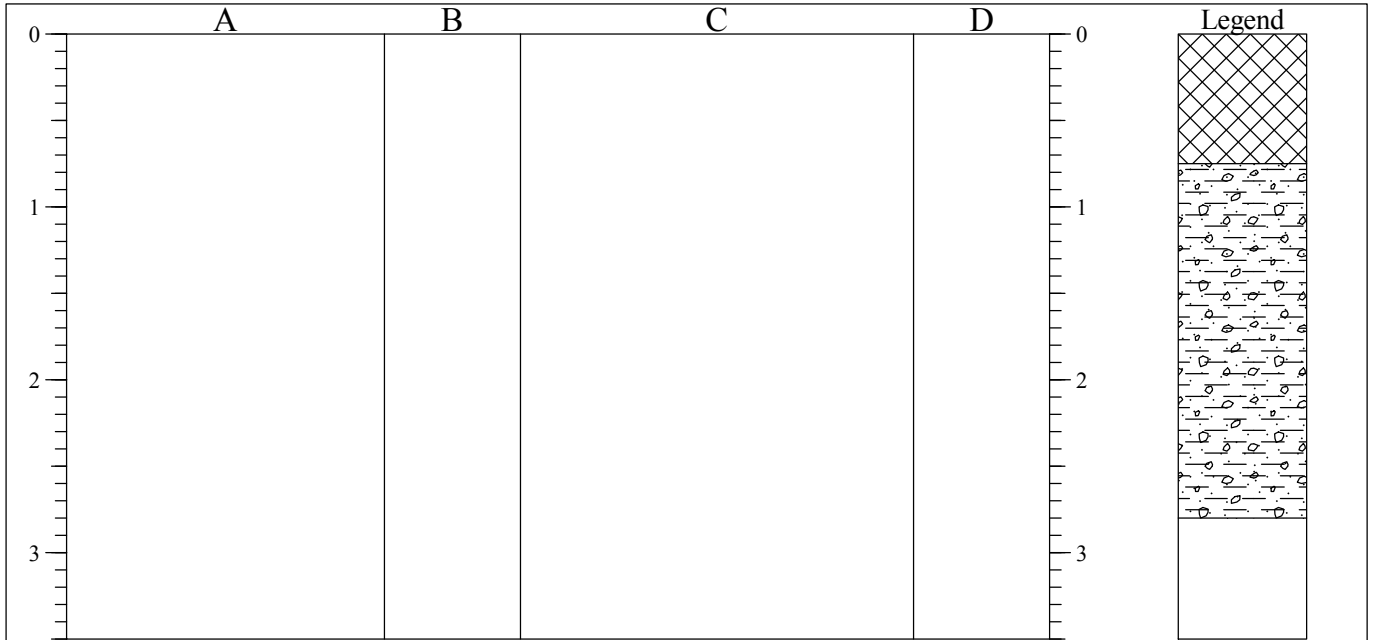
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP102
Job No 21-168	Date 07-06-21	Ground Level (m) 13.54	Co-Ordinates () E 428,706.3 N 583,555.4	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.75		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional whole and half bricks (MADE GROUND)	0.30-0.50	J	
0.75-2.80		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	1.00	V	90kN/m ²
			1.40-1.60	B	
			2.50	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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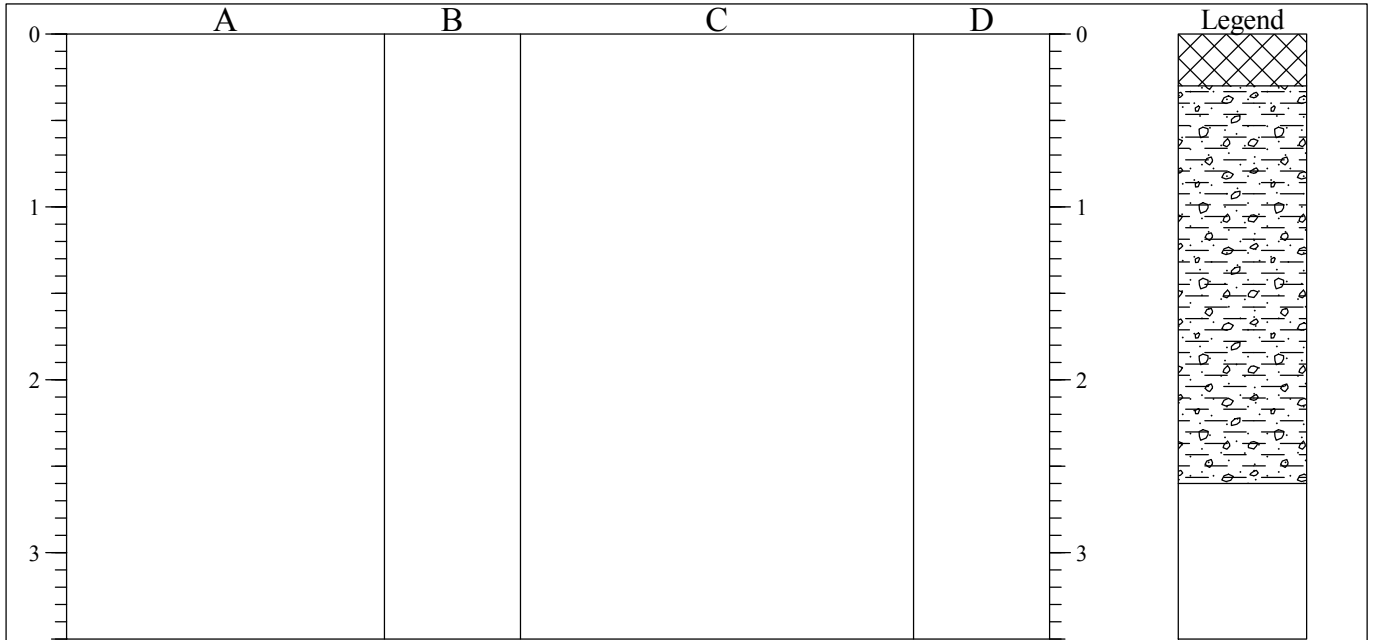
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP103
Job No 21-168	Date 07-06-21	Ground Level (m) 13.57	Co-Ordinates () E 428,698.4 N 583,602.2	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)			
0.30-2.60		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.80	V	100kN/m ²
			1.00-1.20	B	
			1.60	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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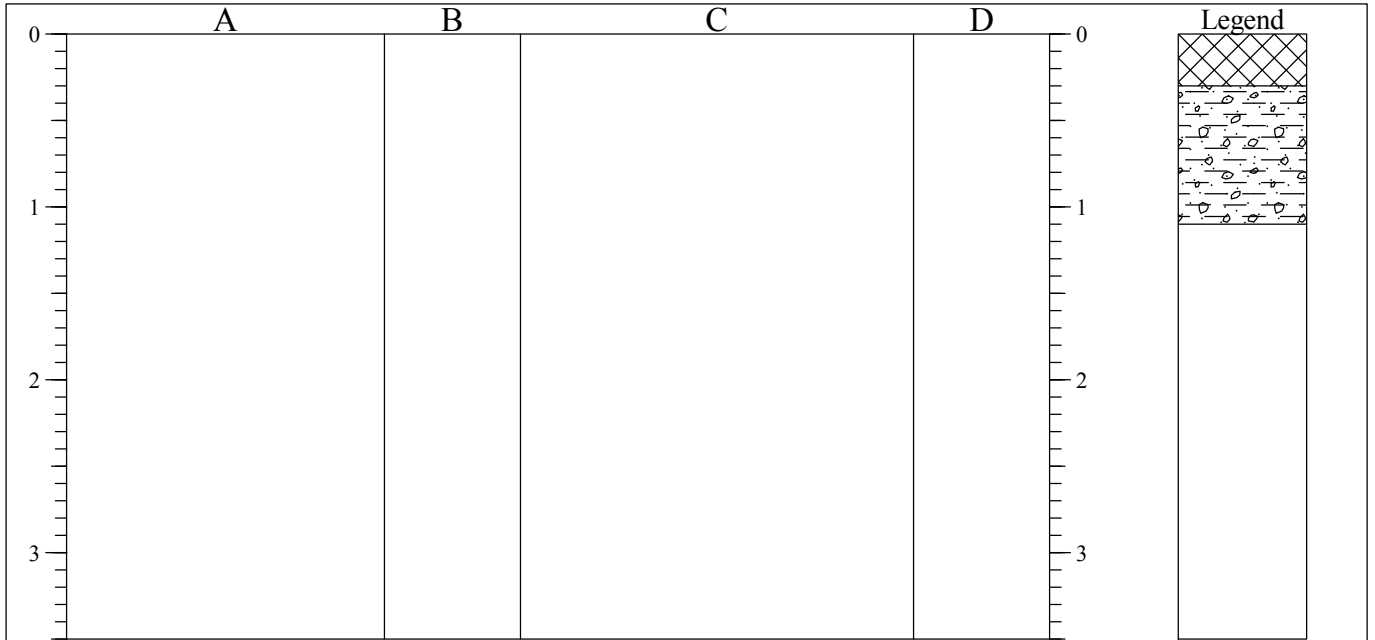
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP104
Job No 21-168	Date 07-06-21	Ground Level (m) 13.32	Co-Ordinates () E 428,727.4 N 583,586.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)			
0.30-1.10		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.70	CBR	3.0%
			0.80-1.00	B	
			1.00	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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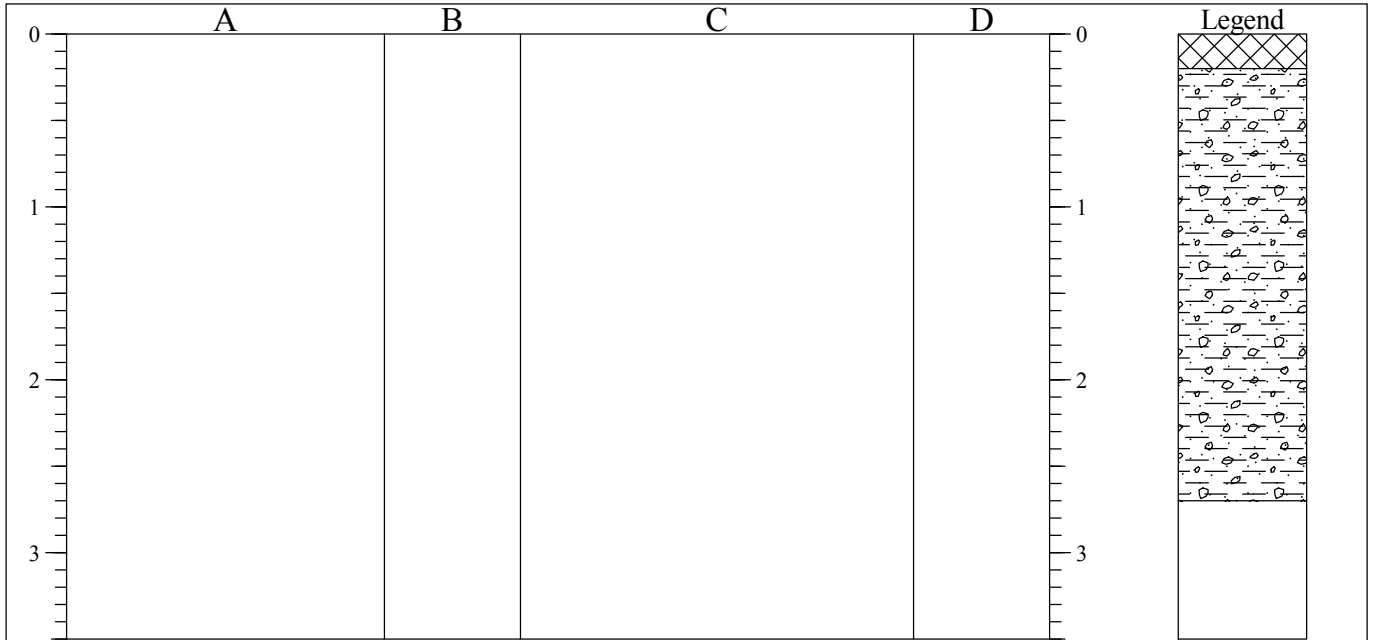
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP105
Job No 21-168	Date 07-06-21	Ground Level (m) 13.48	Co-Ordinates () E 428,719.0 N 583,642.1	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Unmanaged grass overlying dark brown clayey sandy soil with large roots and occasional fragments of brick (MADE GROUND) Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.00-0.20	J	
0.20-2.70			0.60	CBR	3.5%
			1.00	V	86kN/m ²
			1.40-1.60	B	

