Geotechnical Investigation and Report

eliot sinclair

Miles Premises – Memorial Avenue

Prepared for Miles Premises Limited

501827

Geotechnical Investigation and Report

Miles Premises – Memorial Avenue

Prepared for Miles Premises Limited

501827

Quality Control Certificate

Eliot Sinclair & Partners Limited

eliotsinclair.co.nz

Action	Name	Signature	Date
Prepared by:	Christopher O'Connell Geotechnical Engineer BE(Hons) Civil MEngNZ		14 October 2021
Reviewed by:	John Aramowicz Geotechnical & Civil Engineer | Director BE(Hons) Mining CMEngNZ CPEng		18 October 2021
Directed and approved for release by:	John Aramowicz Geotechnical & Civil Engineer | Director BE(Hons) Mining CMEngNZ CPEng		18 October 2021
Status:	FINAL		
Release date:	18 October 2021		
Reference no:	501827		
Distributed to:	Miles Premises Limited		

Contents

1. Introduction 1
   1.1. Scope of Work 1
2. Proposed Development 1
3. Site Description 1
   3.1. Legal Description 1
   3.2. Location 1
   3.3. Topography 1
   3.4. Geology 2
4. Previous Reporting 2
   4.1. Riley Consultants Ltd 2
   4.2. Eliot Sinclair's Contamination Assessment 3
5. Site Investigation 4
   5.1. Topsoil Depths 4
   5.2. DCP Resistances 4
   5.3. Historic Fill 5
6. Geotechnical Recommendations 6
   6.1. Earthworks 6
   6.2. Pavement Thickness – Without Ground Improvement 7
   6.3. Pavement Thickness – After Ground Improvement 8
   6.4. Demolition of Existing Buildings 8
   6.5. New Foundations 8
7. Disclaimer 9

Appendix A. Preliminary Plans

Appendix B. **Riley Consultants 'Geotechnical Assessment', 2016**

Appendix C. Eliot Sinclair Site Investigation Logs

Appendix D. Eliot Sinclair CBR Logs

Appendix E. Preliminary Pavement Calculations

1. Introduction

Eliot Sinclair were engaged to undertake a shallow geotechnical investigation for a proposed commercial development at 461 & 475 Memorial Avenue, 400 Russley Road and 500 Avonhead Road (*'the site'*).

This report summarises the results of our geotechnical investigation, comments on the shallow ground conditions and provides recommendations for earthworks and pavement design.

1.1. Scope of Work

The scope of work for this geotechnical report comprised:

- Review Riley Consultants Ltd *'Geotechnical Assessment'* dated 13 April 2016.
- Review Eliot Sinclair's *'Ground Contamination Assessment: Preliminary & Detailed Site Investigation'* dated 4 December 2019.
- Undertake around 80 machine dug test pits on a 50x50m grid across the site to assess the depth of topsoil, and the lateral extent of any known areas of fill.
- Undertake around 20 dynamic cone penetrometer (DCP) tests at around 50m centres along the alignment of the two proposed roads and the main right of way driveway, to estimate the geotechnical parameters that should be adopted for pavement design.
- Prepare this geotechnical report to summarise the results of our investigation and to provide geotechnical recommendations for design and construction of the proposed development.

2. Proposed Development

We understand it is proposed to develop the site into a commercial and business park. The development is proposed to consist of 18 different 'sites' that will comprise car dealerships, a service station, a food precinct and multi-unit accommodation amongst other businesses. Refer to Appendix A for the preliminary site layout.

3. Site Description

3.1. Legal Description

475 Memorial Avenue, 400 Russley Road, 500 Avonhead Road and 520 Avonhead Road are legally described as Lot 2 DP 553686, Section 8 SO 544350, Lot 1 DP 553686 and Lot 4 28780.

The site comprises a net area around of around 17ha. Refer to Figure 1.

3.2. Location

The site is located in western Christchurch and is bounded by Memorial Ave to the northeast, established residential and commercial lots to the southeast, Avonhead Road to the southwest and Russley Road to the northwest.

3.3. Topography

The site is mostly flat to gently undulating grassed paddocks. A disused stock water race extends from west to east across the mid-part of the site. There are three dwellings and various outbuildings located across the site. Refer to Figure 1.

Figure 1. Site location plan (Eliot Sinclair GIS, September 2021)

3.4. Geology

Geological mapping for the area indicates the site is underlain by *"Modern river floodplain/low-level degradation terrace. Unweathered, variably sorted gravel/sand/silt/clay (Q1a"*.

The site is not located within 20m of any active faults that are identified on the GNS Active Faults database.

4. Previous Reporting

4.1. Riley Consultants Ltd

Riley Consultants Limited undertook a detailed geotechnical investigation in 2016 that consisted of:

- Three sonic machine boreholes, each advanced to 15m below ground level and fitted with piezometers.
- 22 machine dug test pits, each excavated to around 3m below ground level, unless practical refusal occurred at shallower depth.
- 22 hand auger boreholes and dynamic cone penetrometers (DCP) to 3.0m below ground level unless practical refusal occurred at shallower depth.
- Six soakage tests to assess the permeability of the deeper soils for possible disposal of stormwater to ground.
- Six laboratory soil tests to measure the California Bearing Ratio (CBR) of the shallow soils, for preliminary pavement design.

The machine boreholes generally encountered layers of silty, sandy gravel to around 15m below ground level. A thin layer of organic silt and silty sand was encountered in BH2 and BH3 around 9.9m to 11.10m bgl.

The machine dug test pits generally encountered silty topsoil that extends 0.1 to 0.3m bgl overlying varying layers of alluvial silts, sands, and sandy gravels to 2.9m to 3.6m bgl. The test pits were backfilled in layers around 300mm thick and compacted with the excavator bucket.

The hand auger boreholes generally encountered silty topsoil overlying interbedded layers of silts, sands, and sandy gravels to 0.1m to 2.95m bgl.

DCP resistances through the shallow soils were recorded to be around 1 to 3 blows per 100mm penetration across the site. Where shallow gravels were encountered DCP resistances increased to at least 3 blows per 100mm penetration.

Refer to Appendix B for Riley Consultants Report.

4.2. Eliot Sinclair's Contamination Assessment

Eliot Sinclair undertook a Preliminary and Detailed Site Investigation for 400 Russley Road, 461 & 475 Memorial Ave and 500 & 520 Avonhead Road dated 4 December 2019, reference 438081.

The site is not listed on the Listed Land Use Register (LLUR) but Eliot Sinclair's 2019 report indicated the following HAIL activities have taken place at the site:

- HAIL E1 – Asbestos containing building materials in a deteriorated condition
- HAIL G3 – Landfill sites
- HAIL G5 – Waste disposal to land

Analysis of samples was completed across 42 targeted locations across the site. 41 samples recorded concentrations below NESCS standards for commercial/industrial land use with many of them showing contaminant concentrations below natural background levels.

4.2.1. Burn pad

One exception was a soil sample taken from the centre of the burn pad at 520 Avonhead Road which showed arsenic levels exceeding the NESCS standard for commercial/industrial land use. Further soil samples were taken 1m and 2m away from the initial sample (with the high concentration of arsenic) in order to assess if the wider area was also contaminated. The subsequent samples (1 and 2m away) found the concentrations of arsenic was below the NESCS standard for commercial/industrial land use, and indicates the area of arsenic contamination appears to very small and is confined to the area around the initial sample.

The reporting concludes that, providing the area of high concentrations of arsenic found at the burn pad on 520 Avonhead Road is remediated (by removal and disposal offsite), the concentration of contaminants across the site will satisfy the requirements of the NESCS for commercial land use.

4.2.2. Landfill

Eliot Sinclair's 2019 report highlighted two areas of potential fill:

- An historic gravel pit along the northern boundary of the site that was excavated pre 1940 and subsequently filled sometime in the 1970s.
- An historic pond along the south boundary of 400 Russley Road was excavated in the 1970s and subsequently filled in the 1980s.

We have noted these areas and undertaken shallow machine dug test pits to delineate and determine the depth of any uncontrolled fill across these areas. This is discussed later in this report.

5. Site Investigation

Our shallow soil testing comprised 87 shallow tests pits and 25 dynamic cone penetrometer tests across the site. These investigations sought to investigate the nature and bearing capacity of the shallow soils across the site.

5.1. Topsoil Depths

Tests pits 1 to 70 were undertaken in an approximate 50m grid across the site and generally encountered between 0.25 to 1.0m thickness of silty topsoil overlying interbedded layers of river silts, sands, and sandy gravels.

The test pits typically terminated where natural inert silts, sands or gravels were encountered, typically around 0.35m to 1.20m below ground level (bgl).

The average depth of topsoil from the shallow testing pits is calculated to be 0.41m. Refer to Figure 2for summary of topsoil depths, and Appendix C for our site investigation records.

