

UPDATED GAS RISK ASSESSMENT

(ADDENDUM TO PHASE 2 GEO-ENVIRONMENTAL INTERPRETATIVE REPORT)

1.0 INTRODUCTION

Fairhurst have been commissioned by Northumberland County Council to prepare an updated gas risk assessment for the proposed construction of a two storey children's home in Pegswood, Northumberland.

A preliminary gas risk assessment, based upon an initial seven gas monitoring visits, was presented within Fairhurst's Phase 2 Geo-Environmental Interpretative Report (Ref 02) which was submitted to the Local Planning Authority as part of the planning application for the proposed development.

This design note provides an updated gas risk assessment following completion of the post site works gas monitoring programme, and presents recommendations with regards to the requirements for gas protection measures, if any, in accordance with CIRIA C665.

2.0 SOURCES OF INFORMATION

The following information has been considered in the compilation of this design note:

Supplementary Information

- Fairhurst's Geo-Environmental Desk Study dated January 2020 (Ref. 01).
- Fairhurst's Geo-Environmental Interpretative Report, Issue 2 May 2021 (Ref. 02).

Ground Investigation Information

- Dunelm Geotechnical and Environmental Ltd.'s Final Factual Report dated September 2021 (Appendix 2).

3.0 DEVELOPMENT PROPOSALS

The proposed development comprises the construction of a two storey children's home with associated car parking, hardstanding, garden space and perimeter fence. The development proposals are shown on Northumberland County Council Drawing Ref. PI191009-(L)02, Appendix 1.

The existing asphalt car park in the north of the site is to be retained and supplemented with additional spaces and several of the existing large perimeter trees are also to be retained.

Finished levels for the development are shown on Fairhurst Drawing No. 136018/2002, presented in Appendix 1. A finished floor level of 51.25mOD is proposed for the building. The proposed external levels are to remain relatively close to that of the proposed building.

4.0 SUMMARY OF POTENTIAL GAS AND CONTAMINATION SOURCES

The potential gas and contamination sources associated with the proposed development are presented within the Geo-Environmental Desk Study Report (Ref. 01) and further summarised within the Geo-Environmental Interpretative Report (Ref. 02).

5.0 DETAILS OF GAS MONITORING PROGRAMME

As detailed within the Geo-Environmental Interpretative Report (Ref. 02), gas and groundwater monitoring standpipes were installed within each of the three window sample boreholes during the ground investigation.

The response zone for each installation is summarised below. Shallow sandstone bedrock was encountered at between 1.6m and 2.0m bgl in each of the window sample boreholes.

Table 1: Summary of gas / groundwater monitoring response zones

Borehole	Response Zone (mbgl)	Response Zone (mOD)	Strata
PWS01	0.50 to 1.50	50.06 to 49.06	Glacial Till
PWS02	0.50 to 1.00	50.66 to 50.16	Made Ground
PWS03	0.50 to 1.00	50.44 to 49.94	Glacial Till

The standpipes have now been monitored on twelve occasions post site works, between 17th February and 5th August 2021. Gas monitoring included the recording of methane, carbon dioxide, oxygen, carbon monoxide, hydrogen sulphide and volatile vapours together with gas flow rate and atmospheric pressure. The results of the completed gas monitoring programme are presented in Appendix 2.

6.0 SOIL GAS AND VAPOUR CONDITIONS

The results of the ground investigation indicate the ground conditions to typically comprise granular made ground to depths between 0.20mbgl and 1.00mbgl, locally recorded as being overlain by topsoil deposits or concrete hardstanding. The made ground is underlain by thin cohesive glacial deposits across the entirety of the site, then shallow sandstone bedrock.

There was no evidence of putrescible materials within the strata encountered.

The Factual Report from the site investigation works is included in Appendix 2 and further description of the ground conditions encountered are detailed within the Fairhurst Geo-Environmental Interpretative Report (Ref. 02).

The site is considered to present a moderate risk in terms of a “gas generation potential of source” in accordance with the Ground Gas Handbook (Ref. 03). On this basis, and in view of the high (residential) sensitivity of the proposed development, 12 No. gas monitoring visits were scheduled to be undertaken over a minimum period of six months to meet guidance given in CIRIA C665 (Ref. 04).

As described in Section 5.0 a total of 3 No. standpipes were installed during the investigation with response zones in the made ground and natural glacial deposits.

The standpipes have now been monitored on twelve occasions post site works, between 17th February and 5th August 2021. The results of the completed gas monitoring are presented in Appendix 2 and summarised below:

- A maximum carbon dioxide concentration of 3.6% was recorded.
- Methane was not detected. A worst case methane concentration of 0.1% v/v has been adopted for design based upon the limit of detection for the gas monitor.
- Oxygen concentrations of between 16.50% and 20.40% were recorded.

- No volatile vapours, hydrogen sulphide or carbon monoxide concentrations were recorded.
- A maximum flow rate of 0.6l/hr was recorded.

Therefore, in accordance with CIRIA C665 (Ref. 04), these readings give a Gas Screening Value of 0.0216 for carbon dioxide and 0.0006 for methane.

7.0 GAS PROTECTION MEASURES

Based upon the completed gas monitoring, the gassing regime at the site lies within Gas Characteristic Situation 1 (Very Low Risk) in accordance with CIRIA C665 (Ref. 04) and BS 8485 (Ref. 05).

Gas protection measures may not be required subject to Environmental Health agreement; however, due to the presence of known coal workings beneath and around the development site, the Client may wish to consider adopting some form of basic gas protection within the building (i.e. Gas Characteristic Gas Situation 2 in accordance with CIRIA C665).




Where adopted, gas protection measures shall include a suitable combination of the measures detailed within Tables 5 (floor substructure design), 6 (ventilation protection measures) and 7 (gas resistant membrane) within BS 8485:2015+A1:2019. The gas protection measures are also to be designed, installed and validated by a Specialist Gas Protection System Contractor with the proposed measures and validation procedures agreed with the Local Authority prior to installation. For the avoidance of doubt this role is not fulfilled by the Engineer.

The Desk Study Report (Ref. 01) indicates the site to be within a lower probability radon area; as such, radon gas protection measures are not a statutory requirement within new buildings or extensions on site. The omission of specific radon protection measures should, however, be agreed with Environmental Health.

Following agreement of any protection measures, all installed boreholes shall be decommissioned in accordance with current Environment Agency guidance to prevent them acting as a pathway for migration of ground gas or contamination.

8.0 REFERENCES

01. Fairhurst, Geo-Environmental Desk Study, Document Ref. D/I/D/136018/02, January 2020.
02. Fairhurst Geo-Environmental Interpretative Report, Document Ref. D/I/D/136018/07 Issue 2, dated May 2021.
03. Ground Gas Handbook, Steve Wilson, Geoff Card & Sarah Haines, 2009.
04. CIRIA Publication 665, Assessing Risks Posed By Hazardous Ground Gases to Buildings. Dated 2007.
05. BS 8485:2015+A1:2019. Assessing Risks Posed By Hazardous Ground Gases to Buildings. CIRIA: London.

Status	Originator	Checked by	Approved by	Date
Issue 1	C. McCue	D. Doherty	N. Brown	05/10/2021
				

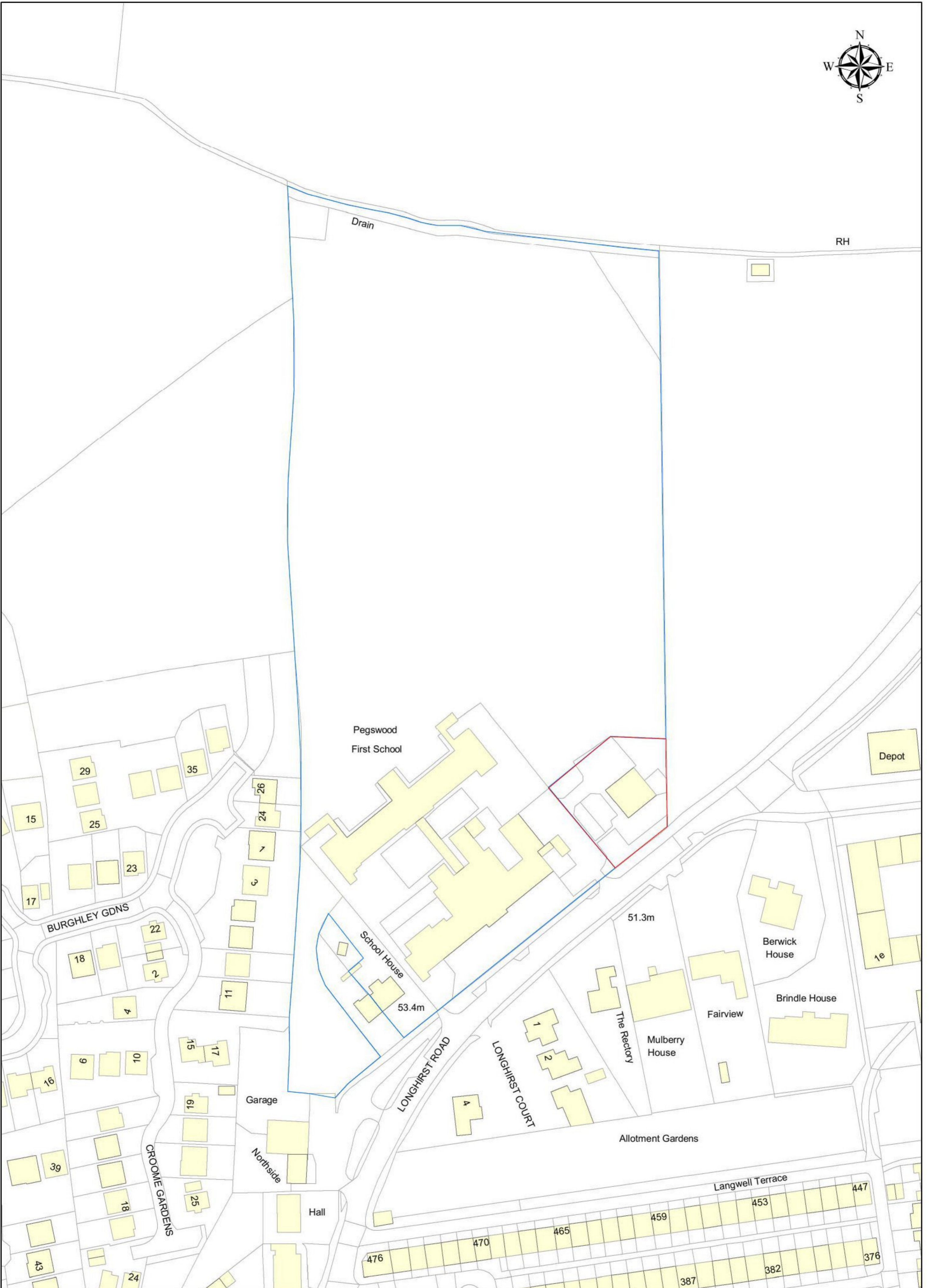
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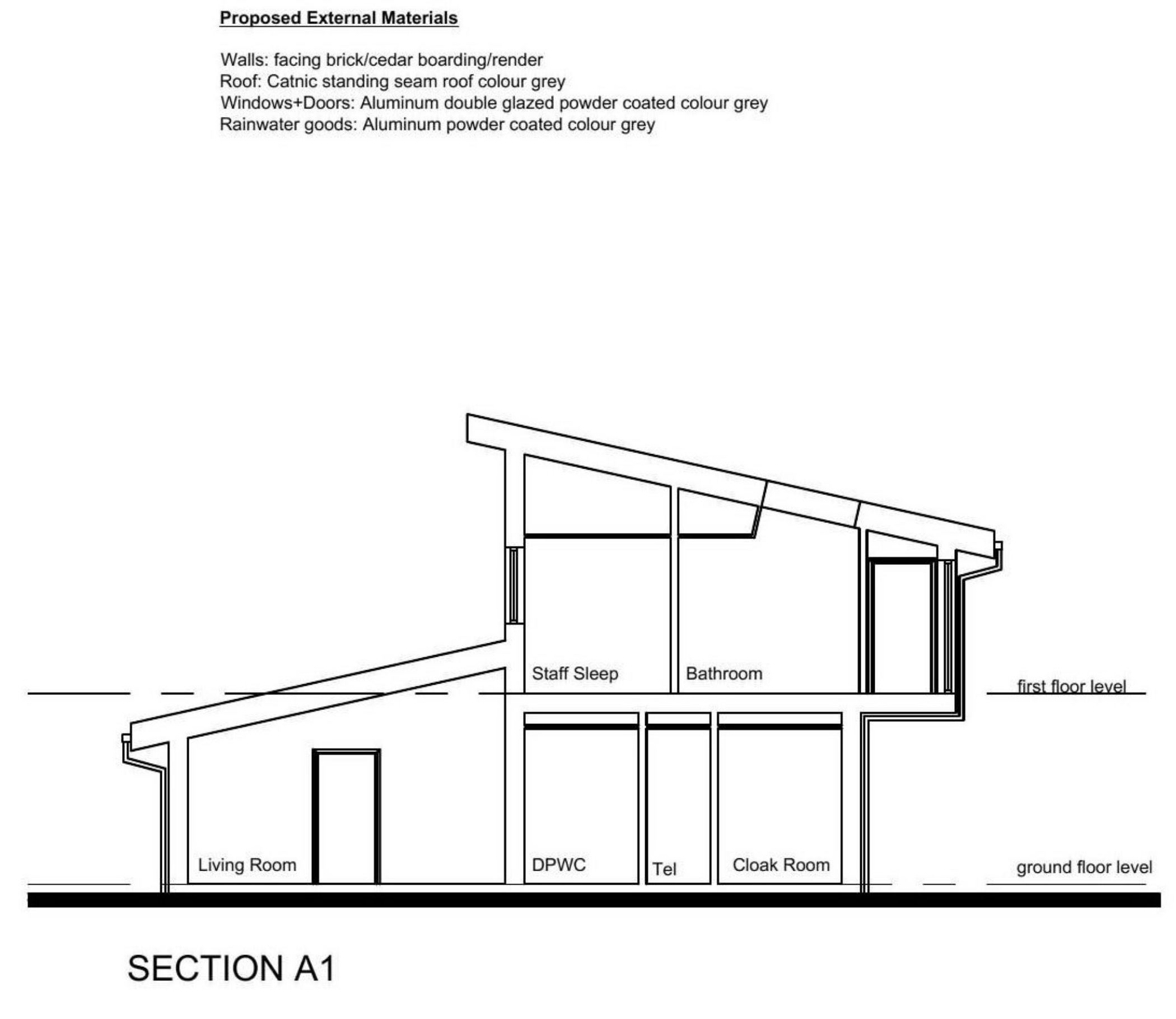
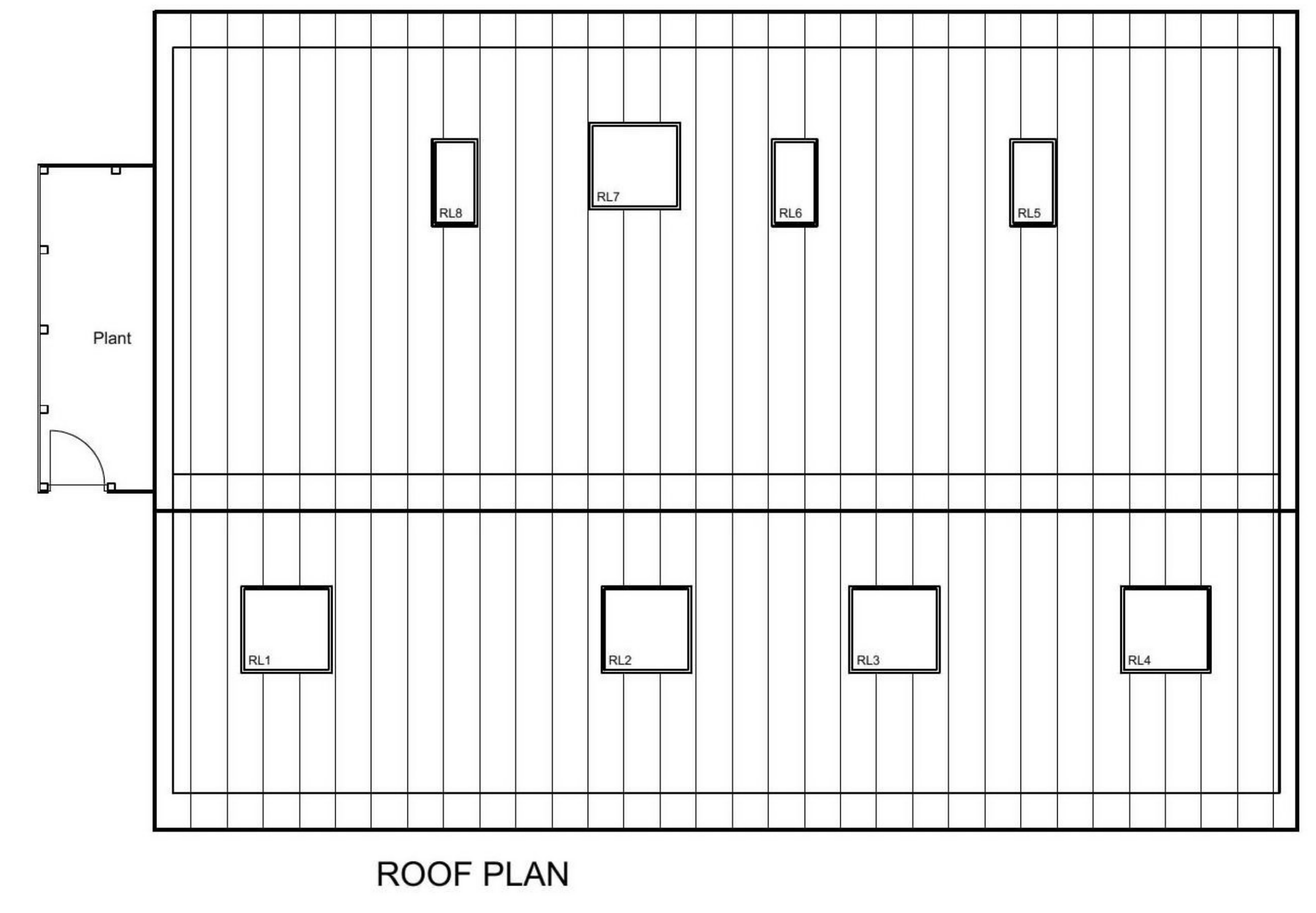
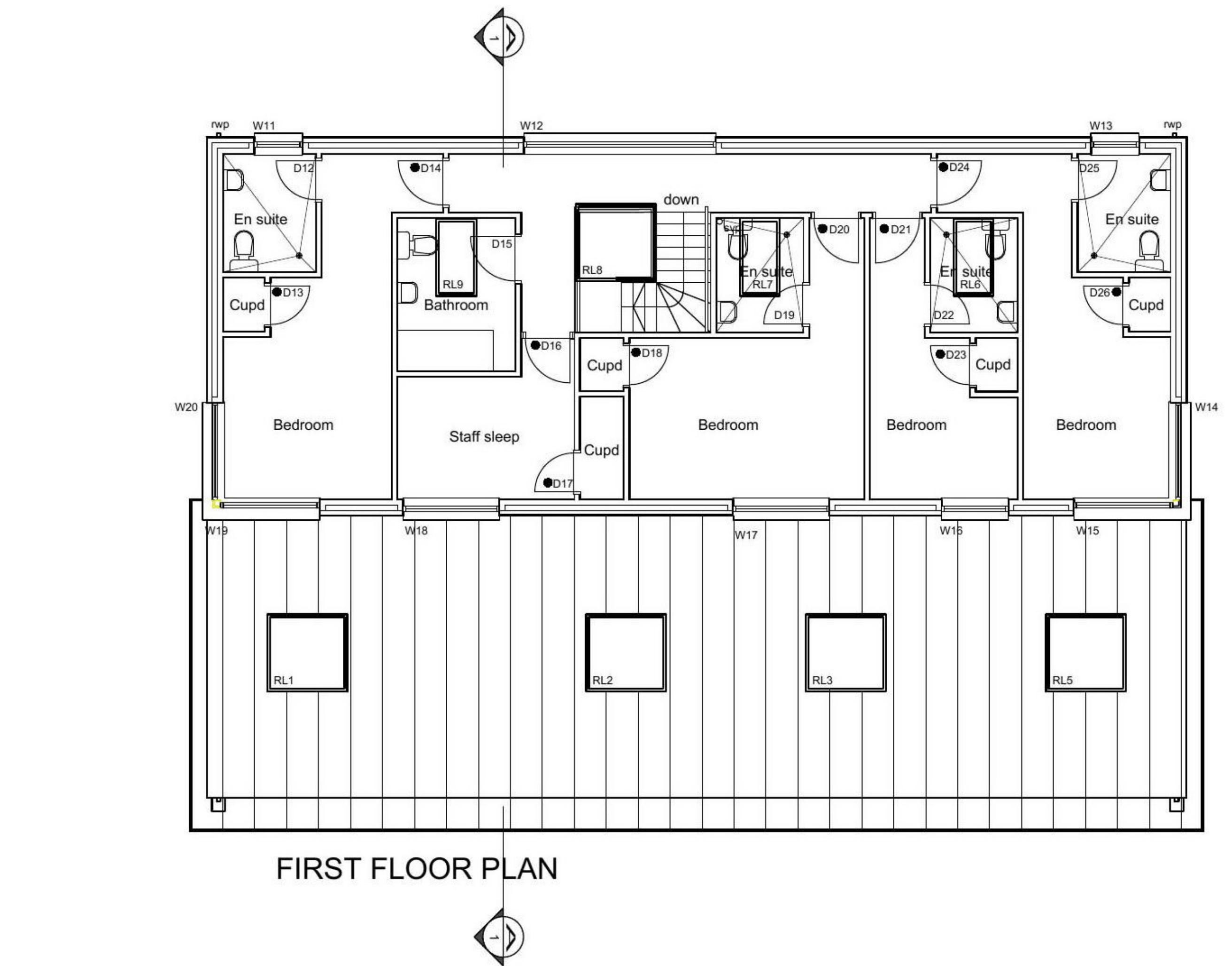
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APPENDIX 1:

