Appendix D – Ground Investigation Survey and Report

Pinnacle Consulting Engineers Ltd had been commissioned to provide a summary report about the ground sub-surface conditions on site. The data used on the foregoing report is based on a site ground investigation that was carried out by Delta-Simons in March 2019.

In summary, the site geology consist of the following:

- Made Ground was encountered from the surface to depths of between 0.28 m and 0.45m bgl. The Made Ground comprised concrete/asphalt, underlain by brown sand and gravel mixtures, with gravel of flint.
- The underlying natural soils comprised firm orange grey brown sandy/gravelly clay with gravel of flint and clayey gravelly sand with gravel of flint.
- In the east of the Site, in proximity to the lake, the underlying natural soils comprised black sandy silt.
- The natural soil was considered to be generally representative of the published superficial geology for the Site.
- Bedrock was encountered at a depth range between 2.80m and 2.25m bgl. Bedrock comprised of stiff white/grey sandy gravelly clay with gravel of chalk.
- Groundwater was not encountered during the Site investigation.

Attached is a copy of the Delta-Simons GI report that provides the full details of the Penetration tests (SPT tests) and Borehole Logs that were used to carry out DCP-TRL tests in order to obtain/ determine the in-situ CBR values for the underlying soil strata on site .

Short Form Geotechnical Report

Amazon DBN2 Refurbishment, Littlehampton

Presented to **Pinnacle Consulting Engineers**

Issued: March 2019

Delta-Simons Project No. 19-0138.04

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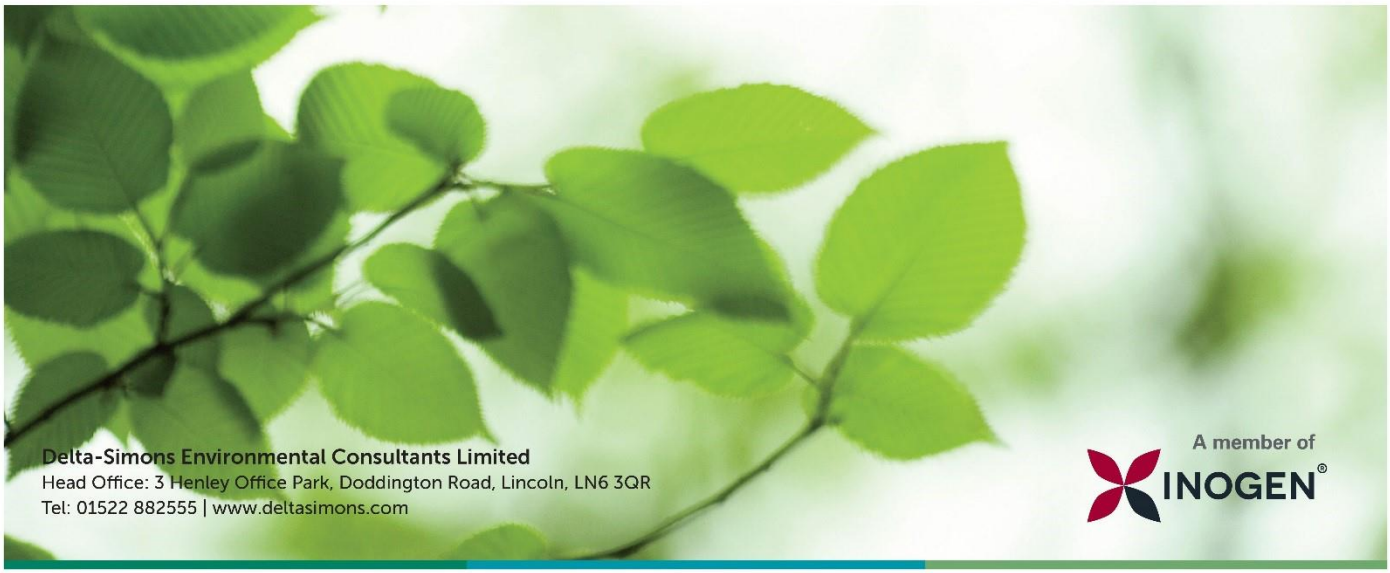

Delta-Simons Environmental Consultants Limited
Head Office: 3 Henley Office Park, Doddington Road, Lincoln, LN6 3QR
Tel: 01522 882555 | www.deltasimons.com

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Report Details

Client	Pinnacle Consulting Engineers
Report Title	Short Form Geotechnical Report
Site Address	Amazon, Norway Lane, Wick, Littlehampton BN17 6GY
Project No.	19-0138.04
Report Date	6th March 2019
Delta-Simons Contact	Tom Horner [redacted]

Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1	Final	06/03/2019	-	[redacted]		
				Aidan Nelson Consultant	**Tom Horner Associate**	**Tom Horner Associate**

About us

Delta-Simons is a trusted, multidisciplinary environmental consultancy, focused on delivering the best possible project outcomes for customers.

Specialising in Environment, Health & Safety and Sustainability, Delta-Simons provide support and advice within the property development, asset management, corporate and industrial markets. Operating from nine locations - Lincoln, Birmingham, Dublin, Durham, Leeds, London, Manchester, Norwich and Nottingham - we employ over 75 environmental professionals, bringing experience from across the private consultancy and public sector markets.

Delta-Simons is proud to be a founder member of the Inogen® Environmental Alliance, a global corporation providing multinational organisations with consistent, high quality and cost effective environmental, health, safety, energy and sustainability solutions. Inogen assists multinational clients by resolving liabilities from the past, addressing today's requirements and delivering solutions for the future. With more than 200 offices located on every continent, more than 6,430 staff worldwide, and projects completed in more than 120 countries, Inogen provides a single point of contact for diverse markets as Automotive, Chemical, Consumer Products & Retail, Financial, Food & Beverage, Healthcare, Insurance, Manufacturing, Non Profit Organisations, Oil & Gas, Real Estate, Services Firms, Technology and Transportation, among others.

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Appendices

1.0 Introduction

1.1 Authorisation

Delta-Simons Environmental Consultants Limited ("Delta-Simons") was instructed by Pinnacle Consulting Engineers (the "Client") to undertake a site investigation at Amazon, Norway Lane, Wick, Littlehampton BN17 6GY (hereafter referred to as the "Site"), in order to obtain geotechnical information to determine the suitability of the existing asphalt road and the construction of a canopy in the south of the Site, between Building 5 and Building 6.