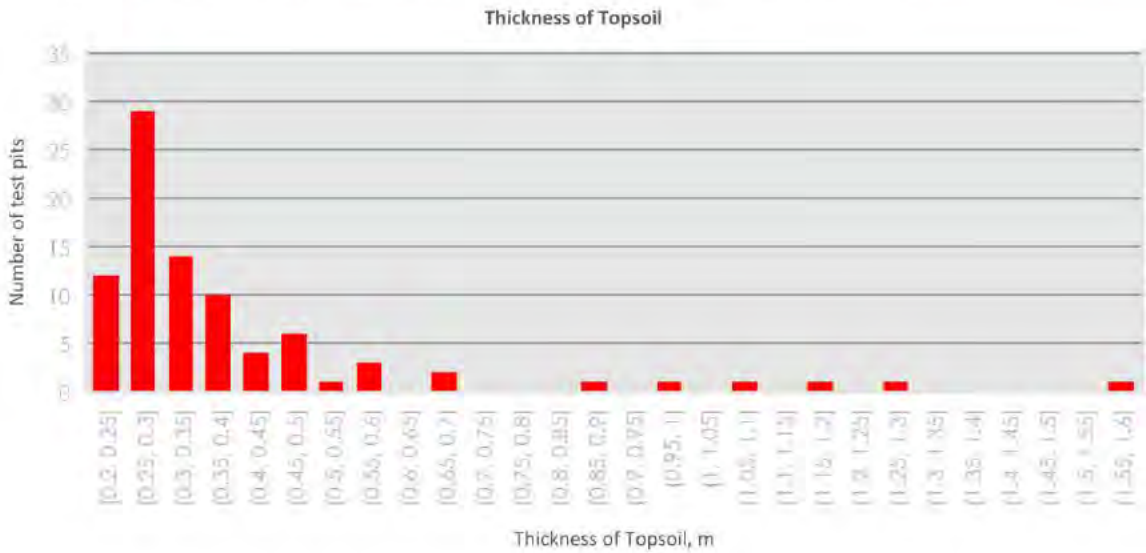


Figure 2. Histogram of topsoil depths recorded by test pits (Eliot Sinclair, September 2021)

5.2. DCP Resistances

25 DCPs were undertaken across the proposed roads A, B, C and D at approximately 50m intervals to assess soil stiffness and to provide an estimate of soil bearing capacity and CBR.

5.2.1. Geotechnical Bearing Capacity

DCP resistances below the topsoil layer were low and variable and generally required between 1 to 3 blows to penetrate 100mm. This indicates the shallow silts and sands are loose.

Some of DCP tests met practical refusal on what is inferred to be insitu gravels. The shallowest gravels were encountered around 0.6m bgl. Where penetrometer testing advanced to 2m bgl, it implies the insitu gravels are located more than 2m bgl.

Refer to Appendix C for the site investigation records.

5.2.2. California Bearing Ratio (CBR)

The DCPs indicate the shallow silts and sands are loose and provide a CBR of around 2 to 5%, while the deeper insitu gravels will provide a CBR of at least 10%. Refer to Appendix D.

5.3. Historic Fill

5.3.1. Southern Boundary of 400 Russley Road

Test Pits 100 to 106 were undertaken along the boundary that is south of the existing dwelling at 400 Russley Road.

The test pits generally encountered a thick layer of topsoil that appears to follow a historic alluvial channel, or pond, that appears to have previously drained down to the southeast. Some of the topsoil may have been fill that was placed to level the site for agricultural use.

The topsoil fill was generally found to extend 0.4m to 1.6m bgl and appeared relatively 'clean' without obvious evidence of debris or rubbish. The approximate area of topsoil fill is shown in Figure 3.

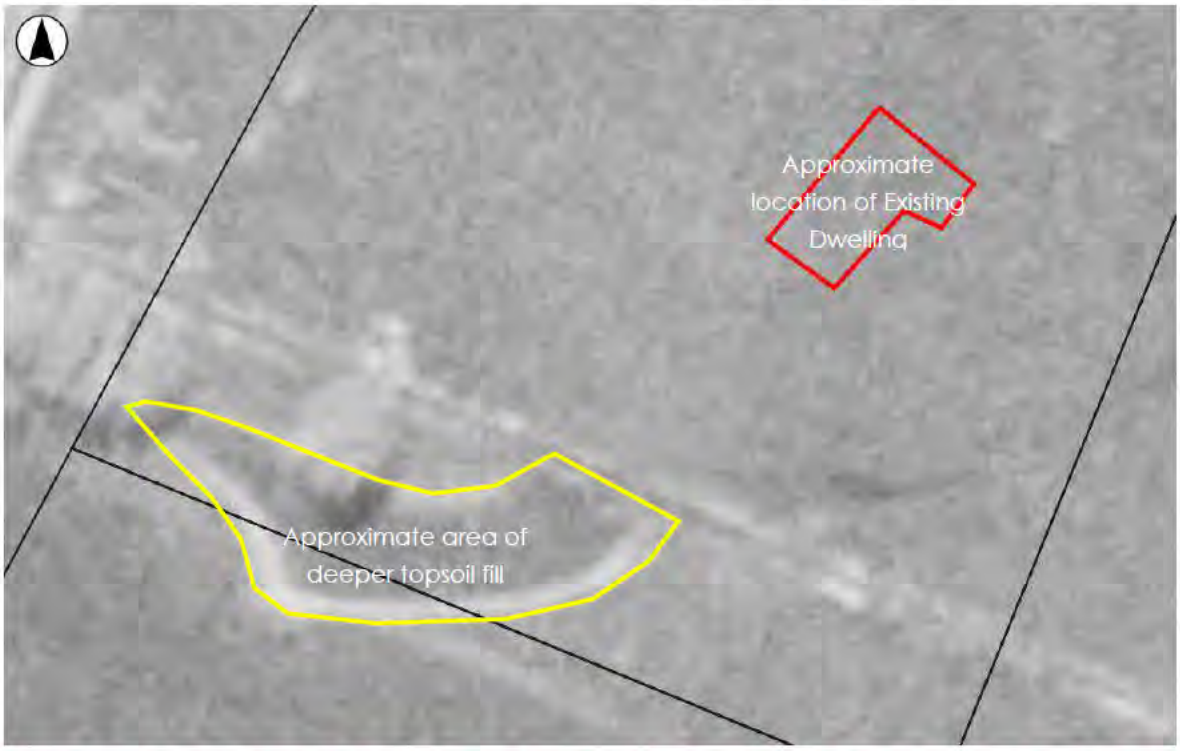


Figure 3. Area of uncontrolled fill along southern boundary of 400 Russley Road (Canterbury Maps, October 2021)

5.3.2. Gravel Pit along Northern Boundary

Test Pits 200 to 209 were undertaken to investigate the extent and depth of uncontrolled fill that was known to be present along the northern boundary of the site, adjacent to Memorial Avenue.

The area of suspected fill was identified from historic aerial photography of the site that was recorded from the 1940s through to the 1970s. Refer to Figure 4.

The test pits generally encountered 0.4m to 1.9m of silty topsoil fill with debris and rubbish (bricks, wire, etc) overlying buried topsoil and in-situ sandy gravels. The test pits terminated when insitu sandy gravels were encountered around 1.2m to 1.9m below ground level.

Test Pit 206 terminated within historic fill 1.9m bgl and was unable to confirm the depth to natural sandy gravels as the small size of the excavator made it impractical to excavate any deeper.

Figure 4. Area of uncontrolled fill from 1940s aerial photography (Canterbury Maps, October 2021)

6. Geotechnical Recommendations

6.1. Earthworks

6.1.1. NZS4431:1989

Where ground levels are to be raised, the topsoil will need to be removed before placing and compacting clean, inert soils.

Any intention to place earth fill across the site will need to be carried out in accordance with NZS4431:1989 *"Code of Practice for Earth Fill for Residential Development"*.

6.1.2. Remediation of Uncontrolled Fill

Any uncontrolled fill across the site (i.e. the two areas of historic fill that are discussed in this report) will need to be removed by excavating down to remove all uncontrolled fill and any buried topsoil to expose clean in-situ, inert soils.

The geotechnical engineer should advise if any inert fill materials that are recovered can be re-used as controlled fill, or if they are unsuitable and require to be disposed off-site.

Any debris encountered in the fill will need to be removed before the soil is placed and compacted.

Where the excavated soils comprise clean, silts, sands and/or gravels, it would be possible to re-use these materials as controlled, compacted earth fill.

6.1.3. Insitu Compaction of Shallow Soils

The shallow silts and sands are soft and loose. Without any improvement, the presence of the soft/loose soils will require the design of thicker pavements and stiffer, wider foundations compared to what would be needed for better ground conditions.

Eliot Sinclair recommend the shallow silts and sands are compacted insitu to increase their density and stiffness. If this can be achieved to a satisfactory depth, then it should be possible to reduce the cost and effort needed for the design and construction of pavements and foundations.

As groundwater is located several metres below ground level, and it is just the upper silts and sands that require densification, Eliot Sinclair recommend a trial be conducted using a square-impact roller. The trial compaction works are intended to be carried out without needing to remove the topsoil. This recommendation was notified to Miles Premises Ltd. by Eliot Sinclair's email on 14 October 2021, and approved by Miles Premises Ltd. the same day.

The results of the insitu compaction trial, including the level of improvement in inferred CBR and the revised CBR to be adopted for pavement design, will be advised in the Geotechnical Report that will be issued at completion of the trial.

6.2. Pavement Thickness – Without Ground Improvement

The observed subgrade strength of around CBR 2% is quite low and, without improvement, will require a very thick pavement to be formed to sustain the forecast traffic volumes.

6.2.1. **'Working Platform'**

Due to the presence of soft ground, a 'working platform' of around 150mm thickness of sacrificial aggregate *may* need to be placed on the subgrade to allow the contractor to physically construct and compact the new pavements, particularly if the work needs to be carried out on an uncompacted subgrade during wet conditions.

6.2.2. New Internal Roads

We have calculated the unbound granular road pavement thickness based on an assumed subgrade strength of CBR 2% and the modelled traffic volumes that were agreed by CCC and Memorial Avenue Investments Limited (MAIL) in 2014 for the rezoning of the Site.

These calculations relate to the internal site roading network only and exclude pavement design for Memorial Ave.

Based on a subgrade strength of CBR 2%, the pavement thickness for internal roads will need to be between 650mm to 750mm thick. The sample calculations are attached in Appendix E.

Considering the potential need for a working platform, due to the soft subgrade conditions, the total pavement thickness may need to be between 800 to 900mm thick.

