

TERRATEC S.I. Ltd

**SITE INVESTIGATION.
GEO-ENVIRONMENTAL TESTING.**

01273 517020

Unit E, Newhaven Workshops, Beach Close, Newhaven, East Sussex, BN9 0BY

Mr P. Meredith,
Willowbrook Park,
15 The Fairway,
Lancing,
West Sussex,
BN15 8JJ.

18th August 2018

Dear Sir,

RE: SITE AT DURBAN ROAD, BOGNOR REGIS.

*As instructed we visited the site above and conducted a Geotechnical Survey to aid design of the foundations. We report below our findings:

THE SITE.

*The records of the British Geological Survey indicate that the site is founded on River Terrace Deposits (Alluvial) overlying the Lewes Nodular Chalk formation.

*The River Terraces are quite frequently encountered as sands, silts and clays with varying amounts of flint gravel. In this area it is sometimes encountered as very Alluvial.

THE FIELDWORK AND TESTING.

*To investigate the subsoil we sank 3 no. boreholes using a Mackintosh Probe.

*The approximate location of this is shown on the attached drawing.

*We measured the insitu shear strength of the subsoil using a Shear Vane tester and a Dynamic Penetrometer. The results are given on the borehole logs.

*These are shown as 'v' (Vane Tester) and 'm' (Mackintosh Probe) and the Shear results/blow counts (N ratios) are shown on the borehole logs, in the far right column.

*General samples of the subsoil were recovered and examined for visual description and moisture content.

*These are shown on the borehole log as 'B'.

*Selected samples were later tested for moisture content, Index properties, Sulphate and pH.

*A Radon Report was obtained from UK Radon and is attached.

THE FINDINGS

*All of the boreholes encountered similar subsoil conditions consisting of a silty/ fine sandy clay down to approximately 1.80m depth. This was a desiccated crust of the Alluvium. Below this level, the Alluvium became a medium/ loose grey black silt. At approximately 2.80m depth, we encountered a dense to very dense strata that was possibly the top of the Lewes Chalk.

*In borehole 2 we encountered a soft clay fill/made ground to a depth of 1.10m.

*We encountered seepages during our fieldwork but it should be noted that this could change at other times.

*All of the moisture contents were consistent with the subsoil encountered in this area.

*The Index test results show that the subsoil will have a low to medium susceptibility to volume change with change in moisture content.

*The sulphate results were all fairly low and the pH values were slightly acidic.

*No signs of contamination were seen on site or in the subsoil samples.

DISCUSSION

*We understand that it is proposed to develop the site with housing.

*If the housing is only two storey, it might be possible to use reinforced trench fill foundations in the desiccated crust. Timber framed construction would keep the loading as low as possible.

*Depending on the configuration of the housing, reinforced raft foundations might be a possibility.

*A pad and beam type foundation might be possible, with the pads taken down to 2.80m depth.

*Another option would be a Pile and Ground beam system.

*If a piling system is chosen, we could advise further on this.

*Suspended floors will be required (Except in the case of a raft foundation) as the foundation depths will effectively be in excess of 1.50m deep.

*Heave protection for medium shrinkage soils will be required.

*Deep excavations will most likely require temporary shoring/support and wet weather will adversely effect the soil stability.

*The test results show that no special requirements are needed for acid or sulphate attack on buried concrete at this site.

*The Radon report indicates that the site is not in a Radon affected area and that Radon protection will not be required.

*If you have any further questions, please contact us.