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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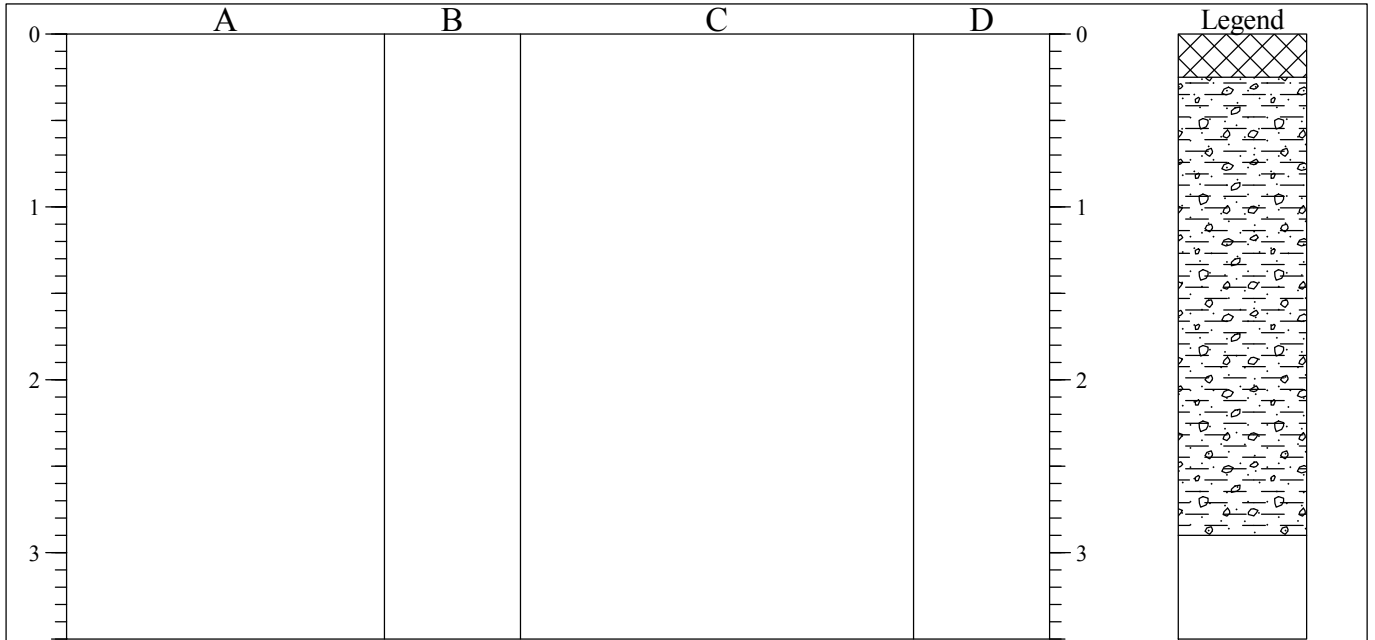
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP106
Job No 21-168	Date 07-06-21	Ground Level (m) 13.01	Co-Ordinates () E 428,746.9 N 583,605.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND) Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.00-0.25	J	
0.25-2.90			0.50	CBR	4.0%
			1.00	V	100kN/m ²
			1.50-1.70	B	
			2.00	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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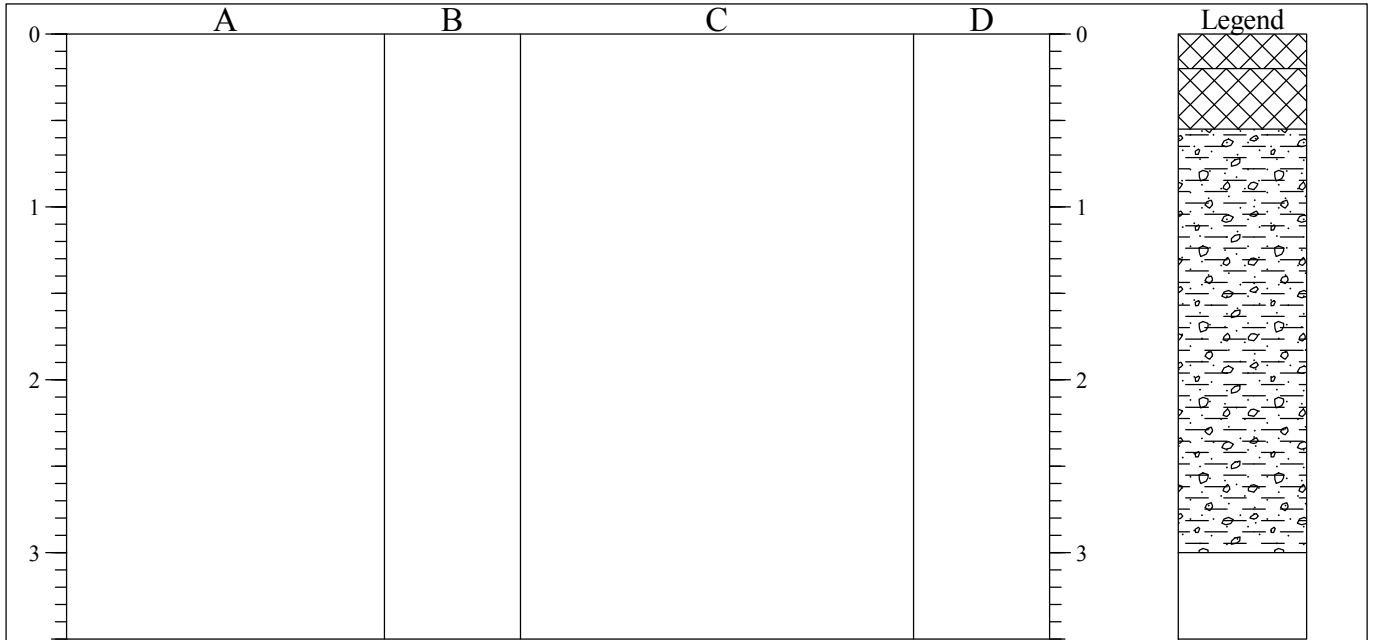
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP107
Job No 21-168	Date 07-06-21	Ground Level (m) 13.16	Co-Ordinates () E 428,767.8 N 583,616.4	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)			
0.20-0.55		Red brick rubble (MADE GROUND)	0.30-0.50	J	
0.55-3.00		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.80-1.00	B	
			1.00	V	98kN/m ²
			1.60	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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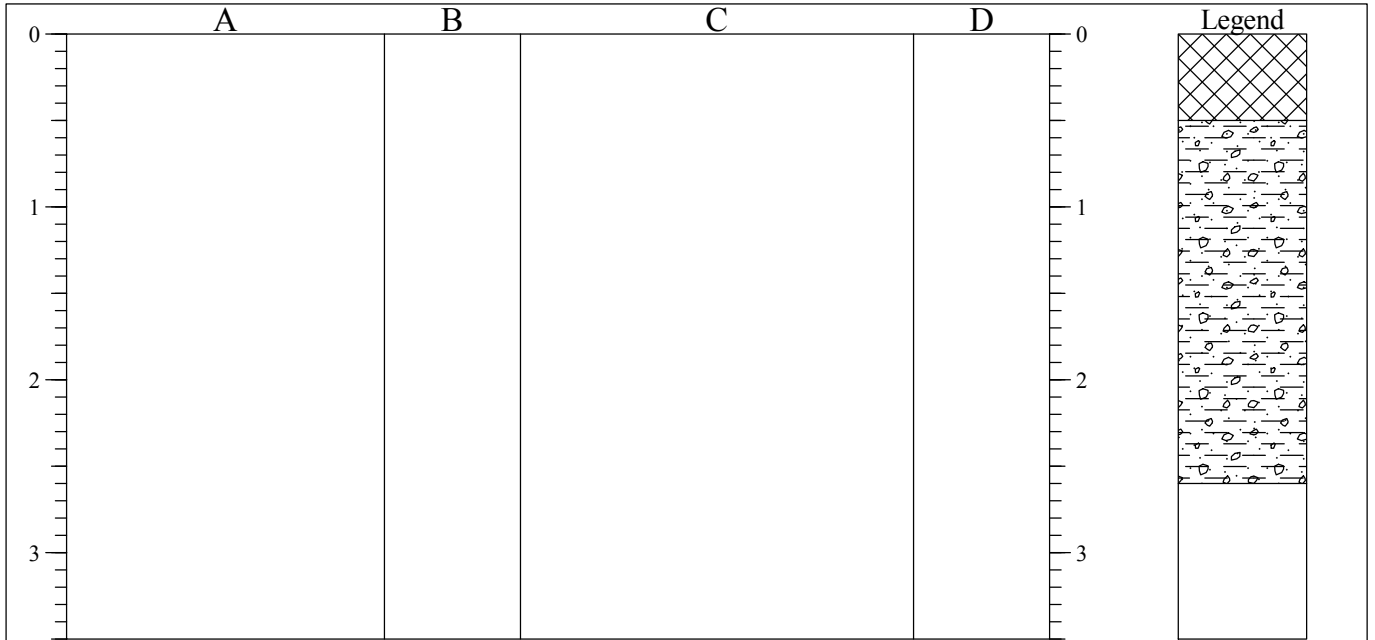
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP108
Job No 21-168	Date 07-06-21	Ground Level (m) 13.14	Co-Ordinates () E 428,774.4 N 583,640.2	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)	0.20-0.40	J	
0.50-2.60		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.60	CBR	3.5%
			1.20-1.40	B	80kN/m ²
			1.20	V	
			2.00	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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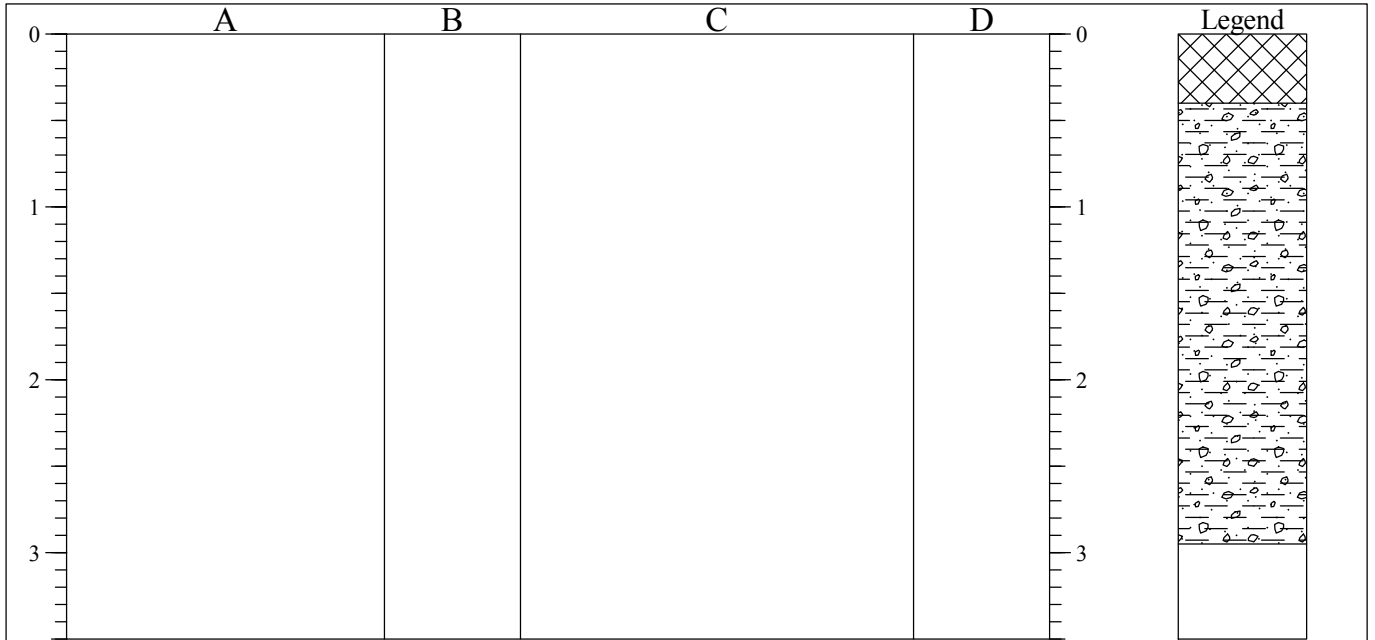
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP109
Job No 21-168	Date 07-06-21	Ground Level (m) 13.67	Co-Ordinates () E 428,727.5 N 583,660.4	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS			
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests	
0.00-0.40		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)	0.20-0.40	J		
0.40-2.95		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	1.00	V		78kN/m ²
			1.20-1.40	B		
			1.50	V		>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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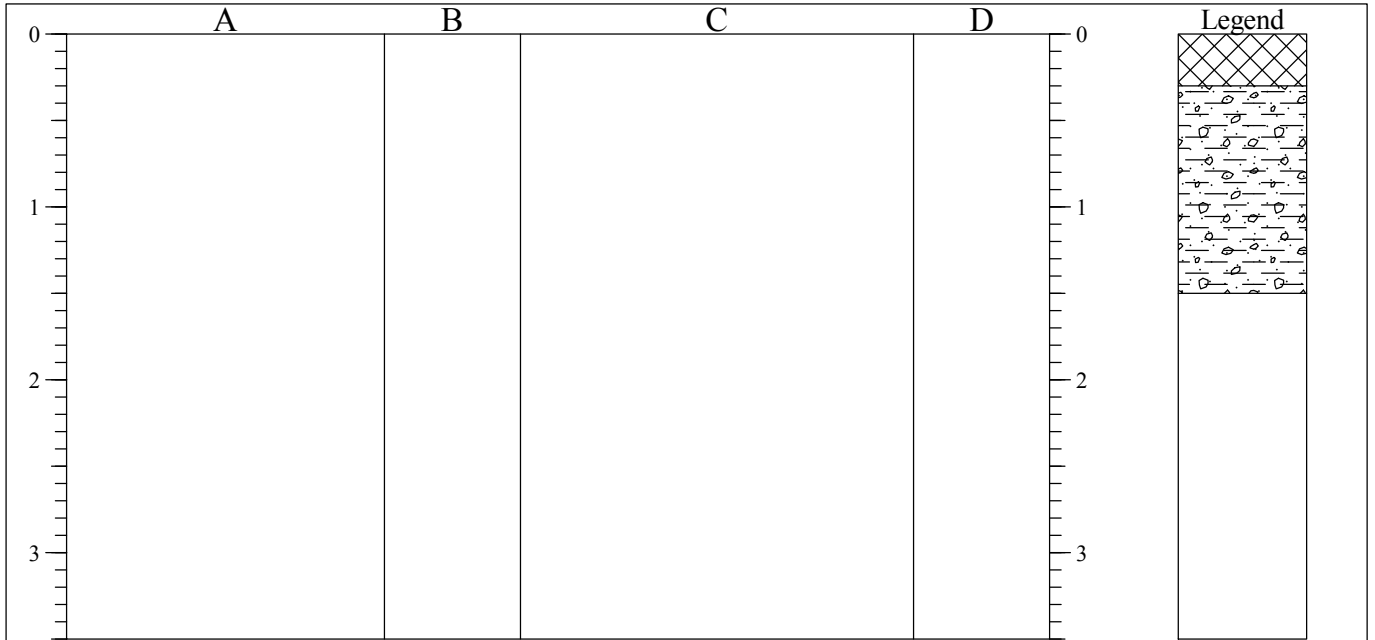
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP110
Job No 21-168	Date 07-06-21	Ground Level (m) 13.26	Co-Ordinates () E 428,753.2 N 583,644.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)			
0.30-1.50		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.50	CBR	4.0%
			1.00	V	110kN/m ²
			1.20-1.40	B	

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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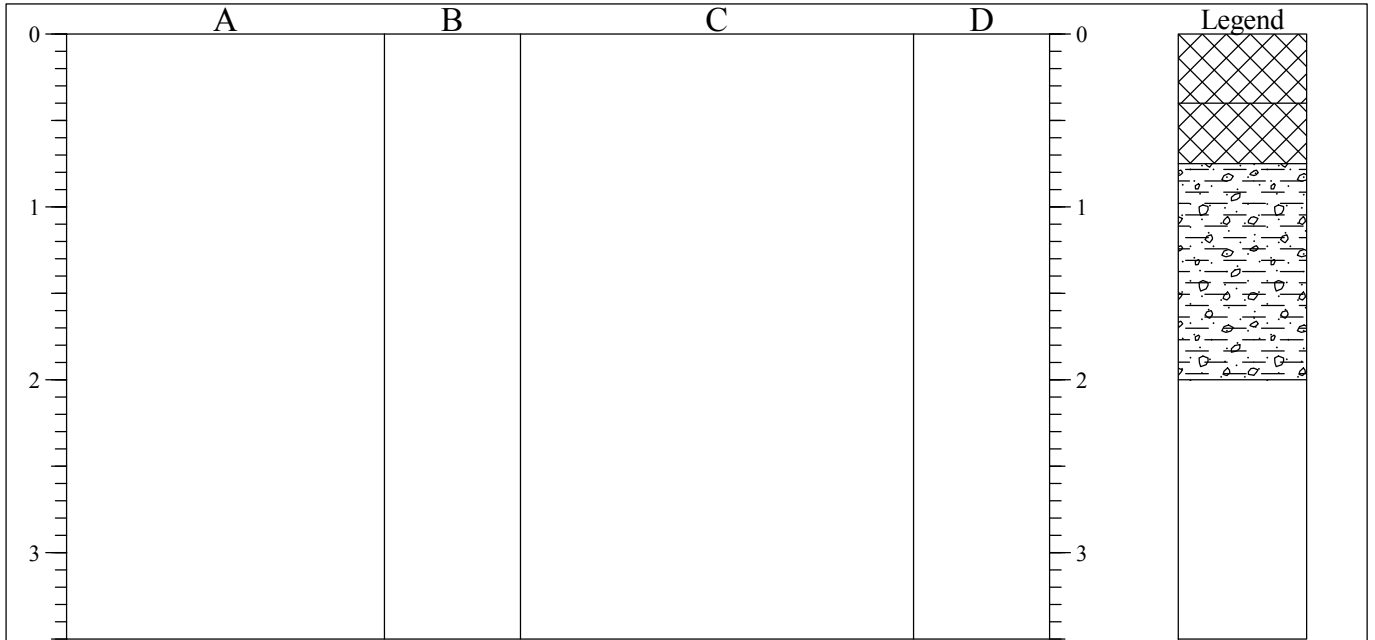
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP111
Job No 21-168	Date 07-06-21	Ground Level (m) 13.65	Co-Ordinates () E 428,789.2 N 583,667.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)			
0.40-0.75		Black ashy coal with occasional fragments of brick (MADE GROUND)	0.40-0.60	J	
0.75-2.00		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	1.00-1.20	B	86kN/m ²
			1.20	V	
1.90		Relic c.0.20m dia drain noted c.1.50m trending N-S. Heavy ingress of water noted.			

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Ingress of water from relic drain c.1.90m. Standing level recorded at c.1.30m after c.10 mins.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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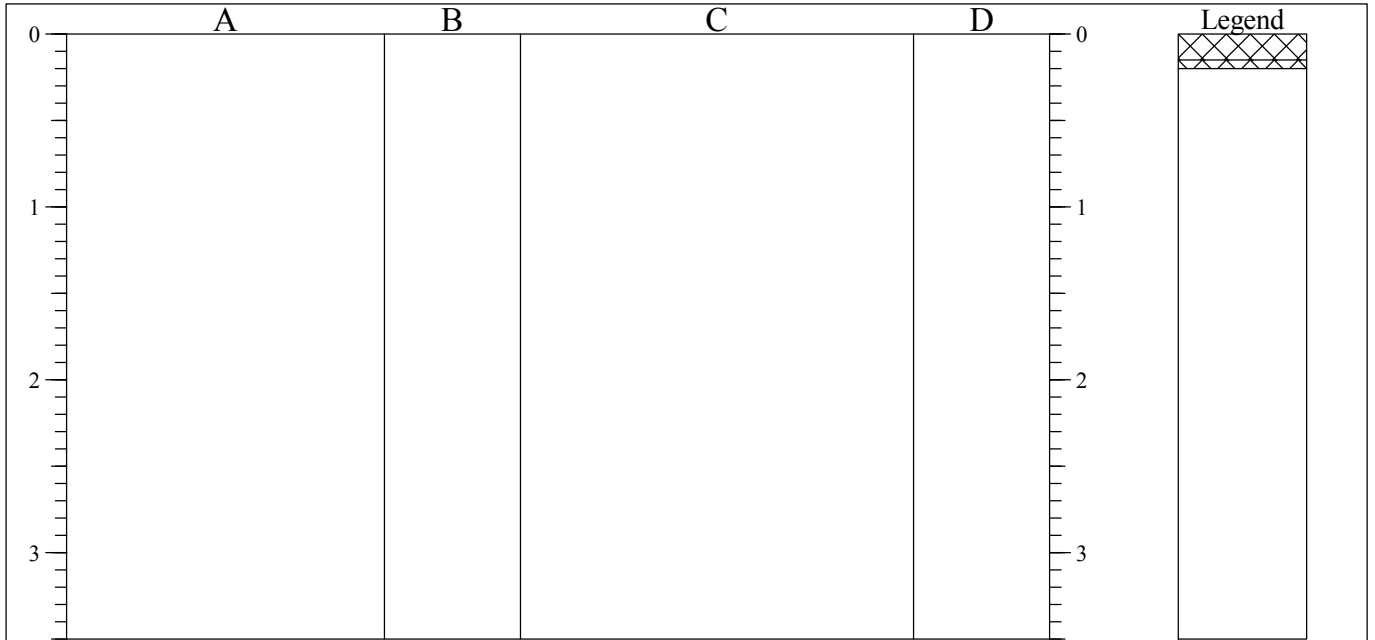
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP112
Job No 21-168	Date 07-06-21	Ground Level (m) 13.62	Co-Ordinates () E 428,797.2 N 583,618.0	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.15		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND) Concrete (MADE GROUND) Trial pit terminated			
0.15-0.20					
0.20					