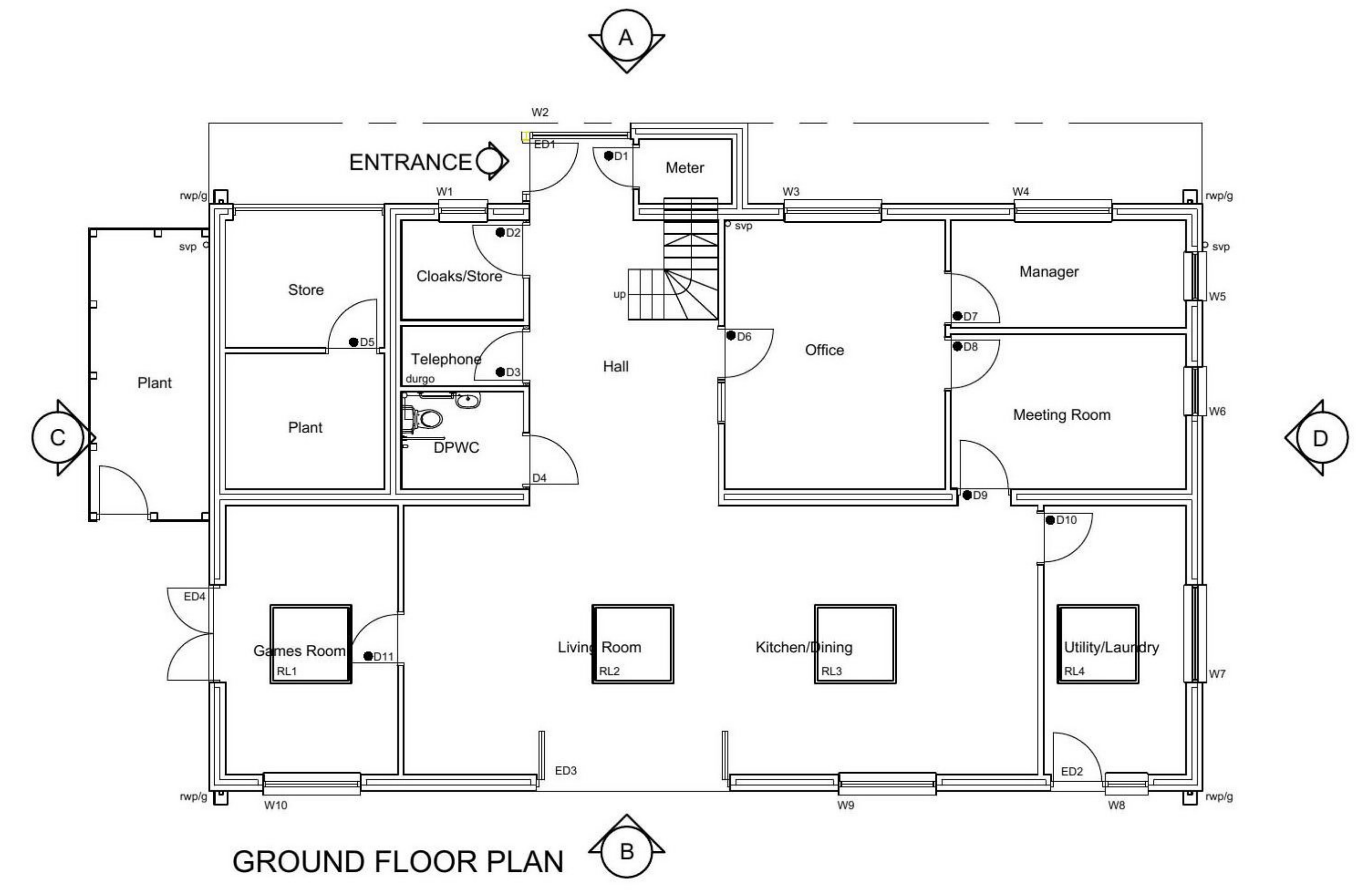
DRAWINGS

Drawing No.	Revision	Originator	Drawing Title
-	-	Northumberland County Council	Pegswood First School
PI191009	(0)01	Northumberland County Council	Plans / Elevations
PI191009	(L)02	Northumberland County Council	Proposed Site Plan
F027b	-	Landform Surveys	Topographical Survey
136018/2002	-	Fairhurst	Proposed Drainage and Levels
136018/9002	-	Fairhurst	As Built Exploratory Hole Location Plan





Proposed External Materials
Walls: facing brick/cedar boarding/render
Roof: Calmic standing seam roof colour grey
Windows-Doors: Aluminum double glazed powder coated colour grey
Rainwater goods: Aluminum powder coated colour grey



REV A 00/00/00 ADD NOTES

Northumberland County Council
Property Services, County Hall, Morpeth, NE61 2EF

Childrens Homes - Pegswood Site

Plans/Elevations

DRAWN	LLA	SCALE	1:100	DATE	April 2020
CHECK	LG	DWG LOCATION		THIS DRAWING IS COPYRIGHT	

1:100 Scale in m.

P191009 (0)01

587775N

422725E

422750E

422775E

422800E

422825E

587775N

422850E

587750N

587725N

587700N

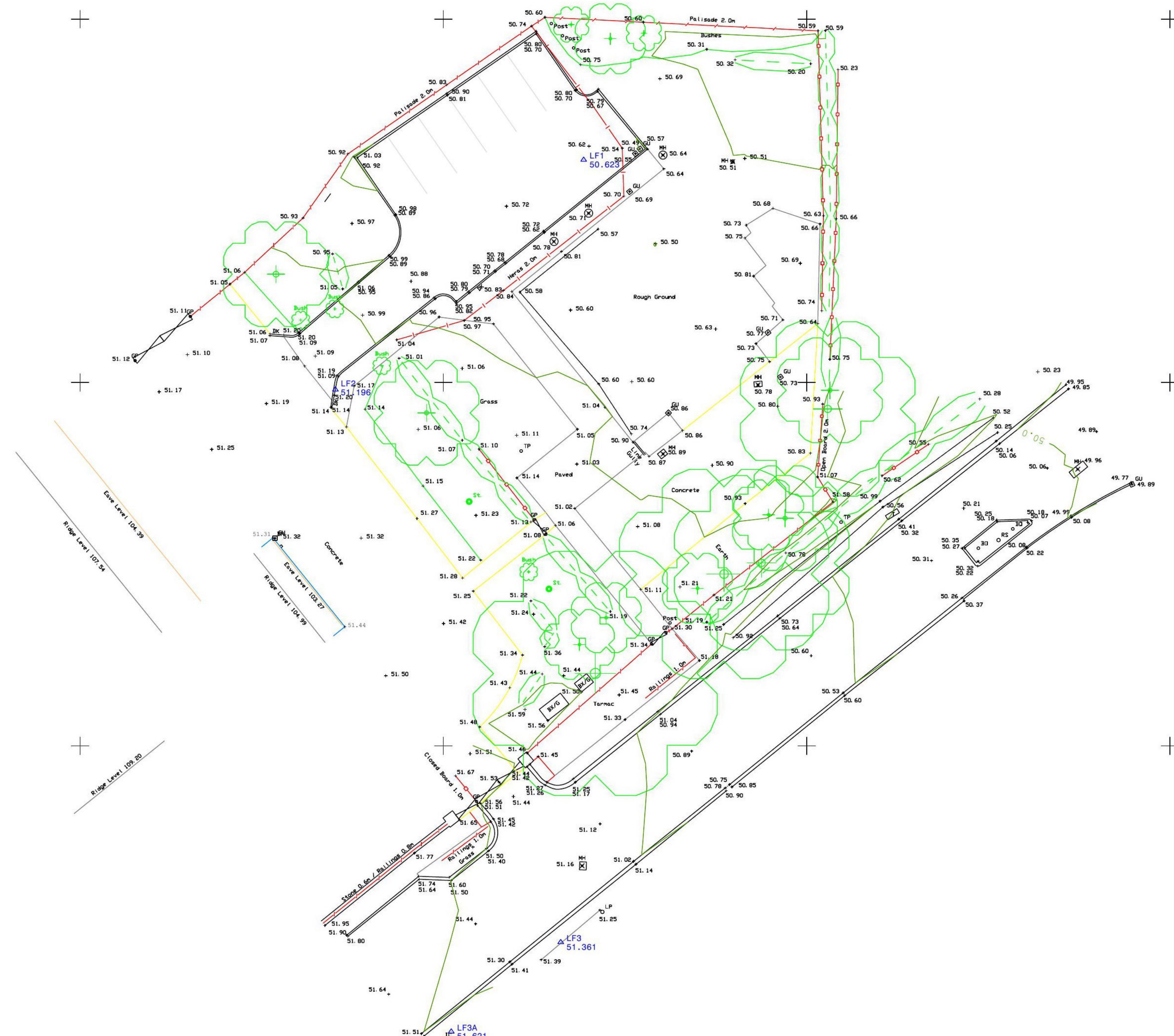
587675N

587750N

587725N

587700N

587675N



LF1	422784.655	587740.320	50.623
LF2	422767.571	587724.509	51.196
LF3	422783.078	587686.480	51.361
LF3A	422775.543	587680.329	51.621