Yours faithfully

D J Thorpe.
Terratec S.Ltd

TERRATEC S.I. LTD	SITE: Site at Durtan Road, Bognor.	BOREHOLE 1
	CLIENT: P. Meredith	SHEET NO. 1 OF 2

SAMPLING	STRATA	PROPERTIES
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DEPTH	TYPE	NO	THICK- NESS	LEG- END	DESCRIPTION	M/C %	TYPE DYNAMIC PROBE 'N Blow Count
0.15			0.15		Topsoil		
					STIFF MID BROWN SILTY/ FINE SANDY <u>CLAY</u>		
0.90	V	1	1.65			21.76	$\frac{128}{27}$
1.10	V	2					$\frac{131}{29}$
1.30	V	3					$\frac{130}{33}$
1.50	V	4					$\frac{12}{30}$
1.70	V	5				21.63	$\frac{78}{19}$
1.80	B	6					$\frac{78}{19}$
1.90	V	7					$\frac{62}{17}$
2.10	V	8			MEDIUM LOOSE Grey/Black Silty CLAYEY SILT	23.27	$\frac{150}{22}$
2.30	M	9	1.05				$\frac{150}{21}$
2.45	M	10					$\frac{150}{17}$
2.60	M	11					$\frac{150}{20}$
2.75	M	12					$\frac{100}{50}$
2.85	M	13					
3.00	B	14			VERY DENSE POSSIBLY <u>CHALK</u>	13.78	

DRILLING

TYPE	FROM	TO	SIZE	FLUID	SEEPAGE	BEHAVIOUR	SEALED	DATE
DYNAMIC	0.00	3.00	54mm	NONE	YES	REDS DAMP	NO	

TERRATEC S.I. LTD	SITE: Site at Durban Road, Bognor.	BOREHOLE 1
	CLIENT: P. Meredith	SHEET NO. 2 OF 2

SAMPLING	STRATA	PROPERTIES
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DEPTH	TYPE	NO	THICK- NESS	LEG- END	DESCRIPTION	MC %	TYPE DYNAMIC PROBE 'N' Blow Count
3.00					V. Dense		
3.40	m	17	1.00		POSS. SAND LEWIS <u>Chalk</u>		62 50
4.00	m	18					58 50

DRILLING

TYPE	FROM	TO	SIZE	FLUID	SEEPAGE	BEHAVIOUR	SEALED	DATE
DYNAMIC	3.00	4.00	64mm	NONE	YES	Reps DAMP	NO	

TERRATEC S.I. LTD	SITE: Site at Durban Road, Bognor	BOREHOLE 2
	CLIENT: P. Meredith	SHEET NO. 1 OF 1

SAMPLING	STRATA	PROPERTIES
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DEPTH	TYPE	NO	THICK- NESS	LEG- END	DESCRIPTION	M/C %	TYPE DYNAMIC PROBE 'N' Blow Count
0.20			0.20		<u>Topsoil</u>		
0.80	V	1	0.90		SOFT TO FIRM <u>FILL/MADE GROUND</u> CONSISTING OF SILTY CLAY	23.27	$\frac{61}{27}$
1.00	V	2					
1.10	V	3					
1.20	V	4					
1.40	V	5	0.80		STIFF MID BROWN SILTY/FINE SANDY <u>CLAY</u>	21.68	$\frac{134}{31}$
1.60	V	6					
1.80	V	7					
1.90	V	8					
2.00	V	9	0.70		MEDIUM LOOSE GREY/BLACK ALLUVIAL CLAYEY <u>SILT</u>	23.12	$\frac{64}{19}$
2.20	V	10					
2.50	M	12					
2.65	M	13					
	B	14	0.60		DENSE TO V. DENSE POSSIBLY LENES <u>CHALK</u>	13.76	$\frac{92}{50}$
3.20	M	15					
				END			