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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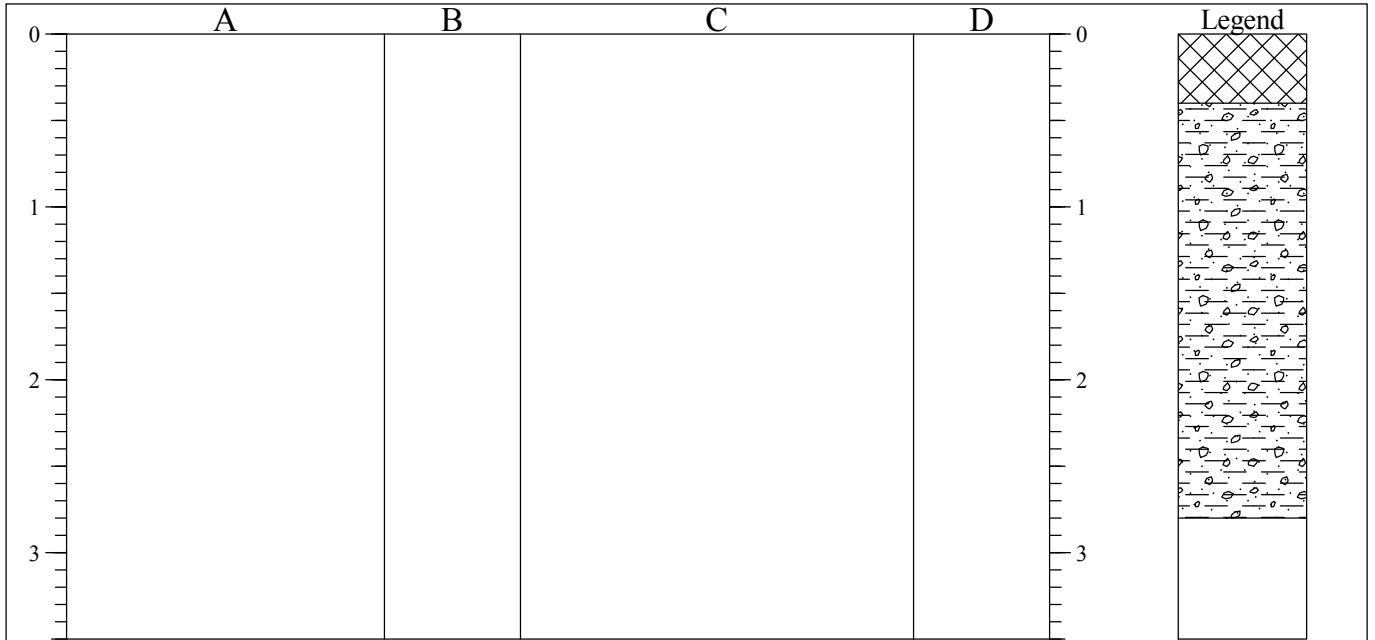
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP113
Job No 21-168	Date 07-06-21	Ground Level (m) 13.16	Co-Ordinates () E 428,778.7 N 583,589.5	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS			
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests	
0.00-0.40		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND) Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.20-0.40	J		
0.40-2.80			0.50	CBR		4.5%
			1.00	V		88kN/m ²
			1.40-1.60	B		115kN/m ²
			1.50	V		

Shoring/Support: Stability: 	GENERAL REMARKS WATER: Trial pit dry.
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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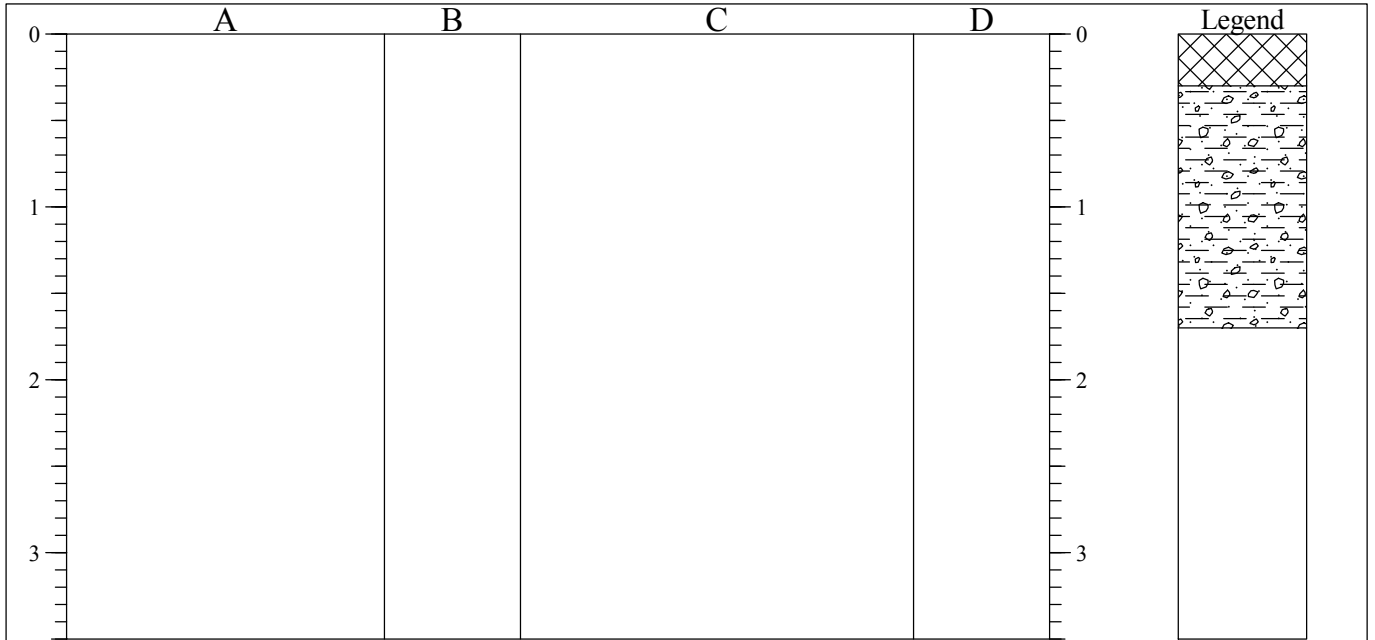
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP114
Job No 21-168	Date 07-06-21	Ground Level (m) 13.38	Co-Ordinates () E 428,758.5 N 583,571.9	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)	0.10-0.30	J	
0.30-1.70		Firm becoming stiff (medium & high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.50	CBR	3.0%
			0.70	V	84kN/m ²
			1.00-1.20	B	
			1.50	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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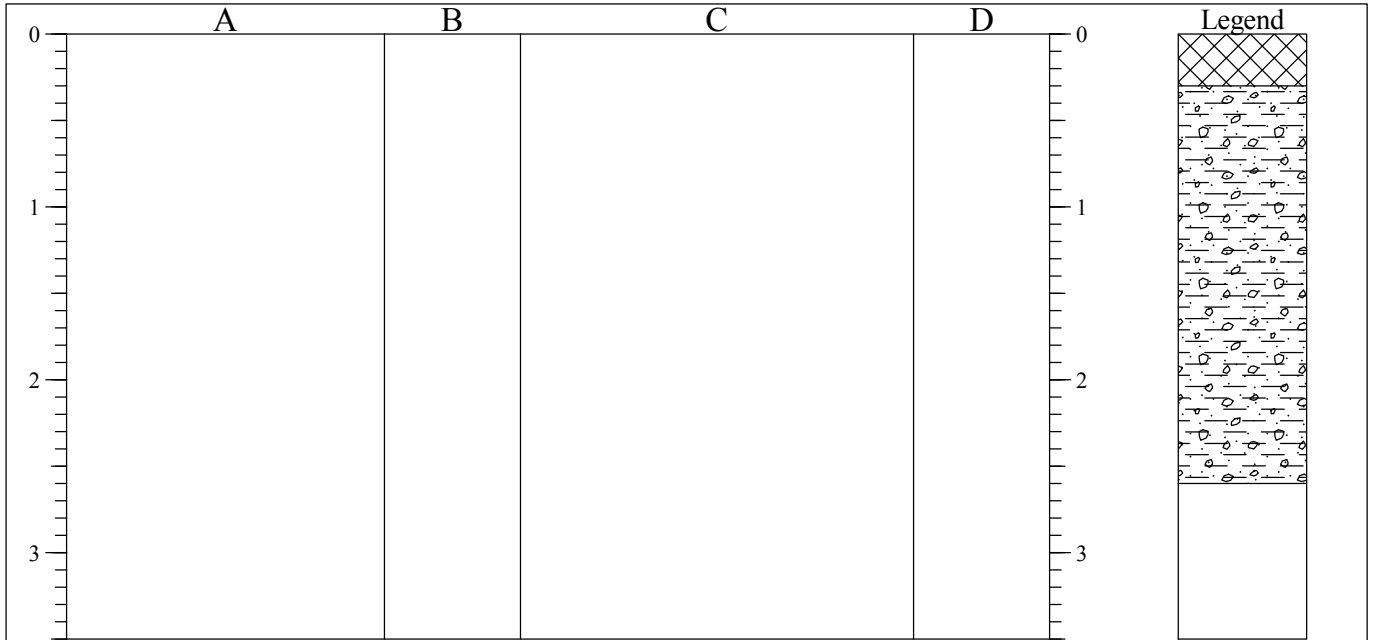
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP115
Job No 21-168	Date 07-06-21	Ground Level (m) 13.82	Co-Ordinates () E 428,754.3 N 583,550.6	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)	0.10-0.30	J	
0.30-2.60		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.60	CBR	4.0%
			0.70-0.90	B	
			1.00	V	102kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
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All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
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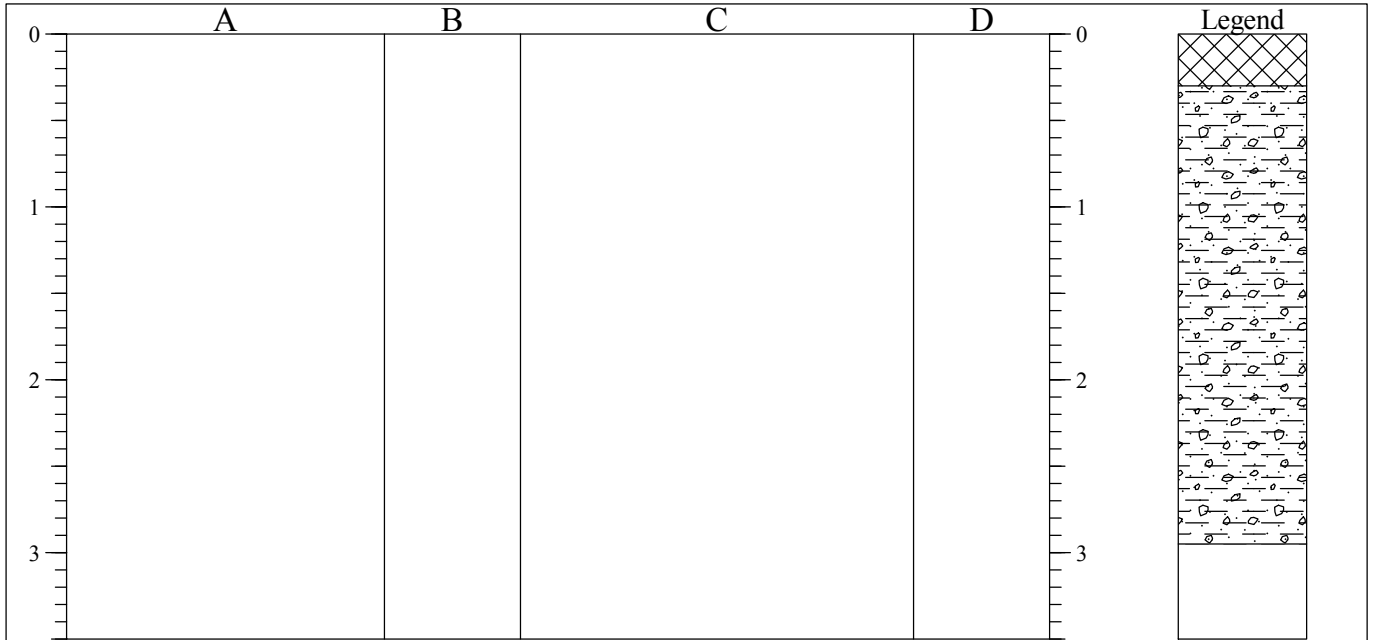
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TRIAL PIT LOG

Project Land at Springville, East Sleekburn				TRIAL PIT No TP116
Job No 21-168	Date 07-06-21	Ground Level (m) 13.48	Co-Ordinates () E 428,728.7 N 583,560.2	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Unmanaged grass overlying dark brown clayey sandy soil with fine roots and occasional fragments of brick (MADE GROUND)	0.10-0.30	J	
0.30-2.95		Stiff (high strength) brown mottled grey sandy gravelly CLAY with occasional sandstone cobbles and fragments of coal (GLACIAL TILL)	0.50	CBR	4.0%
			1.00	V	86kN/m ²
			1.10-1.30	B	
			2.00	V	>120kN/m ²

<p>Shoring/Support: Stability:</p> <div style="text-align: center;"> </div>	<p>GENERAL REMARKS</p> <p>WATER: Trial pit dry.</p>
---	--

All dimensions in metres Scale 1:43.75	Client Amethyst Homes	Method/ Plant Used Mechanically excavated	Logged By DM
---	------------------------------	---	------------------------

AGS3 UK TP 21-168 LOGS.GPJ AGS3_ALL.GDT 8/6/21

APPENDIX III

Laboratory Results



LABORATORY REPORT



4043

Contract Number: PSL13/4560

Client's Reference:

Report Date: 25 November 2013

Client Name: Arc Environmental
Solum House
Unit 1 Elliott Court
St Johns Road, Meadowfield
Durham
DH7 8PN

For the attention of: John Ditchburn

Contract Title: Spring Ville, East Sleekburn, Bedlington

Date Received: 14/11/2013

Date Commenced: 14/11/2013

Date Completed: 25/11/2013

Notes: Observations and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)



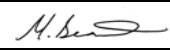
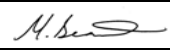

M Beastall
(Laboratory Manager)

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

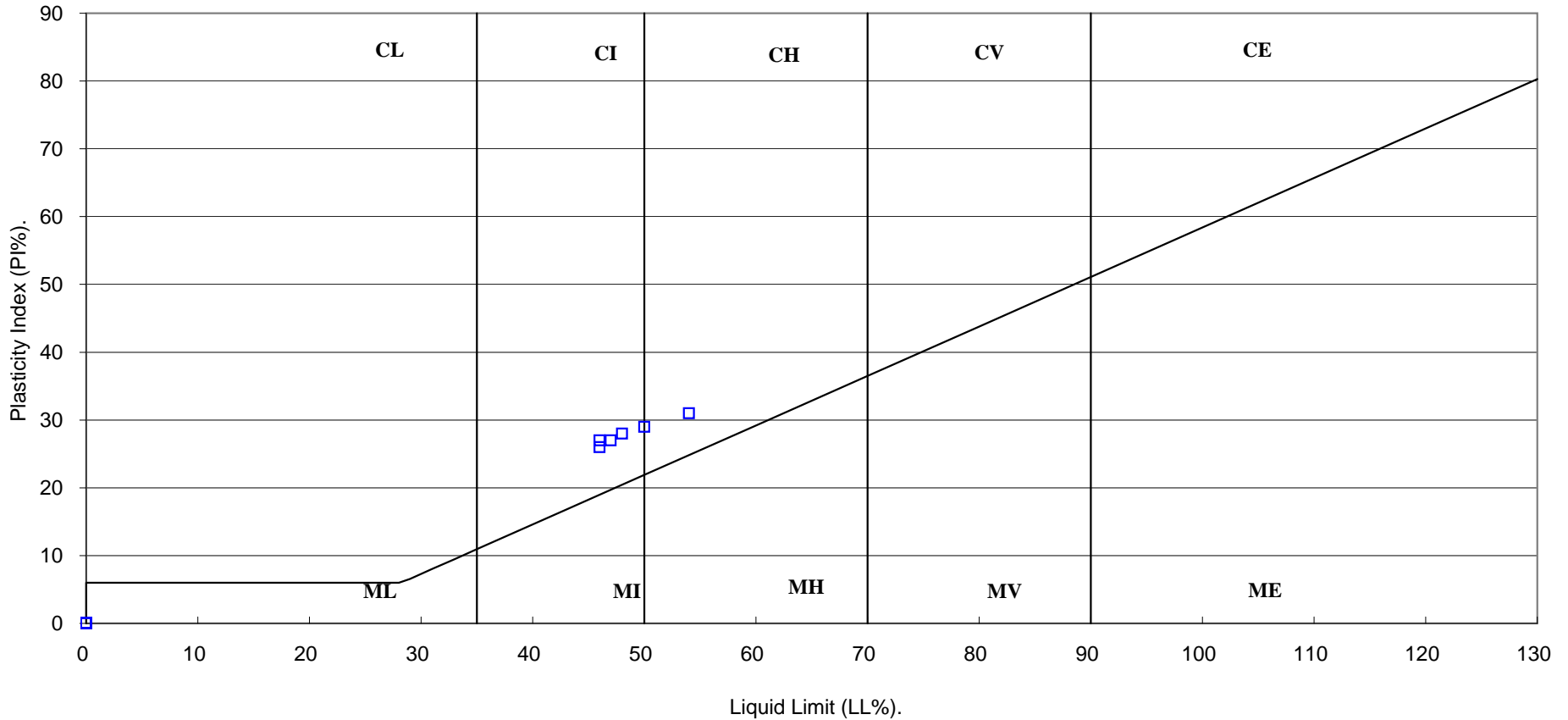
Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % <small>Clause 3.2</small>	Bulk Density Mg/m ³ <small>Clause 7.2</small>	Dry Density Mg/m ³ <small>Clause 7.2</small>	Particle Density Mg/m ³ <small>Clause 8.</small>	Liquid Limit % <small>Clause 4.3/4.4</small>	Plastic Limit % <small>Clause 5.</small>	Plasticity Index % <small>Clause 5.4</small>	% Passing .425mm	Remarks
TP01			1.00	19				50	21	29	72	High plasticity CH.
TP02			1.50	19				48	20	28	75	Intermediate plasticity CI.
TP05			1.00	22				54	23	31	78	High plasticity CH.
TP06			2.50	17				47	20	27	72	Intermediate plasticity CI.
TP09			1.50	20				46	20	26	76	Intermediate plasticity CI.
BH04			3.00-4.00	20				46	19	27	82	Intermediate plasticity CI.