1.2 Context & Purpose

This Report has been undertaken generally in accordance with British Standard BS 5930:2015 Code of practice for site investigations.

The purpose of this investigation was to obtain data on chemical and geotechnical parameters at the Site for use by the Client considering potential development planning, design and engineering for construction.

This Report has been based on a brief desk study together with fieldworks comprising in-situ geotechnical testing.

The results of the fieldworks have been presented in the Appendices.

The methods of desk study and fieldworks have been described in Section 2.

Foundation design may be undertaken by engineers using methods as described in Building Regulations/Standards, National House Building Council (NHBC) Standards, Building Research Establishment (BRE) guidance or if appropriate British Standard BS 8103-1:2011 Structural design of low-rise buildings — Part 1: Code of practice for stability, site investigation, foundations and ground floor slabs for housing. Recommendations with respect to the ground conditions for the assistance of the engineer as designer based on local knowledge and experience of past projects in the region is also provided.

1.3 Scope

The scope of works performed for this Report comprised the following:

- Service avoidance exercise;
- Supervision of all works by a Delta-Simons Geo-Environmental engineer. All intrusive locations were logged to BS5930:2015 Code of Practice for Site Investigations;
- Concrete coring of all intrusive locations (DS101 to DS108);
- Drilling of two dynamic sampler boreholes (DS107 and DS108) to a maximum depth of 3.0 m bgl;
- Drilling of six dynamic sampler boreholes (DS101 to DS106) to a maximum depth of 1.0 m bgl; and
- Completion of six DCP-TRL tests (DS101 to DS106).

2.0 Investigation Methodology

2.1 Planning, Setting Out & Services, Presentation

Unless otherwise stated, the investigation has been planned on a scope of works agreed with the Client. Clients are requested to provide all service plans in original form from suppliers so a services risk assessment can be undertaken as part of a formal Site-specific Health and Safety Plan. The services risk assessment is based on guidance provided in HSG47 Avoiding danger from underground services.

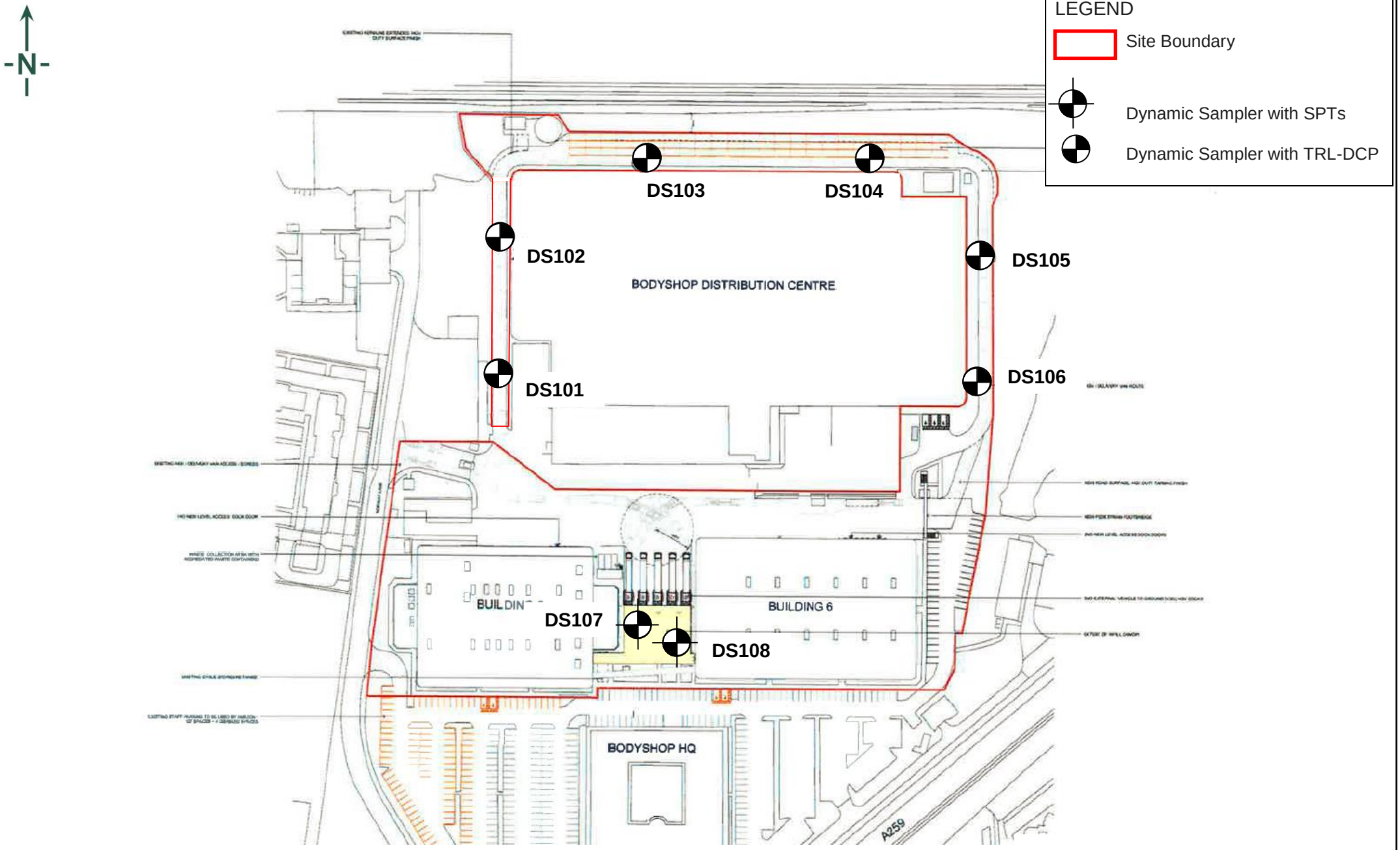
Exploratory hole and subsequent sample locations were selected to provide suitable coverage of the Site, having regard for the likely presence of services and any other constraints such as existing structures. The locations of the investigations are shown on Figure 1 and the borehole logs are provided in Appendix B.