DRILLING

TYPE	FROM	TO	SIZE	FLUID	SEEPAGE	BEHAVIOUR	SEALED	DATE
DYNAMIC	0.00	3.20	54mm	NONE	YES	RODS DAMP	NO	

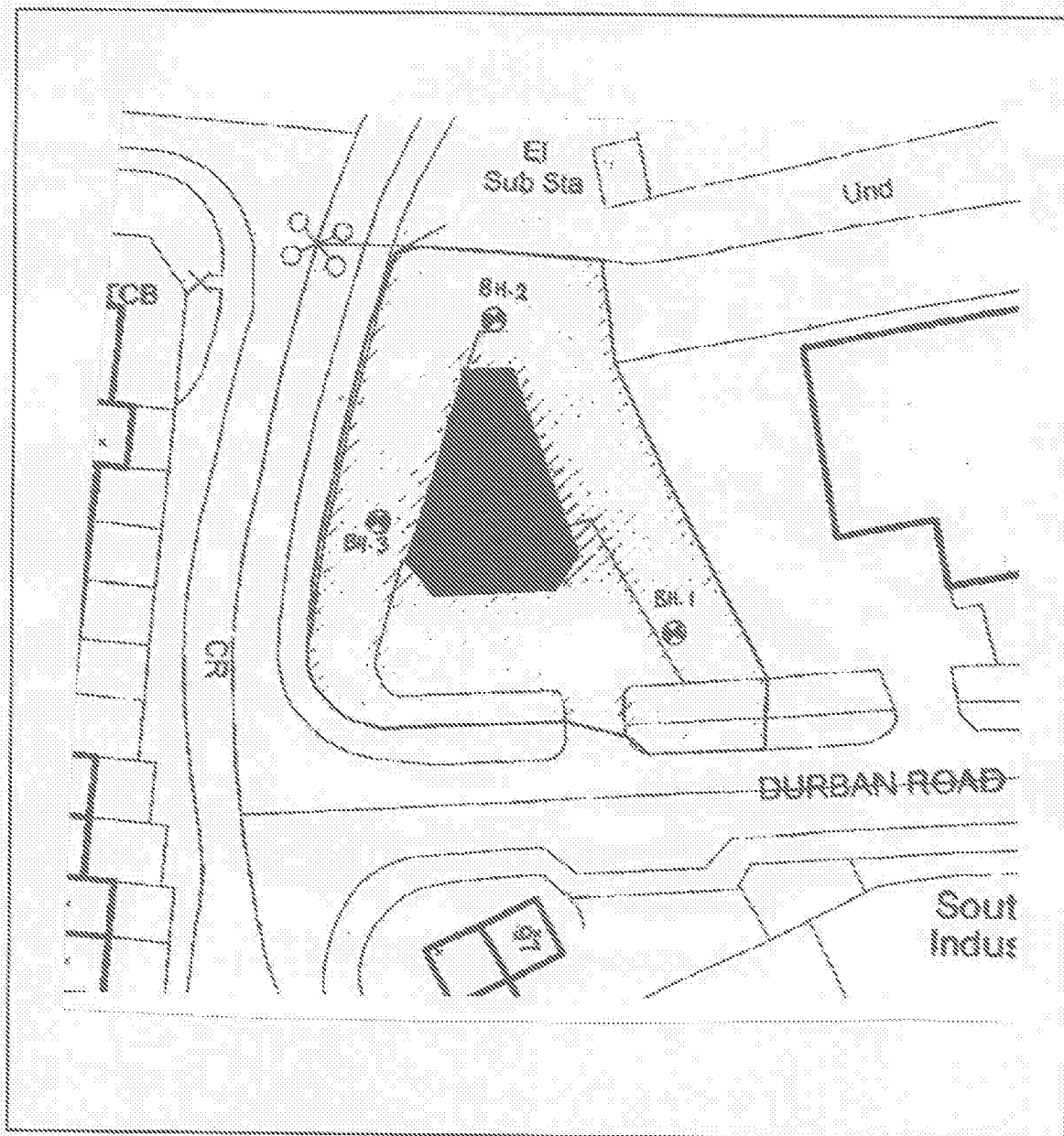
TERRATEC S.I. LTD	SITE: Site at Durban Road, Bognor.	BOREHOLE 3
	CLIENT: P. Meredith	SHEET NO. 1 OF 2