Legend

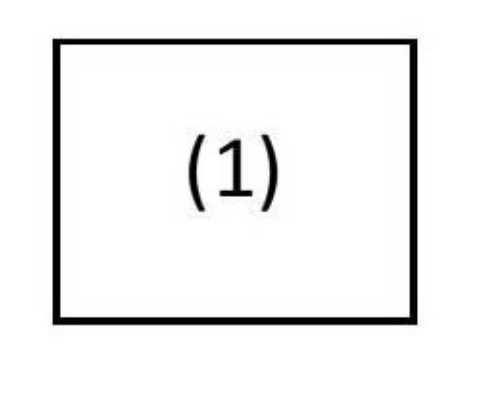
Boundary Type and Description	
C/B	Close Board
C/L	Chain Link
EE	Misc.
K/R	Knee Rail
O/B	Open Board
Pal	Palisade
M/R	Metal Railings
Pick	Picket
P/R	Post & Rail
P/W	Post & Wire
W/M	Wire Mesh
Brick	Brick Wall
Brick Ret.	Brick Retaining Wall
Stone	Stone Wall
Stone Ret.	Stone Retaining Wall
Block	Block Wall
Misc	Misc. Wall
Gate	Gate

Vegetation	
Hedge	Hedge
Edge of Hedge	Edge of Hedge
Edge of Canopy	Edge of Canopy
Tree and Trunk	Tree and Trunk
Stump	Stump
Bush	Bush
Verge	Verge

General Utility Lifestyles	
CD	Drainage Combined
FD	Drainage Foul
SD	Drainage Surface
UD	Drainage Unidentified
O/C	O/Head Combined
O/E	O/Head Electric
O/T	O/Head Telecom

General Survey Abbreviations			
AV	Air Valve	GV	Gas Valve
BH	Borehole Collar	HP	Hand Pit
BX	Box (General)	IBO	Illuminated Bollard
BX/E	Box (Elec)	IC	Inspection Cover
BX/G	Box (Gas)	IL	Invert Level
BX/T	Box (Telecom)	KO	Kerb Outlet
BX/W	Box (Water)	LP	Lampost
BM	Benchmark	LT	Light
BO	Bollard	MH	Manhole
BS	Bus Stop	MR	Marker
Bin	Bin	POST	Post (General)
BT	Telecom Cover	PB	Post Box
CCTV	Air Valve	RE	Rodding Eye
CL	Cover Level	RS	Road Sign
DK	Dropkerb	SV	Stop Valve
DP	Downpipe	TL	Traffic Light
DP/G	Downpipe/Gully	TFR	Taken From Records
EC	Electric Cover	TP	Telecom Pole
EOR	End of Records	TV	Cable TV
EOS	End of Survey	UTGA	Unable to Gain Access
EOT	End of Trace	UTL	Unable to Lift
EP	Electric Pole	UTS	Unable to Survey
ER	Earth Rod	UTT	Unable to Trace
FH	Fire Hydrant	WL	Water Level
FL	Floor Level	WS	Window Sample
FP	Flag Pole		
GP	Gate Post		
G	Gully		

Measured Survey Abbreviations			
AC	Air Conditioning	SCH	Structural Ceiling Height
AH	Access Hatch	SKY	Sky Light
AP	Access Panel	W	Window Height
BH	Beam Height		
C	Cil Height		
DH	Door Height		
FCH	False Ceiling Height		
FL	Floor Level		
HT	Height (General)		
RD	Radiator		



CO-ORDINATES AND ELEVATIONS ARE SET BY GNSS AT STATION LF1.
 CO-ORDINATES ARE TO OS NATIONAL GRID USING OSTN15 TRANSFORMATION
 LEVELS ARE TO ORDNANCE DATUM USING OSGM15 GEOID MODEL.
 THE REMAINDER OF THE SURVEY IS TO SCALE FACTOR 1 PLANE GRID.

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rev	by	date	notes

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 Tel: 0191 2765636
 e: office@landform-surveys.co.uk www.landform-surveys.co.uk

CLIENT
Fairhurst
 Land at Pegswood First School

TITLE
Topographic Survey

drawn	MM	date	22-01-20	drawing no	
checked	MR	date	22-01-20	scale	
client ref				F027b	1/200@A1

Do not scale from this drawing.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARD/REIS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

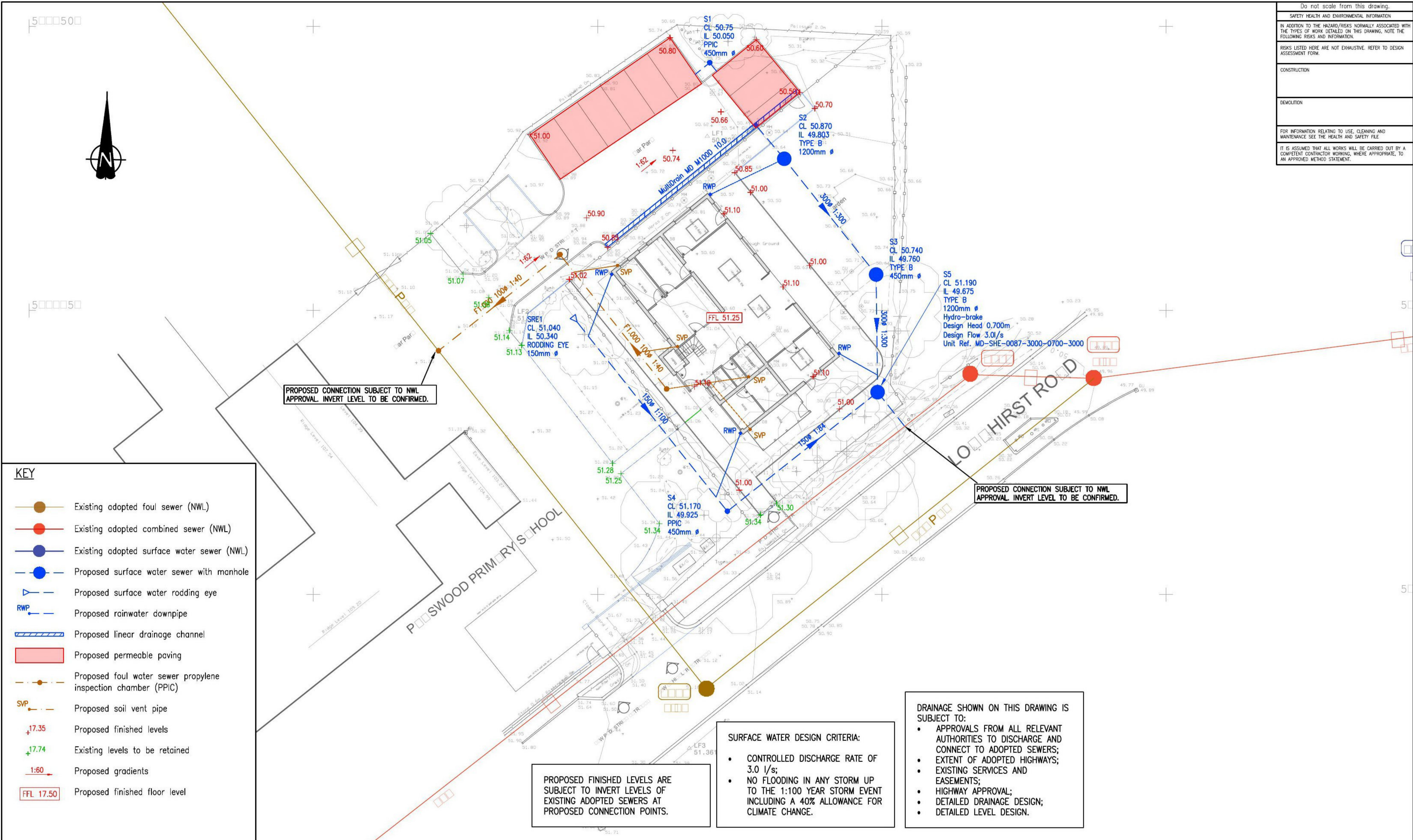
RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM.

CONSTRUCTION

DEMOLITION

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.



KEY

- Existing adopted foul sewer (NWL)
- Existing adopted combined sewer (NWL)
- Existing adopted surface water sewer (NWL)
- Proposed surface water sewer with manhole
- Proposed surface water rodding eye
- Proposed rainwater downpipe
- Proposed linear drainage channel
- Proposed permeable paving
- Proposed foul water sewer propylene inspection chamber (PPIC)
- Proposed soil vent pipe
- Proposed finished levels
- Existing levels to be retained
- Proposed gradients
- Proposed finished floor level

PROPOSED FINISHED LEVELS ARE SUBJECT TO INVERT LEVELS OF EXISTING ADOPTED SEWERS AT PROPOSED CONNECTION POINTS.

SURFACE WATER DESIGN CRITERIA:

- CONTROLLED DISCHARGE RATE OF 3.0 l/s;
- NO FLOODING IN ANY STORM UP TO THE 1:100 YEAR STORM EVENT INCLUDING A 40% ALLOWANCE FOR CLIMATE CHANGE.

DRAINAGE SHOWN ON THIS DRAWING IS SUBJECT TO:

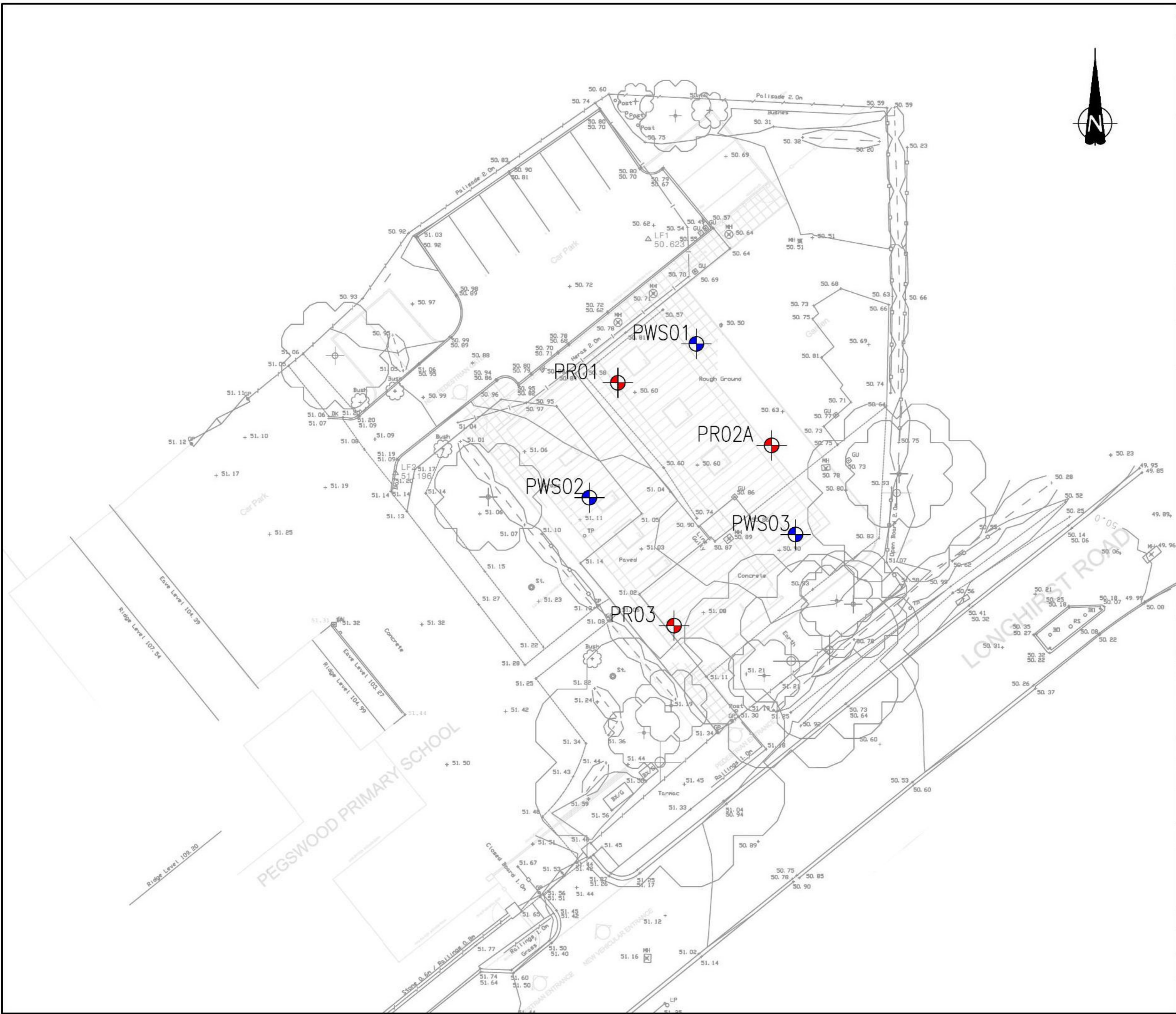
- APPROVALS FROM ALL RELEVANT AUTHORITIES TO DISCHARGE AND CONNECT TO ADOPTED SEWERS;
- EXTENT OF ADOPTED HIGHWAYS;
- EXISTING SERVICES AND EASEMENTS;
- HIGHWAY APPROVAL;
- DETAILED DRAINAGE DESIGN;
- DETAILED LEVEL DESIGN.

NOTES

1. This drawing is based on the following received information: NORTHUMBERLAND COUNTY COUNCIL Drawing PI191009 (L)02 - Site Plan as Proposed. LANDFORM SURVEYS Topographic Survey F027b. Existing NWL services information,
2. All road levels and car parking levels at kerb lines are channel levels unless stated otherwise.

	Client: CHILDREN HOMES NORTHUMBERLAND COUNTY COUNCIL PEGSWOOD	<p>1 Grove Court, Barrack Road, Newcastle-upon-Tyne, NE4 6DB Tel: 0191 221 0505 Fax: 0844 381 4412</p>
	Project Title: PROPOSED DRAINAGE AND LEVELS	
Scale of A2: 1:250	Status: For Information	Drawing No.: 136018/2002
Drawn: JF	Checked: DN	Approved: MT
Date: 05/06/20	Date: 05/06/20	Date: 05/06/20

Rev.	Date	Description	Drawn	Checked	Approved



Do not scale from this drawing.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO. D/I/D/136018/05.

- CONSTRUCTION**
 The following Key Significant Hazards to the drilling operations were identified:
- Risk of harm associated with below ground services.
 - Risk of contamination (including asbestos) within soils and groundwater.
 - Risk of interface with members of the public and site users during operations.
 - Risk of harm associated with soil / mine gas.
 - Risk of harm associated with mineral instability
- Further information relating to these hazards are detailed within Fairhurst Design Risk Assessment Form D/I/D/136018/05.