3.0 Results & Interpretation

3.1 Fieldworks Interpretation

Scope of Investigation	Dynamic Sampler Boreholes – 8 No. DCP-TRL Tests – 6 No.
Geology from the Investigation Works	Made Ground was encountered from the surface to depths of between 0.28 m and 0.45 m bgl. The Made Ground comprised concrete/asphalt, underlain by brown sand and gravel mixtures, with gravel of flint. The underlying natural soils comprised firm orange grey brown sandy/gravelly clay with gravel of flint and clayey gravelly sand with gravel of flint. In the east of the Site, in proximity to the lake, the underlying natural soils comprised black sandy silt. The natural soil was considered to be generally representative of the published superficial geology for the Site. Bedrock was encountered in DS107 and DS108 at 2.80 and 2.25 m bgl respectively. Bedrock comprised stiff white/grey sandy gravelly clay with gravel of chalk. Groundwater was not encountered during the Site investigation.
Penetration Test Data *(SPTs)*	The penetration testing recorded moderate to high resistance to penetration, generally increasing with depth. See borehole logs in Appendix B for SPT results.
Pavement Design	DCP-TRL tests were carried out in six of the shallow dynamic sampler boreholes in order to determine a California Bearing Ratio (CBR) value for the underlying soils beneath the road area. DCP-TRL results are presented in Appendix C.

Figure 1 - Exploratory Hole Locations



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TITLE:
Exploratory Hole Locations
Amazon, Norway Lane, Wick, Littlehampton BN17

DRAWN BY: AN	SCALE: NTS
CHECKED BY: TH	REVISION: -
DATE: 5th March 2019	

PROJECT NO: 19-0138.04

FIGURE NO: 1

Appendix A – Limitations

Limitations

The recommendations contained in this Report represent Delta-Simons professional opinions, based upon the information listed in the Report, exercising the duty of care required of an experienced Environmental Consultant. Delta-Simons does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

Delta-Simons obtained, reviewed and evaluated information in preparing this Report from the Client and others. Delta-Simons conclusions, opinions and recommendations has been determined using this information. Delta-Simons does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Delta-Simons has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Appendix B – Borehole Logs and SPT Calibration Certificate

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Project No:	Hole ID:	Page:
19-0138.04	DS101	1 of 1

Project: Amazon DBN2 Refurbishment, Littlehampton

Dynamic Sampler Log

Date: 26/02/2019

Client: Pinnacle Consulting Engineers

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Asphalt.		0.07										
MADE GROUND: Concrete.		0.17	(0.10)									
MADE GROUND: Dark brown gravelly sand. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint.		0.38	(0.21)									
Firm orangish brown slightly sandy CLAY. Sand is fine. Rare subangular fine flint gravel. (RIVER TERRACE DEPOSITS)		1.00	(0.62)									
Borehole complete at 1.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with asphalt.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

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Project No: 19-0138.04 | Hole ID: DS102 | Page: 1 of 1

Project: Amazon DBN2 Refurbishment, Littlehampton

Dynamic Sampler Log

Date: 26/02/2019 | Client: Pinnacle Consulting Engineers

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Asphalt.		0.03										
MADE GROUND: Concrete.		0.18	(0.15)									
MADE GROUND: Dark brown sandy gravel. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint.		0.45	(0.27)									
Firm orangish brown slightly sandy, becoming very sandy from 0.7m bgl, CLAY. Sand is fine. Rare gravel of fine subangular flint. (RIVER TERRACE DEPOSITS)		1.00	(0.55)									
Borehole complete at 1.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with asphalt.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

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Project No:	Hole ID:	Page:
19-0138.04	DS103	1 of 1

Project: Amazon DBN2 Refurbishment, Littlehampton

Dynamic Sampler Log

Date: 27/02/2019

Client: Pinnacle Consulting Engineers

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Asphalt.		0.03										
MADE GROUND: Concrete.		0.18	(0.15)									
MADE GROUND: Dark brown sandy gravel. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint.		0.40	(0.22)									
Firm orangish brown slightly sandy CLAY. Sand is fine. Rare gravel of fine subangular flint. (RIVER TERRACE DEPOSITS)		1.00	(0.60)									
Borehole complete at 1.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with asphalt.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

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Project No:	Hole ID:	Page:
19-0138.04	DS104	1 of 1

Project: Amazon DBN2 Refurbishment, Littlehampton

Dynamic Sampler Log

Date: 27/02/2019

Client: Pinnacle Consulting Engineers

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Asphalt.		0.03										
MADE GROUND: Concrete.		0.17	(0.14)									
MADE GROUND: Dark brown sandy gravel. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint.		0.35	(0.18)									
Black slightly sandy SILT. Sand is fine. (RIVER TERRACE DEPOSITS)		0.89	(0.54)									
Firm orangish brown slightly sandy CLAY. Sand is fine to medium. Rare gravel of fine subangular flint. (RIVER TERRACE DEPOSITS)		1.00	(0.11)									
Borehole complete at 1.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with asphalt.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

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Project No:	Hole ID:	Page:
19-0138.04	DS105	1 of 1

Project: **Amazon DBN2 Refurbishment, Littlehampton**

Dynamic Sampler Log

Date: **27/02/2019**

Client: **Pinnacle Consulting Engineers**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Asphalt.		0.03	(0.11)									
MADE GROUND: Concrete.		0.14										
MADE GROUND: Dark brown sandy gravel. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint.		0.39	(0.25)									
Black slightly sandy SILT. Sand is fine. (RIVER TERRACE DEPOSITS)		1.00	(0.61)									
Borehole complete at 1.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with asphalt.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

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Project No:	Hole ID:	Page:
19-0138.04	DS106	1 of 1

Project: Amazon DBN2 Refurbishment, Littlehampton

Dynamic Sampler Log

Date: 27/02/2019

Client: Pinnacle Consulting Engineers

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Asphalt.		0.03										
MADE GROUND: Concrete.		0.16	(0.13)									
MADE GROUND: Dark brown sandy gravel. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint.		0.28	(0.12)									
Black slightly sandy SILT. Sand is fine. (RIVER TERRACE DEPOSITS)			(0.72)									
		1.00										
Borehole complete at 1.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with asphalt.