6.2.3. Car Dealership Forecourts

We have also calculated a preliminary pavement thickness that could be applied to car dealership forecourts (i.e. primarily for static storage of light vehicles).

Based on a subgrade strength of CBR 2%, the pavement thickness for forecourt areas may need to be around 400mm thick. The sample calculations are attached in Appendix E.

Considering the potential need for a working platform, due to the soft subgrade conditions, the total pavement thickness for forecourt areas may need to be around 550mm thick.

6.3. Pavement Thickness – After Ground Improvement

6.3.1. CBR After Ground Improvement

A small increase in the CBR of the insitu silts and sands will reduce the design pavement thickness. The potential increase in CBR that will be achieved by insitu compaction trial (refer to 6.1.3, above) is not currently known.

As an example, if the compaction works cause DCP resistances to increase to around 2 blows per 100mm, it implies the CBR would increase to around 3-4%. If this occurred, pavement thickness may be able to be reduced by around 100mm thickness.

Ultimately, the pavement thickness that will be required for new roads and forecourts will need to be advised once the square-impact roller trial has been completed.

6.3.2. Alternatives

There are other options to create a working platform, improve the strength of the subgrade and reduce the overall road pavement thickness. These could include;

- Placement of one or more layers of geotextile and/or geogrid within the pavement;
- Treatment of the excavated road subgrade with lime and/or cement;
- Undertake dynamic compaction on the excavated road subgrade;
- Include one or more 'bound' layers within the pavement structure (e.g., adding lime and/or cement to the road pavement aggregate, increase the thickness of asphalt so it has a structural benefit to the pavement etc).

These methods are used across Canterbury and New Zealand to mitigate the impacts of a soft subgrade. The pavement design engineer can provide further recommendations once the results of the compaction trial are received.

6.4. Demolition of Existing Buildings

The existing dwellings at 400 Russley Road, 500 and 520 Avonhead Road will need to be demolished and removed prior to earthworks in the area. Once demolition and removal of the existing structures is complete the geotechnical engineer should inspect the subgrade to confirm any excavations are onto clean in-situ material and should provide instructions around proof rolling and preparing the areas for filling.

Where previous reporting has highlighted asbestos materials within the existing dwelling, a licensed asbestos removal contractor shall provide supervision of the removal works and, upon satisfactory completion, certification that the asbestos-containing materials have been removed in accordance with best-practice.

6.5. New Foundations

The bearing capacity of the shallow silts and sands across the site may be impacted by the ground improvement, site development, and/or filling earthworks. As such, we recommend each new building is subject to site-specific shallow geotechnical testing and reporting once the location and type of the proposed building is known.

Regardless, based on the shallow soil testing undertaken to date, we provide the following preliminary advice for preliminary foundation design;

- Without compaction, the in-situ shallow silts and sands provide an ultimate geotechnical bearing capacity of only q_u=100kPa.

- The insitu sandy gravels, which are present between 0.6 to more than 2m bgl, will provide an ultimate bearing capacity of at least q_u =500kPa.
- A geotechnical strength reduction factor of ϕ_{bc}=0.5 should be adopted by the foundation design engineer.
- Forsyth and Barrel (2008) indicate the depth to bedrock is likely greater than 100m. In terms of clause 3.1.3 of NZS 1170.5:2004, the site can be considered to be Class D (Deep Soil Site).
- Shallow foundations should not bear partially on the soft silts/sands and partially on the dense sandy gravels due to the risk of differential foundation settlement.

7. Disclaimer

Comments made in this geotechnical and foundation report are based on Riley Consultants previous assessment of the deeper geotechnical conditions, Eliot Sinclair's 2019 Detailed Site Investigation, and the shallow test pits and dynamic cone penetrometer testing that was carried out in September 2021.

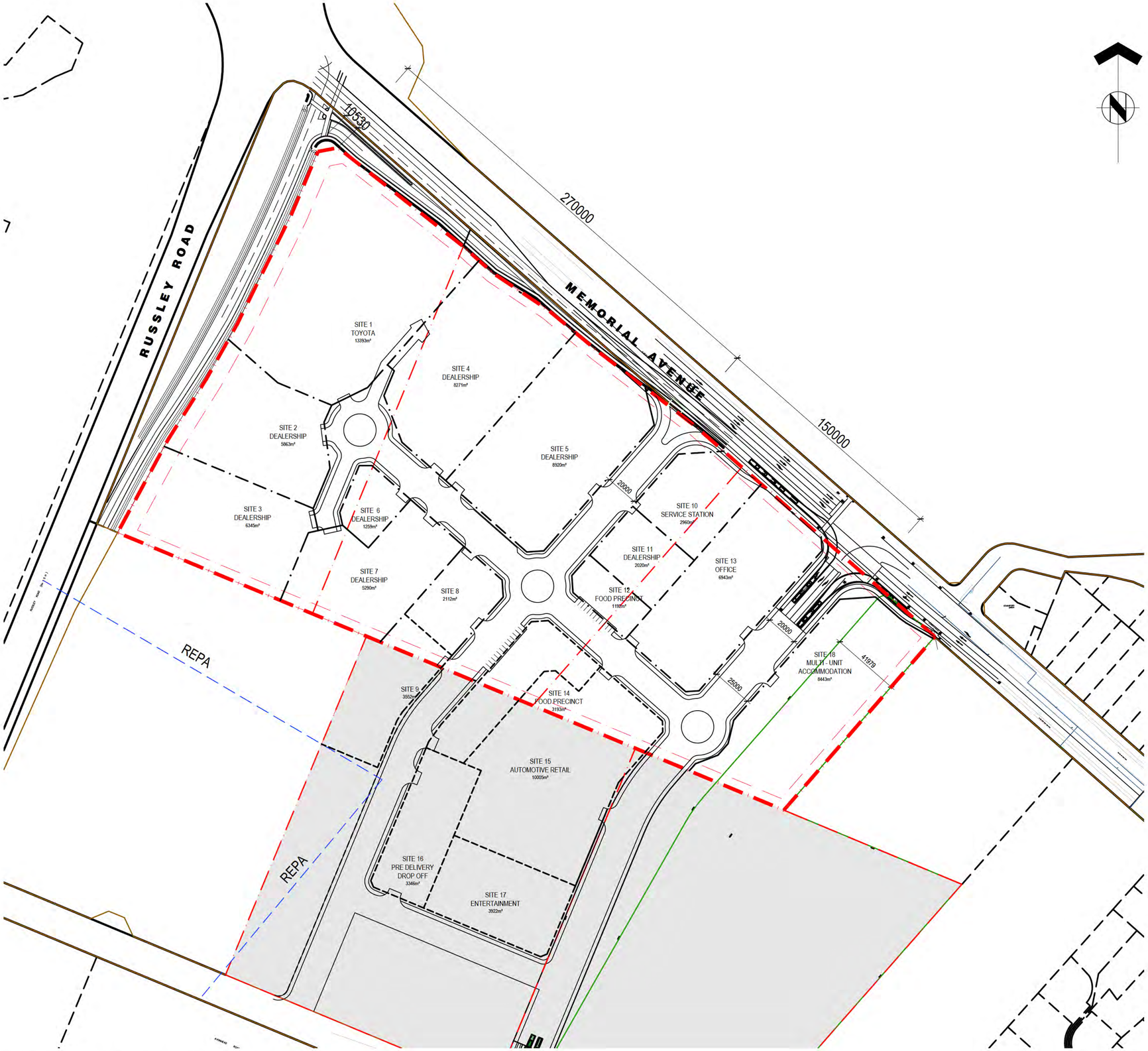
Whilst every care was taken during our investigation and interpretation of subsurface conditions, there is a risk there could be subsoil strata or features at depth that we are unaware of. For this reason, it is essential that all foundation excavations are inspected as recommended in this report.

Please note that the foundation and pavement design parameters provided in this report are indicative only. Due to the nature of the proposed development, these values should not be used for structural design or to support any application for building consent unless agreed to in writing by Eliot Sinclair's geotechnical engineer. Eliot Sinclair does not accept any liability should the recommendations from this report be used for building consent purposes.

At time of construction, should the exposed soil conditions vary from those described in this report then Eliot Sinclair & Partners Ltd should be contacted to advise if the recommendations of this report remain valid. Further, should the requirements of MBIE's guidelines, NZ Standards, CCC's IDS, or any other standard, guideline etc that applies to the work be updated, then Eliot Sinclair should be contacted to advise if the recommendations of this report remain valid.

This report has been prepared for the benefit of Miles Premises Limited. No liability is accepted by this company, or any employee of this company, with respect to the use of this report by any other party or for any purpose other than what is described in Section 1 of this report.