DEMOLITION
 FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

- Key**
- Rotary Open Hole Borehole
 - Window Sample

Rev.	Date	Description	Drawn	Chkd	Appd.
FAIRHURST					
1 Amgrove Court Barrack Road, Newcastle-upon-Tyne NE4 6DB Tel: 0191 221 0505 Fax: 0844 381 4412			Client: NORTHUMBERLAND Northumberland County Council		

Project Title:
**CHILDREN HOMES
 NORTHUMBERLAND COUNTY COUNCIL
 PEGSWOOD**

Drawing Title:
**AS BUILT EXPLORATORY HOLE
 LOCATION PLAN**

Scale at A3: 1:250	Status: 'AS BUILT'
Drawn: CMC	Checked: SPP
Date: 26/03/21	Approved: NB
Drawing No.:	Date: 26/03/21
	Date: 26/03/21
	Revision: 136018/9002 -

APPENDIX 2:

GROUND INVESTIGATION FACTUAL REPORT



CONTRACT NO: D10015-2

**FACTUAL REPORT ON SITE INVESTIGATION FOR
PI191009 PEGSWOOD NEW BUILD CHILDREN'S HOME**

PREPARED FOR:

NORTHUMBERLAND COUNTY COUNCIL



● FOUNDATION HOUSE ● ST. JOHN'S ROAD ● MEADOWFIELD ● DURHAM ● DH7 8TZ
● TEL: 0191 378 3151 ● FAX: 0191 378 3157






Contract No.	D10015-2
Job Name	PI191009 Pegswood New Build Children's Home

REPORT REVISIONS

Revision No.	Issue Date	Details
D10015-2/00	22.03.2021	Draft report for approval.
D10015-2/01	30.03.2021	Draft report following Fairhurst comments on Factual Report Rev00.
D10015-2/02	28.09.2021	Final Factual Report

VERIFICATION

Revision No.	Issue Date		Written By	Checked By	Verified By
D10015-2/02	28.09.2021	Initials	SH	BL	JH
		Signature			

CONTENTS

1	INTRODUCTION	1
1.1	SCOPE OF WORKS	1
1.2	GENERAL	1
2	SITE LOCATION & FEATURES	1
3	FIELDWORK	2
3.1	INTRODUCTION	2
3.2	EXPLORATORY HOLE LOCATIONS	2
3.3	STRATA DESCRIPTIONS	2
3.4	SAMPLING	2
3.5	IN-SITU TESTING	3
3.6	MONITORING WELLS	3
4	LABORATORY TESTING	3
4.1	GEOTECHNICAL	3
4.2	CHEMICAL	3
5	GAS & GROUNDWATER MEASUREMENTS	4
5.1	INTRODUCTION	4
5.2	GAS MONITORING PROCEDURE	4
5.3	GROUNDWATER MONITORING PROCEDURE	4
5.4	GROUNDWATER SAMPLING PROCEDURE	4

LIST OF APPENDICES

APPENDIX A	DRAWINGS
APPENDIX B	EXPLORATORY HOLE RECORDS
APPENDIX C	GEOTECHNICAL LABORATORY RESULTS
APPENDIX D	CHEMICAL LABORATORY RESULTS
APPENDIX E	GAS AND GROUNDWATER MONITORING RESULTS
APPENDIX F	DUNELM NOTES ON LIMITATIONS

1 INTRODUCTION

1.1 SCOPE OF WORKS

Dunelm Geotechnical and Environmental Ltd (Dunelm) were commissioned by Northumberland County Council (NCC) to carry out a site investigation of Pegswood New Build Children's Home with Fairhurst acting as geotechnical consulting engineers.

The objectives of the investigation were as follows:

- To determine the typical nature, thickness and engineering parameters of the made ground and natural strata.
- To determine the nature and extent of potential contamination within the site.
- To recover samples of made ground and natural strata for chemical and geotechnical laboratory testing.
- To recover samples of groundwater from the boreholes for laboratory testing.
- To record gas concentrations and gas flows within the boreholes.

Fieldwork was undertaken generally as specified in the contract documents provided by Fairhurst. The fieldwork was carried out between 3rd and 5th February 2021.

Following the completion of the fieldwork selected soil samples were submitted for a range of geotechnical and chemical testing.

This report presents the factual information obtained during the investigation; interpretation of this data was outside the remit of this report. The factual data is reported separately in AGS format Version 4.

One other phase of work was carried out along-side this project. Information relating to the factual data can be found in Dunelm Report No D10015-1.

1.2 GENERAL

Guidance contained in the following Standards has been followed during the investigation work as appropriate: BS5930:2015+A1:2020, BS10175:2011+A2:2017; BS1377:2016; BS EN ISO 14688-2:2018 and BS EN ISO 14689:2018.

The information contained in this report is as indicated on the site plan shown in Appendix A, and the areas accessible during the ground investigation.

This report is for the exclusive use of NCC and their agents. No third party may rely upon, or reproduce, the contents of this report without the written approval of Dunelm.

This report is based on the data obtained from the exploratory holes and from the subsequent tests carried out. There is always a possibility of variation in the ground conditions between boreholes. Responsibility cannot be accepted for conditions not revealed by the investigation. Any diagram or opinion of the possible configuration of the findings is conjectural and given for guidance only, and confirmation of intermediate ground conditions should be considered if deemed necessary. Dunelm's Notes on Limitations are included in Appendix F.

2 SITE LOCATION & FEATURES

The site is located 0.5km north east of Pegswood town centre. The approximate centre of the site is at National Grid Reference 425192, 599950.

A site location plan is presented as Drawing No. D10015-2/01 in Appendix A to this report.

The site comprises an area of approximately 40m x 35m in extent and was formerly occupied by the Pegswood Children's Centre building which has now been demolished.

The site currently comprises a disused brownfield space delineated by Herras fencing. The site is overlain by a mix of grassed and hardcore, paved and tarmacked hardstanding. The site is bound by Longhirst Road to the south, Pegswood First School buildings to the west and open agricultural land to the north and east.

3 FIELDWORK

3.1 INTRODUCTION

The fieldwork comprised the following:

Number	Exploratory Hole Label	Method
3	PR01, PR02A, PR03	Rotary Open Hole Drilling
3	PWS01, PWS02, PWS03	Windowless Sampling

Termination reasons are listed in the table below:

Number	Exploratory Hole Label	Termination Reasons
1	PR02	Was not undertaken as per client's decision.
3	PWS01, PWS02, PWS03	Due to hard strata

On completion all exploratory positions were backfilled immediately in accordance with instructions from Fairhurst.

3.2 EXPLORATORY HOLE LOCATIONS

The locations of each of the above exploratory holes were recorded by survey following the completion of the works. The locations are shown on Drawing No. D10015-2/02 in Appendix A.

The ground elevations and co-ordinates of each of the exploratory holes determined from the survey are shown on the exploratory hole records.

3.3 STRATA DESCRIPTIONS

Descriptions of the strata encountered in each of the exploratory holes are presented on the exploratory hole record sheets in Appendix B to this report. Strata descriptions are based on an examination of the strata, together with consideration of the in-situ testing results and laboratory test data.

Strata descriptions have been completed in accordance with BS5930:2015+A1:2020, BS EN ISO 14688-2:2018 and BS EN ISO 14689:2018 as appropriate.

3.4 SAMPLING

Samples were recovered during the investigation works in general accordance with the contract specification.

Samples of soil for chemical analysis were placed into suitable sample containers as specified by the chemical testing laboratory. Samples of soil for geotechnical testing were recovered in accordance with the principles of BS1377-1:2016.

3.5 IN-SITU TESTING

In-situ Standard Penetration Tests (SPTs) were carried out in the rotary and mini-rig boreholes at a frequency in general accordance with the contract specification.

SPT tests were carried out in accordance with BS EN ISO 22476-3 2005 + A1:2011 in order to determine the relative density of the granular soils and an indication of the undrained shear strength of cohesive soils. The results of these tests are shown as 'N' values on the exploratory hole records, with the blow counts for each increment shown in brackets.

In situ hand shear vane tests were carried out in the hand dug pit of each mini-rig hole. The results are presented at the relevant depth of the borehole logs included in Appendix B.

3.6 MONITORING WELLS

On completion of drilling, monitoring wells were installed in selected boreholes to enable subsequent gas and groundwater monitoring. The construction of the wells was as specified during the works by Fairhurst. Details of the installations are shown on the exploratory hole records and summarised in Table B1 in Appendix B.

Each well consisted of a lower slotted section of 50mm diameter HDPE standpipe surrounded by single size non-calcareous gravel, with an upper section of plain HDPE pipe surrounded by a bentonite cement seal.

Each of the wells was fitted with a suitable bung and gas tap to allow for gas and groundwater monitoring, and a protective steel cover to prevent damage to the installation.

Boreholes not fitted with a monitoring installation were backfilled in general accordance with the specification or subsequent instruction from Fairhurst.

4 LABORATORY TESTING

4.1 GEOTECHNICAL

Geotechnical laboratory testing, as scheduled by Fairhurst, was carried out on selected samples in accordance with techniques in BS 1377:1990 and BRE SD1 : 2005. The testing was undertaken by a UKAS accredited laboratory and the results are presented in Appendix C.

4.2 CHEMICAL

Samples as scheduled by Fairhurst were tested for a range of contaminants by an MCERTS accredited laboratory. The results of these tests are presented in Appendix D.

5 GAS & GROUNDWATER MEASUREMENTS

5.1 INTRODUCTION

Measurements of gas concentrations in the vicinity of the drilling rig were made by a Dunelm engineer during the rotary drilling investigation. These measurements were carried out at intervals as the drilling progressed and involved recording the concentrations of carbon monoxide, carbon dioxide, methane and oxygen using a hand-held instrument. The monitoring results are presented in the remarks section of the borehole logs.

Following the completion of the investigation work on site, a Dunelm technician made a series of visits to the site in order to carry out measurements of gas and groundwater within the monitoring wells described above. The number and frequency of these visits were specified by Fairhurst.

The site has been monitored on 12 occasions at the time of issuing this report, the final visit took place on 5th August 2021. The monitoring results are presented in Appendix E.

5.2 GAS MONITORING PROCEDURE

Each of the gas monitoring wells was monitored to record the concentration of methane, carbon dioxide, carbon monoxide, oxygen and hydrogen sulphide using an infra-red gas analyser. The borehole flow rate, atmospheric and differential pressure was also measured using a suitable instrument.

Gas monitoring was undertaken in accordance with current guidance.

5.3 GROUNDWATER MONITORING PROCEDURE

Measurements of groundwater level (in metres below ground level) were recorded in each borehole using a standard dipmeter.

5.4 GROUNDWATER SAMPLING PROCEDURE

Prior to groundwater sampling being commenced, each monitoring well was developed by purging. This work was completed on 17th February 2021.

Samples of groundwater were recovered on 17th February 2021 using a bailer.

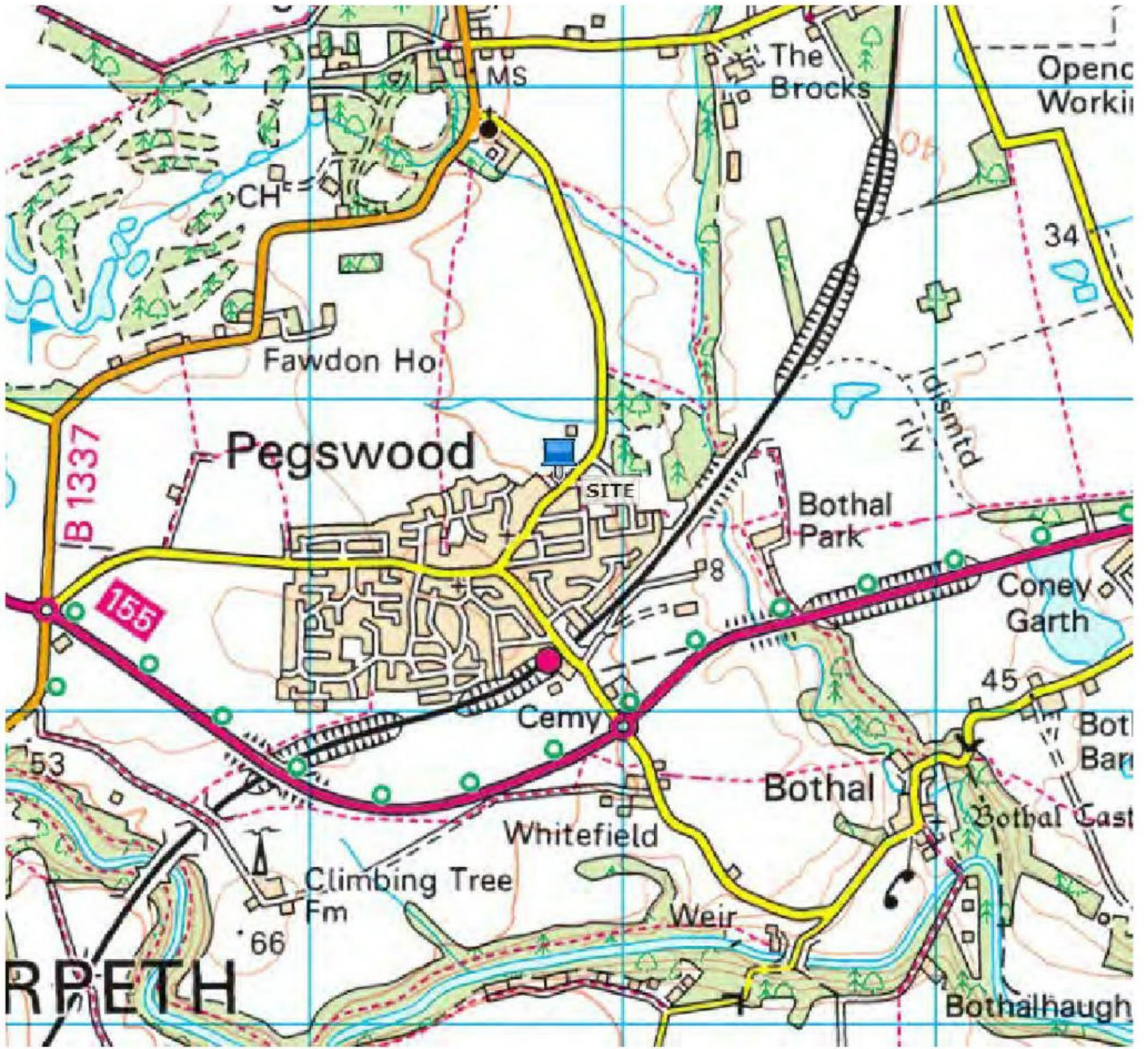
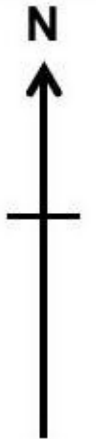
Measurements were taken on each water sample of redox potential, dissolved oxygen, temperature, pH and conductivity prior to despatch to the laboratory. The results obtained are included in a table in Appendix E.

Samples were then despatched to an appropriate laboratory for testing. The results of these tests are presented in Appendix D.


APPENDIX A

Drawings





Ordnance Survey © Crown copyright 2012 All rights reserved. Licence number 100048410.

	Contract: PI191009 Pegswood New Build Children's Home		Contract No: D10015-2	
	Client: Northumberland County Council			
TEL: 0191 378 3151	Drawing Title: Site Location Plan			
Drawing & Revision No: D10015-2/01 - 00	Date: February 2021	Scale: NTS	Status: Final	Drawn by: SH

Project Id: D10015-2
Project Title: PI191009 Pegswood New Build Children's Home
Client: Northumberland County Council

Title: Exploratory Hole Location Plan
Scale: 1:1000
Drawing No: D10015-2/02



Legend Key

-  Rotary Open Hole Drilling
-  Windowless Sampling



APPENDIX B

Exploratory Hole Records



INFORMATION GENERALLY RELATING TO ALL EXPLORATORY HOLE RECORDS**GENERAL****Borehole/Trial Pit No**

The exploratory hole identity number used throughout the report.

Site

The ground investigation project name.

Client

Client's name responsible for funding the ground investigation project.

Ground Level and Location

The precise ground level in meters above Ordnance Datum at the exploratory hole location from which the reduced level for each stratigraphic boundary is calculated. The exploratory hole position is given as either national grid-coordinates or local grid as specified.