SYMBOLS : NP : Non Plastic

	Compiled by	Date	Checked by	Date	Approved by	Date
		25/11/13		25/11/13		25/11/13
	SPRING VILE, EAST SLEEKBURN, BEDLINGTON.					Contract No:
					Client Ref:	13-554

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



 Professional Soils Laboratory	Compiled by	Date	Checked by	Date	Approved by	Date	
	<i>[Signature]</i>	25/11/13	<i>[Signature]</i>	25/11/13	<i>[Signature]</i>	25/11/13	
	SPRING VILE, EAST SLEEKBURN, BEDLINGTON.					Contract No:	PSL13/4560
						Client Ref:	13-554



ANALYTICAL TEST REPORT

Contract no: 49557(1)
Contract name: Spring Ville, East Sleekburn, Bedlington
Client reference: 13-554
Clients name: ARC Environmental
Clients address: Solum House
Unit 1 Elliott Court
St Johns Road, Meadowfield
DH7 8PN

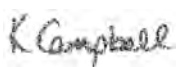
Samples received: 13 November 2013
Analysis started: 13 November 2013
Analysis completed 10 December 2013
Report issued: 11 December 2013

This is a supplementary report to report number 49557 issued 21 November 2013.

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing
NAD No Asbestos Detected

Approved by:



Karan Campbell John Campbell
Director Director

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are exclusive of stones.

Lab ref	Sample id	Depth (m)	Soil description passing 2mm sieve	Description of material retained on 2mm sieve	% Retained on 2mm sieve	Moisture (%)
49557-1	BH 1	1.00-2.00	Clay	N/A	<1	14.6
49557-2	TP 1	0.50	Loamy Clay	N/A	<1	14.5
49557-3	TP 2	1.50	Clay	Stones & Gravel	20.9	14.3
49557-4	TP 4	0.30	Clay	N/A	<1	23.1
49557-5	TP 6	0.30	Clay	N/A	<1	19.9
49557-6	TP 7	1.00	Clay	N/A	<1	17.4
49557-7	TP 8	0.30	Loamy Clay	Gravel	17.0	20.0
49557-8	TP 10	0.75	Clay	Stones & Gravel	22.2	17.0
49557-9	TP 11	0.25	Sandy Loamy Clay	Slag & Gravel	32.1	22.7
49557-10	TP 12	0.20	Sandy Loamy Clay	Gravel	12.4	18.9

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SOILS

Lab number			49557-1	49557-2	49557-3	49557-4	49557-5	49557-6
Sample id			BH 1	TP 1	TP 2	TP 4	TP 6	TP 7
Depth (m)			0.00	0.00	0.00	0.00	0.00	0.00
Date sampled			06/11/2013	06/11/2013	06/11/2013	06/11/2013	06/11/2013	06/11/2013
Test	Method	Units						
Arsenic (total)	CE054 ^M	mg/kg As	-	5.7	-	6.8	9.1	-
Cadmium (total)	CE054 ^M	mg/kg Cd	-	<0.2	-	<0.2	<0.2	-
Chromium (total)	CE054 ^M	mg/kg Cr	-	34	-	32	30	-
Chromium (III)	-	mg/kg CrIII	-	34	-	32	30	-
Chromium (VI)	CE050	mg/kg CrVI	-	<1	-	<1	<1	-
Copper (total)	CE054 ^M	mg/kg Cu	-	13	-	14	15	-
Lead (total)	CE054 ^M	mg/kg Pb	-	24	-	47	44	-
Mercury (total)	CE054	mg/kg Hg	-	<0.5	-	<0.5	<0.5	-
Nickel (total)	CE054 ^M	mg/kg Ni	-	28	-	20	18	-
Selenium (total)	CE054 ^M	mg/kg Se	-	1.2	-	1.2	1.0	-
Zinc (total)	CE054 ^M	mg/kg Zn	-	56	-	62	65	-
pH	CE004 ^M	units	8.2	6.9	8.2	6.8	5.6	8.1
Sulphate (2:1 water soluble)	CE049 ^U	mg/l SO ₄	36	24	53	<10	12	38
Cyanide (free)	CE077	mg/kg CN	-	<2	-	<2	<2	-
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	-	1.03	-	2.77	2.45	-
PAH								
Acenaphthene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Acenaphthylene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Anthracene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Benzo(a)anthracene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Benzo(a)pyrene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Benzo(b)fluoranthene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Benzo(ghi)perylene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Benzo(k)fluoranthene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Chrysene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Dibenz(ah)anthracene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Fluoranthene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Fluorene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Indeno(123cd)pyrene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Naphthalene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Phenanthrene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
Pyrene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
PAH (total of USEPA 16)	CE087	mg/kg	-	<5	-	<5	<5	-
Benzo(j)fluoranthene	CE087	mg/kg	-	<0.1	-	<0.1	<0.1	-
PAH (total of OIL 8)	CE087	mg/kg	-	<5	-	<5	<5	-
TPH								
TPH (C5-C7)	CE067	mg/kg	-	<0.1	-	<0.1	<0.1	-
TPH (C7-C8)	CE067	mg/kg	-	<0.1	-	<0.1	<0.1	-
TPH (C8-C10)	CE067	mg/kg	-	0.3	-	<0.1	0.3	-
TPH (C10-C12)	CE033	mg/kg	-	<1	-	<1	1	-

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SOILS

Lab number			49557-1	49557-2	49557-3	49557-4	49557-5	49557-6
Sample id			BH 1	TP 1	TP 2	TP 4	TP 6	TP 7
Depth (m)			0.00	0.00	0.00	0.00	0.00	0.00
Date sampled			06/11/2013	06/11/2013	06/11/2013	06/11/2013	06/11/2013	06/11/2013
Test	Method	Units						
TPH (C12-C16)	CE033	mg/kg	-	<1	-	<1	1	-
TPH (C16-C21)	CE033	mg/kg	-	<1	-	2	4	-
TPH (C21-C35)	CE033	mg/kg	-	2	-	5	12	-
TPH (C35-C44)	CE033	mg/kg	-	<1	-	<1	<1	-
Subcontracted analysis								
Asbestos	\$	-	-	NAD	-	NAD	NAD	-
Pesticides								
Organochlorine pesticides	CE065	mg/kg	-	-	<0.01	-	-	-
Organophosphate pesticides	CE065	mg/kg	-	-	<0.01	-	-	-

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SOILS

Lab number			49557-7	49557-8	49557-9	49557-10
Sample id			TP 8	TP 10	TP 11	TP 12
Depth (m)			0.00	0.00	0.00	0.00
Date sampled			06/11/2013	06/11/2013	06/11/2013	06/11/2013
Test	Method	Units				
Arsenic (total)	CE054 ^M	mg/kg As	8.8	-	11	6.9
Cadmium (total)	CE054 ^M	mg/kg Cd	0.6	-	0.7	<0.2
Chromium (total)	CE054 ^M	mg/kg Cr	32	-	38	32
Chromium (III)	-	mg/kg CrIII	32	-	38	32
Chromium (VI)	CE050	mg/kg CrVI	<1	-	<1	<1
Copper (total)	CE054 ^M	mg/kg Cu	31	-	61	18
Lead (total)	CE054 ^M	mg/kg Pb	128	-	173	41
Mercury (total)	CE054	mg/kg Hg	<0.5	-	<0.5	<0.5
Nickel (total)	CE054 ^M	mg/kg Ni	34	-	62	24
Selenium (total)	CE054 ^M	mg/kg Se	1.4	-	2.0	1.2
Zinc (total)	CE054 ^M	mg/kg Zn	275	-	300	69
pH	CE004 ^M	units	6.3	7.1	6.2	6.8
Sulphate (2:1 water soluble)	CE049 ^U	mg/l SO ₄	20	35	20	11
Cyanide (free)	CE077	mg/kg CN	<2	-	<2	<2
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	4.87	-	14.32	2.09
PAH						
Acenaphthene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Acenaphthylene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Anthracene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Benzo(a)anthracene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Benzo(a)pyrene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Benzo(b)fluoranthene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Benzo(ghi)perylene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Benzo(k)fluoranthene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Chrysene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Dibenz(ah)anthracene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Fluoranthene	CE087	mg/kg	0.1	-	<0.1	<0.1
Fluorene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Indeno(123cd)pyrene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Naphthalene	CE087	mg/kg	<0.1	-	<0.1	<0.1
Phenanthrene	CE087	mg/kg	0.1	-	0.1	<0.1
Pyrene	CE087	mg/kg	0.1	-	<0.1	<0.1
PAH (total of USEPA 16)	CE087	mg/kg	<5	-	<5	<5
Benzo(j)fluoranthene	CE087	mg/kg	<0.1	-	<0.1	<0.1
PAH (total of OIL 8)	CE087	mg/kg	<5	-	<5	<5
TPH						
TPH (C5-C7)	CE067	mg/kg	<0.1	-	<0.1	<0.1
TPH (C7-C8)	CE067	mg/kg	<0.1	-	<0.1	<0.1
TPH (C8-C10)	CE067	mg/kg	0.3	-	0.3	0.3
TPH (C10-C12)	CE033	mg/kg	<1	-	<1	<1

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SOILS

Lab number			49557-7	49557-8	49557-9	49557-10
Sample id			TP 8	TP 10	TP 11	TP 12
Depth (m)			0.00	0.00	0.00	0.00
Date sampled			06/11/2013	06/11/2013	06/11/2013	06/11/2013
Test	Method	Units				
TPH (C12-C16)	CE033	mg/kg	4	-	6	<1
TPH (C16-C21)	CE033	mg/kg	10	-	15	<1
TPH (C21-C35)	CE033	mg/kg	16	-	18	<1
TPH (C35-C44)	CE033	mg/kg	<1	-	<1	1
Subcontracted analysis						
Asbestos	\$	-	NAD	-	NAD	NAD
Pesticides						
Organochlorine pesticides	CE065	mg/kg	<0.01	-	-	-
Organophosphate pesticides	CE065	mg/kg	<0.01	-	-	-

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE054	Arsenic (total)	Aqua regia digest, ICP-OES	Dry	M	1	mg/kg As
CE054	Cadmium (total)	Aqua regia digest, ICP-OES	Dry	M	0.2	mg/kg Cd
CE054	Chromium (total)	Aqua regia digest, ICP-OES	Dry	M	1	mg/kg Cr
-	Chromium (III)	Calculation: Cr (total) - Cr (VI)	Dry		1	mg/kg CrIII
CE050	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE054	Copper (total)	Aqua regia digest, ICP-OES	Dry	M	1	mg/kg Cu
CE054	Lead (total)	Aqua regia digest, ICP-OES	Dry	M	1	mg/kg Pb
CE054	Mercury (total)	Aqua regia digest, ICP-OES	Dry		0.5	mg/kg Hg
CE054	Nickel (total)	Aqua regia digest, ICP-OES	Dry	M	1	mg/kg Ni
CE054	Selenium (total)	Aqua regia digest, ICP-OES	Dry	M	0.3	mg/kg Se
CE054	Zinc (total)	Aqua regia digest, ICP-OES	Dry	M	3	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	Wet	M	-	units
CE049	Sulphate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	10	mg/l SO ₄
CE077	Cyanide (free)	Extraction, Continuous Flow Colorimetry	Wet		2	mg/kg CN
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	M	0.1	% w/w C
CE087	PAH (speciated)	Solvent extraction, GC-MS	Wet		0.1	mg/kg
CE087	PAH (total)	Solvent extraction, GC-MS	Wet		5	mg/kg
CE067	TPH (C5-C10) speciation	Headspace GC-FID	Wet		0.1	mg/kg
CE033	TPH (C10-C40) speciation	Solvent extraction, GC-FID	Wet		1	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-
CE065	Organochlorine pesticides	Solvent extraction, GC-MS	Wet		0.01	mg/kg
CE065	Organophosphate pesticides	Solvent extraction, GC-MS	Wet		0.01	mg/kg

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DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

- N No (not deviating sample)
- Y Yes (deviating sample)
- A Sampling date not provided
- B Sampling time not provided (waters only)
- C Sample exceeded holding time(s)
- D Sample not received in appropriate containers
- E Headspace present in sample container
- F Sample not chemically fixed (where appropriate)
- G Sample not cooled
- H Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
49557-1	BH 1	1.00-2.00	N	
49557-2	TP 1	0.50	N	
49557-3	TP 2	1.50	N	
49557-4	TP 4	0.30	N	
49557-5	TP 6	0.30	N	
49557-6	TP 7	1.00	N	
49557-7	TP 8	0.30	N	
49557-8	TP 10	0.75	N	
49557-9	TP 11	0.25	N	
49557-10	TP 12	0.20	N	



ANALYTICAL TEST REPORT

Contract no: 97483
Contract name: Springville, East Sleekburn
Client reference: 21-168
Clients name: ARC Environmental
Clients address: Solum House, Unit 1 Elliott Court
St Johns Road
Meadowfield
DH7 8PN

Samples received: 17 June 2021
Analysis started: 17 June 2021
Analysis completed: 24 June 2021
Report issued: 24 June 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed. BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing
NAD No Asbestos Detected

Approved by:

Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
97483-1	TP101	0.00-0.20	Loamy Sand with Gravel & Roots	-	-	17.6
97483-2	TP102	0.30-0.50	Sandy Clay with Gravel	-	-	14.9
97483-3	TP103	0.10-0.30	Sandy Clay with Gravel	-	-	15.9
97483-4	TP105	0.00-0.20	Loamey Sand with Gravel & Roots	-	-	20.4
97483-5	TP106	0.00-0.30	Clayey Sand with Gravel	-	-	16.5
97483-6	TP111	0.40-0.60	Loamey Sand with Gravel	-	-	19.5
97483-7	TP113	0.20-0.40	Sandy Clay With Gravel	-	-	16.7
97483-8	TP115	0.10-0.30	Sandy Clay With Gravel	-	-	19.2

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SOILS

Lab number			97483-1	97483-2	97483-3	97483-4	97483-5	97483-6
Sample id			TP101	TP102	TP103	TP105	TP106	TP111
Depth (m)			0.00-0.20	0.30-0.50	0.10-0.30	0.00-0.20	0.00-0.30	0.40-0.60
Date sampled			07/06/2021	07/06/2021	07/06/2021	07/06/2021	07/06/2021	07/06/2021
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	6.6	5.8	5.9	6.8	6.4	18
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	<0.2	<0.2	<0.2	<0.2	1.4
Chromium (total)	CE127 ^M	mg/kg Cr	67	66	62	80	74	51
Chromium (III)	CE208	mg/kg CrIII	67	66	62	80	74	51
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	29	23	24	21	26	105
Lead (total)	CE127 ^M	mg/kg Pb	48	16	17	45	20	143
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	31	45	46	28	49	70
Selenium (total)	CE127 ^M	mg/kg Se	1.1	1.2	1.2	1.1	1.1	2.5
Zinc (total)	CE127 ^M	mg/kg Zn	90	57	59	79	62	556
pH	CE004 ^M	units	7.6	8.6	8.4	8.0	8.2	8.0
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	20	48	39	22	68	46
Cyanide (free)	CE077	mg/kg CN	<1	<1	<1	<1	<1	<1
Total Organic Carbon (TOC)	CE197	% w/w C	3.7	1.2	1.4	3.3	1.3	33.6
PAH								
Acenaphthene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	0.16
Acenaphthylene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	0.06
Anthracene	CE087 ^U	mg/kg	0.05	<0.02	<0.02	<0.02	<0.02	0.53
Benzo(a)anthracene	CE087 ^U	mg/kg	0.33	<0.02	<0.02	0.04	<0.02	1.93
Benzo(a)pyrene	CE087 ^U	mg/kg	0.37	<0.02	<0.02	0.05	<0.02	1.63
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.52	<0.02	<0.02	0.05	<0.02	2.11
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.34	<0.02	<0.02	0.03	<0.02	1.08
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.20	<0.03	<0.03	<0.03	<0.03	0.85
Chrysene	CE087 ^M	mg/kg	0.35	<0.03	<0.03	0.05	<0.03	2.08
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.07	<0.02	<0.02	<0.02	<0.02	0.25
Fluoranthene	CE087 ^M	mg/kg	0.68	0.03	<0.02	0.10	<0.02	3.92
Fluorene	CE087 ^U	mg/kg	0.02	<0.02	<0.02	<0.02	<0.02	0.22
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.40	<0.02	<0.02	0.03	<0.02	1.34
Naphthalene	CE087 ^M	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	0.09
Phenanthrene	CE087 ^M	mg/kg	0.27	0.05	<0.02	0.05	<0.02	2.17
Pyrene	CE087 ^M	mg/kg	0.60	0.03	<0.02	0.08	<0.02	3.21
PAH (total of USEPA 16)	CE087	mg/kg	4.20	<0.34	<0.34	0.49	<0.34	21.6
Benzo(j)fluoranthene	CE087	mg/kg	0.07	<0.02	<0.02	<0.02	<0.02	0.28
PAH (total of OIL 8)	CE087	mg/kg	2.31	<0.18	<0.18	0.22	<0.18	10.5
BTEX & TPH								
Benzene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethylbenzene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
m & p-Xylene	CE192 ^U	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
o-Xylene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

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SOILS

Lab number			97483-1	97483-2	97483-3	97483-4	97483-5	97483-6
Sample id			TP101	TP102	TP103	TP105	TP106	TP111
Depth (m)			0.00-0.20	0.30-0.50	0.10-0.30	0.00-0.20	0.00-0.30	0.40-0.60
Date sampled			07/06/2021	07/06/2021	07/06/2021	07/06/2021	07/06/2021	07/06/2021
Test	Method	Units						
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	<4	<4	<4	<4	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	22	<4	<4	<4	30
EPH Aliphatic (>C16-C35)	CE068	mg/kg	20	73	<4	29	20	509
EPH Aliphatic (>C35-C44)	CE068	mg/kg	<10	<10	<10	<10	<10	92
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	<1	<1	<1	<1	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	<1	<1	<1	<1	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	3	<1	<1	<1	<1	11
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	3	<1	<1	<1	<1	11
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	<1	<1	<1	<1	2
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD

Chemtech Environmental Limited

SOILS

Lab number			97483-7	97483-8
Sample id			TP113	TP115
Depth (m)			0.20-0.40	0.10-0.30
Date sampled			07/06/2021	07/06/2021
Test	Method	Units		
Arsenic (total)	CE127 ^M	mg/kg As	6.9	7.2
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	0.5
Chromium (total)	CE127 ^M	mg/kg Cr	68	73
Chromium (III)	CE208	mg/kg CrIII	68	73
Chromium (VI)	CE146	mg/kg CrVI	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	25	27
Lead (total)	CE127 ^M	mg/kg Pb	26	75
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	47	33
Selenium (total)	CE127 ^M	mg/kg Se	1.1	1.3
Zinc (total)	CE127 ^M	mg/kg Zn	74	178
pH	CE004 ^M	units	8.4	6.7
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	51	35
Cyanide (free)	CE077	mg/kg CN	<1	<1
Total Organic Carbon (TOC)	CE197	% w/w C	2.0	7.0
PAH				
Acenaphthene	CE087 ^M	mg/kg	<0.02	<0.02
Acenaphthylene	CE087 ^M	mg/kg	<0.02	<0.02
Anthracene	CE087 ^U	mg/kg	<0.02	<0.02
Benzo(a)anthracene	CE087 ^U	mg/kg	<0.02	0.08
Benzo(a)pyrene	CE087 ^U	mg/kg	<0.02	0.09
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.02	0.12
Benzo(ghi)perylene	CE087 ^M	mg/kg	<0.02	0.07
Benzo(k)fluoranthene	CE087 ^M	mg/kg	<0.03	0.05
Chrysene	CE087 ^M	mg/kg	<0.03	0.09
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02	<0.02
Fluoranthene	CE087 ^M	mg/kg	0.03	0.16
Fluorene	CE087 ^U	mg/kg	<0.02	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	<0.02	0.08
Naphthalene	CE087 ^M	mg/kg	<0.02	<0.02
Phenanthrene	CE087 ^M	mg/kg	0.04	0.08
Pyrene	CE087 ^M	mg/kg	0.03	0.13
PAH (total of USEPA 16)	CE087	mg/kg	<0.34	0.94
Benzo(j)fluoranthene	CE087	mg/kg	<0.02	<0.02
PAH (total of OIL 8)	CE087	mg/kg	<0.18	0.51
BTEX & TPH				
Benzene	CE192 ^U	mg/kg	<0.01	<0.01
Toluene	CE192 ^U	mg/kg	<0.01	<0.01
Ethylbenzene	CE192 ^U	mg/kg	<0.01	<0.01
m & p-Xylene	CE192 ^U	mg/kg	<0.02	<0.02
o-Xylene	CE192 ^U	mg/kg	<0.01	<0.01

Chemtech Environmental Limited

SOILS

Lab number			97483-7	97483-8
Sample id			TP113	TP115
Depth (m)			0.20-0.40	0.10-0.30
Date sampled			07/06/2021	07/06/2021
Test	Method	Units		
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	<4
EPH Aliphatic (>C16-C35)	CE068	mg/kg	<4	30
EPH Aliphatic (>C35-C44)	CE068	mg/kg	<10	11
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	<1	<1
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	<1	<1
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	<1
Subcontracted analysis				
Asbestos (qualitative)	\$	-	NAD	NAD

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE208	Chromium (III)	Calculation: Cr (total) - Cr (VI)	Dry		1	mg/kg CrIII
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO ₄
CE077	Cyanide (free)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE087	Benzo(j)fluoranthene	Solvent extraction, GC-MS	As received		0.02	mg/kg
CE087	PAH (total of OIL 8)	Solvent extraction, GC-MS	As received		0.18	mg/kg
CE192	Benzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	m & p-Xylene	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received	U	0.01	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	As received		4	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-FID	As received		10	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-FID	As received		1	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

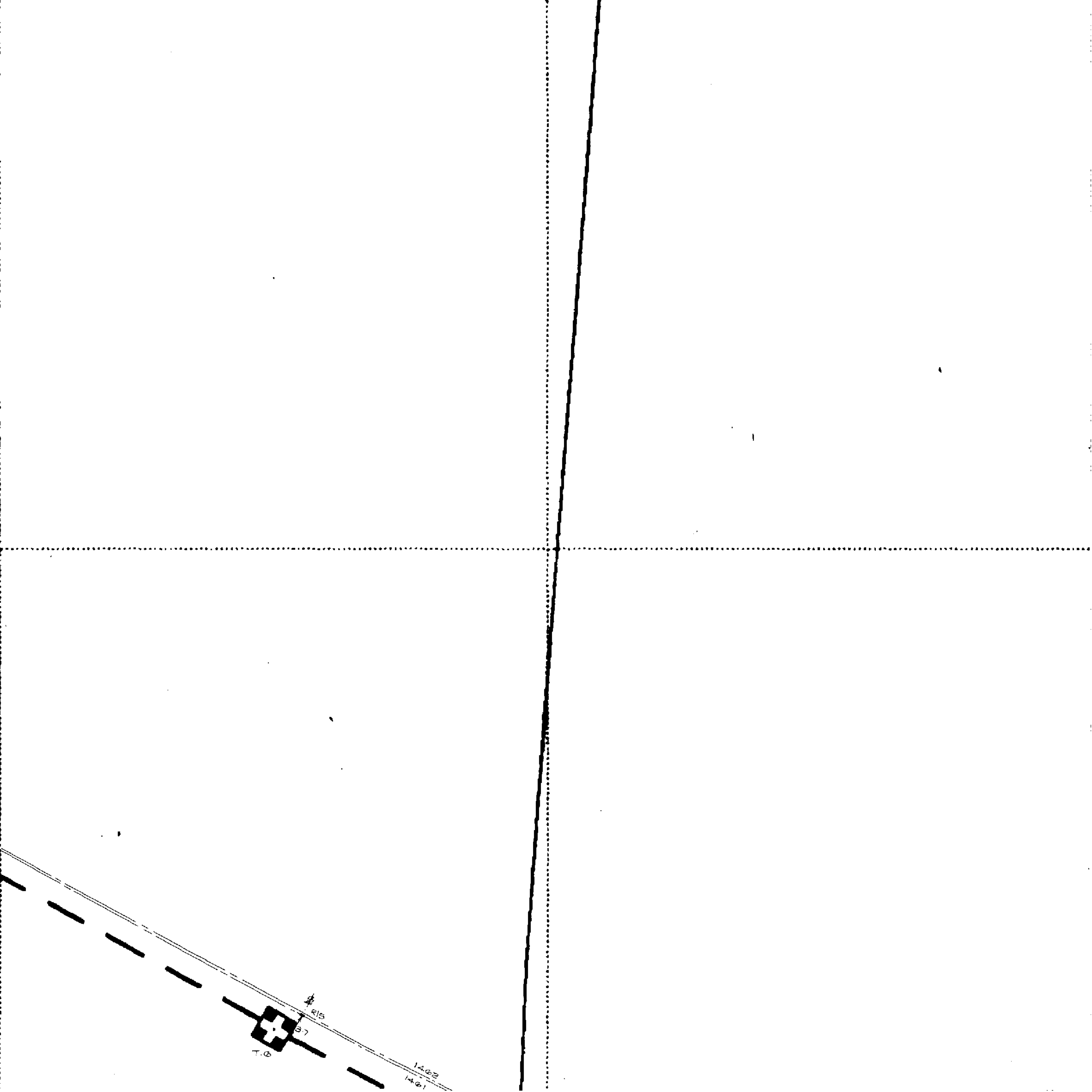
Key

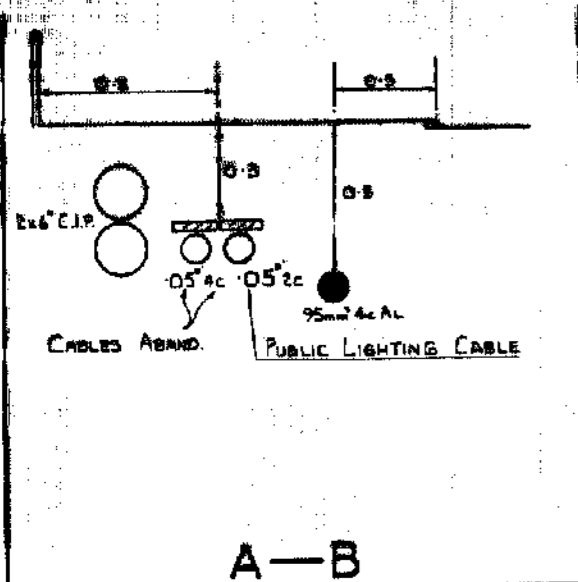
N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
97483-1	TP101	0.00-0.20	N	
97483-2	TP102	0.30-0.50	N	
97483-3	TP103	0.10-0.30	N	
97483-4	TP105	0.00-0.20	N	
97483-5	TP106	0.00-0.30	N	
97483-6	TP111	0.40-0.60	N	
97483-7	TP113	0.20-0.40	N	
97483-8	TP115	0.10-0.30	N	

APPENDIX IV

Statutory Service Plans





THE NORTH EASTERN ELECTRICITY BOARD
 EAST NORTHUMBERLAND DISTRICT



DRG. No.
 NZ 286832 5

Pumping
5m
East Sleekburn
Bridge

R M
28.00

7639
3.84

Bridge
Cottage

6634
40

6630
32

High Water Mark of Medium Tides

7834
31

6133
45

6229
49

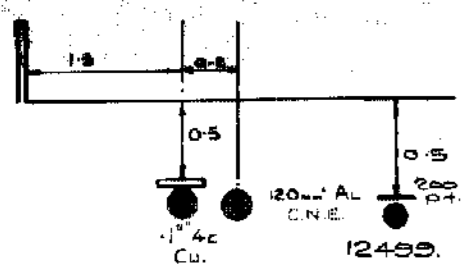
S L E E K

Foot Bridge

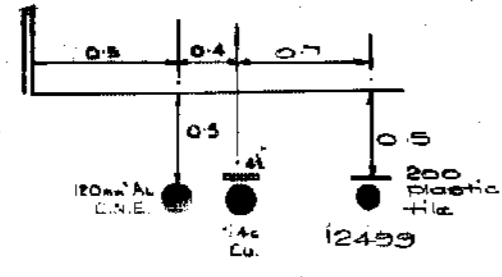
Ward Bdy
CCLW

High Water Mark of Medium Tides

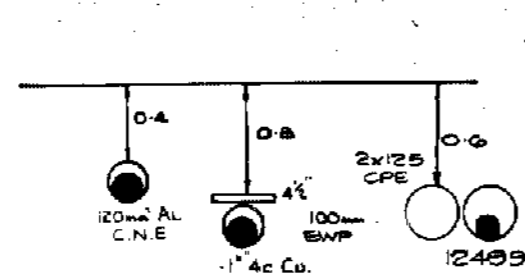
M U



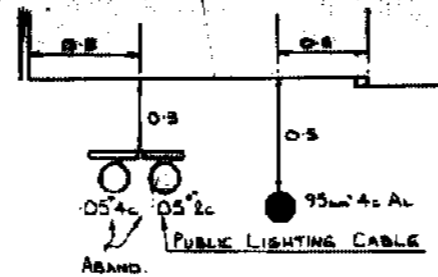
A-B



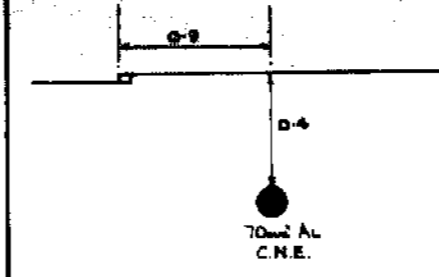
B-C



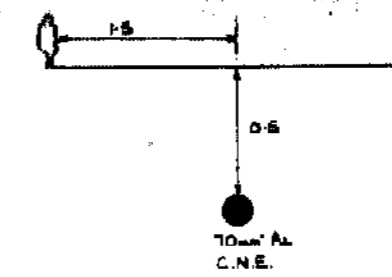
C-D



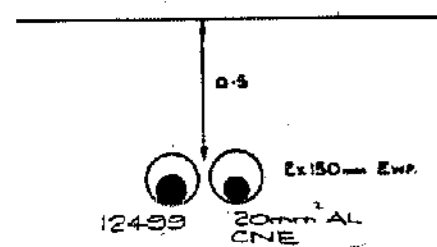
D-E



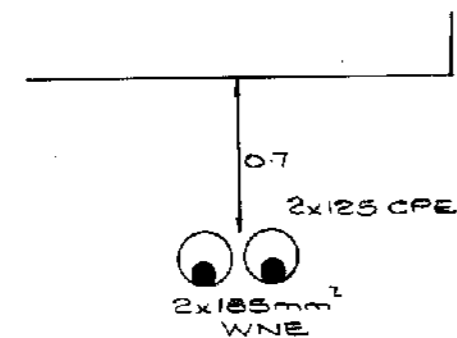
E-F



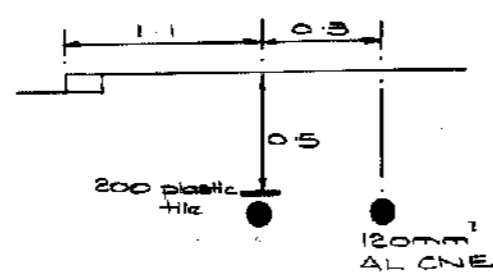
F-G



G-H



H-J

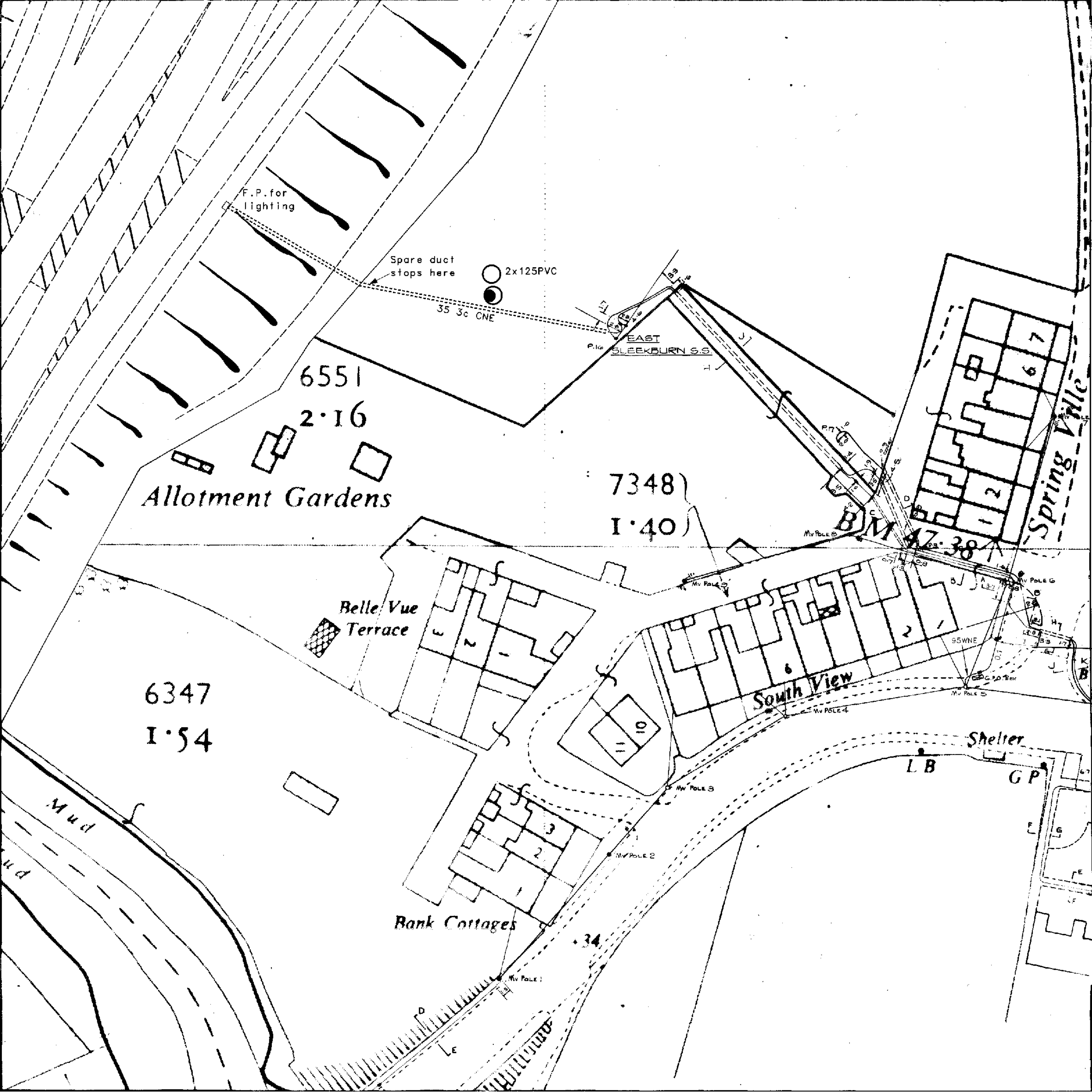


J-K

THE NORTH EASTERN ELECTRICITY BOARD
EAST NORTHUMBERLAND DISTRICT



DRG. No. NZ 286834 S



F.P. for lighting

Spare duct stops here

2x125PVC

35 3c CNE

EAST SLEEKBURN S.S.