SAMPLING	STRATA	PROPERTIES
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DEPTH	TYPE	NO	THICK- NESS	LEG- END	DESCRIPTION	W/C %	TYPE DYNAMIC PROBE 'N' Blow Count
0.15			0.15				
0.60			0.45				
0.80	V	1					
1.00	V	2					
1.20	V	3					
1.40	V	4	1.20				
1.60	V	5					
1.80	V	6					
2.00	V	7					
2.20	V	8					
2.50	V	9					
2.80	V	10					
3.20	V	11					
3.50	V	12					
3.80	V	13					
4.10	V	14					
4.40	V	15					
4.70	V	16					
5.00	V	17					
5.30	V	18					
5.60	V	19					
5.90	V	20					
6.20	V	21					
6.50	V	22					
6.80	V	23					
7.10	V	24					
7.40	V	25					
7.70	V	26					
8.00	V	27					
8.30	V	28					
8.60	V	29					
8.90	V	30					
9.20	V	31					
9.50	V	32					
9.80	V	33					
10.10	V	34					
10.40	V	35					
10.70	V	36					
11.00	V	37					
11.30	V	38					
11.60	V	39					
11.90	V	40					
12.20	V	41					
12.50	V	42					
12.80	V	43					
13.10	V	44					
13.40	V	45					
13.70	V	46					
14.00	V	47					
14.30	V	48					
14.60	V	49					
14.90	V	50					
15.20	V	51					
15.50	V	52					
15.80	V	53					
16.10	V	54					
16.40	V	55					
16.70	V	56					
17.00	V	57					
17.30	V	58					
17.60	V	59					
17.90	V	60					
18.20	V	61					
18.50	V	62					
18.80	V	63					
19.10	V	64					
19.40	V	65					
19.70	V	66					
20.00	V	67					
20.30	V	68					
20.60	V	69					
20.90	V	70					
21.20	V	71					
21.50	V	72					
21.80	V	73					
22.10	V	74					
22.40	V	75					
22.70	V	76					
23.00	V	77					
23.30	V	78					
23.60	V	79					
23.90	V	80					
24.20	V	81					
24.50	V	82					
24.80	V	83					
25.10	V	84					
25.40	V	85					
25.70	V	86					
26.00	V	87					
26.30	V	88					
26.60	V	89					
26.90	V	90					
27.20	V	91					
27.50	V	92					
27.80	V	93					
28.10	V	94					
28.40	V	95					
28.70	V	96					
29.00	V	97					
29.30	V	98					
29.60	V	99					
29.90	V	100					

DRILLING

TYPE	FROM	TO	SIZE	FLUID	SEEPAGE	BEHAVIOUR	SEALED	DATE
DYNAMIC	0.00	3.20	54mm	NONE	YES	RODS DAMP	NO	



SITE: Site at Durban Road, Bognor Regis.	DATE: September 2018
CLIENT: P. Meredith.	TITLE: Borehole Location Plan

TERRATEC S.I. Ltd

**SITE INVESTIGATION.
GEO-ENVIRONMENTAL TESTING.**

Unit E, Newhaven Workshops, Beach Close, Newhaven, East Sussex, BN9 0NY
Reg. No. 6047143



Radon Risk Report for addresses in England and Wales

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Address searched: 17B Durban Road, Bognor Regis, PO229QT

Date of report: 7 September 2016

Guidance for existing properties

Is this property in a radon Affected Area? - No

A radon Affected Area is defined as where the radon level in at least one property in every hundred is estimated to exceed the Action Level.

The estimated probability of the property being above the Action Level for radon is: 0-1%

The result may not be valid for buildings larger than 25 metres.

If this site is for redevelopment, you should undertake a GeoReport provided by the British Geological Survey.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the Public Health England. PHE advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from PHE or <https://www.ukradon.org>