Appendix A. Preliminary Plans



MASTER PLAN Scale 1:2,500 @ A3 , 1:1,250@ A1

MASTER PLAN FOR MEMORIAL AVE, CHRISTCHURCH

| LOCATION: CHRISTCHURCH | DATE: 01-09-2021 | JOB: 1345-01 | DWG:

draft **FOR DISCUSSION ONLY**

WOODHAMS MEIKLE ZHAN ARCHITECTS

WOODHAMS MEIKLE ZHAN NEW ZEALAND LIMITED | LEVEL 4, 65 UPPER QUEEN STREET, AUCKLAND 1010 , NEW ZEALAND | T (+64) 09 377 5215 | F (+64) 09 377 5214 | WWW.WMZA.CO.NZ

Appendix B. Riley Consultants 'Geotechnical Assessment', 2016

RILEY CONSULTANTS

GEOTECHNICAL ASSESSMENT

400 - 447 MEMORIAL AVENUE, BURNSIDE

Engineers and Geologists

RILEY CONSULTANTS LTD
New Zealand
Email: riley@riley.co.nz
Email: rileychch@riley.co.nz
Web: www.riley.co.nz

AUCKLAND
4 Fred Thomas Drive, Takapuna, Auckland 0622
PO Box 100253, North Shore, Auckland 0745
Tel: +64 9 489 7872 Fax: +64 9 489 7873

CHRISTCHURCH
395 Madras Street, Christchurch 8013
PO Box 4355, Christchurch 8140
Tel: +64 3 379 4402 Fax: +64 3 379 4403

RILEY CONSULTANTS

GEOTECHNICAL ASSESSMENT
400 - 447 MEMORIAL AVENUE, BURNSIDE

Report prepared for: Memorial Avenue Investments Ltd

Report prepared by: Chloe Cameron, Engineering Geologist

Report reviewed by: Leah King, Senior Engineering Geologist

Report approved by: Scott Vaughan, Managing Director, CPEng

Report reference: 160070-D

Date: 13 April 2016

Copies to:

Memorial Avenue Investments Ltd	Electronic Copy
Riley Consultants Ltd	1 Electronic Copy 1 Copy

Issue:	Details:	Date:
1.0	Geotechnical Investigation	13 April 2016

Contents

1.0 Introduction 1
2.0 Scope of Works 1
3.0 Site Description 2
4.0 Regional Geology 3
5.0 Existing Site Information 3
6.0 Site Investigation 3
6.1 Test Pit Excavations 3
6.2 Hand Auger Boreholes 3
6.3 Machine Borehole Tests 4
6.4 Permeability and Infiltration Testing 4
7.0 Ground and Groundwater Conditions 4
7.1 Topsoil 4
7.2 Sand and Silt 5
7.3 Gravel and Cobbles 5
7.4 Groundwater 5
8.0 Laboratory Testing 6
9.0 Permeability and Infiltration Testing 6
9.1 In-situ Permeability Testing (boreholes) 6
9.2 Double Ring Infiltrometer Tests 7
10.0 Geotechnical Hazards 7
10.1 Seismicity 7
10.2 Liquefaction Potential 7
10.3 Erosion 8
11.0 Geotechnical Considerations 8
11.1 Bearing Capacity 8
11.2 Foundation Recommendations 9
12.0 Site Development 10
12.1 Earthworks 10
12.2 Site Soakage Capability 10
12.3 Pavement 10
13.0 Conclusions and Recommendations 11
14.0 Limitation 11

Appendices

Appendix A: Hand auger, test pit, and borehole logs and photographs
Appendix B: Drawings
Appendix C: Permeability Testing
Appendix D: Laboratory Testing
Appendix E: Permeability and Infiltration Test Methodology

RILEY CONSULTANTS LTD
New Zealand
Email: riley@riley.co.nz
Email: rileychch@riley.co.nz
Web: www.riley.co.nz

AUCKLAND
4 Fred Thomas Drive, Takapuna, Auckland 0622
PO Box 100253, North Shore, Auckland 0745
Tel: +64 9 489 7872 Fax: +64 9 489 7873

CHRISTCHURCH
395 Madras Street, Christchurch 8013
PO Box 4355, Christchurch 8140
Tel: +64 3 379 4402 Fax: +64 3 379 4403

GEOTECHNICAL ASSESSMENT
400 - 447 MEMORIAL AVENUE, BURNSIDE

1.0 Introduction

This report, prepared by Riley Consultants Ltd (RILEY) at the request of Memorial Avenue Investments Ltd, details the findings of geotechnical investigations undertaken for the commercial development at Memorial Avenue. The proposed development is of a large block of land bordered by Russley Road (west), Memorial Avenue (north), Avonhead Road (south), and the private property of the Commodore Hotel (to the east). This report has been prepared for general site characterisation and includes comment on geology, potential geotechnical hazards, and recommendations for general geotechnical design parameters including bearing capacity.

2.0 Scope of Works

A desktop study and site walkover were first carried out for the entire site with reference to the following information:

- Canterbury Geotechnical Database (CGDb).
- Canterbury Maps - for review of historic aerial photos (Google Earth).
- Aurecon; Stage 1 Preliminary Site Investigation (August 2014) and Geotechnical Report Corner of Memorial Avenue and Russley Road (August 2014).
- RILEY experience and knowledge of geotechnical characteristics of the area.
- Visual inspection of the site.

It is understood the western end of the site will be developed first. The proposed scope therefore allowed for a higher intensity geotechnical investigation of six hectares at the western end of the site. The scope of site investigations comprised:

- One Sonic Machine Borehole to 15m to confirm expected ground conditions at depth, liquefaction risk, and allow for installation of piezometers (included in the scope below).
- Piezometer to be installed and developed in the borehole to confirm depth to groundwater, as a current record will be required for consenting of earthworks. Piezometer developed and monitored one week after installation (included in the scope below).
- 18 test pits to 3m depth or refusal to confirm near surface conditions.
- 12 hand auger boreholes and Scala penetrometer tests to refusal. Scala penetrometers carried out in advance of hand auger advancement, to assess near surface bearing capacity of overlying silts and sands.
- Four soakage tests to assess permeability for stormwater soakage.
- Two laboratory tests for California Bearing Ratio to allow for preliminary pavement design.

In addition to the above, geotechnical investigation was carried out on the remaining 11.7 hectares at a wider spacing to allow for general characterisation of the site ground conditions. The scope of works in this area included:

- Two Sonic Machine Boreholes to 15m to confirm expected ground conditions at depth, liquefaction risk, and allow for installation of piezometers.
- Piezometers installed and developed in the two boreholes to confirm depth to groundwater.
- Four test pits to 3m depth or refusal to confirm near surface conditions, that is characterise thickness of silt and sand overlying gravel across the area.
- 10 hand auger boreholes and Scala penetrometer tests to refusal. Scala penetrometers were carried out in advance of the hand auger boreholes to assess near surface bearing capacity of overlying silts and sands.
- Two soakage tests (within the test pits) to assess permeability for stormwater soakage.
- Four laboratory tests for California Bearing Ratio to allow for preliminary pavement design

The six soakage tests included in the original scope were replaced by three permeability (falling head) tests located in three shallow rotary-sonic machine boreholes, and three double ring infiltrometer tests. The 22 shallow test pits were reduced to 21, and an additional two hand auger boreholes with in-situ soil strength tests by Scala penetrometer testing were added. Soakage test results and analysis of these tests are included in Appendix C.

This report includes a summary of investigation findings, assessment of geotechnical hazards, and provision of general geotechnical design parameters. The report also includes foundation recommendations.

Our scope has not included an assessment of contaminated land.

3.0 Site Description

The 17.7 hectare site is to be developed for commercial use, including potentially single-storey retail, large footprint sites, hotels, vehicle dealerships, and commercial offices. The six hectares at the western end is likely to be predominantly single-storey, high span commercial structures and car parking area.

The site geomorphology has been deduced from a 2015 ground survey by Harrison Grierson and from our own site observations. The ground surface across the site is relatively flat, and broadly-speaking, slopes gently from west to east. A series of gentle ridge and gully features meander from north-west to south-east across the site (particularly evident on the north part of the site). Ridge-tops are generally less than 3m higher than gully inverts, and steepest slope angles are a few degrees. These geomorphic features are inferred to be remnants of historic flood plains and river channels, and currently form minor drainage paths to lower areas. RILEY Dwg: 160070-1 (attached) illustrates the ground contours for the site.

The site is currently vacant farmland vegetated with grass, sporadic trees, and hedges. A review of historic aerial imagery indicates that this vegetation cover and land use has remained unchanged since 1941. Three tenanted houses are present at the east and south end of the site.

4.0 Regional Geology

The regional geology of the site as described in the Institute of Geological and Nuclear Science (GNS) geological QMAP for the area (Geology of the Christchurch Urban Area, GNS, 1:25,000 Geological Maps), indicates the presence of dominantly alluvial sand and silt deposits of the Springston Formation (late Quaternary), and in the north corner of the site alluvial gravel, sand and silt of historic flood channels.

5.0 Existing Site Information

In August 2014, Aurecon completed a Stage 1 preliminary site investigation and geotechnical report for the site to determine the geotechnical suitability of the site for a proposed zone change from rural to business. We have used this data along with the RILEY investigations, outlined below, to create a geological model for the site.

6.0 Site Investigation

As outlined in the scope above, RILEY split the site into two zones of investigation. Results from the two zones of investigation have been combined and presented together.

Following a site walkover and confirmation of test locations, RILEY completed 21 shallow test pit excavations, 24 hand auger boreholes with in-situ soil strength tests by Scala penetrometer testing, and three rotary-sonic machine boreholes with in-situ soil strength tests by standard penetration test (SPT) from 7 March 2016 to 31 March 2016. All samples were logged on-site by an engineering geologist in general accordance with the New Zealand Geotechnical Society Guidelines.

The geotechnical logs for all investigation locations are presented in Appendix A. Test pit, hand auger borehole and machine borehole test locations are indicated on the attached site plan (refer RILEY Dwg: 160070-1) in Appendix B.

6.1 Test Pit Excavations

Test pit excavations (TP1 to TP21) were excavated by Taggart Earthmoving Ltd using a 16 tonne machine excavator to a target depth of 3m below ground level (bgl), or terminated due to collapse in loosely packed gravels. For each excavation, all sides of the test pit were inspected, logged, photographed and then backfilled with the spoil. Test pits were backfilled in approximately 300mm layers and compacted by tamping with the excavator bucket, and tracking over test pit at completion of backfill. No spoil remained at the completion of backfill.

Groundwater was not encountered in any of the shallow test pit investigations.

6.2 Hand Auger Boreholes

Hand auger boreholes (HA1 to HA24), were drilled by RILEY to a target depth of 3m bgl, or terminated due to practical refusal between 0.1m and 2.95m bgl on gravels and cobbles. Associated Scala penetrometer testing was extended to a target depth of 5m bgl where possible, and was commonly terminated due to practical refusal between 0.4m and 3.45m bgl on gravels and cobbles.