6551

2.16

Allotment Gardens

7348)

I.40)

B.M. 47.38

Spring Vale

Belle Vue Terrace

6347

I.54

South View

Shelter

Bank Cottages

Mud

Mud

LB

GP

34

M.V. POLE 1

M.V. POLE 2

M.V. POLE 3

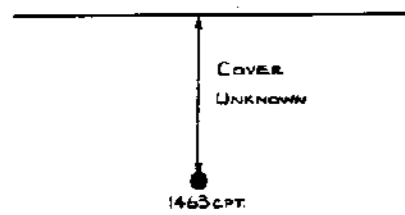
M.V. POLE 4

M.V. POLE 5

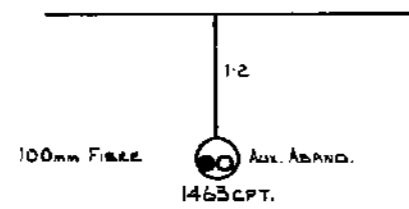
M.V. POLE 6

95WNE

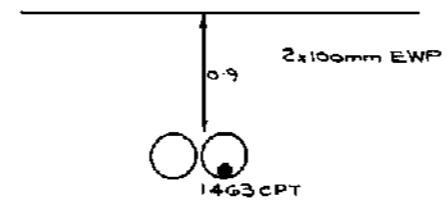
M.V. POLE 5



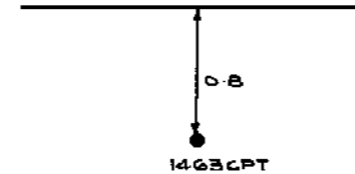
A-B



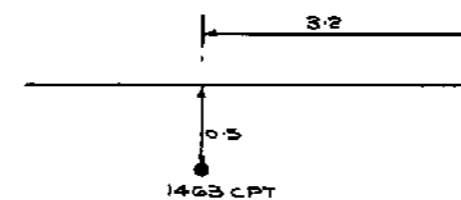
B-C



C-D



D-E



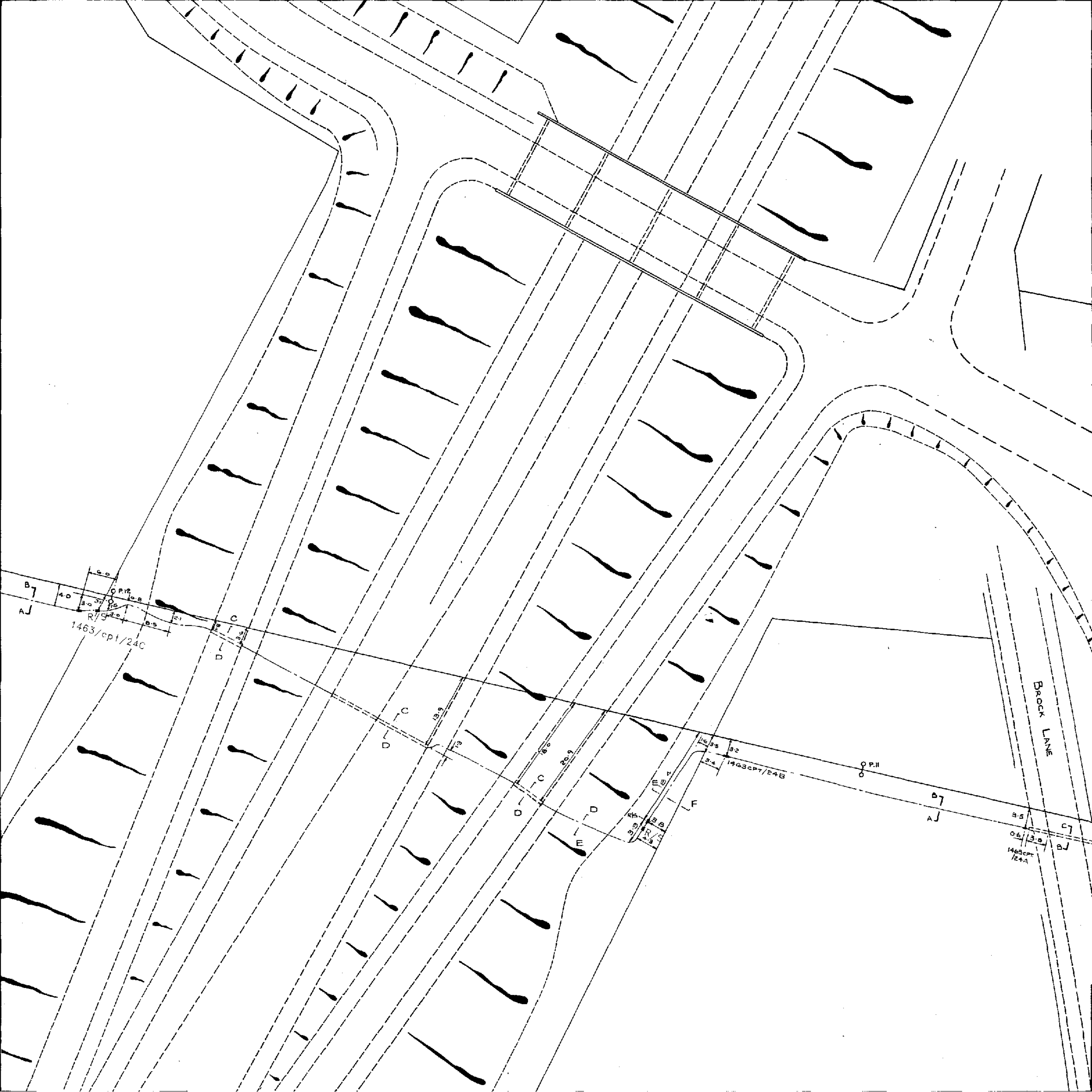
E-F

THE NORTH EASTERN ELECTRICITY BOARD
EAST NORTHUMBERLAND DISTRICT



DRG. No.

NZ 286836



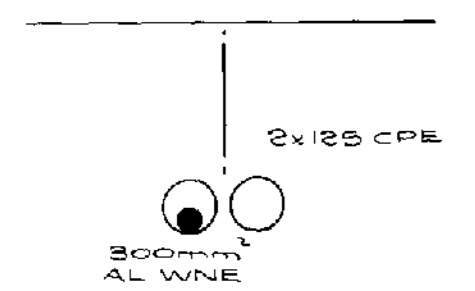
B7
AJ
6.0
4.0
3.0
0.8
R/S
1463/cpt/24C
0.5
2.1
C
D

C
D
13.5
7.3
20.3
E
D
F

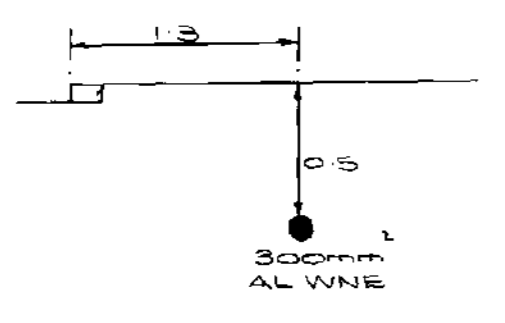
14635
32
1463CPT/24B
5.4
O.P.11

B7
AJ
3.5
0.6
3.8
1463CPT
124A
C7
BJ

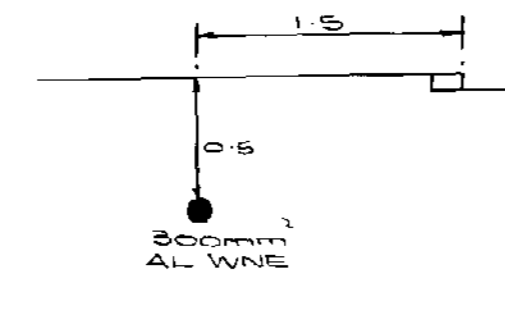
BROCK LANE



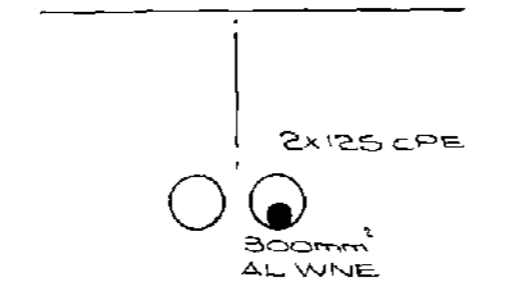
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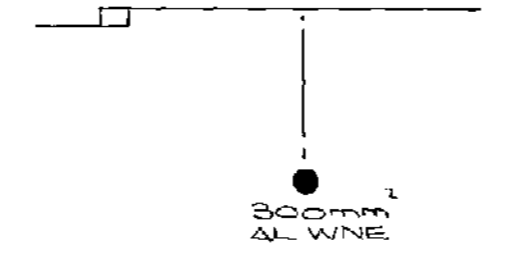
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C - D

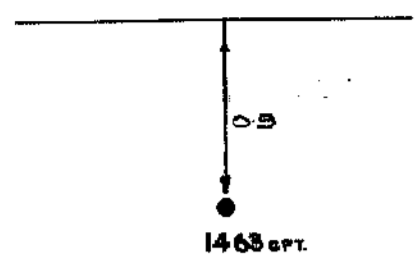


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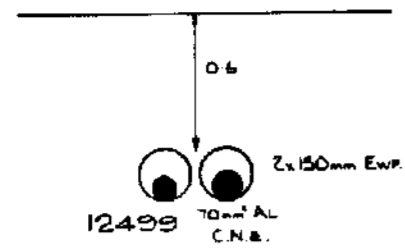


E - F

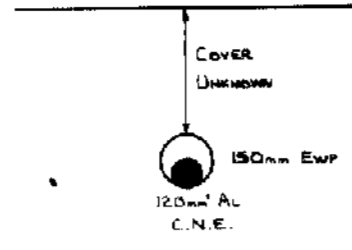
THE NORTH EASTERN ELECTRICITY BOARD NORTH TYNE DISTRICT	
	DETAIL SHEET OF
	O.S. REF. NZ 288832



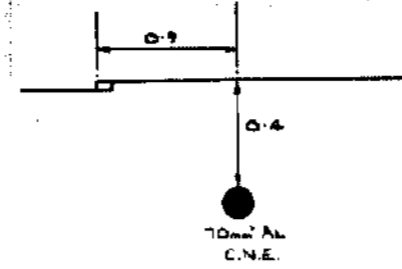
A-B



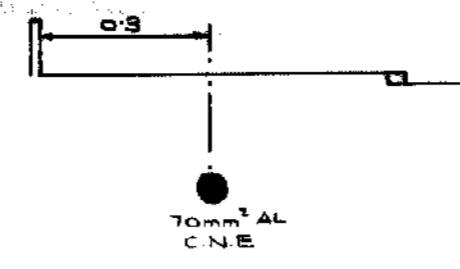
B-C



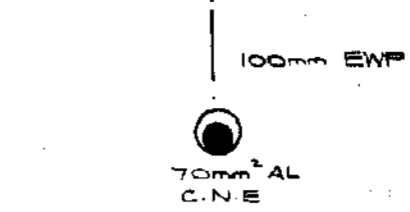
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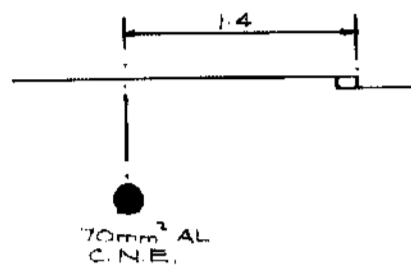
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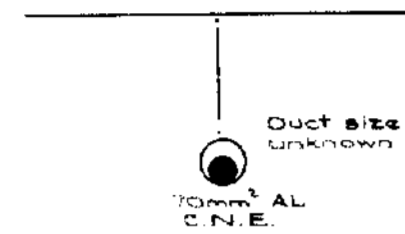
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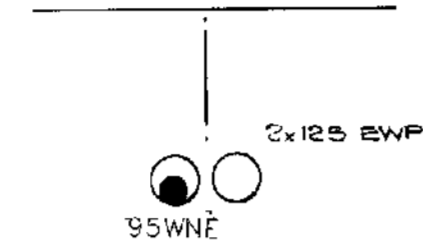
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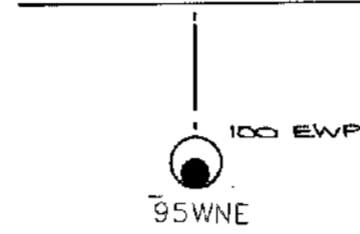
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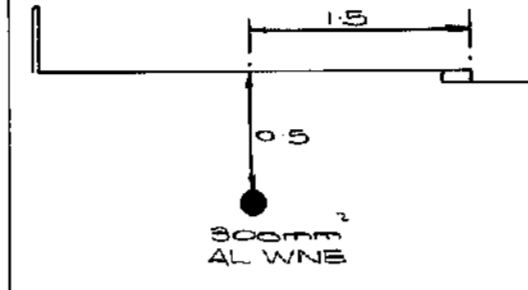
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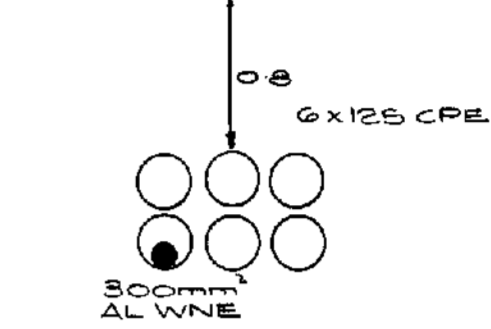
J-K



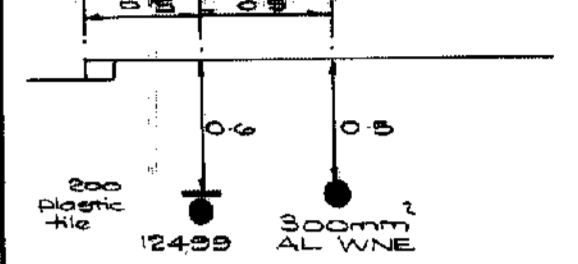
K-L



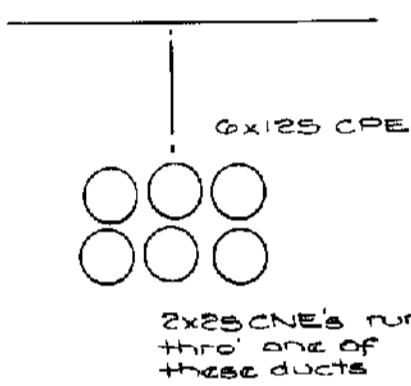
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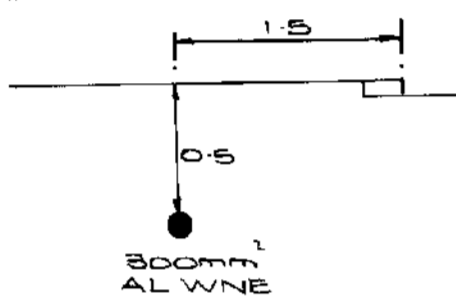
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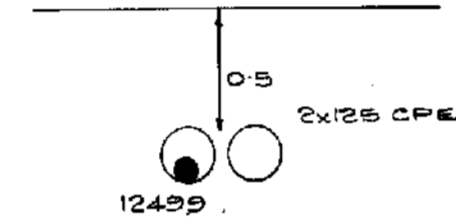
N-O



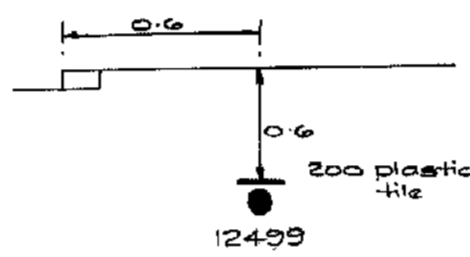
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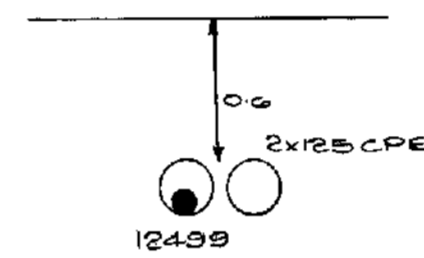
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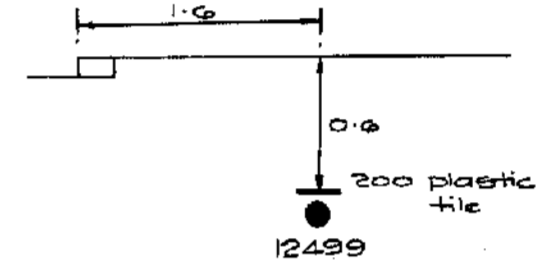
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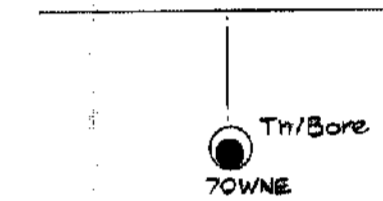
R-S