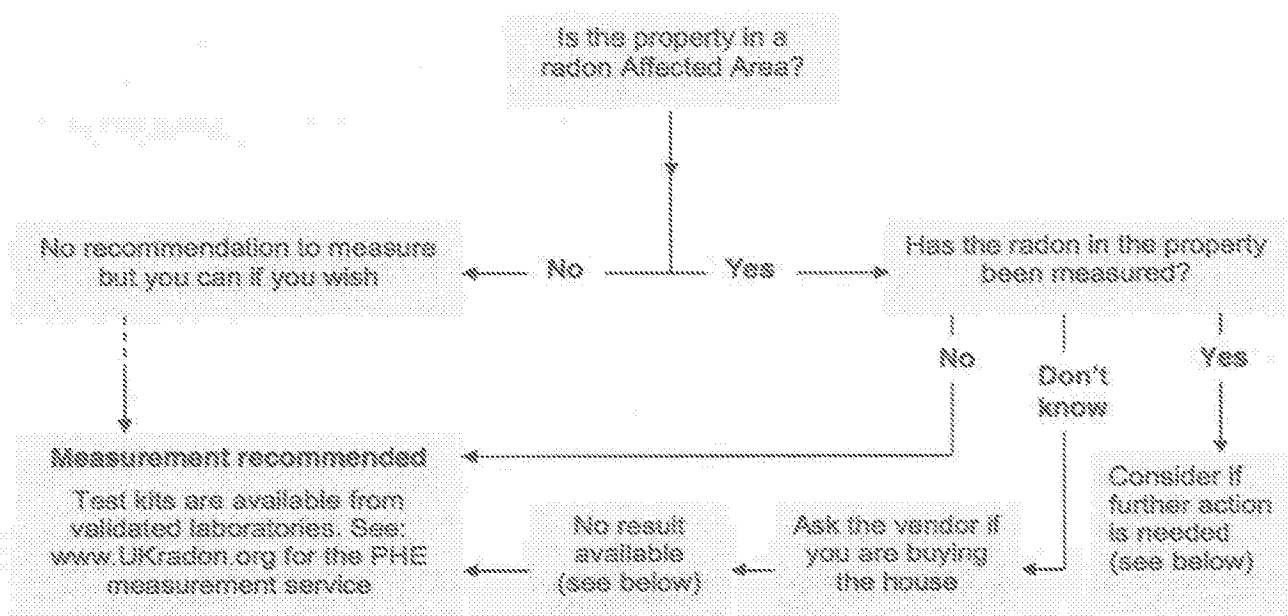
Guidance for new buildings and extensions to existing properties

What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

PHE guidance for occupiers and prospective purchases



Existing radon test results: There is no public record of individual radon measurements. Results of previous tests can only be obtained from the seller. Radon levels can be significantly affected by changes to the building or its use, particularly by alterations to the heating and ventilation which can also be affected by changes in occupier. If in doubt, test again for reassurance.

Radon Bond: This is simply a retained fund, the terms of which are negotiated between the purchaser and the vendor. It allows the conveyance of the property to proceed without undue delay. The purchaser is protected against the possible cost of radon reduction work and the seller does not lose sale proceeds if the result is low. Make sure the agreement allows enough time to complete the test, get the result and arrange the work if needed.

High Results: Exposure to high levels of radon increases the risk of developing lung cancer. If a test in a home gives a result at or above the Action Level of 200 Becquerels per cubic metre of air (Bq/m³), formal advice will be given to lower the level. Radon reduction will also be recommended if the occupants include smokers or ex-smokers when the radon level is at or above the Target Level of 100 Bq/m³; these groups have a higher risk. Information on health risks and radon reduction work is available from PHE. Guidance about radon reduction work is also available from some Local Authorities, the Building Research Establishment and specialist contractors.

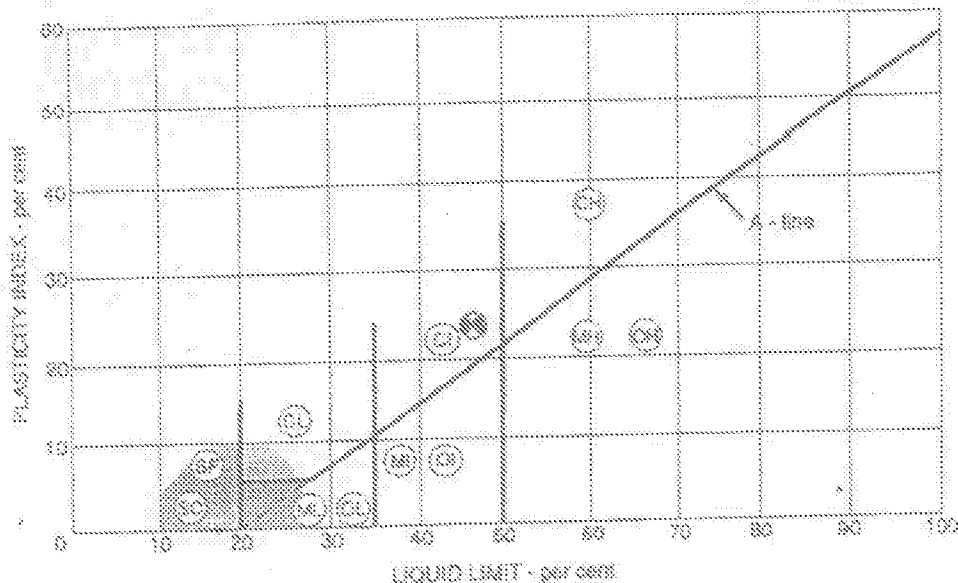
PHE designated radon website:

<https://www.ukradon.org>

Building Research Establishment:

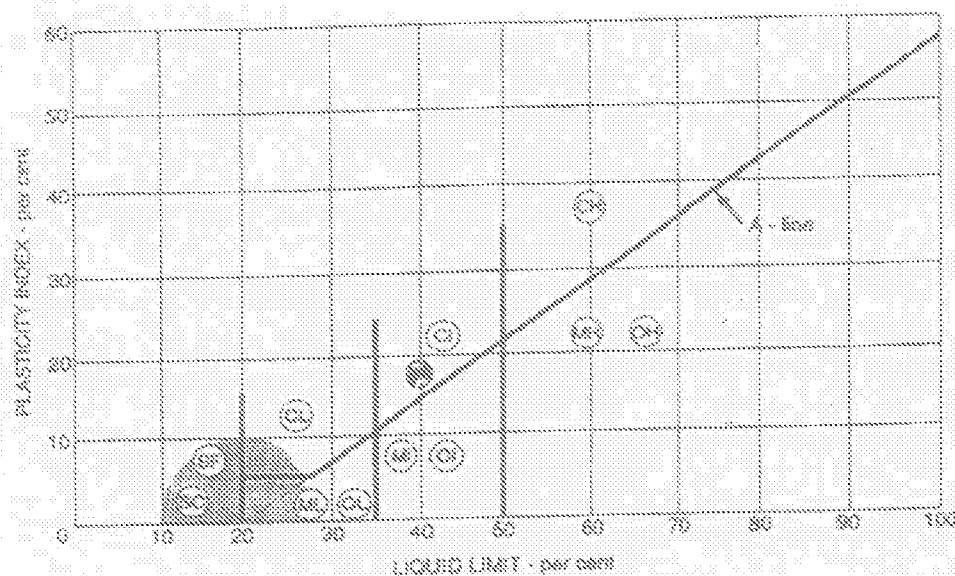
<http://www.bre.co.uk/page.jsp?id=3137>

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SAMPLE: BH. 1/2

DESCRIPTION Silty/Fine Sandy CLAY.



SAMPLE: BH. 1/10

DESCRIPTION Clayey SILT.

MAIN SOIL TYPE

Coarse-grained soils	gravel
	sand
	silt
Fine-grained soils	clay
	organic silts and clays
Fibrous soils	peat

PREFIX

G
S
M
O
O
P

SITE: Site at Durban Road, Bognor Regis.