Groundwater was not encountered in any of the hand auger borehole investigations.

6.3 Machine Borehole Tests

Three machine borehole tests (BH1 to BH3) were drilled by McMillan Drilling Services Ltd using a Geoprobe 8140LS track sonic rig to a target depth of 15.08m bgl. The machine borehole was PQ (114mm) sized, and between 800L and 1000L of potable water was added during drilling. Samples were recovered in core boxes, photographed, and logged on-site by a RILEY engineering geologist. Solid cone SPT's were undertaken using a safety auto trip hammer with an energy ratio of 86.3%. A static water level was recorded at a break in drilling, and is presented on the logs in Appendix A.

A piezometer was installed into each machine borehole using a 50mm slotted pipe with a geotextile sock covering. A K2 filter sand surround created the response zone and blinding sand was installed above, followed by a bentonite seal. Drill cuttings were then backfilled into the hole followed by a final bentonite seal to 0.3m bgl. The boreholes were then installed with locked toby's held in place with quick mix concrete. Backfill depths are detailed on logs in Appendix A.

6.4 Permeability and Infiltration Testing

Near surface in-situ soil permeability and soil infiltration testing was undertaken across the site in several locations and boreholes during the investigation. Methodology and findings are discussed in Section 8.

7.0 Ground and Groundwater Conditions

Subsurface geotechnical investigations within the development area were positioned to characterise ground conditions within the top 15m for the purpose of geotechnical hazard assessment, and to also provide information for foundation design. Descriptions are provided on the attached logs in Appendix A.

Excluding near surface topsoil, ground conditions comprise late quaternary aged river alluvium. For the purpose of geotechnical characterisation, two distinct units have been identified at the site; 1) sand and silt, 2) gravel and cobbles. These units are described in detail in the following sections.

Topsoil varies in thickness from 0.1m to 0.4m. Sand and silt layers are not present in all investigation locations but can be up to 3.5m in thickness. Gravel and cobbles are encountered across the site at varying depths below the topsoil and sand/silt layers. A contour plan showing the depth to the gravels has been developed based on the RILEY and Aurecon test locations. Depth to gravel are interpolated between investigation points and are indicative only. This plan is included in Appendix B (RILEY Dwg: 160070-1). No fill was encountered on-site, however this may be present in some areas particular around drainage channels.

7.1 Topsoil

Topsoil occurs over the majority of the site and predominantly consists of friable, dark brown silt with some organics and minor sand.

Logs included in Appendix A further detail the spatial distribution and composition of the topsoil.

7.2 Sand and Silt

Beneath the topsoil, sand and silt layers were encountered, and predominately consisted of friable, light yellowish brown to grey silt with some sand and trace rootlets. Thin bands of sand with trace silt and interbedded silty fine sand to sandy silt were also present. The depth of the sand and silt varied, however, it was present in most of the investigation locations. Areas where these soils were absent were consistently present in the north and north-west of the site, where topsoil is directly underlain by gravels deposited by historic flood channels.

7.3 Gravel and Cobbles

Directly beneath topsoil (north, north-west of the site), and below the silt and sand across the majority of the site, gravel and cobbles were encountered. These historic river channel deposits predominantly consisted of brown to grey, sandy fine to coarse gravel with cobbles and trace to minor silt. The gravel is typically well graded, loosely to moderately packed, rounded to subrounded sandstone (greywacke). Total depth and lateral coverage is variable across the site as indicated by the contour plan in Appendix B.

7.4 Groundwater

The site is located within the Christchurch Groundwater Protection Zone 1.

Based on a desktop study of local topography and the review of Environment Canterbury (ECan) wells on the site and in the surrounding area, groundwater was expected to be between 6.5m and 8m below ground level. No groundwater was observed in any of the hand auger boreholes or shallow test pit investigations. In machine boreholes BH1 to BH3, static water levels taken during breaks in drilling are considered to be non-representative due to the possibility that levels were influenced by the addition of 800L to 1000L of potable water.

Upon the completion of drilling, piezometers were installed into all three machine boreholes and groundwater levels were recorded on the 8, 9, 10 and 17 March 2016. Table 1 provides a summary of piezometer installation details and groundwater levels in BH1 to BH3.

Table 1: Summary of Piezometer Installation Details and Groundwater Levels in BH1 to BH3

Hole ID	Hole Depth	Piezometer Installation				Initial Water Levels		
		Response Zone		Completed		Date	Time	Water Depth
		Top	Base	Date	Time			
BH1	15.08	11.4	14.4	08/03/2016	10:00	08/03/2016	12:15	5.62
							17:05	7.67
						09/03/2016	09:20	7.96
							15:30	7.96
						10/03/2016	09:20	7.98
						17/03/2016	12:15	8.0
BH2	15.08	11.0	15.08	09/03/2016	11:00	09/03/2016	11:28	8.65
							15:40	7.63
						10/03/2016	09:30	7.63
						17/03/2016	12:20	7.6
BH3	15.08	12.0	15.08	10/03/2016	11:00	10/03/2016	11:15	8.14
						17/03/2016	12:25	8.1

8.0 Laboratory Testing

Laboratory CBR tests were carried out on the varying materials encountered on-site, for the purpose of informing pavement design. Silt and sand samples from TP2, TP13, TP15, TP19 and TP20, and gravel samples from TP16 were sent to Central Testing Services (CTS) for California Bearing Ratio (CBR) testing.

Table 2 and Appendix D provide a summary of the CBR test results.

Table 2: Summary of California Bearing Capacity (CBR) Test Results.

California Bearing Ratio (CBR) Test Results					
Sample Source	**Sample Depth (m bgl)**	**Sample Description**	**CBR value at 2.5mm penetration**	**CBR value at 5.0mm penetration**	**Reported CBR Value**
TP02	0.1 - 0.5	SILT with some sand	4.5	4.5	4.5
TP13	0.3 - 1.0	Sandy SILT	8	7	8
TP15	0.1 - 0.9	Sandy SILT	4.5	6	6
TP16	0.2 - 0.7	Sandy GRAVEL with trace silt	70	75	75
TP19	0.2 - 0.4	Silty SAND	13	13	13
TP20	0.15 - 0.4	Silty SAND	8	7	8

9.0 Permeability and Infiltration Testing

In-situ permeability testing was undertaken to provide an indicative permeability of the sandy gravel for the potential on-site disposal of stormwater via soakage. Permeability values derived from the testing can be used for the design of subsurface soakage systems.

Double ring infiltrometer testing was undertaken on-site to give an indicative rate of infiltration in the top 100mm of soil. The rate of infiltration is determined as the amount of water per surface area, and time unit that penetrates the soil. Testing provides information that is useful for assessing the potential for stormwater runoff disposal via swales or sheet flow

9.1 In-situ Permeability Testing (boreholes)

In-situ falling head permeability tests were undertaken in three boreholes (identified as BH1A to 3A) located approximately 1.5m from the main exploratory drill holes.

Table 3 provides test details and initial permeability (k) values. Permeability test methodology is presented in Appendix E.

Table 3: In-situ Permeability Test Methodology Details and Values

Test Location ID	Depths (m bgl)		Upstand (m agl)	Pre-soak		Number of Tests		Initial K value
	Casing	Silt-gravel contact		Duration (minutes)	Water volume	Dip tape	Transducer	
BH1A	0.62	0.6	0.23	120	500	5	5	10^{-4}
BH2A	1.17	1.1	1.05	95	50	1	1	10^{-5}

BH3A	1.48	1.4	0.83	50	200	2	4	10^{-4}

A preliminary analysis undertaken by RILEY indicates the sandy gravel underlying surficial silt and topsoil has a permeability (k) value ranging between 1.81 x 10^{-5} and 2.38 x 10^{-4} m/s. The upper end of the range is typical of free-draining alluvial gravels that are found across the west part of Christchurch. Raw test data is based on manual measurements. Available pressure transducer data supports these results.

Raw test data and graphs are presented in Appendix C.

9.2 Double Ring Infiltrometer Tests

Three double ring infiltrometer tests (identified as IT01 to IT03) were undertaken by RILEY on the 31 March 2016.

Infiltration rates varied between 120mm/hr to 420mm/hr. Graphs for the three double ring infiltrometer tests are included in Appendix C. Infiltrometer test methodology is presented in Appendix E.

10.0 Geotechnical Hazards

10.1 Seismicity

The GNS Active Fault System database (GNS, 2011a) indicates that the Greendale Fault System is located approximately 16km south-west of the site and has a recurrence interval of >10,000 to <= 20,000 years. The site is also located approximately 10km north of the epicentre of the Magnitude 6.3 Christchurch earthquake on the 22 February 2011 (GNS, 2011b).

Based on site investigations, geological maps and knowledge of the area, the site subsoil classification is considered to be Class D (Deep or soft soil site), in accordance with NZS 1170.5. The structures are likely to be Importance Level 2 or 3 in accordance with NZS 1170.0, and therefore the following peak ground accelerations (PGAs) should be adopted for design (assuming a design life of 50 years). Table 4 shows the preliminary design peak ground accelerations (PGA) for the site based on NZS 1170. Alternatively a site specific probabilistic seismic hazard analysis could be carried out for the site at design phase.

Table 4: PGA Values for Geotechnical Design in Canterbury

Importance Level	SLS_1 (1)	ULS (2)
Importance Level 2	0.08	0.34
Importance Level 3	0.08	0.44

Notes:
1) SLS – Serviceability Limit State.
2) ULS – Ultimate Limit State.