ABBREVIATIONS**Samples**

- B** Bulk disturbed sample generally representative of the soil type for cohesive and fine granular soils.
- BRE** Sample taken for electrochemical testing
- C** Core soil samples
- D** Small disturbed tub sample normally taken at intermediate depth between other sampling or testing operations. The sample is stored in an airtight container.
- ES** Sample of potentially contaminated materials.
- P** Piston Sample
- PF** An attempted but failed piston sample
- U** 100mm diameter undisturbed thick-walled sample (OS-TK/W)
- UT** 100mm diameter undisturbed thin walled sample (OS-T/W)
- UF/UTF** An attempted but failed 100mm undisturbed sample.
- W** Water sample.
- EW** Water sample for contamination testing

In-situ Testing

- CBR** California Bearing Ratio mould sample or test.
- SPT** Standard Penetration Test (SPT) using the split barrel sampler (shoe). The corresponding 'N' value is given in the test result column.
- SWPen** Self-Weight Penetration
- PID** On Site Volatile Headspace Testing by Photo Ionisation Detector
- HVP** Hand Shear Vane test

Rock Quality and Core Recovery

- TCR** Total core recovery - The length of the recovered core expressed as a percentage of the length of core run.
- SCR** Solid Core Recovery - The sum length of all core pieces (measured along the centre of the core), expressed as a percentage of the length core run.
- RQD** Rock Quality Designation- The sum length of all core pieces that are 100mm or longer (measured along the centre of the core), expressed as a percentage of the length of core run.
- FI** Fracture Index- The number of fractures per 1000mm length of solid core.
- NI** Non-intact- The material recovered in a non-intact state.
- NR** No recovery from the core run.
- AZCL** Assessed Zone of Core Loss.

Cobble Content

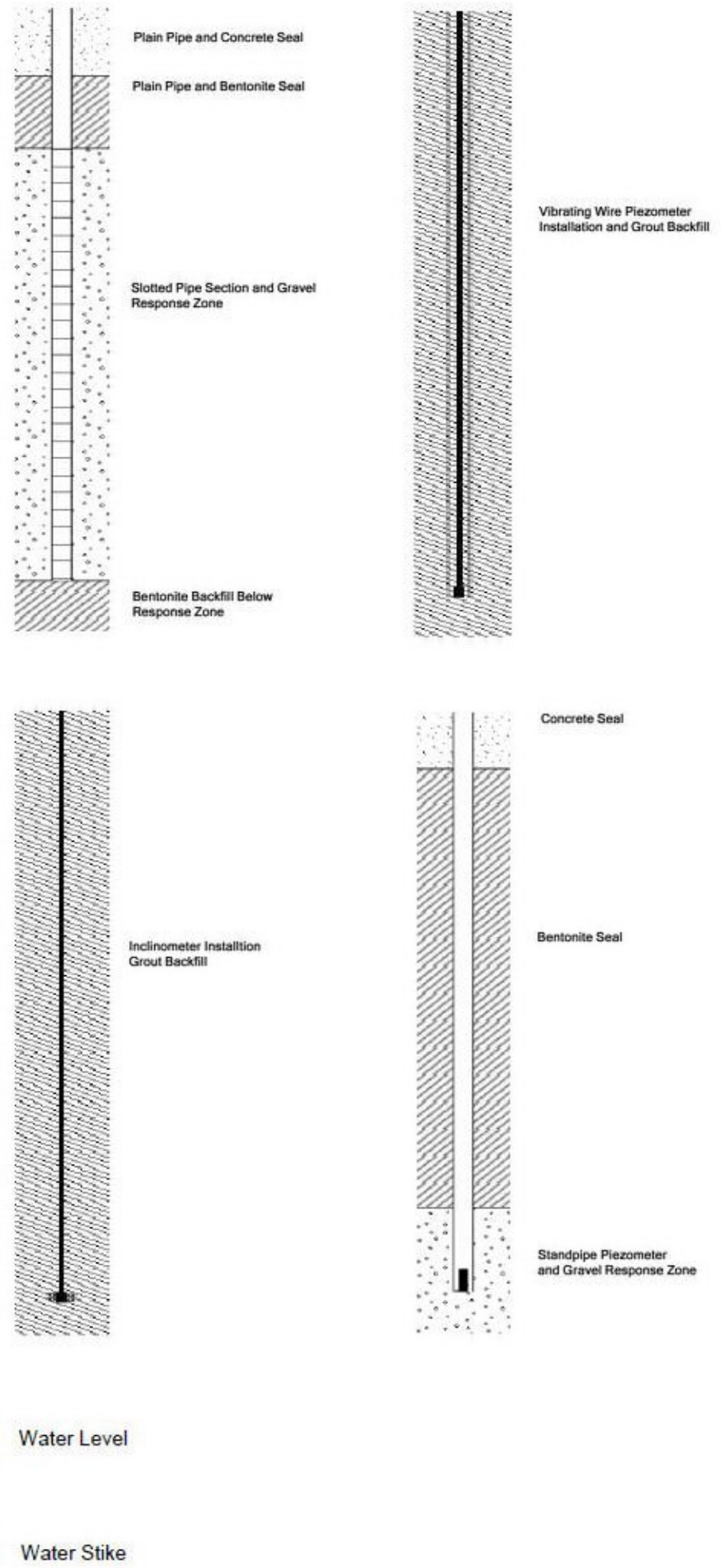
Low <10%, medium 10 – 20%, high >20%

Exploratory Hole Log Legend

BOREHOLE LEGEND:

TOPSOIL	
MADE GROUND	
SILT	
CLAY	
SAND	
GRAVEL	
PEAT	
MUDSTONE	
SILTSTONE	
SANDSTONE	
LIMESTONE	
COAL	
CHALK	
BENTONITE	
GROUT	
ARISINGS	

Monitoring Installation Legend:



NB Where strata consists of material of more than one soil or rock type the legends are appropriately combined.



Dunelm Geotechnical & Environmental Ltd
 Foundation House, St John's Road, Meadowfield
 Durham, DH78TZ
 Tel: 0191 378 3151
 Fax: 0191 378 3157
 e-mail: admin@dunelm.co.uk
 web: www.dunelm.co.uk

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005



SPT Hammer Ref: CD1
 Test Date: 04/12/2020
 Report Date: 04/12/2020
 File Name: CD1.spt
 Test Operator: SP

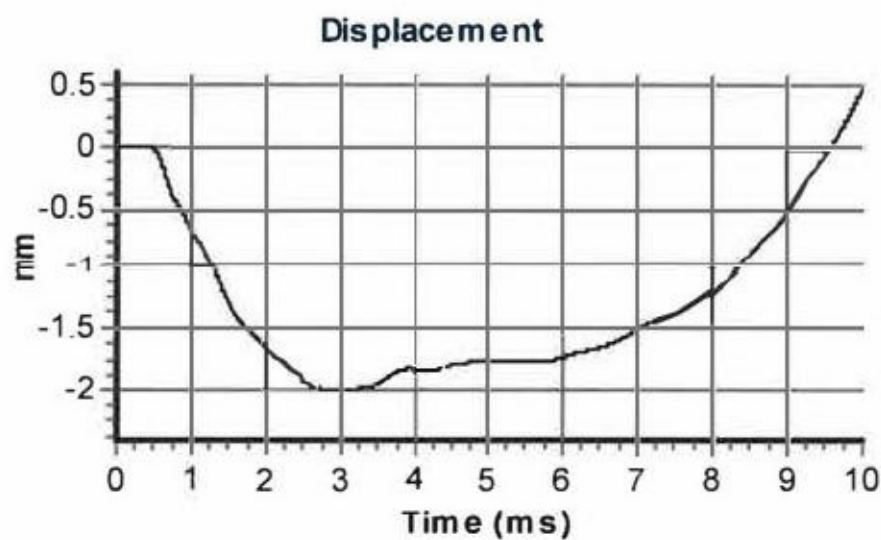
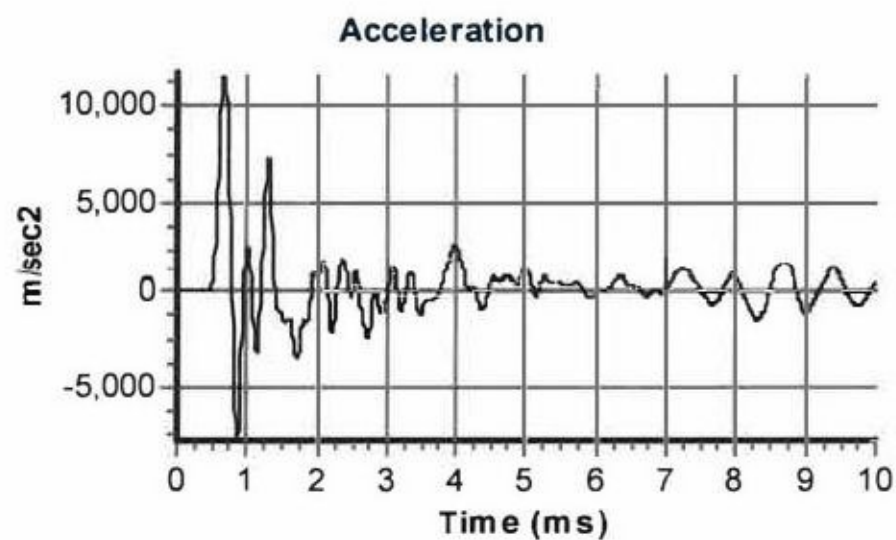
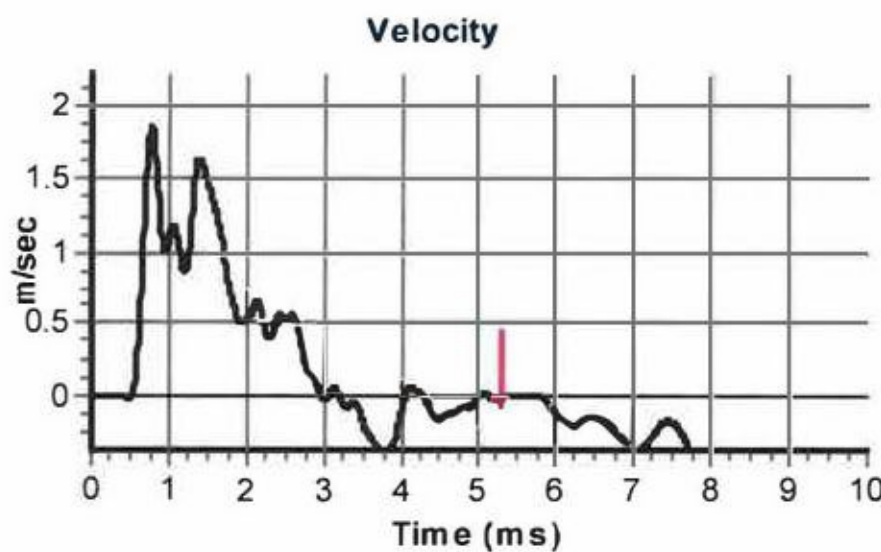
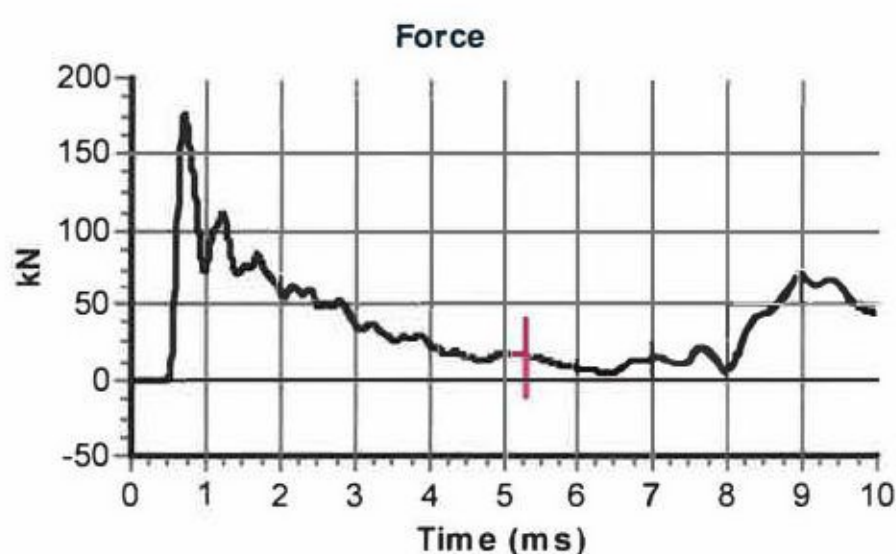
Instrumented Rod Data

Diameter d_r (mm): 54
 Wall Thickness t_r (mm): 6.5
 Rod Length l_r (m): 1.0
 Assumed Modulus E_a (GPa): 208
 Accelerometer No.1: 6178
 Accelerometer No.2: 5843

SPT Hammer Information

Hammer Mass m (kg): 63.5
 Falling Height h (mm): 760
 SPT String Length L (m): 14.0

Comments / Location



Calculations

Area of Rod A (mm²): 970
 Theoretical Energy E_{theor} (J): 473
 Measured Energy E_{meas} (J): 282

Energy Ratio E_r (%): 60



Signed: Scott Pincher
 Title: Director

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: DART.R15
 Test Date: 23/04/2020
 Report Date: 23/04/2020
 File Name: DART.R15.spt
 Test Operator: MB

Instrumented Rod Data

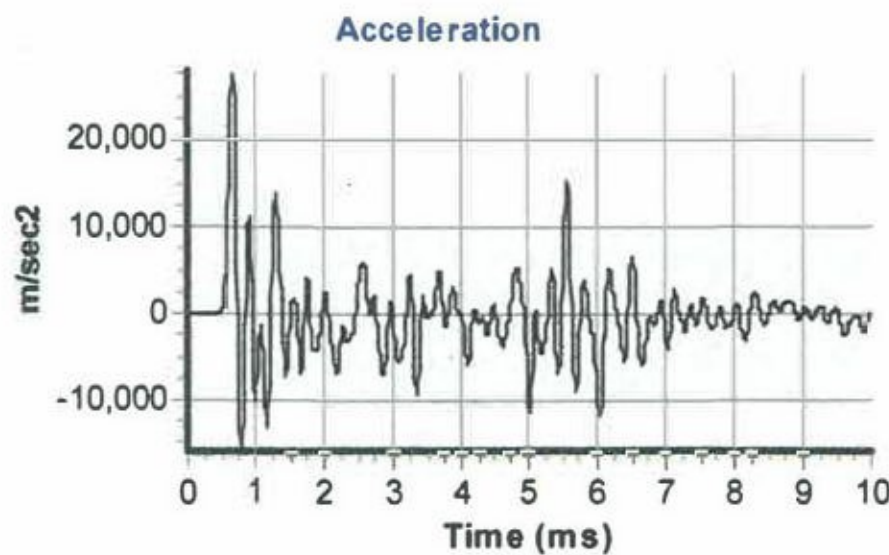
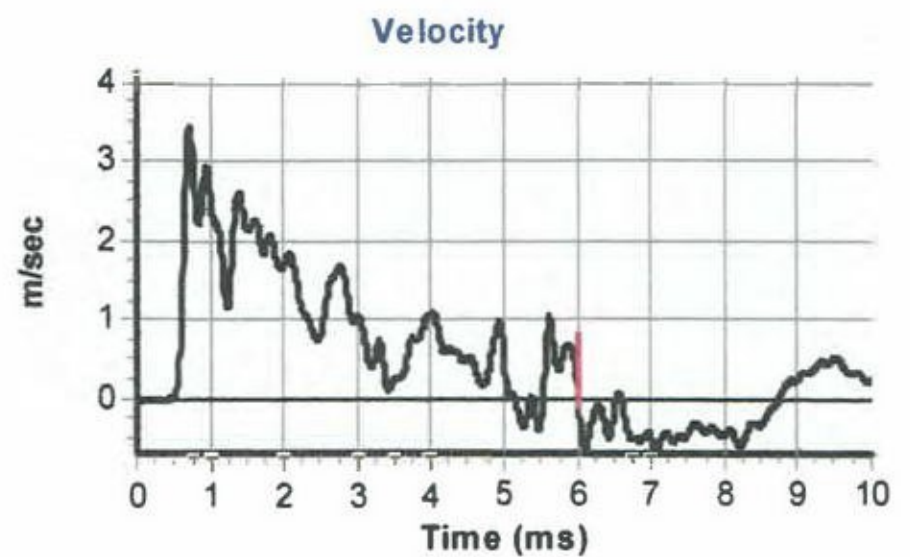
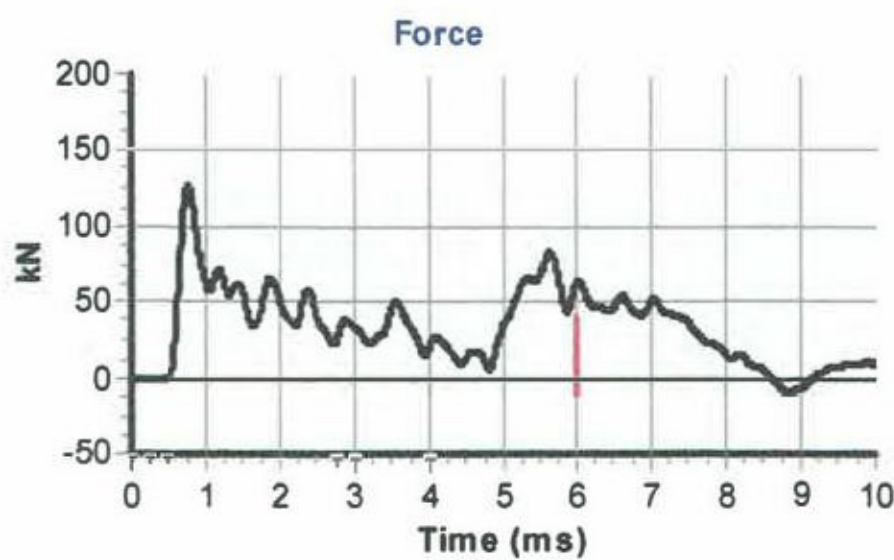
Diameter d_r (mm): 54
 Wall Thickness t_r (mm): 6.0
 Assumed Modulus E_a (GPa): 200
 Accelerometer No.1: 7080
 Accelerometer No.2: 11609