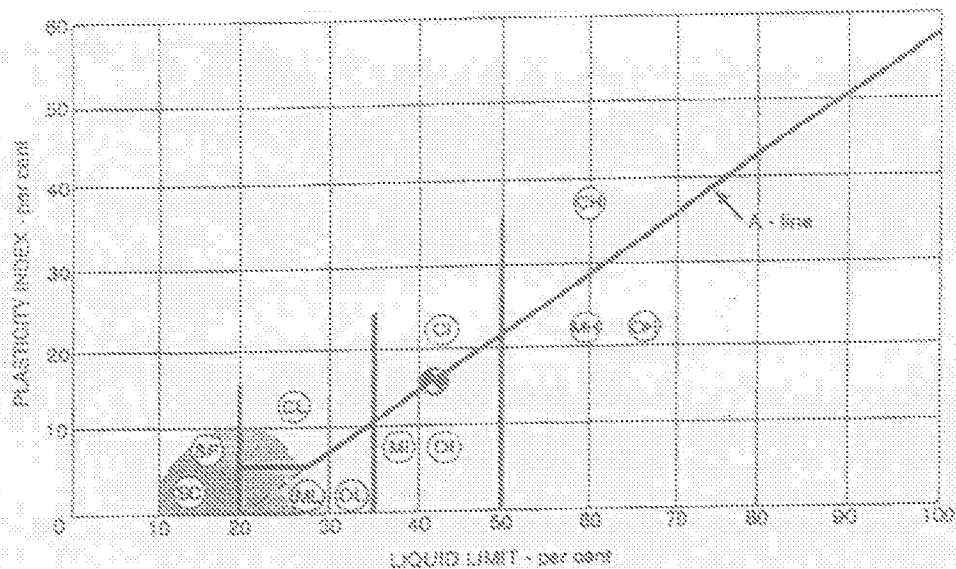
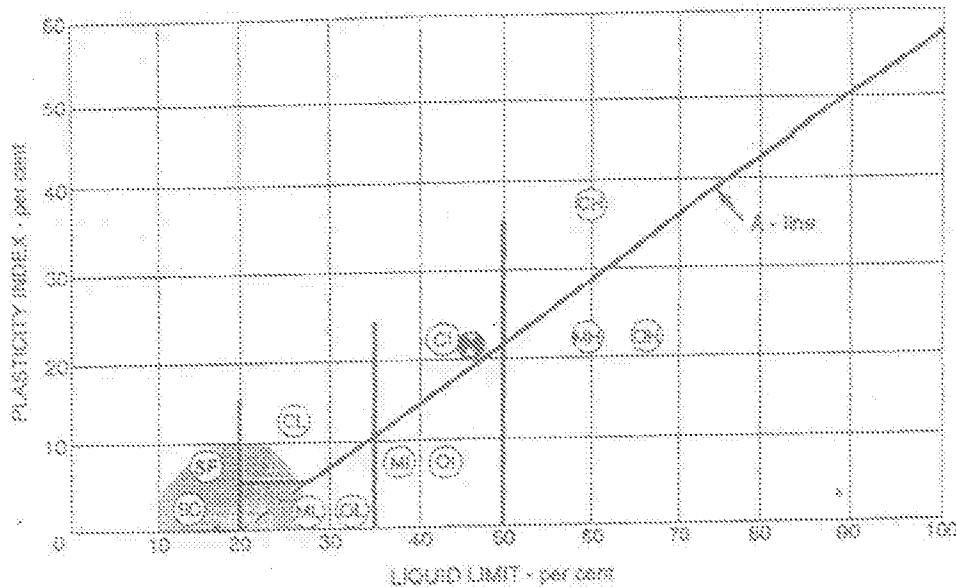
DATE: September 2018

CLIENT: P. Meredith.