10.2 Liquefaction Potential

The Canterbury Earthquake Recovery Authority (CERA) have zoned the site as Rural and Unmapped, however, given our knowledge of the area we expect liquefaction damage will be unlikely in a future seismic event. Liquefaction induced settlements will be negligible and therefore equivalent of a Technical Category 1 residential site category in accordance with Table 3.1 of the Ministry of Business, Innovation and Employment (MBIE) Guidance for Repairing and rebuilding houses affected by the Canterbury earthquakes (December 2012).

Section 2.3 of ECan technical report, Review of liquefaction hazard information in eastern Canterbury also concludes the area as damaging liquefaction unlikely.

Liquefaction only occurs in saturated soils below the depth of the groundwater table. Groundwater is inferred to be below 7.5m depth across the site, therefore if minor liquefiable layers did occur they would only liquefy below 7.5m depth. The upper medium dense gravel layers would therefore act as a raft minimising the impact of any liquefaction induced settlements at the surface. The risk of liquefaction to the proposed development is therefore considered as low.

10.3 Erosion

No major erosional features were noted on-site. Historic meandering river channels or flood plains form numerous small gullies to the north and north-west of the site. The fine sand and silts are likely to have a dispersive nature and therefore rilling type erosion is possible if material is exposed to wind and water. Therefore, erosion will need to be managed for any exposed building platforms.

11.0 Geotechnical Considerations

11.1 Bearing Capacity

Approximate bearing capacity has been derived from Scala penetrometer testing at the site. While it is recognised the site will be developed for commercial use, residential guidelines have been used to determine appropriate bearing layers. Based on the MBIE Guidelines, a geotechnical ultimate bearing capacity of 200kPa is indicated by Scala penetrometer results of two blows/100mm. NZS 3604 states that a geotechnical ultimate bearing capacity of 300kPa is indicated by five blows/100mm.

A geotechnical ultimate bearing capacity of 200kPa is consistently available across the site from the ground surface below topsoil with the exception of HA11 and HA12. However, there are minor localised weak layers (with less than 200kPa) comprising of a combination of "very soft to soft" silt and very loose, fine sands occur in the upper soil profile, generally below 1m. A geotechnical bearing capacity of 300kPa is available at depths that vary from ground surface to 2.45m across the site; 300kPa bearing capacity correlates (approximately) to depth of gravel across the site.

Table 5 below provides a detailed summary of ultimate bearing capacity (and depth to gravel) across the site.

Table 5 Summary of Geotechnical Ultimate Bearing Capacity Across the Site

Investigation ID	200kPa (m below topsoil)	300kPa (m bgl)	Depth to gravel (m bgl)
HA/SC01	0.0	0.1	0.2
HA/SC02	0.0	2.9	2.95
HA/SC03	0.0	1.1	1.6
HA/SC04	0.0	0.1	0.35
HA/SC05	0.0	0.05	0.3
HA/SC06	0.0	2.6	2.7
HA/SC07	0.0	2.45	1.6
HA/SC08	0.0	0.45	0.85

HA/SC09	0.0	0.0	0.1
HA/SC10	0.0	3.2	3.0
HA/SC11	0.3	1.95	1.95
HA/SC12	0.1	1.75	1.9
HA/SC13	0.0	0.75	1.0
HA/SC14	0.0	0.85	1.0
HA/SC15	0.0	0.15	0.2
HA/SC16	0.0	2.35	2.4
HA/SC17	0.0	1.4	1.75
HA/SC18	0.0	0.5	0.9
HA/SC19	0.0	1.65	1.75
HA/SC20	0.0	1.65	1.75
HA/SC21	0.0	0.25	0.8
HA/SC22	0.0	1.6	1.6
HA/SC23	0.0	2.4	2.5
HA/SC24	0.0	1.45	1.6

11.2 Foundation Recommendations

RILEY concludes the site is generally suitable for shallow slab-on-grade type foundation systems. The site has a geotechnical ultimate bearing capacity of 200kPa from below any topsoil, however, a geotechnical ultimate bearing capacity of 300kPa is present at varying depths across the site. If foundation designs for development on the site require 300kPa bearing, then some re-working and/or proof compaction and building footprint specific testing would be required. This approach would be needed to ensure that 300kPa was consistently available across the footprint, and there is a sufficient depth of soil beneath the foundation that has a bearing capacity of 300kPa. From the investigations undertaken the risk of deep, soft, or organic layers that would present settlement risk to the structure appears low and the near surface soils appear generally suitable for re-working if needed. As an alternative to re-working/compaction of existing near surface soils, excavation, and replacement with hardfill could also be considered.

Given the low groundwater level and the soil profile, the risk of liquefaction induced settlements in this area is considered to be very low.

Some cut and fills will be required at the site to form level construction platforms, this is detailed in the following Section 12.0 Site Development. Engineering inspection and testing will be required for all subgrades. If soft/loose areas are exposed during excavation within building platforms, over-excavation may be required and backfill should be carried out with imported hard fill or suitable site materials, compacted in layers. Re-working/compaction of the in-situ materials could also be considered. A geotechnical engineer should inspect and carry out appropriate testing on all building platforms and areas of fill.

12.0 Site Development

12.1 Earthworks

It is anticipated that earthworks will be limited to minor cut and fills, primarily aimed at levelling minor ridges and gullies across the site to create level building platforms. Our investigations indicate that on-site material, comprising well graded sands and well graded sandy gravels will generally be suitable for use as fill if placed and compacted appropriately. Though material over cobble size (>200mm) may need to be sorted and removed from fill in order to achieve adequate compaction. Earthworks fill compaction testing should be undertaken at, or in excess of the frequency recommended in NZS 4431. The suitability of any existing fill for inclusion in the site earthworks should be confirmed by a qualified geotechnical engineer or engineering geologist familiar with the contents of this report.

All topsoil should be stripped from the proposed earthworks area and stockpiled (well clear of the earthworks) for re-spreading (if suitable and required) at the completion of earthworks.

Laboratory compaction tests should be undertaken prior to earthworks to confirm the optimum soil compaction properties, including the amount of wetting required to achieve optimum moisture content. Compaction of the filling should be carried out to appropriate standards (NZS 4431) with conventional plant, and should be under engineering control. The Engineer should not only be given every opportunity to inspect all materials prior to placement, but also to ensure adequate compaction is being achieved throughout the works.

12.2 Site Soakage Capability

Site design and development needs to take into account management and disposal of stormwater runoff. Site infiltration capacity (120 to 420mm/hr) exceeds values permitted by Christchurch City Council (CCC) (50mm/hr) and ECan Guidelines (75mm/hr), and therefore stormwater swale drains will be required to be designed to reduce infiltration rates as per the CCC Waterways, Wetlands and Drainage Guide, May 2012.

Site permeability is at 10^{-4} to 10^{-5}m/s, and as such exhibits moderate soakage capacity. If stormwater disposal by soakage pits/trenches is considered, such systems should be designed by a chartered professional engineer familiar with the contents of this report, and in accordance with CCC standards and any discharge consents for the site which is located within the Christchurch Groundwater Protection Zone 1.

12.3 Pavement

For preliminary pavement design, six laboratory tests for CBR of selected soil samples (within the top 1m) were undertaken. Results presented in Table 1 show all tests had a reported CBR value above 5, apart from TP02 where the reported CBR value was 4.5.

The in-situ CBR will need to be confirmed on-site during construction prior to placement on any subbase materials. RILEY recommends specific pavement design to be carried out across the site.

CBR Laboratory results are attached in Appendix D.

13.0 Conclusions and Recommendations

On the basis of our geotechnical investigation, we consider the site is generally geotechnically suitable for commercial use including potentially single storey retail, large footprint sites, hotels, vehicle dealerships, and commercial offices

Subject to the recommendations detailed in this report. Key findings are:

- The CERA has zoned the site as Rural and Unmapped. RILEY expects the area to be equivalent of Technical Category 1. Section 3.1 of the MBIE Guidelines states that future land damage from liquefaction is unlikely in TC1 areas. Based on our assessment of permanent groundwater levels we consider the site is likely to have a low risk of being affected by liquefaction induced settlement.
- Risk of erosion of ridge and gully features is considered to be low.
- Shallow foundations are considered appropriate for the site for the proposed structures, and will require specific engineering design for the structure and ground conditions present.
- Ultimate bearing capacity across the site exceeds 200kPa below topsoil, a bearing capacity of 300kPa is generally consistent with depth of gravel at the site.
- Cuts or fills should be reviewed by a suitably qualified geotechnical engineer.
- Topsoil should be removed and the suitability of any existing fill for inclusion in the site earthworks should be determined on-site by a qualified geotechnical engineer.
- RILEY recommends specific pavement design be carried out across the site.
- Subsoils are likely to be generally suitable for in-situ sump-like drainage systems.

Due to the amount of ground investigation carried out by Aurecon and RILEY, a robust geological model has been formed for the 17.7 hectare site. We therefore consider no additional geotechnical testing needs to be carried out for the purpose of verifying general site characterisation.

14.0 Limitation

This report has been prepared solely for the benefit of Memorial Avenue Investments Limited as our client. Reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Recommendations and opinions in this report are based on data from limited test positions. The nature and continuity of subsoil conditions away from test positions are inferred, and it must be appreciated that actual conditions could vary considerably from the assumed model.

During excavation and construction, the site should be examined by a geotechnical engineer, or engineering geologist competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. It is possible that the nature of the exposed subsoils may require further investigation and the modification of design based upon this report.