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

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Project No: 19-0138.04 | Hole ID: DS107 | Page: 1 of 1

Project: Amazon DBN2 Refurbishment, Littlehampton

Dynamic Sampler Log

Date: 26/02/2019 | Client: Pinnacle Consulting Engineers

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Concrete.		0.16	(0.16)									
MADE GROUND: Dark brown gravelly Ssand. Sand is fine to medium. Gravel is subangular to surounded fine to coarse flint.		0.31	(0.15)									
Firm dark brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium flint. (RIVER TERRACE DEPOSITS)		0.50	(0.19)									
Firm to stiff light brown slightly silty gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint. (RIVER TERRACE DEPOSITS)		1.20	(0.70)				1.00	D	1	1.00	SPT(C) N=22 (5,5/6,5,6,5)	
Stiff light brown mottled orange closely fissured slightly silty slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse flint. (RIVER TERRACE DEPOSITS)		2.80	(1.60)				2.10	D	2	2.00	SPT(C) N=19 (3,3/5,5,5,4)	
Stiff greyish brown mottled orange closely fissured slightly silty slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse flint and chalk. (NEW PIT CHALK FORMATION)		3.00	(0.20)							3.00	SPT(C) N=17 (5,4/4,4,4,5)	
Borehole complete at 3.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with concrete.5. SPT Hammer ID 110RP.63 (Er=76%)

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

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Project No: 19-0138.04 | Hole ID: DS108 | Page: 1 of 1

Project: Amazon DBN2 Refurbishment, Littlehampton

Dynamic Sampler Log

Date: 26/02/2019 | Client: Pinnacle Consulting Engineers

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details: Depth (m)	Sample Details: Type	Sample Details: Ref	Test Details: Depth (m)	Test Details: Results	Backfill
MADE GROUND: Reinforced concrete.		0.21	(0.21)									
MADE GROUND: Sandy gravel. Sand is fine to coarse. Gravel is subangular to subrounded medium to coarse flint.		0.45	(0.24)									
Medium dense yellowish brown slightly clayey, becoming very clayey from 1.3 m bgl, gravelly SAND. Sand is fine to medium. Gravel is angular to subrounded fine to coarse flint. (RIVER TERRACE DEPOSITS)		2.25	(1.80)							1.00	SPT(C) N=14 (1,2/3,4,3,4)	
										2.00	SPT(C) N=34 (1,2/5,8,12,9)	
Stiff whitish grey slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium chalk. (NEW PIT CHALK FORMATION)		3.00	(0.75)									
										3.00	SPT(C) N=33 (8,6/8,8,9,8)	
Borehole complete at 3.00 m bgl.												

Remarks:
1. Logged in general accordance with BS 5930:2015.2. Area cleared for services prior to drilling/excavating.3. Borehole remained dry upon completion.4. Borehole backfilled with arising, finished at the surface with with concrete.5. SPT Hammer ID 110RP.63 (Er=76%)

Water Strike			Water Level		Borehole Diameter	
Date	Time	Depth Strike	Duration	Depth Water	Depth Base	Diameter

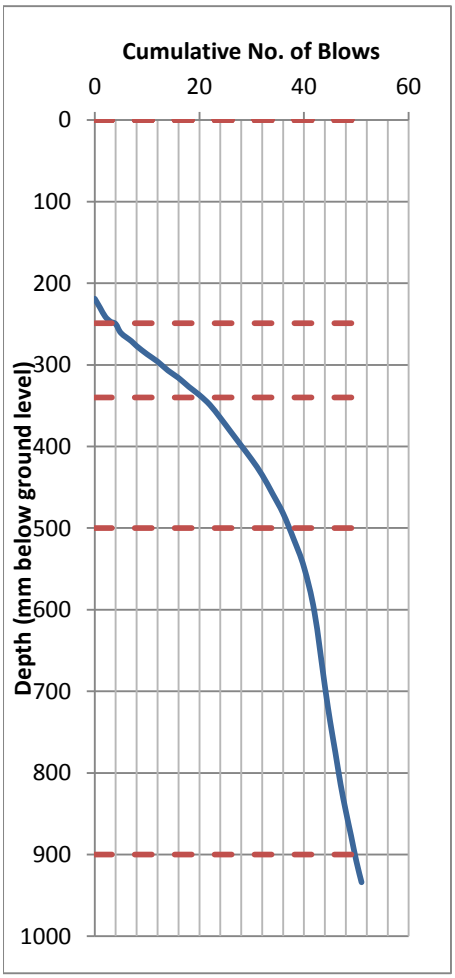
Coordinates:	Elevation (mAOD):	Drilled By:	Plant Used:	Logged:	Checked:	Approved:	Scale:
		Sherwood Drilling Services	Premier 110	AH	AN	TH	1:30