SPT Hammer Information

Hammer Mass m (kg): 63.5
 Falling Height h (mm): 760
 SPT String Length L (m): 10.0

Comments / Location

DUNELM/70449



Calculations

Area of Rod A (mm^2): 905
 Theoretical Energy E_{theor} (J): 473
 Measured Energy E_{meas} (J): 304

Energy Ratio E_r (%): 64

Signed: M.BELL
 Title: SUPERVISOR

The recommended calibration interval is 12 months



Contract:	PI191009 Pegswood New Build Children's Home	Contract No:	D10015-2
Client:	Northumberland County Council		
Drawing:	Instrumentation Summary		
Table No.	B1	Date:	26/02/2021
		Status:	Final

BH No.	Instrument Type	Instrument Dia. (mm)	Response Zone		Surface Protection
			Top (m)	Base (m)	
PWS01	SP	50	0.50	1.50	Flush Cover.
PWS02	SP	50	0.50	1.00	Flush Cover.
PWS03	SP	50	0.50	1.00	Flush Cover.

	Contract: PI191009 Pegswood New Build Children's Home		Contract No: D10015-2	
	Client: Northumberland County Council			
TEL: 0191 378 3151	Table Title: Installation Summary Sheet			
Table & Revision No: B1 - 0	Date: February 2021	Scale: NA	Status: Final	Drawn by: SH



BOREHOLE RECORD

Borehole PR01

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422782.60 Northing: 587730.62

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 2 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 04/02/2021

SAMPLE DETAILS							Casing Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							10	Yellow SANDSTONE. (Drillers Description).				
							11					
							12					
							13					
							14					
							15					
							16					
							17					
							18					
							19					
									(19.40)			

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	1.20	139 92	1.20 42.50	



BOREHOLE RECORD

Borehole PR01

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422782.60 Northing: 587730.62

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 3 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 04/02/2021

SAMPLE DETAILS							Casing Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							20	Yellow SANDSTONE. (Drillers Description).				
							21	Grey MUDSTONE. (Drillers Description).	21.00	29.64		
							22	22.00 - 42.50 80 % Water COAL. (Drillers Description).	22.00	28.64		
							23	Grey MUDSTONE. (Drillers Description).	22.50	28.14		
							24					
							25					
							26					
							27					
							28					
							29					

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	1.20	139 92	1.20 42.50	



BOREHOLE RECORD

Borehole PR01

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422782.60 Northing: 587730.62

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 4 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 04/02/2021

SAMPLE DETAILS							(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							30	Grey MUDSTONE. (Drillers Description).	(20.00)			
							31					
							32					
							33					
							34					
							35					
							36					
							37					
							38					
							39					

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	1.20	139 92	1.20 42.50	



BOREHOLE RECORD

Borehole PR01

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
Easting: 422782.60 Northing: 587730.62

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 5 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 04/02/2021

SAMPLE DETAILS							(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							40	Grey MUDSTONE. (Drillers Description).				
							41					
							42					
							43					
							44					
							45					
							46					
							47					
							48					
							49					
							04/02/2021 1700 (1.20) Dry	End of Borehole at 42.50 m	42.50	8.14		

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	1.20	139 92	1.20 42.50	

1. Hand dug inspection pit to 1.20m.
 2. Gas readings start and end of shift: O₂ - 20.6%, CO₂ - 0%, CH₄ - 0%, H₂S - 0ppm. Readings remained the same throughout the shift.



BOREHOLE RECORD

Borehole PR02A

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422793.00 Northing: 587726.39

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 1 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 02/02/2021 - 03/02/2021

SAMPLE DETAILS							(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
								MADE GROUND (Drillers Description).	(0.40)			
								Stiff brown CLAY. (Drillers Description).	0.40	50.24		
							1		(0.80)			
							02/02/2021 1500 (0.00) Dry	CLAY. (Drillers Description).	1.20	49.44		
							03/02/2021 0800 (0.00) Dry		(0.40)			
							1.60 - 21.50 80 % Water	Yellow SANDSTONE. (Drillers Description).	1.60	49.04		
							2					
							3					
							4					
							5					
							6					
							7					
							8					
							9					

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	2.00	139	2.00	
										92	40.00	



BOREHOLE RECORD

Borehole PR02A

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422793.00 Northing: 587726.39

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 2 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 02/02/2021 - 03/02/2021

SAMPLE DETAILS							Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI				
							10			
							11			
							12	(19.90)		
							13			
							14			
							15			
							16			
							17			
							18			
							19			

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	2.00	139 92	2.00 40.00	



BOREHOLE RECORD

Borehole PR02A

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422793.00 Northing: 587726.39

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 3 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 02/02/2021 - 03/02/2021

SAMPLE DETAILS							(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							20	Yellow SANDSTONE. (Drillers Description).				
							21					
							21.50 - 40.00 0 % Water	VOID. (Drillers Description).	21.50	29.14		
							22		(1.70)			
							23	No flush returns, driller noted competent rock. (Drillers Description).	23.20	27.44		
							24					
							25					
							26					
							27					
							28					
							29					

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	2.00	139	2.00	1. Hand dug inspection pit to 1.20m. 2. Gas readings start and end of shift: O ₂ - 20.8%, CO ₂ - 0%, CH ₄ - 0%, H ₂ S - 0ppm. Readings remained the same throughout the shift.
										92	40.00	



BOREHOLE RECORD

Borehole PR02A

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422793.00 Northing: 587726.39

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 4 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 02/02/2021 - 03/02/2021

SAMPLE DETAILS							(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							30	No flush returns, driller noted competent rock. (Drillers Description).				
							31					
							32					
							33					
							34					
							35					
							36					
							37					
							38					
							39					

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	2.00	139 92	2.00 40.00	



BOREHOLE RECORD

Borehole PR02A

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.64 Scale 1:50
 Easting: 422793.00 Northing: 587726.39

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 5 of 5

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 02/02/2021 - 03/02/2021

SAMPLE DETAILS							Casing Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							4003/02/2021 1730 (2.00) Dry	No flush returns, driller noted competent rock. (Drillers Description). End of Borehole at 40.00 m	40.00	10.64		
							41					
							42					
							43					
							44					
							45					
							46					
							47					
							48					
							49					

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	2.00	139 92	2.00 40.00	



BOREHOLE RECORD

Borehole PR03

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 51.04 Scale 1:50
 Easting: 422786.40 Northing: 587714.21

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 1 of 3

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 04/02/2021 - 05/02/2021

SAMPLE DETAILS							(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
								MADE GROUND: Concrete. (Drillers Description). MADE GROUND. (Drillers Description).	0.10 0.10 (0.40)	50.94		
								Firm brown CLAY. (Drillers Description).	0.50 (0.70)	50.54		
							1 04/02/2021 1630 (0.00) Dry 05/02/2021 0800 (0.00) Dry	CLAY (Drillers Description).	1.20 (0.60)	49.84		
							2 1.80 - 21.00 100 % Water	Yellow SANDSTONE. (Drillers Description).	1.80	49.24		
							3					
							4					
							5					
							6					
							7					
							8					
							9					

Continued on next sheet

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	2.00	139 92	2.00 25.00	1. Hand dug inspection pit to 1.20m. 2. Gas readings start and end of shift: O ₂ - 20.6%, CO ₂ - 0%, CH ₄ - 0%, H ₂ S - 0ppm. Readings remained the same throughout the shift.



BOREHOLE RECORD

Borehole PR03

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 51.04 Scale 1:50
 Easting: 422786.40 Northing: 587714.21

Client: Northumberland County Council

Driller: LP

Logged By: LP

Sheet 3 of 3

Method: Rotary Open Hole Drilling

Checked By: BL

Dates: 04/02/2021 - 05/02/2021

SAMPLE DETAILS							(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	N (cu)	TCR %	SCR %	RQD %	FI						
							20	Yellow SANDSTONE. (Drillers Description).				
							20.40	Grey MUDSTONE. (Drillers Description).	30.64	(0.60)		
							21	21.00 - 25.00 90 % Water COAL (Drillers Description).	30.04	(1.00)		
							22	Grey MUDSTONE. (Drillers Description).	29.04	(3.00)		
							23					
							24					
							25	End of Borehole at 25.00 m	26.04			
							26					
							27					
							28					
							29					

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
								139	2.00	139 92	2.00 25.00	



BOREHOLE RECORD

Borehole PWS01

Contract No: D10015-2

Site: PI191009 Pegswood New Build Children's Home

GL (m AOD) 50.56 Scale 1:50
 Easting: 422787.91 Northing: 587733.25

Client: Northumberland County Council

Driller: SF

Logged By: AB

Sheet 1 of 1

Method: Windowless Sampling

Checked By: BL

Dates: 03/02/2021

SAMPLE DETAILS			(Casing) Groundwater	STRATA RECORD Description	Depth (m)	Level (m AOD)	Legend	Well/ Backfill
Type	Depth From-To (m)	Insitu Testing						
D	0.20			MADE GROUND: Light brown, sandy slightly clayey gravel. Gravel is angular to subangular, fine to coarse of limestone, sandstone, brick and concrete.	(0.40)			
ES	0.20			<i>At 0.10m: Seepage noted.</i>	0.40	50.16		
B	0.40 - 1.00			Firm dark greyish brown, slightly sandy, slightly gravelly CLAY of low plasticity. Gravel of subangular to subrounded, fine to coarse of sandstone and mudstone.	(1.20)			
D	0.50	HVP=46 kPa						
ES	0.50							
D	1.00	HVP=69 kPa	1					
D	1.00							
SPT (S)	1.20 - 1.65	N=18 (2,3/4,4,5,5)	0.01	<i>1.20-1.60m: Becoming stiff.</i>				
D	1.50			<i>1.50m: Clay of intermediate plasticity.</i>	1.60	48.96		
D	1.60			Weak, yellowish brown SANDSTONE. Recovered as sand and gravel sized fragments. (Possible weathered rockhead).	(0.10)	48.86		
SPT (S)	1.60 - 1.62	N=50+ (25 for 5mm/50 for 15mm)	0.01	End of Borehole at 1.70 m	1.70			
			03/02/2021 1700 (0.00) Dry					
			2					
			3					
			4					
			5					
			6					
			7					
			8					
			9					
			10					

Ground Water (m)					Chiselling / Hard Strata			Casing Depths		Hole Diameter		General Remarks
Depth Struck (m)	Casing Depth (m)	Water Level	Minutes	Water sealed (m)	From (m)	To (m)	Time (hr)	Diameter (mm)	Depth (m)	Diameter (mm)	Depth (m)	
										87	1.70	1. Hand dug inspection pit to 1.20m. 2. Borehole terminated at 1.70m on encountering hard strata.

Log last updated 30/03/2021

APPENDIX C

Geotechnical Laboratory Results



Laboratory Report Front Sheet

Site name

Pegswood

Job number

D10015-2

Solmek
12-16 Yarm Road,
Stockton on Tees,
TS18 3NA
01642 607083
lab@solmek.com



Client details:

Reference: D10015-2
Name: Dunelm
Address: Foundation House,
St John's Road,
Meadowfield,
County Durham,
DH7 8TZ

Telephone: 0191 3783151
Email: blaycock@dunelm.co.uk

FAO: B Laycock


Date commenced: 10/02/2021

Date reported: 24/02/2021

Observations and interpretations are outside of 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.

Samples will be held at the laboratory for a period of 4 weeks after the report date. After the all samples will be disposed of. Should further testing be required then the office should be informed before the above date.