APPENDIX A

Hand Auger, test pit, and borehole logs and photographs

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

BORE HOLE LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to site plan	BH1

Job No.:	Start Date: 07-03-16 Finish Date: 08-03-16	Ground Level (m LINZ):	Co-Ordinates (Mt Pleasant NZGD2000):	
160070		34.25	E 385,840.4 N 810,632.3	

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	15.08 m	1 of 1

Type: HDG — SONIC114mm GEOPROBE 8140LC

Fluid & Water: 1

Geological Interpretation

Rock Description (where applicable): Weathering; ROCK NAME; colour; texture; fabric and orientation; strength (GEOLOGICAL UNIT). Defect description
Soil Description (where applicable): Fraction (MAJOR / minor); colour; bedding. Strength, moisture; plasticity; additional (GEOLOGICAL UNIT)

Geological Description (recovered as):

Soil description (where applicable): Fraction (MAJOR / minor); colour; bedding. Strength, moisture; plasticity; additional

(refer to separate Geotechnical and Geological Information sheet for further information)

Field Strength — Soil | Rock: VSVL, SL, Lo, MD, SD, VSD, VSLW, LW, M, S, VS, ES

Run	Elevation (m LINZ)	Description	Tests
0.00	+34.05	*Sandy fine to coarse GRAVEL with trace rootlets; greyish-brown. Dry to moist; subrounded, strong, grey, sandstone; sand, fine to medium* (TOPSOIL)	
1.40		*Sandy fine to coarse GRAVEL/COBBLE with trace silt; brown to grey. Typically very dense (SPTN=50+, and locally medium dense (SPTN10-30); moist; gravel/cobbles, subrounded, strong, grey, sandstone, maxB=120mm; sand, fine to medium* (YALDHURST MEMBER, SPRINGSTON FORMATION)	SPT 1.40 m 6, 14, 14, 14, 14, 14; Nc = 56
2.92		0.20m - 0.70m Sandy fine to coarse GRAVEL with trace silt; greyish-brown. Dry; gravel, subrounded, strong, sandstone, MaxB=50mm; sand, fine to medium. 1.40m - 3.80m Sandy fine to coarse GRAVEL with some silt; brownish-grey. Medium dense; moist; gravel, subrounded to angular (inferred drilling breaks), strong, sandstone, maxB=55mm; sand, fine to medium.	SPT 2.92 m 9, 10, 3, 3, 2, 6; Nc = 14
		3.80m - 4.30m SAND; orange-brown. Moist, fine to coarse.	
4.44		4.30m - 7.48m Sandy fine to coarse GRAVEL with some silt; brownish-grey. Very dense; moist; gravel, subrounded to angular (inferred drilling breaks), strong, sandstone, maxB=55mm; sand, fine to medium.	SPT 4.44 m 8, 20, 21, 17, 19, 13; Nc = 50+
5.96			SPT 5.96 m 10, 19, 24, 30, 6/305mm; Nc > 50+
7.48		7.48m - 10.52m Fine to coarse GRAVEL with some sand and minor silt; brownish-grey. Moist; medium dense to dense; gravel, as above, maxB=50mm, sand, as above.	SPT 7.48 m 4, 8, 9, 8, 8, 8; Nc = 33
9.00		9.00m Groundwater depth at 8.03m when casing at 9.00m, 15 minutes after stopping drilling 9.00m - 9.60m CORE LOSS 9.60m - 15.08m Sandy fine to coarse GRAVEL with some silt; greyish-brown. Medium dense; moist; gravel, as above, maxB=45mm; sand, as above.	SPT 9.00 m 14, 10, 6, 7, 4, 6; Nc = 23
10.52			SPT 10.52 m 7, 8, 6, 6, 3, 3; Nc = 18
12.04		12.04m Grades to very dense	SPT 12.04 m 14, 15, 15, 14, 11, 9; Nc = 49
		12.95m Grades to light greyish-yellow	
13.56			SPT 13.56 m 18, 15, 11, 15, 12, 15; Nc = 50+
		14.46m Grades to greyish-brown	
	+19.17	EOH @ 15.08 m	SPT 15.08 m 18, 20, 16, 15, 12, 15; Nc = 50+

Depth (m): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Samples / Sample Description

Backfill / Piezometer: Bentonite

Explanations:

- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)
- Small Disturbed Sample (SDS)
- Large Disturbed Sample (LDS)
- Standard Penetration Test (SPT)

Soil Types: CLAY, SILT, SAND, GRAVEL, TOPSOIL, PEAT, FILL, NO RECOVERY *

Backfill: Bentonite, Grout, Drill arisings or collapsed hole, Filter material

Remarks

1. Co-ordinates based on hand held GPS; approximate and subject to survey confirmation.
2. Elevations based on Harrison Grierson drawing 139119-SS03 rev. A (after November 2015 survey).
3. Moisture descriptions indicate moisture condition at time of logging; likely to altered from orignal condition by introduction of water during drilling, and drying after recovery.
4. SPT tests: undertaken in accordance with NZS4402; "Nc" indicates solid cone; total penetration 450mm unless stated otherwise; auto-trip hammer efficiency 86.3% (calibrated March 2016).
5. Strength terms are based on SPT tests where available; otherwise based on field description.
6. Core loss attributed to loss of loose/soft silt to fine gravel; core excess attributed to relaxation of drill arisings within core barrel during drilling/extraction.
7. Short hand explanation: "MaxB=50mm" indicates dimension of intermediate (B) axis of largest clast.
8. Piezometer/backfill: 50mmID machine-slotted PVC pipe fitted with geotextile cloth; filter "K2 sand"; seal is bentonite (pellets); blinding sand; flush toby box with 0.3m diameter concrete surround.

All dimensions in metres Scale 1:100	Contractor: McMillan Drilling Ltd.	Rig/Plant Used: Geoprobe Sonic (McMillan)	Driller: Kortni Morris	Logged by: AvD	Checked by: LAK

RILEY AGS 3_1 NZLB 13.GLB Log RILEY CHCH BH 160070 400-447 MEMORIAL AVE BH.GPJ <<DrawingFile>> 23/03/2016 15:31 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

BORE HOLE LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to site plan	BH2

Job No.:	Start Date: 08-03-16 Finish Date: 09-03-16	Ground Level (m LINZ):	Co-Ordinates (Mt Pleasant NZGD2000):
160070		33.65	E 386,033.7 N 810,469.0

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	15.08 m	1 of 1

Type: HDG; SONIC 114mm GEOPROBE 8140LC

Fluid & Water: ▼ 1 (7.48)

Legend

Geological Interpretation

Rock Description (where applicable): Weathering; ROCK NAME; colour; texture; fabric and orientation; strength (GEOLOGICAL UNIT). Defect description
Soil Description (where applicable): Fraction (MAJOR / minor); colour; bedding. Strength, moisture; plasticity; additional (GEOLOGICAL UNIT)

Geological Description (recovered as):

Soil description (where applicable): Fraction (MAJOR / minor); colour; bedding. Strength, moisture; plasticity; additional

(refer to separate Geotechnical and Geological Information sheet for further information)

Field Strength: Soil | Rock (VSVL, SL, SO, SD, SSD, VSLV, SLW, VW, W, MS, S, VS, ES)

Elevation (m LINZ): +33.55; +18.57

Depth (m): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Run	Description	Tests
0.00	*Sandy fine to coarse GRAVEL with trace rootlets; light greyish-brown. Dry to moist; gravel, subrounded, strong, grey, sandstone; sand, fine to medium* (TOPSOIL)	
1.40	*Sandy fine to coarse GRAVEL with some cobbles and trace to minor silt; brown to grey. Typically dense (SPTN=30-50), and locally medium dense (SPTN10-30) and very dense (SPTN=50+); moist; gravel/cobbles, subrounded, strong, grey, sandstone, maxB=120mm; sand, fine to medium. Local thick beds of SAND and organic SILT* (YALDHURST MEMBER, SPRINGSTON FORMATION)	SPT 1.40 m 7, 10, 11, 12, 10, 7; Nc = 40
2.92	0.10m - 0.40m (Hand dug) Sandy fine to coarse GRAVEL; light greyish-brown. Dry; gravel, subrounded to angular (inferred drilling breaks), strong, sandstone, maxB=50mm; sand, fine to medium. 0.40m - 1.40m Sandy fine to coarse GRAVEL with trace silt; greyish-brown. Moist; gravel, subrounded to angular (inferred drilling breaks), strong, sandstone, maxB=50mm; sand, fine to medium. 1.40m - 2.40m Fine to coarse GRAVEL with minor sand and silt. Dense; moist; gravel, subrounded to angular (inferred drilling breaks), strong, sandstone, maxB=50mm; sand, fine to medium. 2.40m - 2.92m Sandy fine to coarse GRAVEL with trace silt; greyish-brown. Moist; gravel, as above; sand, as above.	SPT 2.92 m 12, 18, 16, 14, 18, 12/410mm; Nc > 50+
4.44	2.92m - 4.75m Sandy fine to coarse GRAVEL with some silt; greyish-brown. Very dense; moist; gravel, as above; sand, as above. 4.44m Grades to dense 4.75m - 5.05m Sandy fine to coarse GRAVEL with trace silt; greyish-brown. Very dense; moist; gravel, as above; sand, as above.	SPT 4.44 m 9, 10, 10, 10, 10, 14; Nc = 44
5.96	5.05m - 6.50m Sandy fine to coarse GRAVEL with minor silt; greyish-brown. Very dense; moist; gravel, as above; sand, as above. 6.50m - 6.95m Fine to coarse GRAVEL with minor sand and silt. Dense; gravel and sand, as above.	SPT 5.96 m 9, 15, 17, 17, 19, 7/400mm; Nc > 50+
7.48	6.95m - 8.40m Sandy GRAVEL with minor silt. Dense; gravel, maxB=60mm; gravel and sand, as above.	SPT 7.48 m 15, 17, 14, 9, 9, 9; Nc = 41
	8.40m - 9.00m Fine to coarse GRAVEL with minor sand and silt. Dense; gravel and sand, as above.	
9.00	9.00m - 9.92m Sandy fine to coarse GRAVEL with minor silt. Dense; gravel, maxB=60mm; gravel and sand, as above.	SPT 9.00 m 11, 17, 12, 10, 10, 10; Nc = 42
	9.92m - 10.52m Organic SILT; dark brown. Firm; moist; dilatant; low plasticity; organics, amorphous, weak odour.	
10.52	10.52m - 10.80m Sandy fine to coarse GRAVEL with minor silt. Medium dense; gravel as before, maxB=60mm; gravel and sand, as above. 10.80m - 12.04m Fine to coarse GRAVEL with some sand and trace silt. Medium dense; gravel and sand, as above.	SPT 10.52 m 13, 10, 5, 3, 3, 4; Nc = 15
12.04	12.04m - 15.08m Sandy fine to coarse GRAVEL with minor silt. Dense; gravel, maxB=60mm; gravel and sand, as above.	SPT 12.04 m 7, 12, 9, 6, 8, 11; Nc = 34
13.56		SPT 13.56 m 10, 15, 16, 12, 12, 9; Nc = 49
	EOH @ 15.08 m	SPT 15.08 m 15, 15, 10, 11, 12, 13; Nc = 46