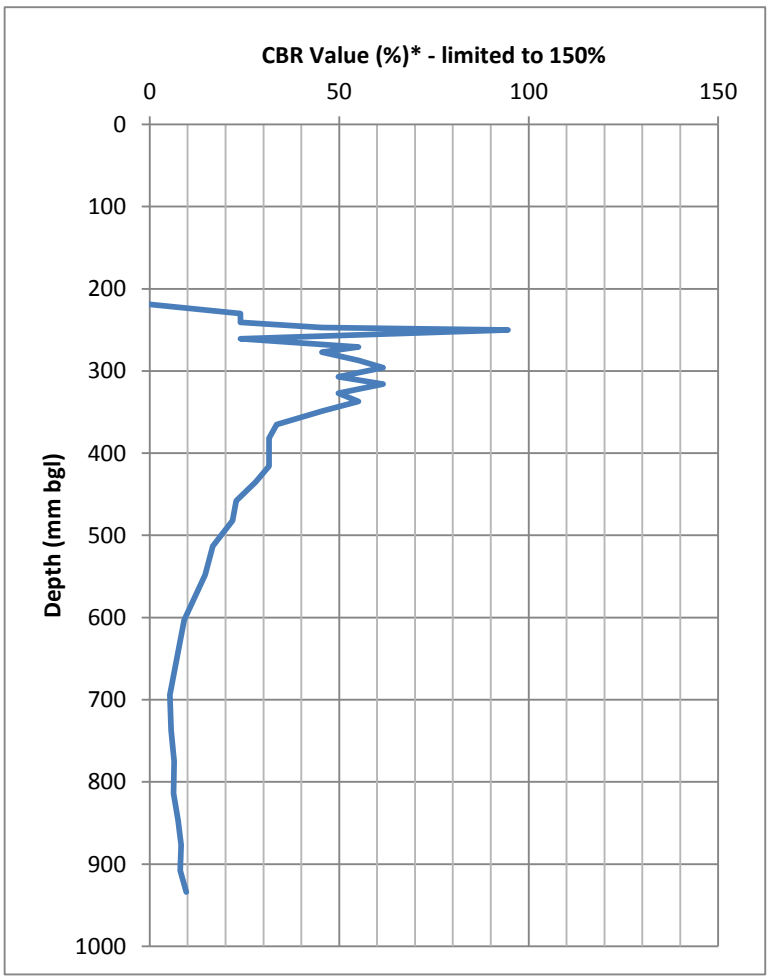
Appendix C – DCP-TRL Results

TRL Dynamic Cone Penetrometer - Determination of CBR Value (%)*

Site Name	Littlehampton	**Test Start Depth (mm bgl)**	219	**STEP 1**
Job Number	19-0138.04	**Surface Level (m AOD)**		
Test No.	DS101	**Easting**		
Date of Test	26-Feb-19	**Northing**		

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)*
1	3	3	30	249	**26.5**
2	17	20	91	340	**51.3**
3	16	36	160	500	**26.5**
4	13	49	400	900	**8.1**



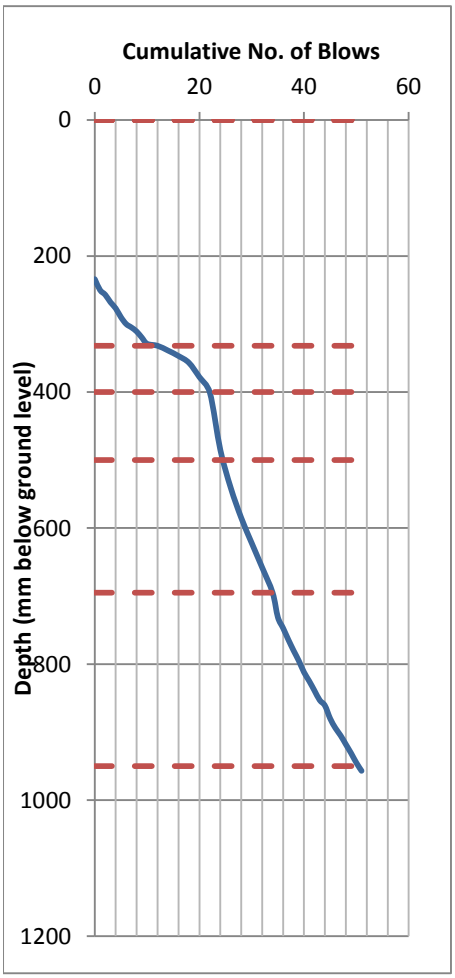


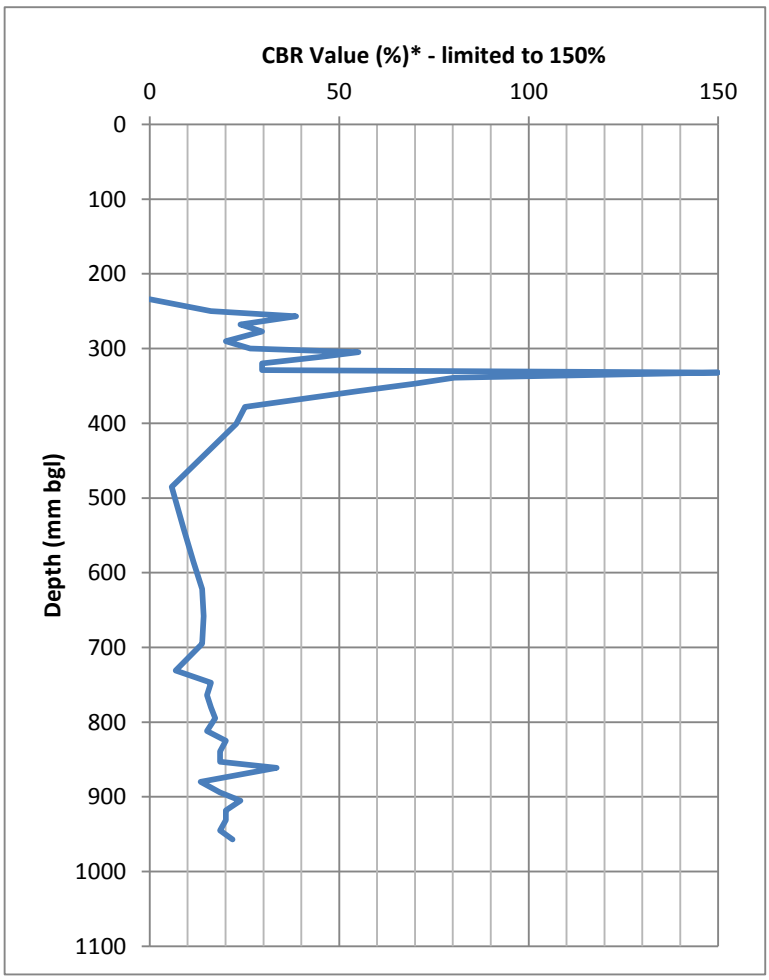
* CBR Interpretation based on the TRRL Road Note 8 equation: $Log_{10}(CBR) = 2.48 - [1.057 \times Log_{10}(mm/blow)]$

TRL Dynamic Cone Penetrometer - Determination of CBR Value (%)*

Site Name	Littlehampton	**Test Start Depth (mm bgl)**	234	**STEP 1**
Job Number	19-0138.04	**Surface Level (m AOD)**		
Test No.	DS102	**Easting**		
Date of Test	26-Feb-19	**Northing**		

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)*
1	12	12	98	332	**32.8**
2	8	20	68	400	**31.4**
3	4	24	100	500	**10.1**
4	10	34	195	695	**13.1**
5	16	50	255	950	**16.2**