Signature:	Approved Signatories:
	<input checked="" type="checkbox"/> K Watkin (Lab Manager) <input type="checkbox"/> U Mazhar (Assistant Lab Manager) <input type="checkbox"/>

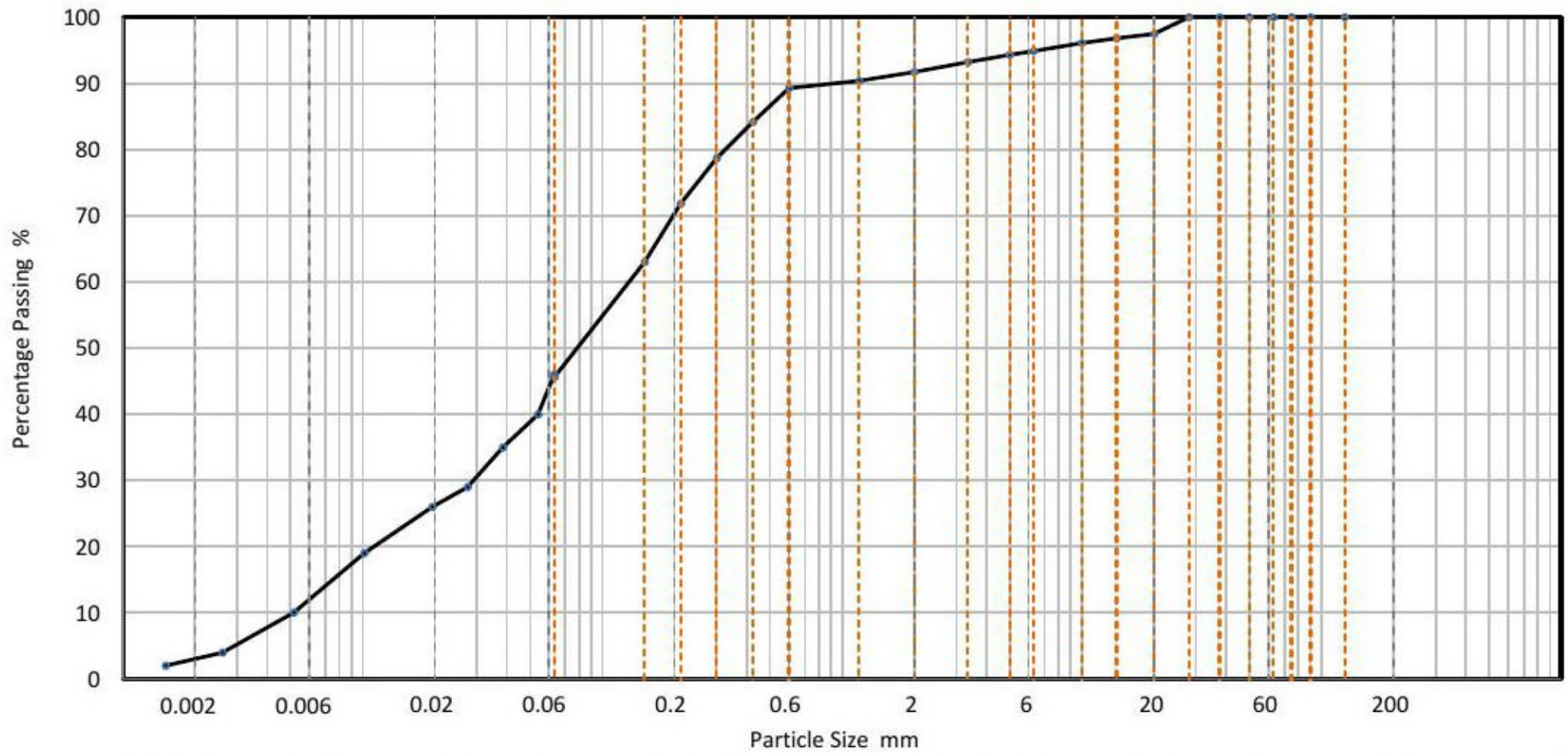
PARTICLE SIZE DISTRIBUTION

Solmek
12-16 Yarm Road,
Stockton on Tees,
TS18 3NA
01642 607083
lab@solmek.com



Site name	Job number
Pegswood	D10015-2

Hole	PWS03	Lab sample ID	SLMK2021021012
Depth (Top)	m 0.50	Test Method	BS 1377 - 2 : 1990 Clauses 9.2 and 9.5
Depth (Base)	m	Soil Description	Brown, slightly clayey, slightly gravelly, Very Silty SAND
Sample type	B		



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	46
90	100	0.0538	40
75	100	0.0384	35
63	100	0.0274	29
50	100	0.0195	26
37.5	100	0.0102	19
28	100	0.0052	10
20	98	0.0026	4
14	97	0.0015	2
10	96		
6.3	95		
5	94		
3.35	93		
2	92		
1.18	90		
0.6	89	Particle density (assumed)	
0.425	84	2.65 Mg/m3	
0.3	79		
0.212	72		
0.15	63		
0.063	46		

Dry Mass of sample, g 1355

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	8.3
Sand	46.1
Silt	42.6
Clay	3.0

Grading Analysis	
D100	mm
D60	mm 0.129
D30	mm 0.0285
D10	mm 0.00532
Uniformity Coefficient	24
Curvature Coefficient	1.2

Remarks
Preparation and testing in accordance with test method unless noted below

Accreditation status

Hydrometer is the usual Sedimentation method carried out by Solmek and is part of the Solmek UKAS accreditation schedule.

Approved by	KW
Approval date	24/02/2021 11:32



Final Report

Report No.:	21-04557-1		
Initial Date of Issue:	19-Feb-2021		
Client	Solmek Ltd		
Client Address:	12 Yarm Road Stockton-on-Tees TS18 3NA		
Contact(s):	Kathryn Watkin		
Project	D10015-2 Pegswood		
Quotation No.:		Date Received:	16-Feb-2021
Order No.:	LAB769	Date Instructed:	16-Feb-2021
No. of Samples:	3		
Turnaround (Wkdays):	5	Results Due:	22-Feb-2021
Date Approved:	19-Feb-2021		
Approved By:			

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: D10015-2 Pegswood

Client: Solmek Ltd	Chemtest Job No.:				21-04557	21-04557	21-04557
Quotation No.:	Chemtest Sample ID.:				1142061	1142062	1142063
	Sample Location:				PWS02	PWS02	PWS03
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0.40	1.20	0.50
Determinand	Accred.	SOP	Units	LOD			
Moisture	N	2030	%	0.020	16	5.6	8.7
pH	U	2010		4.0		[A] 8.7	
Sulphate (2:1 Water Soluble) as SO ₄	U	2120	mg/l	10		[A] 25	
Organic Matter	U	2625	%	0.40	[A] 13		[A] 4.7

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1142061			PWS02		A	Plastic Tub 1000g
1142062			PWS02		A	Plastic Tub 1000g
1142063			PWS03		A	Plastic Tub 1000g

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

APPENDIX D

Chemical Laboratory Results





DETS

Certificate of Analysis

Certificate Number 21-02760

Issued: 16-Feb-21

Client Dunelm Geotechnical & Environmental Ltd
Foundation House
St. John's Road
Meadowfield
Durham
DH7 8TZ

Our Reference 21-02760

Client Reference D10015-2

Order No PO22657/BL/D10015-2

Contract Title Pegswood

Description 5 Soil samples, 2 Leachate samples.

Date Received 10-Feb-21

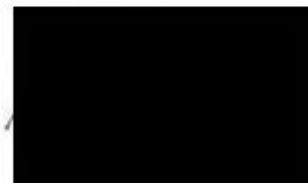
Date Started 10-Feb-21

Date Completed 16-Feb-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



2139

Summary of Chemical Analysis

Matrix Descriptions

Our Ref 21-02760

Client Ref D10015-2

Contract Title Pegswood

Sample ID	Depth	Lab No	Completed	Matrix Description
PWS01	0.2	1799368	16/02/2021	Dark brown gravelly, very sandy CLAY
PWS01	0.5	1799369	16/02/2021	Dark brown sandy CLAY
PWS02	0.4	1799370	16/02/2021	Dark brown gravelly, very sandy CLAY
PWS02	0.8	1799371	16/02/2021	Dark brown gravelly, sandy CLAY
PWS03	0.15	1799372	16/02/2021	Dark brown GRAVEL (sample matrix outside MCERTS scope of accreditation)

Summary of Chemical Analysis

Soil Samples

Our Ref 21-02760
 Client Ref D10015-2
 Contract Title Pegswood

Lab No	1799368	1799369	1799370	1799371	1799372
Sample ID	PWS01	PWS01	PWS02	PWS02	PWS03
Depth	0.20	0.50	0.40	0.80	0.15
Other ID					
Sample Type	ES	ES	ES	ES	ES
Sampling Date	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	1799368	1799369	1799370	1799371	1799372
Metals								
Antimony	DETSC 2301*	1	mg/kg	< 1.0	1.0	3.4	1.5	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	4.6	8.4	9.8	5.4	6.2
Barium	DETSC 2301#	1.5	mg/kg	390	93	240	110	77
Beryllium	DETSC 2301#	0.2	mg/kg	2.1	0.8	0.7	0.5	0.3
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7	0.3	0.5	0.5	0.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.2	0.5	0.2	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	11	20	17	13	8.8
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	15	19	68	22	32
Iron	DETSC 2301	25	mg/kg	12000	35000	28000	18000	21000
Lead	DETSC 2301#	0.3	mg/kg	17	28	190	20	8.5
Manganese	DETSC 2301#	20	mg/kg	2200	380	560	400	270
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.10	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	0.6	0.7	2.8	0.8	0.8
Nickel	DETSC 2301#	1	mg/kg	9.1	29	23	14	14
Selenium	DETSC 2301#	0.5	mg/kg	1.0	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	18	32	55	36	75
Zinc	DETSC 2301#	1	mg/kg	51	62	170	62	52
Inorganics								
pH	DETSC 2008#		pH	10.9	7.9	8.9	11.9	12.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	0.4	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cyanide, Complex	DETSC 2130*	0.2	mg/kg	< 0.2	< 0.2	0.4	< 0.2	< 0.2
Thiocyanate	DETSC 2130#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	2.6	2.1	2.3	2.1	1.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	330	39	70	46	< 10
Sulphate as SO4, Total	DETSC 2321#	100	mg/kg	4950	165	1070	3930	4930

Summary of Chemical Analysis

Soil Samples

Our Ref 21-02760
 Client Ref D10015-2
 Contract Title Pegswood

Lab No	1799368	1799369	1799370	1799371	1799372
Sample ID	PWS01	PWS01	PWS02	PWS02	PWS03
Depth	0.20	0.50	0.40	0.80	0.15
Other ID					
Sample Type	ES	ES	ES	ES	ES
Sampling Date	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	1799368	1799369	1799370	1799371	1799372
Petroleum Hydrocarbons								
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C44	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C10-C44	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	0.20
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C35-C44	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C10-C44	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10
Ali/Aro C10-C44	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10
PAHs								
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.5	< 0.1	0.7	0.2	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	0.2	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.9	< 0.1	1.2	0.4	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.9	0.4	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.5	< 0.1	0.7	0.3	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	0.5	< 0.1	0.6	0.2	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.6	< 0.1	0.6	0.3	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	0.4	0.2	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	0.5	< 0.1	0.6	0.3	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.6	< 0.1	0.7	0.7	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	0.2	0.3	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.4	< 0.1	0.4	0.4	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	5.2	< 1.6	7.6	3.9	< 1.6
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Summary of Chemical Analysis

Leachate Samples

Our Ref 21-02760
 Client Ref D10015-2
 Contract Title Pegswood

Lab No	1799373	1799374
Sample ID	PWS01	PWS02
Depth	0.20	0.80
Other ID		
Sample Type	ES	ES
Sampling Date	03/02/2021	03/02/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Preparation					
BS EN 12457 10:1	DETSC 1009*			Y	Y
Metals					
Antimony, Dissolved	DETSC 2306	0.17	ug/l	1.2	0.34
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	2.1	0.62
Barium, Dissolved	DETSC 2306	0.26	ug/l	7.4	2.3
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	0.2	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	21	< 12
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.05	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	1.8	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	12	2.6
Iron, Dissolved	DETSC 2306	5.5	ug/l	54	300
Lead, Dissolved	DETSC 2306	0.09	ug/l	1.1	0.35
Manganese, Dissolved	DETSC 2306	0.22	ug/l	5.2	1.9
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.02	< 0.01
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	3.5	1.3
Nickel, Dissolved	DETSC 2306	0.5	ug/l	1.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.8	0.73
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	4.4	1.0
Zinc, Dissolved	DETSC 2306	1.3	ug/l	15	2.5
Inorganics					
pH	DETSC 2008		pH	9.3	8.0
Cyanide, Total	DETSC 2130	40	ug/l	< 40	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20
Cyanide, Complex	DETSC 2130*	40	ug/l	< 40	< 40
Thiocyanate	DETSC 2130	20	ug/l	< 20	< 20
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	< 0.015	< 0.015
Sulphate as SO4	DETSC 2055	0.1	mg/l	11	3.9

Summary of Chemical Analysis

Leachate Samples

Our Ref 21-02760
 Client Ref D10015-2
 Contract Title Pegswood

Lab No	1799373	1799374
Sample ID	PWS01	PWS02
Depth	0.20	0.80
Other ID		
Sample Type	ES	ES
Sampling Date	03/02/2021	03/02/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C10-C44	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C35-C44	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C35-C44	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C10-C44	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Ali/Aro C10-C44	DETSC 3072*	1	ug/l	< 1.0	< 1.0
PAHs					
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	0.03	0.11
Anthracene	DETSC 3304	0.01	ug/l	0.02	0.05
Fluoranthene	DETSC 3304	0.01	ug/l	0.04	0.22
Pyrene	DETSC 3304	0.01	ug/l	0.04	0.20
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	0.02	0.10
Chrysene	DETSC 3304	0.01	ug/l	0.03	0.11
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.03	0.13
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.01	0.05
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.03	0.11
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.03	0.09
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	0.03
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.03	0.09
PAH Total	DETSC 3304	0.2	ug/l	0.37	1.3
Phenols					
Phenol - Monohydric	DETSC 2130	100	ug/l	< 100	< 100

Summary of Asbestos Analysis

Soil Samples

Our Ref 21-02760

Client Ref D10015-2

Contract Title Pegswood

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1799368	PWS01 0.20	SOIL	NAD	none	Darryl Fletcher
1799370	PWS02 0.40	SOIL	Chrysotile	Bundles of Chrysotile Fibres	Darryl Fletcher
1799371	PWS02 0.80	SOIL	NAD	none	Darryl Fletcher
1799372	PWS03 0.15	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-02760
 Client Ref D10015-2
 Contract Pegswood

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1799368	PWS01 0.20 SOIL	03/02/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1799369	PWS01 0.50 SOIL	03/02/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1799370	PWS02 0.40 SOIL	03/02/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1799371	PWS02 0.80 SOIL	03/02/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1799372	PWS03 0.15 SOIL	03/02/21	GJ 250ml, GJ 60ml, PT 1L	Ammonia (3 days)	
1799373	PWS01 0.20 LEACHATE	03/02/21	GJ 250ml, GJ 60ml, PT 1L		
1799374	PWS02 0.80 LEACHATE	03/02/21	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report



DETS

Certificate of Analysis

Certificate Number 21-03607

Issued: 25-Feb-21

Client Dunelm Geotechnical & Environmental Ltd
Foundation House
St. John's Road
Meadowfield
Durham
DH7 8TZ

Our Reference 21-03607

Client Reference D10015-2

Order No 22713BLD100152

Contract Title Pegwswood

Description One Water sample.