TITLE: CLASSIFICATION SHEET

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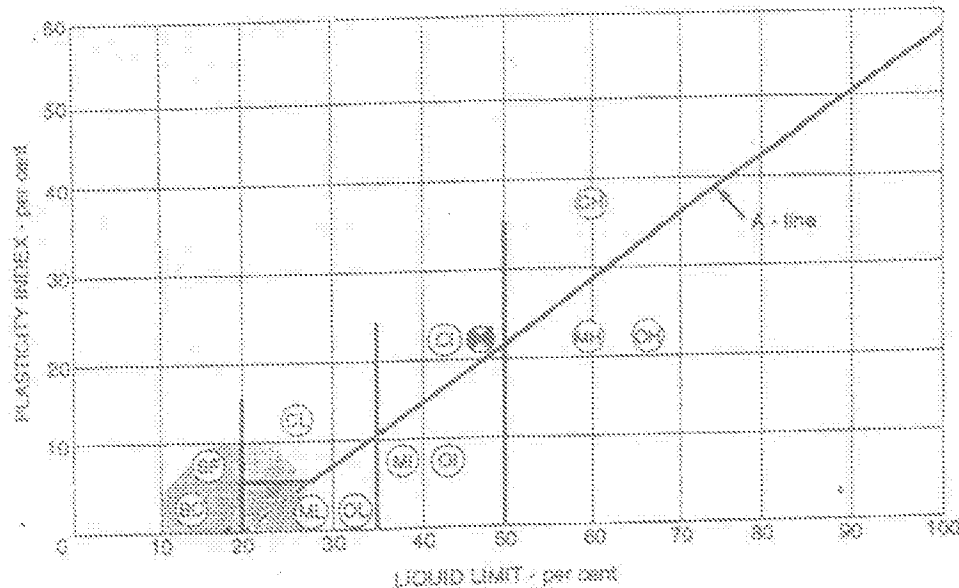
SITE INVESTIGATION.
GEO-ENVIRONMENTAL TESTING.



MAIN SOIL TYPE		PREFIX
Coarse-grained soils	gravel	G
	sand	S
	silt	M
Fine-grained soils	clay	C
	organic silts and clays	O
Fibrous soils	peat	PH

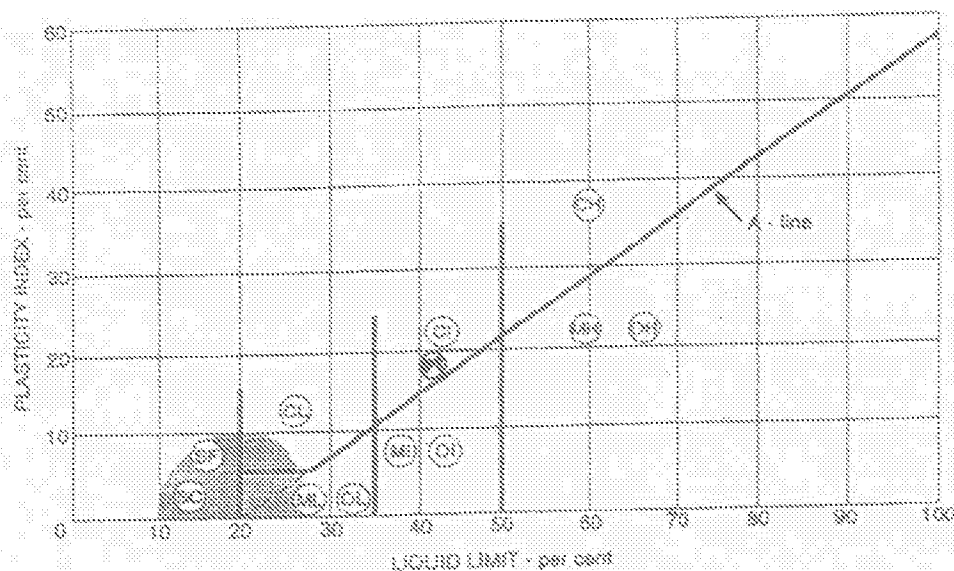
SITE: Site at Durban Road, Bognor Regis.	DATE: September 2018
CLIENT: P. Meredith.	TITLE: CLASSIFICATION SHEET

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 GEO-ENVIRONMENTAL TESTING.



SAMPLE: BA. 3/3

DESCRIPTION Silty/Fine Sand
CLAY



SAMPLE: BA. 3/11

DESCRIPTION Clayey SILT

MAIN SOIL TYPE

Coarse-grained soils	gravel
	sand
	silt
Fine-grained soils	clay
	organic silts and clays
Fibrous soils	peat

PREFIX

G
S
M
C
O
PT

SITE: Site at Durban Road, Bognor Regis.

DATE: September 2018

CLIENT: P. Meredith.

TITLE: CLASSIFICATION SHEET

TERRATEC S.I. Ltd

SITE INVESTIGATION.

GEO-ENVIRONMENTAL TESTING.