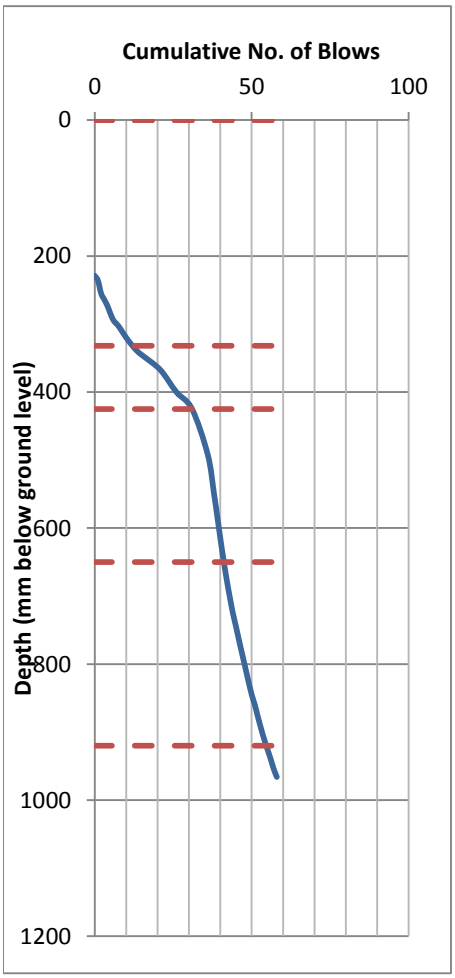


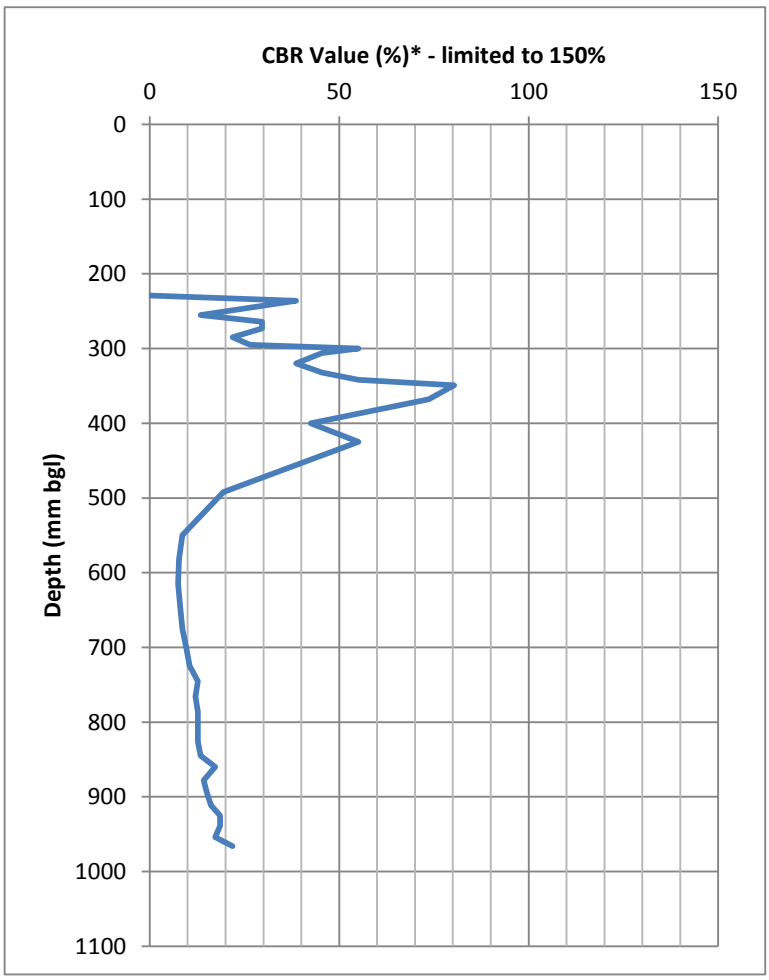
* CBR Interpretation based on the TRRL Road Note 8 equation: $Log_{10}(CBR) = 2.48 - [1.057 \times Log_{10}(mm/blow)]$

TRL Dynamic Cone Penetrometer - Determination of CBR Value (%)*

Site Name	Littlehampton	**Test Start Depth (mm bgl)**	229	**STEP 1**
Job Number	19-0138.04	**Surface Level (m AOD)**		
Test No.	DS103	**Easting**		
Date of Test	27-Feb-19	**Northing**		

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)*
1	12	12	103	332	**31.1**
2	19	31	93	425	**56.4**
3	10	41	225	650	**11.2**
4	13	54	270	920	**12.2**