Date Received 19-Feb-21

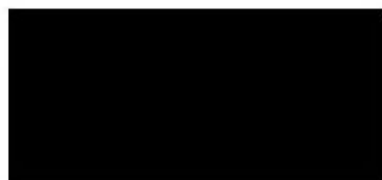
Date Started 19-Feb-21

Date Completed 25-Feb-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



2139

Summary of Chemical Analysis

Water Samples

Our Ref 21-03607

Client Ref D10015-2

Contract Title Pegswood

Lab No	1804646
Sample ID	PWS01
Depth	
Other ID	
Sample Type	WATER
Sampling Date	17/02/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Antimony, Dissolved	DETSC 2306	0.17	ug/l	3.2
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	3.0
Barium, Dissolved	DETSC 2306	0.26	ug/l	21
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	21
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	6.9
Chromium, Hexavalent	DETSC 2203	7	ug/l	19
Copper, Dissolved	DETSC 2306	0.4	ug/l	71
Iron, Dissolved	DETSC 2306	5.5	ug/l	140
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.55
Manganese, Dissolved	DETSC 2306	0.22	ug/l	14
Mercury, Total	DETSC 2306*	0.01	ug/l	0.04
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	11
Nickel, Dissolved	DETSC 2306	0.5	ug/l	5.7
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.9
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	3.6
Inorganics				
pH	DETSC 2008		pH	10.8
Cyanide, Total	DETSC 2130	40	ug/l	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20
Cyanide, Complex	DETSC 2130*	40	ug/l	< 40
Thiocyanate	DETSC 2130	20	ug/l	< 20
Hardness	DETSC 2303	0.1	mg/l	87.3
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.040
Sulphate as SO4	DETSC 2055	0.1	mg/l	66
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	2.8
Aliphatic C10-C44	DETSC 3072*	1	ug/l	280
Aliphatic C12-C16	DETSC 3072*	1	ug/l	17
Aliphatic C16-C21	DETSC 3072*	1	ug/l	44
Aliphatic C21-C35	DETSC 3072*	1	ug/l	180
Aliphatic C35-C44	DETSC 3072*	1	ug/l	29
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	8.2

Summary of Chemical Analysis

Water Samples

Our Ref 21-03607

Client Ref D10015-2

Contract Title Pegswood

Lab No	1804646
Sample ID	PWS01
Depth	
Other ID	
Sample Type	WATER
Sampling Date	17/02/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Aromatic C12-C16	DETSC 3072*	1	ug/l	30
Aromatic C16-C21	DETSC 3072*	1	ug/l	71
Aromatic C21-C35	DETSC 3072*	1	ug/l	230
Aromatic C35-C44	DETSC 3072*	1	ug/l	63
Aromatic C10-C44	DETSC 3072*	1	ug/l	400
Ali/Aro C10-C44	DETSC 3072*	1	ug/l	670
PAHs				
Naphthalene	DETSC 3304	0.05	ug/l	0.24
Acenaphthylene	DETSC 3304	0.01	ug/l	0.04
Acenaphthene	DETSC 3304	0.01	ug/l	0.17
Fluorene	DETSC 3304	0.01	ug/l	0.11
Phenanthrene	DETSC 3304	0.01	ug/l	0.59
Anthracene	DETSC 3304	0.01	ug/l	0.20
Fluoranthene	DETSC 3304	0.01	ug/l	0.88
Pyrene	DETSC 3304	0.01	ug/l	1.1
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	0.48
Chrysene	DETSC 3304	0.01	ug/l	0.47
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.51
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.17
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.36
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.25
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	0.07
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.24
PAH Total	DETSC 3304	0.2	ug/l	5.9
Phenols				
Phenol - Monohydric	DETSC 2130	100	ug/l	< 100

Information in Support of the Analytical Results

Our Ref 21-03607
 Client Ref D10015-2
 Contract Pegswood

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1804646	PWS01 WATER	17/02/21	GB 1L x2, GV x2	pH/Cond/TDS (1 days)	

Key: G-Glass B-Bottle V-Vial
 DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 21-06139

Issued: 25-Mar-21

Client Dunelm Geotechnical & Environmental Ltd
Foundation House
St. John's Road
Meadowfield
Durham
DH7 8TZ

Our Reference 21-06139

Client Reference D10015-2

Order No PO22657/BL/D10015-2

Contract Title Pegswood

Description One Soil sample.

Date Received 10-Feb-21

Date Started 23-Mar-21

Date Completed 25-Mar-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



2139

Summary of Asbestos Analysis

Samples

Our Ref 21-06139

Client Ref D10015-2

Contract Title Pegswood

Lab No	Sample ID	Sample Location	Material Type	Result	Comment*	Analyst
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Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 21-06139
 Client Ref D10015-2
 Contract Title Pegswood

Lab No	1821277
Sample ID	PWS02
Depth	0.40
Other ID	
Sample Type	SOIL
Sampling Date	03/02/2021
Sampling Time	

Test	Method	Units	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	< 0.001
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	<0.001
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na
Breakdown of Gravimetric Analysis (a)			
Mass of Sample		g	61.74
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	
Breakdown of Detailed Gravimetric Analysis (b)			
% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	<0.001
Breakdown of PCOM Analysis (c)			
% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na
Breakdown of Potentially Respirable Fibre Analysis (d)			
Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
 % asbestos in Asbestos Containing Materials (ACMs) is determined by
 by reference to HSG 264.
 Recommended sample size for quantification is approximately 1kg
 # denotes deviating sample

Information in Support of the Analytical Results

Our Ref 21-06139
 Client Ref D10015-2
 Contract Pegswood

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1821277	PWS02 0.40 SOIL	03/02/21	No containers logged		Cannot evaluate

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

APPENDIX E

Gas and Groundwater Monitoring Results





WATER QUALITY DATA SHEET

PROJECT NUMBER		D10015-2			INSTRUMENT DETAILS	
CONTRACT NAME		PI191009 Pegswood New Build Children's Home			NAME	
					Hannah HI 9829 Multiparameter	
					SERIAL NUMBER	
					LAST CALIBRATION	
DATE & TIME						
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)		
17	02	2021	08:45	09:50		

BH No.	Temperature (C)	Conductivity (mS/cm)	Redox Potential (mV)	Dissolved Oxygen (ppm)	pH	Quantity Sampled (l)
PWS01	4.10	0.508	-93.0	0.97	7.91	2x2ltr GB, 2x40ml GV



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES		
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Rising		NAME	GFM435			
17	02	2021	08:45	09:50			SERIAL NUMBER	11939			
AMBIENT READINGS					O ₂ (% v/v)		LAST CALIBRATION		VISIT NO		
			20	CO ₂ (% v/v)	ND	CH ₄ (% v/v)	ND	PID reading (ppm)	NR	1	12
ATMOSPHERIC PRESSURE (mbar)					START	995	FINISH	997	WEATHER CONDITIONS		GROUND CONDITIONS
AIR TEMPERATURE °C					START	7	FINISH	7	Cloudy		Wet

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	17.90	17.90	NR	NR	ND	ND	0.52	1.10	
PWS02	50	ND	ND	ND	ND	ND	1.10	1.10	17.70	17.70	NR	NR	ND	ND	0.92	1.00	
PWS03	50	ND	ND	ND	ND	ND	0.40	0.40	18.70	18.70	NR	NR	ND	ND	DRY	1.50	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Rising		NAME	GFM435		
04	03	2021	08:40	09:00			SERIAL NUMBER	11939		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/09/2020	VISIT NO	
O2 (% v/v)	20	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		2	12
ATMOSPHERIC PRESSURE (mbar)				START	1024	FINISH	1024	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	4	FINISH	5	LAST CALIBRATION		GROUND CONDITIONS
									Raining	Wet

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	18.80	18.80	NR	NR	ND	ND	DRY	1.27	
PWS02	50	ND	ND	ND	ND	ND	1.70	1.70	17.50	17.50	NR	NR	ND	ND	0.85	0.94	
PWS03	50	ND	ND	ND	ND	ND	0.70	0.70	19.00	19.00	NR	NR	ND	ND	DRY	1.38	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
 REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES		
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Rising		NAME	GFM436			
25	03	2021	09:50	10:10			SERIAL NUMBER	12666			
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO		
O2 (% v/v)	20.2	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		3	12	
ATMOSPHERIC PRESSURE (mbar)				START	1002	FINISH	1002	SERIAL NUMBER		WEATHER CONDITIONS	
AIR TEMPERATURE °C				START	8	FINISH	8	LAST CALIBRATION		Cloudy	
										GROUND CONDITIONS	Damp

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	19.40	19.40	NR	NR	ND	ND	DRY	1.27	
PWS02	50	ND	ND	ND	ND	ND	1.80	1.80	17.40	17.40	NR	NR	ND	ND	0.86	0.94	
PWS03	50	ND	ND	ND	ND	ND	0.40	0.40	19.70	19.70	NR	NR	ND	ND	DRY	1.38	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Falling		NAME	GFM436		
08	04	2021	09:45	10:05:00			SERIAL NUMBER	12666		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO	
O2 (% v/v)	20.1	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		4	12
ATMOSPHERIC PRESSURE (mbar)				START	1004	FINISH	1004	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	9	FINISH	9	LAST CALIBRATION		GROUND CONDITIONS
									Cloudy	Dry

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	19.90	19.90	NR	NR	ND	ND	DRY	1.50	
PWS02	50	ND	ND	ND	ND	ND	1.70	1.70	18.40	18.40	NR	NR	ND	ND	0.87	1.00	
PWS03	50	ND	ND	ND	ND	ND	0.40	0.40	19.80	19.80	NR	NR	ND	ND	DRY	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Falling		NAME	GFM436		
26	04	2021	13:55	14:15:00			SERIAL NUMBER	12666		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO	
O2 (% v/v)	20.5	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		5	12
ATMOSPHERIC PRESSURE (mbar)				START	1010	FINISH	1010	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	12	FINISH	12	LAST CALIBRATION		GROUND CONDITIONS
									Cloudy	Dry

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	20.30	20.30	NR	NR	ND	ND	DRY	1.50	
PWS02	50	ND	ND	ND	ND	ND	2.00	2.00	18.90	18.90	NR	NR	ND	ND	0.86	1.00	
PWS03	50	ND	ND	ND	ND	ND	0.60	0.60	19.70	19.70	NR	NR	ND	ND	DRY	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND			INSTRUMENT DETAILS			NOTES			
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Falling			NAME	GFM436					
06	05	2021	10:15	10:30:00				SERIAL NUMBER	12666					
AMBIENT READINGS													VISIT NO	
O2 (% v/v)	20	CO2 (% v/v)	ND	CH4 (% v/v)	ND	PID reading (ppm)	NR	LAST CALIBRATION	08/06/2021		6	OF	12	
ATMOSPHERIC PRESSURE (mbar)				START	995	FINISH	995	SERIAL NUMBER			WEATHER CONDITIONS		GROUND CONDITIONS	
AIR TEMPERATURE °C				START	7	FINISH	7	LAST CALIBRATION			Cloudy		Wet	

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	19.70	19.70	NR	NR	ND	ND	DRY	1.50	
PWS02	50	ND	ND	ND	ND	ND	1.90	1.90	17.40	17.40	NR	NR	ND	ND	0.88	1.00	
PWS03	50	ND	ND	ND	ND	ND	0.30	0.30	19.70	19.70	NR	NR	ND	ND	1.06	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Falling		NAME	GFM436		
20	05	2021	11:00	11:20:00			SERIAL NUMBER	12666		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO	
O2 (% v/v)	20.2	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		7	12
ATMOSPHERIC PRESSURE (mbar)				START	1001	FINISH	1001	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	11	FINISH	11	LAST CALIBRATION		GROUND CONDITIONS
									Cloudy	Wet

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	0.60	0.60	-12.00	ND	ND	ND	ND	19.70	19.70	NR	NR	ND	ND	DRY	1.50	
PWS02	50	0.10	0.10	-1.00	ND	ND	2.60	2.60	16.50	16.50	NR	NR	ND	ND	0.88	1.00	
PWS03	50	ND	ND	-1.00	ND	ND	0.50	0.50	19.90	19.90	NR	NR	ND	ND	DRY	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Rising		NAME	GFM436		
03	06	2021	10:25	10:45:00			SERIAL NUMBER	12666		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO	
O2 (% v/v)	20.6	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		8	12
ATMOSPHERIC PRESSURE (mbar)				START	1011	FINISH	1011	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	14	FINISH	14	LAST CALIBRATION		GROUND CONDITIONS
									Partly Cloudy	Dry

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	20.20	20.20	NR	NR	ND	ND	DRY	1.50	
PWS02	50	0.10	0.10	-2.00	ND	ND	3.60	3.60	16.60	16.60	NR	NR	ND	ND	0.90	1.00	
PWS03	50	ND	ND	ND	ND	ND	0.80	0.80	19.00	19.00	NR	NR	ND	ND	DRY	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Rising		NAME	GFM436		
17	06	2021	10:35	10:50:00			SERIAL NUMBER	12666		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO	
O2 (% v/v)	20.6	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		9	12
ATMOSPHERIC PRESSURE (mbar)				START	1004	FINISH	1004	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	17	FINISH	17	LAST CALIBRATION		GROUND CONDITIONS
									Partly Cloudy	Dry

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	20.40	20.40	NR	NR	ND	ND	DRY	1.50	
PWS02	50	ND	ND	ND	ND	ND	3.10	3.10	18.50	18.50	NR	NR	ND	ND	0.88	1.00	
PWS03	50	0.10	0.10	-1.00	ND	ND	0.80	0.80	19.70	19.70	NR	NR	ND	ND	DRY	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Rising		NAME	GFM436		
08	07	2021	13:20	13:35:00			SERIAL NUMBER	12666		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO	
O2 (% v/v)	20.9	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		10	12
ATMOSPHERIC PRESSURE (mbar)				START	1011	FINISH	1011	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	18	FINISH	18	LAST CALIBRATION		GROUND CONDITIONS
									Partly Cloudy	Wet

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	20.40	20.40	NR	NR	ND	ND	0.61	1.50	
PWS02	50	ND	ND	ND	ND	ND	2.20	2.20	18.00	18.00	NR	NR	ND	ND	0.89	1.00	
PWS03	50	ND	ND	ND	ND	ND	0.70	0.70	20.30	20.30	NR	NR	ND	ND	0.99	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND		INSTRUMENT DETAILS		NOTES	
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Rising		NAME	GFM436		
22	07	2021	11:40	12:00:00			SERIAL NUMBER	12666		
AMBIENT READINGS					PID reading (ppm)		LAST CALIBRATION	08/06/2021	VISIT NO	
O2 (% v/v)	20.7	CO2 (% v/v)	ND	CH4 (% v/v)	ND	NR	NAME		11	12
ATMOSPHERIC PRESSURE (mbar)				START	1016	FINISH	1016	SERIAL NUMBER		WEATHER CONDITIONS
AIR TEMPERATURE °C				START	18	FINISH	18	LAST CALIBRATION		GROUND CONDITIONS
									Low Cloud/Fog	Dry

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	20.30	20.30	NR	NR	ND	ND	Dry	1.50	
PWS02	50	ND	ND	ND	ND	ND	2.50	2.50	18.70	18.70	NR	NR	ND	ND	0.88	1.00	
PWS03	50	ND	ND	ND	ND	ND	2.10	2.10	18.00	18.00	NR	NR	ND	ND	Dry	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level



GAS MONITORING DATA SHEET

PROJECT NUMBER	D10015-2
CONTRACT NAME	PI191009 Pegswood New Build Children's Home

DATE & TIME					REGIONAL TREND	INSTRUMENT DETAILS		NOTES		
DAY	MONTH	YEAR	TIME (Start)	TIME (Finish)	Falling	NAME	GFM435			
05	08	2021	09:55	10:10:00		SERIAL NUMBER	11939			
AMBIENT READINGS					LAST CALIBRATION		VISIT NO			
O2 (% v/v)	20.1	CO2 (% v/v)	ND	CH4 (% v/v)	ND	PID reading (ppm)	NR	12	12	
ATMOSPHERIC PRESSURE (mbar)					START	999	FINISH	999	WEATHER CONDITIONS	
AIR TEMPERATURE °C					START	17	FINISH	18	GROUND CONDITIONS	
									Partly Cloudy	Dry

BH No.	Pipe Diameter	Flow Rate (l/hr)		Differential pressure mbar	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		PID (ppm)		H ₂ S (ppm)	CO (ppm)	SWL (m bgl)	Base of pipe (m bgl)	Remarks
		Peak	Steady		Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Low					
PWS01	50	ND	ND	ND	ND	ND	ND	ND	19.70	19.70	NR	NR	ND	ND	Dry	1.50	
PWS02	50	ND	ND	ND	ND	ND	2.40	2.40	18.50	18.50	NR	NR	ND	ND	0.89	1.00	
PWS03	50	ND	ND	ND	ND	ND	2.80	2.80	17.10	17.10	NR	NR	ND	ND	Dry	1.00	

MONITORING ORDER IS FROM LEFT TO RIGHT ACROSS THE TABLE
REGIONAL TREND IS THAT SHOWN AT THE NEAREST MET OFFICE LOCATION AT THE TIME OF MONITORING.

KEY:	
ND	None Detected
NR	Not Recorded
SWL	Standing Water Level

APPENDIX F

Dunelm Notes On Limitations



Dunelm Conditions of Offer and Notes on Limitations of Investigation

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, soil gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

The firm cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. The firm are not responsible for the action negligent or otherwise of subcontractors or third parties.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.2.7 of *BS 10175:2011 +A2:2017* in order to confirm the conceptual assumptions, and in accordance with *BS5930:2015*. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, the firm cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.