S-T



T-U



U-V

THE NORTH EASTERN ELECTRICITY BOARD
EAST NORTHUMBERLAND DISTRICT



DRG. No.
NZ 288834

19.6.98
24.7.98
18.7.98
14.9.98

9059

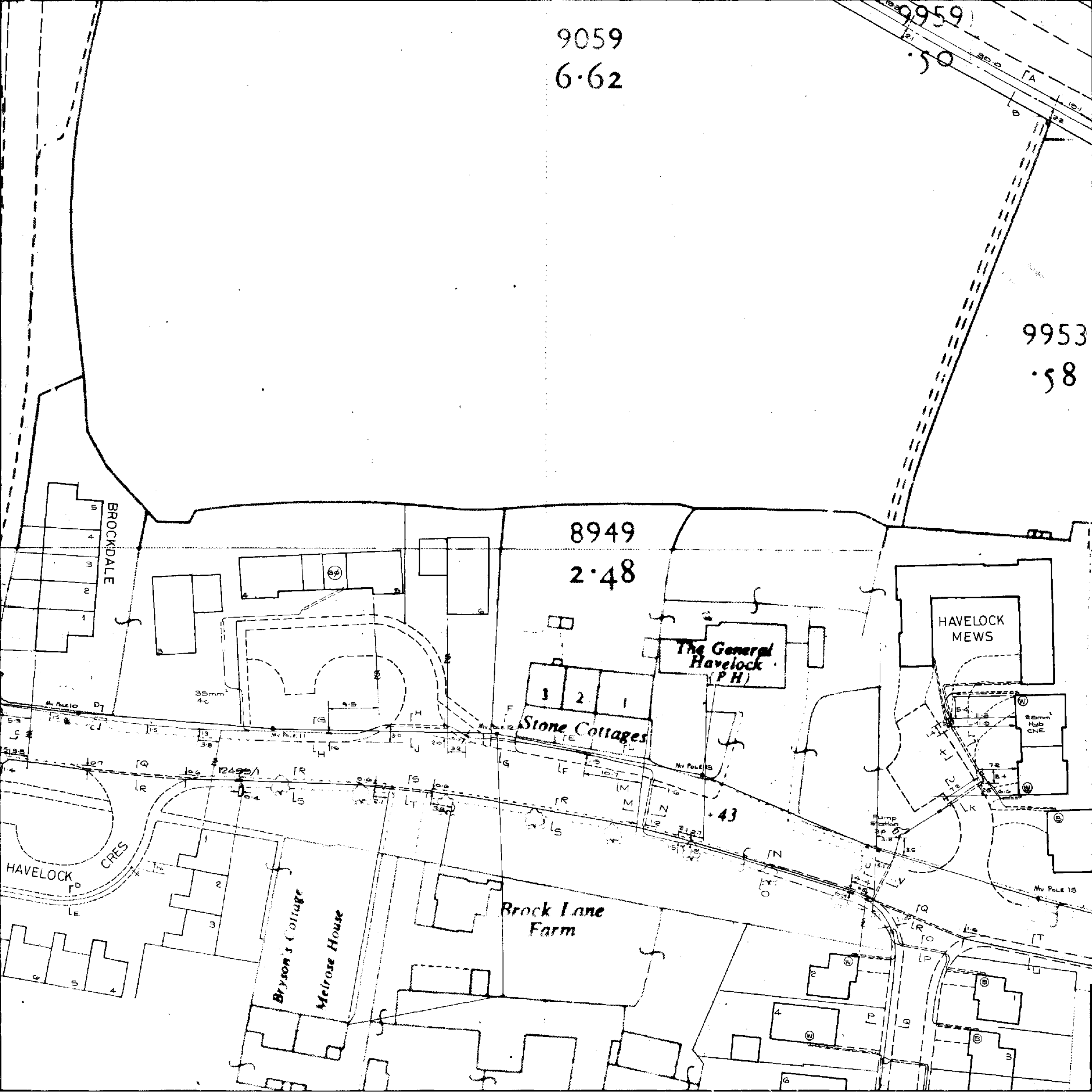
6.62

9959

.50

9953

.58



8949

2.48

BROCKDALE

HAVELOCK MEWS

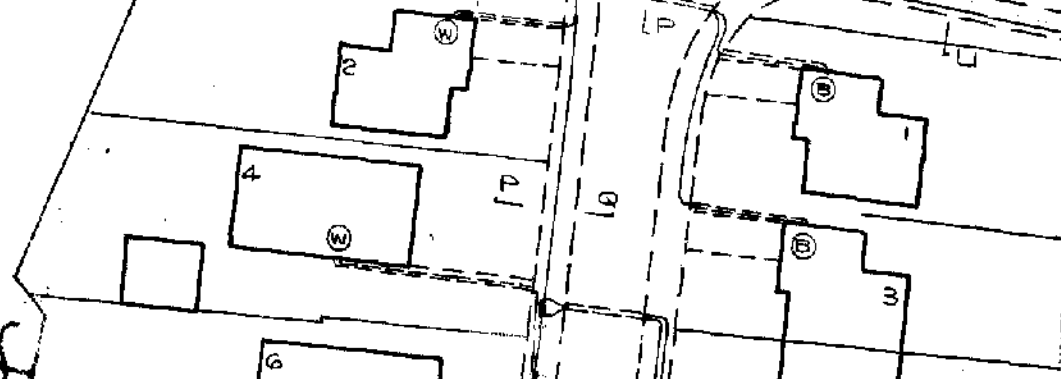
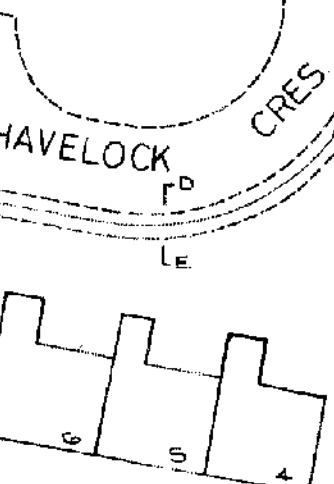
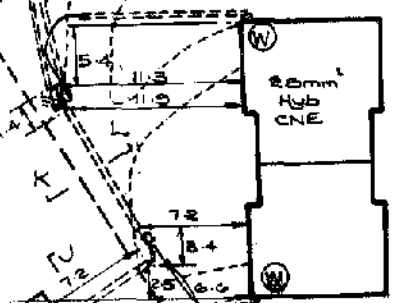
The General Havelock (PH)

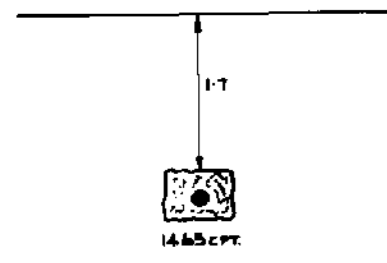
Stone Cottages

Brock Lane Farm

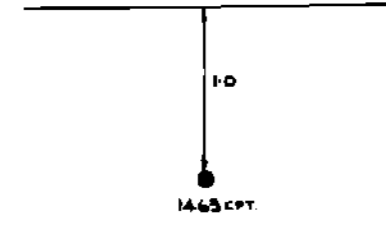
Bryson's Cottage
Melrose House

HAVELOCK CRES

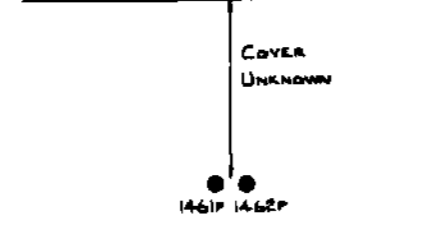




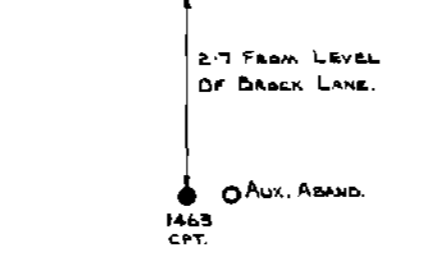
A-B



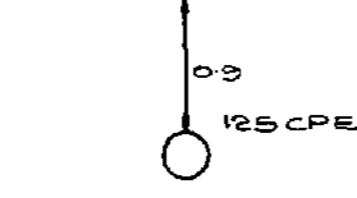
B-C



C-D



D-E



E-F

THE NORTH EASTERN ELECTRICITY BOARD
EAST NORTHUMBERLAND DISTRICT



DRG. No.

NZ 288836 S

1898

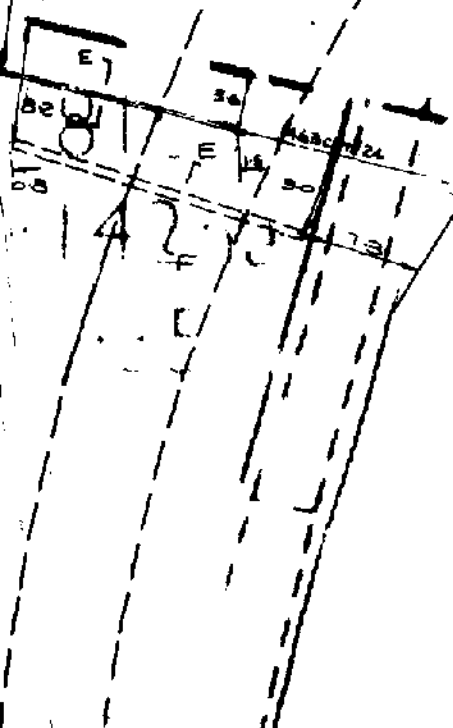
07
CJ



9472
1.801ha
4-45

3.4r

Aux at least
2:1 cover at this
point



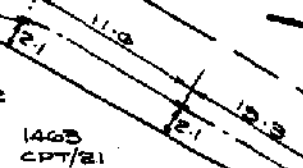
43.7
50
cut for test

P.10
Earth Band
1403CPT/23

1:0 cover

43 B
1403
CPT/22

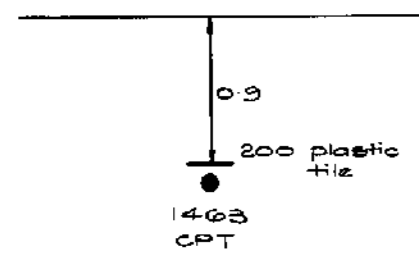
1403
CPT/21



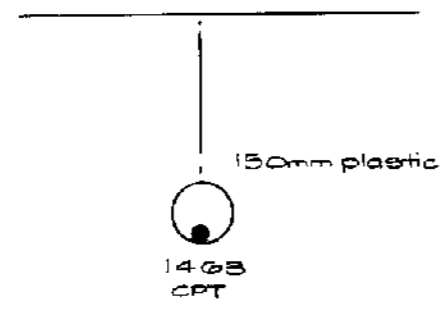
TOWN
FARM

THE
BEECHES

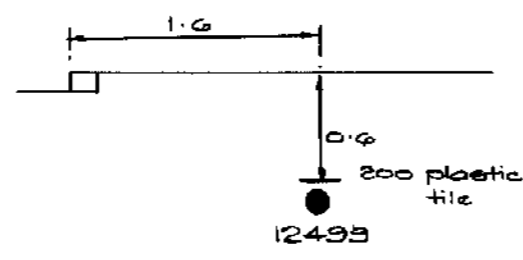
THE ORCHARD



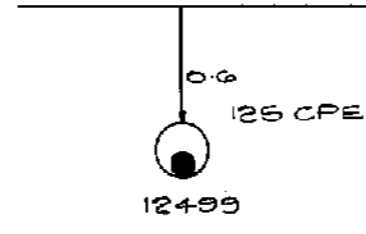
A - B



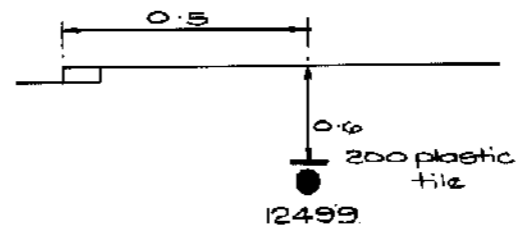
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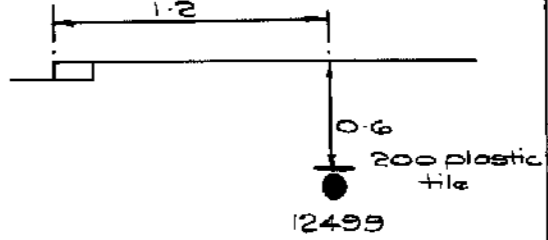
C - D