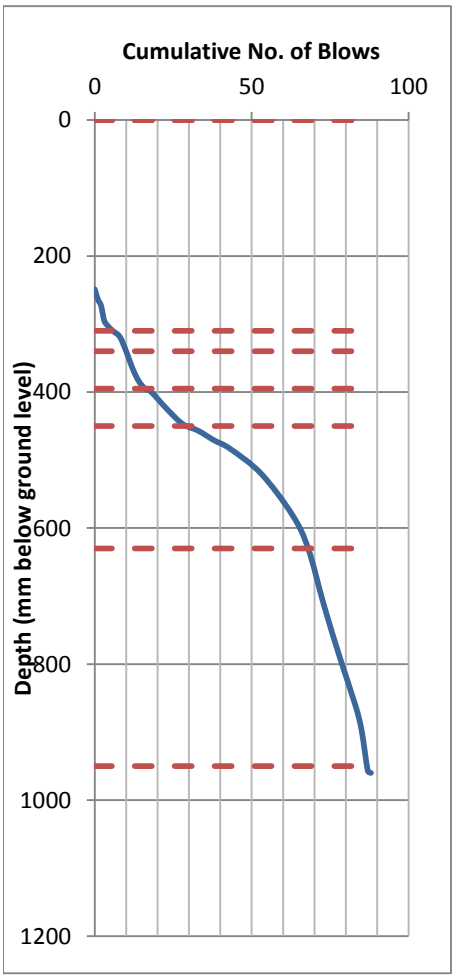


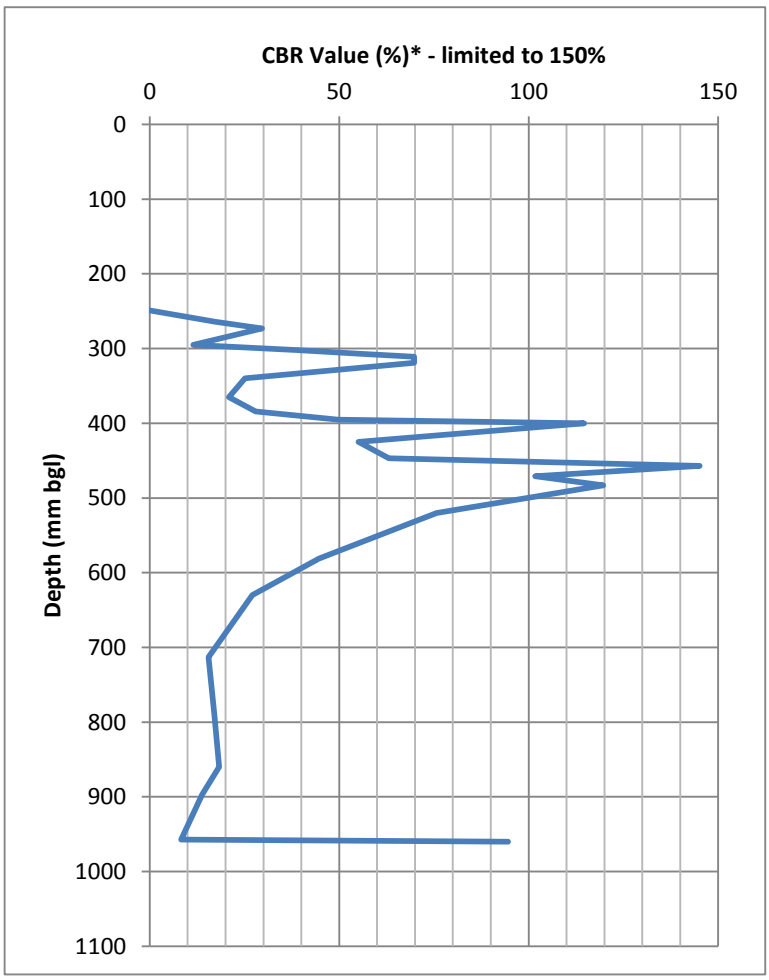
* CBR Interpretation based on the TRRL Road Note 8 equation: $Log_{10}(CBR) = 2.48 - [1.057 \times Log_{10}(mm/blow)]$

TRL Dynamic Cone Penetrometer - Determination of CBR Value (%)*

Site Name	Littlehampton	**Test Start Depth (mm bgl)**	249	**STEP 1**
Job Number	19-0138.04	**Surface Level (m AOD)**		
Test No.	DS104	**Easting**		
Date of Test	27-Feb-19	**Northing**		

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)*
1	5	5	61	310	**21.5**
2	5	10	30	340	**45.4**
3	6	16	55	395	**29.0**
4	12	28	55	450	**60.4**
5	40	68	180	630	**61.6**
6	17	85	320	950	**13.6**



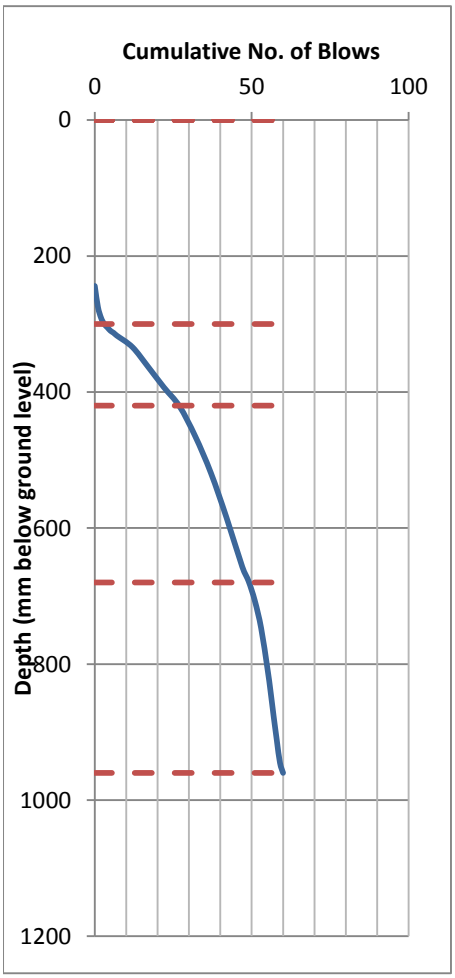


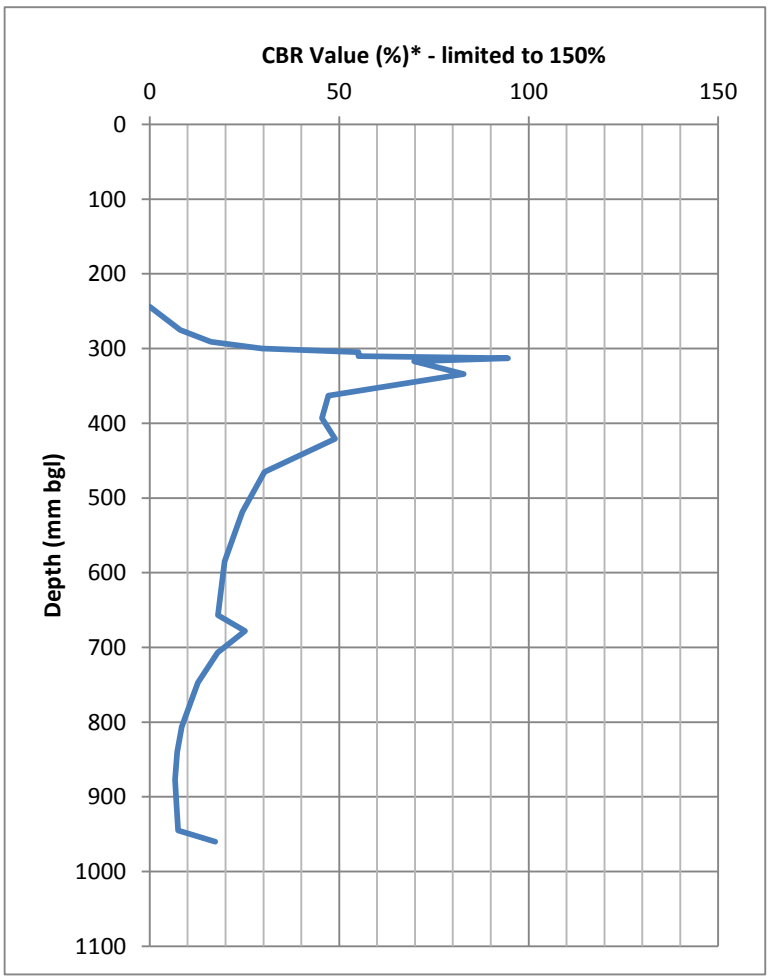
* CBR Interpretation based on the TRRL Road Note 8 equation: $Log_{10}(CBR) = 2.48 - [1.057 \times Log_{10}(mm/blow)]$

TRL Dynamic Cone Penetrometer - Determination of CBR Value (%)*

Site Name	Littlehampton	**Test Start Depth (mm bgl)**	244	**STEP 1**
Job Number	19-0138.04	**Surface Level (m AOD)**		
Test No.	DS105	**Easting**		
Date of Test	27-Feb-19	**Northing**		

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)*
1	3	3	56	300	**13.7**
2	19	22	120	420	**43.0**
3	27	49	260	680	**27.6**
4	11	60	280	960	**9.9**



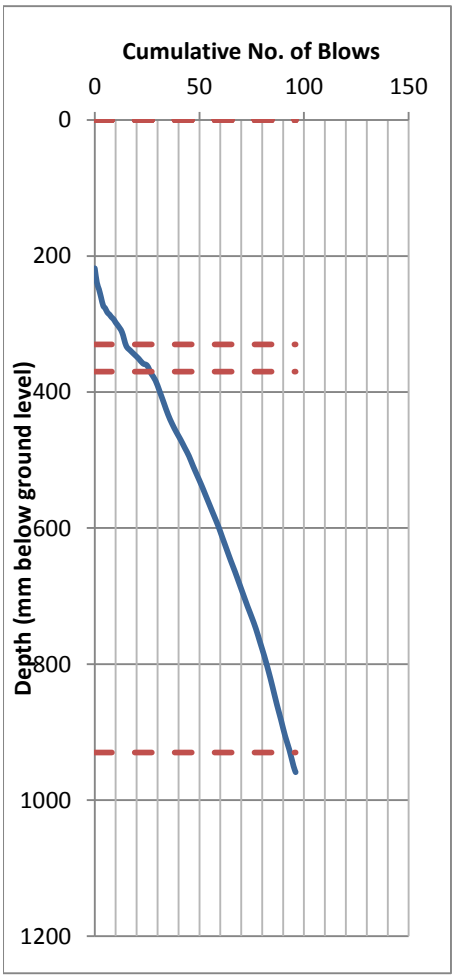


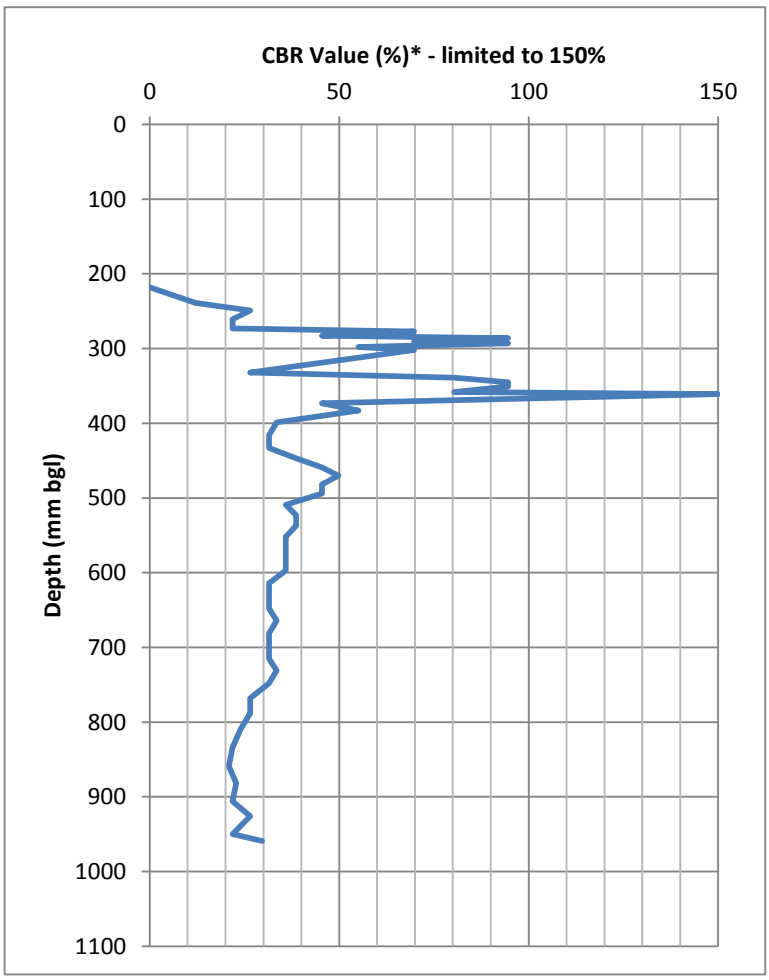
* CBR Interpretation based on the TRRL Road Note 8 equation: $Log_{10}(CBR) = 2.48 - [1.057 \times Log_{10}(mm/blow)]$

TRL Dynamic Cone Penetrometer - Determination of CBR Value (%)*

Site Name	Littlehampton	**Test Start Depth (mm bgl)**	218	**STEP 1**
Job Number	19-0138.04	**Surface Level (m AOD)**		
Test No.	DS106	**Easting**		
Date of Test	27-Feb-19	**Northing**		

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)*
1	13	13	112	330	**31.0**
2	12	25	40	370	**84.6**
3	68	93	560	930	**32.5**





* CBR Interpretation based on the TRRL Road Note 8 equation: $Log_{10}(CBR) = 2.48 - [1.057 \times Log_{10}(mm/blow)]$