D - E




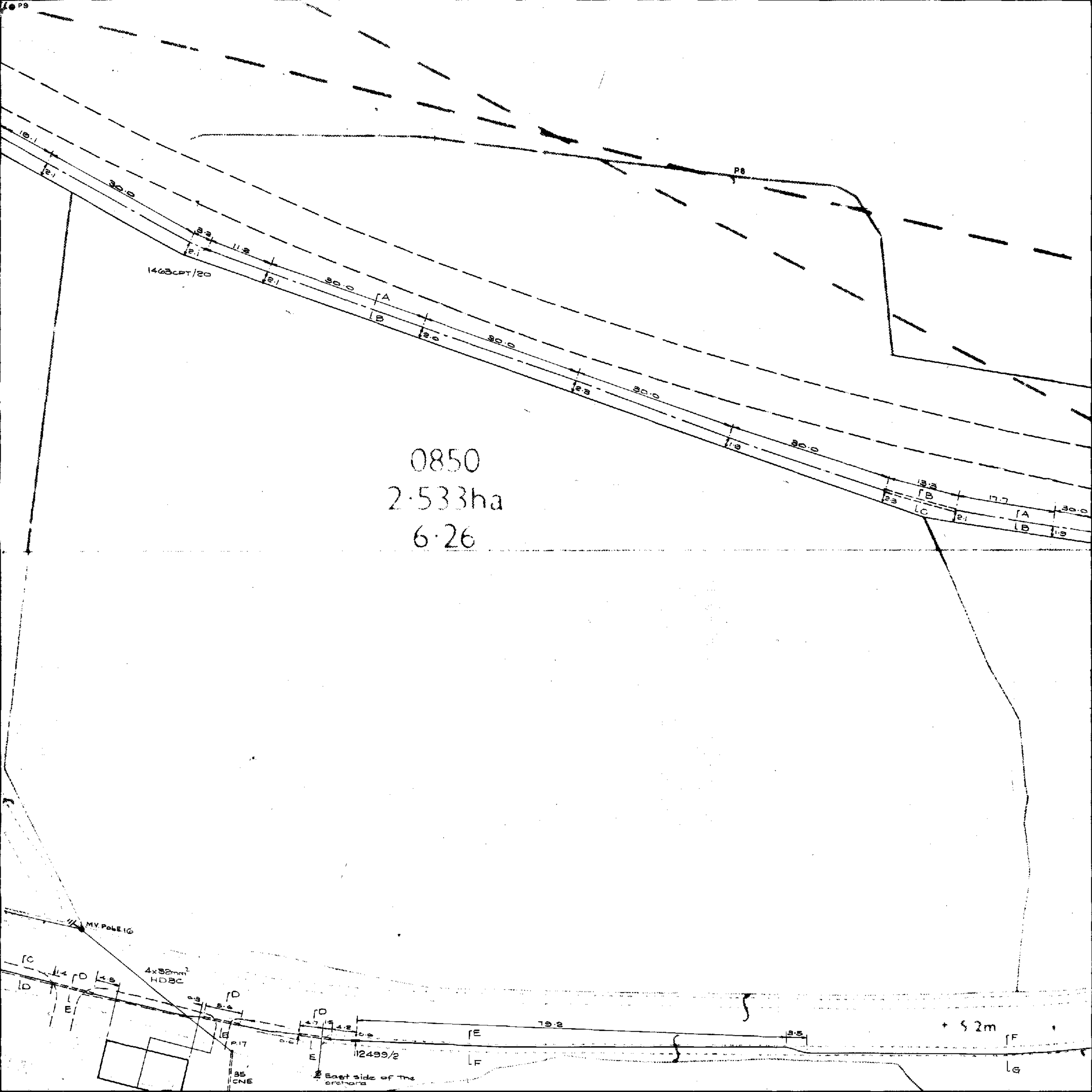
E - F



F - G

15 6 88
30 8 92

	DETAIL SHEET
	O. S. REF. NZ 290834 S



0850
2.533ha
6.26

1463CPT/20

P8

P9

P17

P18

1/4 MY POLE IG

4x32mm²
HDBC

P17

35
CNE

East side of the
orchard

12499/2

+ 5.2m

COVER
UNKNOWN
WOOD BOARD
TELE. ABANDONED
53664

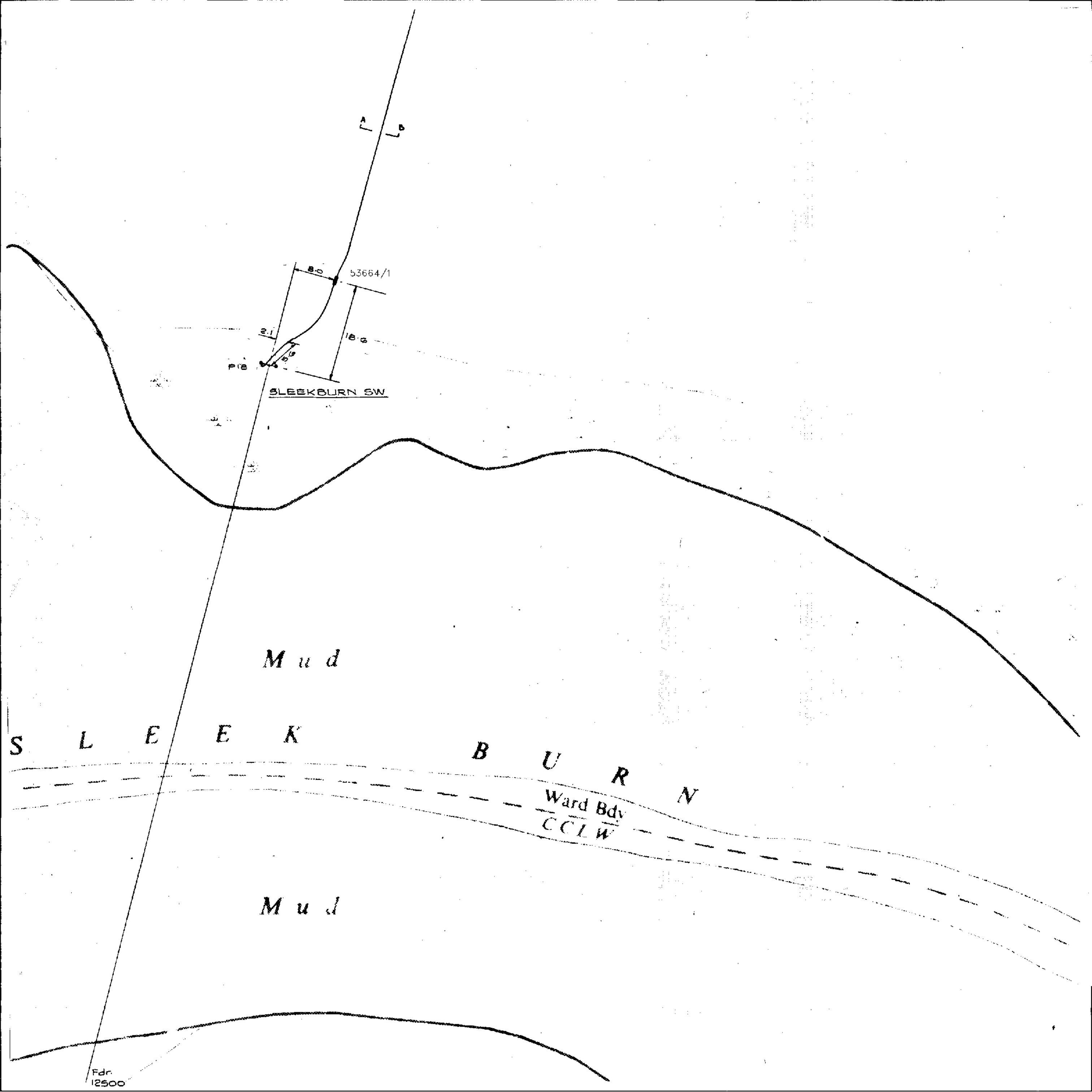
A—B

THE NORTH EASTERN ELECTRICITY BOARD
EAST NORTHUMBERLAND DISTRICT



DRG. No.
NZ 292832

S

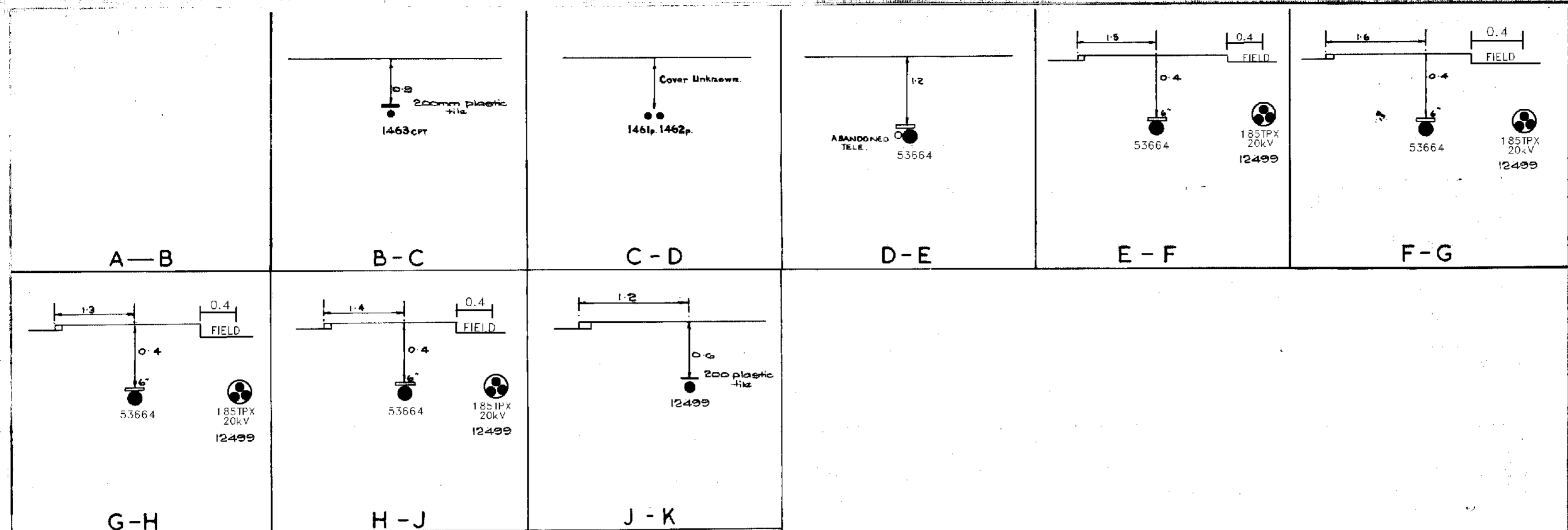


Mud

S L E E K B U R N

Ward Bdy
CCLW

Mud



THE NORTH EASTERN ELECTRICITY BOARD
 EAST NORTHUMBERLAND DISTRICT

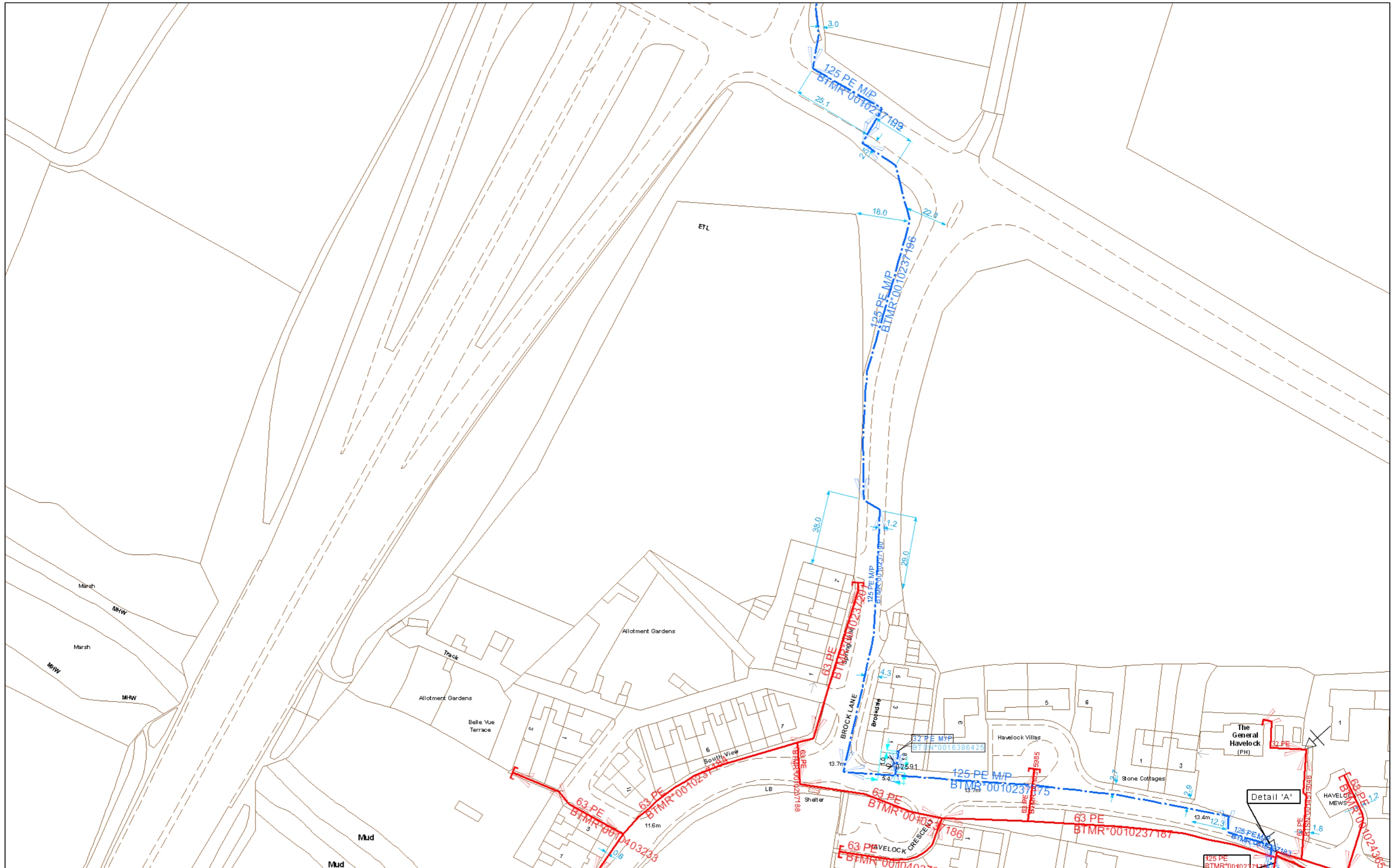


DRG. No

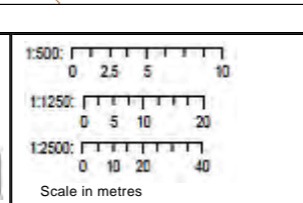
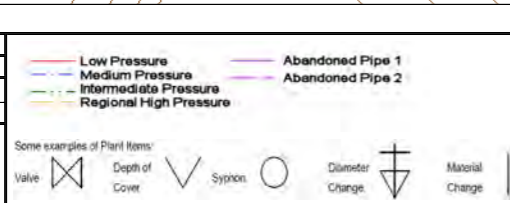
NZ 292834

17-7-000



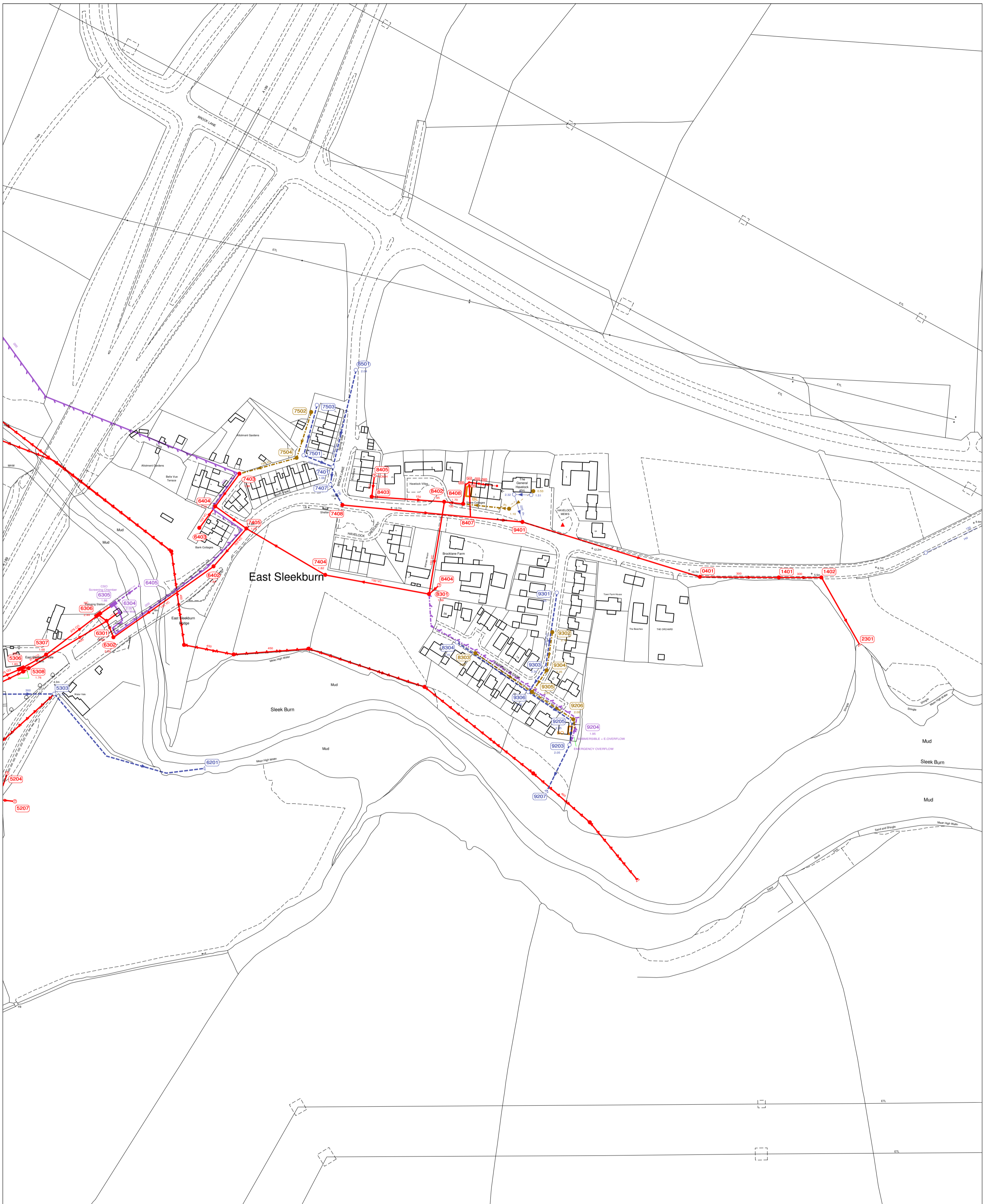


Title:
 Scale: 1:1250
 User ID: G Paterson
 Date: 06/11/2013
 Grid Ref: 428740,583590



This plan shows those pipes owned by Northern Gas Networks or the relevant Gas Distribution Network in their roles as Licensed Gas Transporters (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Northern Gas Networks, the relevant Gas Distribution Network, or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

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	Combined		Private		Abandoned
	Foul		Highway Drain		Manhole
	Surface Water		Rising Main		Pumping Stn
	Watercourse		Backdrop		Adoption Agreement

Author : THRAG
 Title : Centara_S
 Centre Point : 428913,583386
 Date : 14-11-2013
 Sheet: NZ2883SE
 Scale : 1:2000

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Gill Paterson

THREE SITES AT EAST SLEEKBURN NE22 7AZ

Site Enquiry

Plan

We enclose plan(s) showing the location of any Company apparatus in the vicinity of the area of your enquiry.

If your request for plan(s) is part of a C2 enquiry, or makes reference to development, it has been forwarded to our New Development department for further consultation. If you require any further information regarding this please contact the following:

Northumbrian Water New Development

Leat House

Pattinson Road

District 15

Washington

NE38 8LB

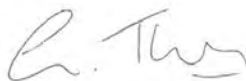
Tel: 0191 4196584

1. The company is not responsible for private water supply pipes, private drains and sewers that connect the property to the public sewerage system and does not hold details of these.

General Notes

A copy of the standard conditions for working near Company apparatus is enclosed for your information. If you require any further assistance to identify Company apparatus, then do not hesitate to make contact with the Area Office at the contact number shown in the standard conditions.

Signed.



For Northumbrian Water Limited

Date: 15/NOV/2013

Ref: 1086684



**STANDARD CONDITIONS FOR WORKING
NEAR NORTHUMBRIAN WATER APPARATUS**



**THE FOLLOWING CONDITIONS WILL APPLY TO ALL
WORKS IN THE VICINITY OF COMPANY APPARATUS**

1. Contact should be made with the appropriate Company Area Office prior to the commencement of any work. Arrangements can then be made for the local representative to visit the site and assist in the location and protection of any apparatus affected. The Company must be given two working days notice before any works, including trial holes, are carried out within their easements. Contact **0845 717 1100**.
2. The information shown on any plan provided by the Company is for general guidance only. The position of apparatus shown should not be relied upon as being precise. No service pipes are shown on plans.
3. The actual position of apparatus must be established by taking trial holes in all cases. No machine excavation will be permitted within 1 metre side of a main. The actual position of any apparatus must be found by hand excavation.
4. Where Company apparatus is exposed by excavation, support and protection measures are to be agreed on site. Where excavations are taken out below the invert of a main, adequate support is to be provided to prevent collapse of the excavation and subsequent undermining of the main. Special attention is to be given to the compaction of selected backfill material under the main and the company may require the use of lean mix concrete to replace inadequately compacted or unsuitable support backfill material. The compaction of selected backfill material under, around and up to a level of 300mm above the top of any main shall be carried out by hand. Upon completion of operations, any excavation is to be left open until after inspection by Company's representative.
5. No installation of plant may take place within the Company's easements without the prior consent of the Company and with all special conditions and arrangements being finalised before commencement of work.
6. Indiscriminate crossing of the main by heavy construction plant will not be permitted. Where applicable, Crossing Points must be agreed by the Company and any protective measures necessary taken before work begins.
7. Surface boxes and covers should not be removed without obtaining prior consent of the Company. All surface covers to washouts, valves, air valves, hydrants, stopcocks etc., are to be kept clear of obstruction and with free access at all times. If surface boxes or covers have been temporarily removed, positions should be clearly marked.
8. Where the levels of carriageway and footpath surfaces are raised or lowered, then the Company's surface covers must be adjusted as appropriate.
9. No pipes or cables are to be laid or structures placed directly over the line of Company apparatus.
10. Where drains, pipes or cables cross over or under any mains, a minimum clearance of 300mm must be maintained. Where it is necessary for any plant to lay parallel to the pipelines, a minimum distance of 1 metre shall be maintained between the outside of the pipeline and any plant being installed, except in the case of small diameter plant where N.J.U.G 7 dimensions apply. The Company must agree exceptions to these conditions in writing.
11. All crossing of the company's pipelines and easements shall be at right angles where possible. Where skew crossings are necessary, no more than 3 metres of the Company's pipeline shall be exposed at any time.
12. The Company will require three copies of proposal drawings showing the details of any proposed crossing of pipelines above 300mm diameter. The drawings must show the Company's pipelines in relation to the proposed works, to a scale of no less than 1:500 and no work shall commence until the Company has given approval.
13. Where it is necessary to carry out piling works closer than 6m to the Company' apparatus, or to carry out works using plant that is likely to damage the integrity of the Company's apparatus, the Company will require a method statement of the works shall be consulted before work commences.
14. Where the Company's pipeline is protected by a cathodic protection system, the Company will require a suitable joint testing programme to be agreed before the application of any cathodic protection scheme proposed by another authority or utility undertaking. If any bond-wires or test leads associated with the Company's cathodic protection system are damaged, disconnected or found to be in poor condition, the Company should be notified so that repairs can be made.
15. In the case of Trunk mains which cross development sites, no development is to take place within an agreed distance either side of the pipeline. A guide showing the easement widths for the various diameters and depths of pipe is available from the RASWA department.
16. No tree planting or landscaping work is done in close proximity to Company apparatus unless otherwise agreed in writing by the Company. A planting guide is available from the RASWA department.
17. In the event of any damage to any of the Company's plant the Company must be informed immediately. Where any damage occurs to Company apparatus, the appropriate remedial work will be carried out by the Company and charged to the promoter of the works.
18. Every effort should be made to secure the site against vandalism of the Company's plant.
19. A copy of these conditions is to be made available to all Contractors or Sub-Contractors working in the vicinity of Company apparatus.



	Distribution Main		Private Main
	Raw Water Main		Out of Commission Main
	Trunk Main		Abandoned Asbestos Main
	Proposed Main		Abandoned Main

Author : THRAG
 Title : Centara_W
 Centre Point : 428913,583386
 Date : 14-11-2013
 Sheet: NZ2883SE
 Scale : 1:2000

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