Samples / Sample Description

Backfill / Piezometer

Explanations:

- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)
- Small Disturbed Sample (SDS)
- Large Disturbed Sample (LDS)
- Standard Penetration Test (SPT)

Soil Types:

CLAY, SILT, SAND, GRAVEL, TOPSOIL, PEAT, FILL, NO RECOVERY *

Backfill:

Bentonite, Grout, Drill arisings or collapsed hole, Filter material

Remarks

1. Co-ordinates based on hand held GPS; approximate and subject to survey confirmation.
2. Elevations based on Harrison Grierson drawing 139119-SS03 rev. A (after November 2015 survey).
3. Moisture descriptions indicate moisture condition at time of logging; likely to altered from orignal condition by introduction of water during drilling, and drying after recovery.
4. SPT tests: undertaken in accordance with NZS4402; "Nc" indicates solid cone; total penetration 450mm unless stated otherwise; auto-trip hammer efficiency 86.3% (calibrated March 2016).
5. Strength terms are based on SPT tests where available; otherwise based on field description.
6. Core loss attributed to loss of loose/soft silt to fine gravel; core excess attributed to relaxation of drill arisings within core barrel during drilling/extraction.
7. Short hand explanation: "MaxB=50mm" indicates dimension of intermediate (B) axis of largest clast.
8. Piezometer: 50mmID machine-slotted PVC pipe; geotextile cloth fitted; backfill K2 sand for filter, and bentonite pellets for seal.

All dimensions in metres Scale 1:100	Contractor: McMillan Drilling Ltd.	Rig/Plant Used: Geoprobe Sonic (McMillan)	Driller: Kortni Morris	Logged by: AvD	Checked by: LAK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH BH 160070 400-447 MEMORIAL AVE BH.GPJ <<DrawingFile>> 23/03/2016 15:31 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

BORE HOLE LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to site plan	BH3

Job No.:	Start Date: 09-03-16 Finish Date: 10-03-16	Ground Level (m LINZ):	Co-Ordinates (Mt Pleasant NZGD2000):
160070		34.00	E 385,945.1 N 810,227.2

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	15.08 m	1 of 1

Type: SONIC114mm GEOPROBE 8140LC

Fluid & Water: 1

Legend

Geological Interpretation

Rock Description (where applicable): Weathering; ROCK NAME; colour; texture; fabric and orientation; strength (GEOLOGICAL UNIT). Defect description
Soil Description (where applicable): Fraction (MAJOR / minor); colour; bedding. Strength, moisture; plasticity; additional (GEOLOGICAL UNIT)

Geological Description (recovered as):

Soil description (where applicable): Fraction (MAJOR / minor); colour; bedding. Strength, moisture; plasticity; additional

(refer to separate Geotechnical and Geological Information sheet for further information)

Field Strength: Soil | Rock (VSVL, SL, LO, SFD, ST, VSLV, VSLW, W, M, S, VS, ES)

Elevation (m LINZ) / Depth (m)

Run	Geological Description	Elevation (m LINZ)	Tests
0.00	*SILT with some sand and trace rootlets; brown. "Firm"; dry to moist; dilatant; non-plastic; gravel, subrounded, strong, grey, sandstone* (TOPSOIL)	+33.60	
1.40	*Sandy fine to coarse GRAVEL with minor cobbles and trace to minor silt; brown to grey. Typically very dense (SPTN=50+), and locally medium dense (SPTN10-30) and dense (SPTN=30-50); moist; gravel/cobbles, subrounded, strong, grey, sandstone, maxB=120mm. Local thick beds of SAND and organic SILT* (YALDHURST MEMBER, SPRINGSTON FORMATION)		SPT 1.40 m 13, 14, 13, 11, 13, 11; Nc = 48
2.92	0.40m - 1.25m Silty fine to medium SAND; yellowish-brown. Moist; dilatant; non-plastic 1.25m - 3.25m Fine to coarse GRAVEL with minor sand and silt. Medium dense to dense; moist; gravel, subrounded to angular (inferred drilling breaks), strong, sandstone, maxB=50mm; sand, fine to medium. 3.25m - 4.44m Sandy fine to coarse GRAVEL with trace silt; light brownish-grey. Dry; gravel and sand, as above		SPT 2.92 m 4, 3, 5, 5, 4, 5; Nc = 19
4.44	4.44m - 4.64m CORE LOSS. 4.64m - 5.20m Sandy fine to coarse GRAVEL with minor silt; brownish-grey. Medium dense; moist; gravel and sand, as above, maxB=55mm. 5.20m - 5.96m Sandy fine to coarse GRAVEL with trace silt; light brownish-grey. Dry; gravel and sand, as above		SPT 4.44 m 7, 7, 5, 4, 4, 2; Nc = 15
5.96	5.96m - 7.48m Sandy fine to coarse GRAVEL with minor silt; brownish-grey. Very dense; moist; gravel and sand, as above.		SPT 5.96 m 19, 24, 33, 27/225mm; Nc > 50+
7.48	7.48m - 7.78m CORE LOSS. 7.78m - 9.00m Fine to coarse GRAVEL with minor sand and silt. Very dense; moist; gravel and sand, as above, maxB=50mm.		SPT 7.48 m 14, 17, 16, 14, 11, 11; Nc = 50+
9.00	9.00m - 10.25m Sandy fine to coarse GRAVEL with some silt. Very dense; moist; gravel and sand, as above.		SPT 9.00 m 14, 15, 20, 19, 18, 13; Nc = 50+
10.52	10.25m - 10.70m Fine to coarse GRAVEL with some sand and trace silt. Dense; gravel and sand, as above. 10.70m - 11.10m Silty SAND; greyish-brown. Moderately dense; sand, as above. 11.10m - 12.04m Sandy fine to coarse GRAVEL with minor silt; gravel and sand, as above.		SPT 10.52 m 8, 9, 10, 11, 7, 4; Nc = 32
12.04	12.04m - 12.34m CORE LOSS. 12.34m - 14.40m Sandy fine to coarse GRAVEL with minor silt; brownish-grey. Very dense; moist; gravel and sand, as above.		SPT 12.04 m 7, 10, 13, 14, 19, 20; Nc = 50+
13.56	14.40m - 15.08m Sandy fine to coarse GRAVEL with some silt; greyish-brown; gravel and sand, as above.	+18.92	SPT 13.56 m 9, 12, 14, 15, 16, 15; Nc = 50+
	EOH @ 15.08 m		SPT 15.08 m 15, 28, 30, 30/295mm; Nc > 50+

Depth (m): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Backfill / Piezometer

Explanations:

- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)
- Small Disturbed Sample (SDS)
- Large Disturbed Sample (LDS)
- Standard Penetration Test (SPT)

Soil Types: CLAY, SILT, SAND, GRAVEL, TOPSOIL, PEAT, FILL, NO RECOVERY *

Backfill: Bentonite, Grout, Drill arisings or collapsed hole, Filter material

Remarks

1. Co-ordinates based on hand held GPS; approximate and subject to survey confirmation.
2. Elevations based on Harrison Grierson drawing 139119-SS03 rev. A (after November 2015 survey).
3. Moisture descriptions indicate moisture condition at time of logging; likely to altered from orignal condition by introduction of water during drilling, and drying after recovery.
4. SPT tests: undertaken in accordance with NZS4402; "Nc" indicates solid cone; total penetration 450mm unless stated otherwise; auto-trip hammer efficiency 86.3% (calibrated March 2016).
5. Strength terms are based on SPT tests where available; otherwise based on field description.
6. Core loss attributed to loss of loose/soft silt to fine gravel; core excess attributed to relaxation of drill arisings within core barrel during drilling/extraction.
7. Short hand explanation: "MaxB=50mm" indicates dimension of intermediate (B) axis of largest clast.
8. Piezometer: 50mmID machine-slotted PVC pipe; geotextile cloth fitted; backfill K2 sand for filter, and bentonite pellets for seal.

All dimensions in metres Scale 1:100	Contractor: McMillan Drilling Ltd.	Rig/Plant Used: Geoprobe Sonic (McMillan)	Driller: Kortni Morris	Logged by: AvD	Checked by: LAK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH BH 160070 400-447 MEMORIAL AVE BH.GPJ <<DrawingFile>> 23/03/2016 15:31 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC01

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	15-03-16	15-03-16	35.50	E 385,721.1 N 810,641.4

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	0.20 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+35.50					50 100 150 200	3 6 9 12 15					
+35.30	0.20		SILT with some organics and minor sand; light brown. "Firm to stiff"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 2, 2, 3, 3, 5, 5, 7, 16, 18	
			EOH @ 0.20 m			0.50m					
	1										
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.20m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.50m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC02

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	15-03-16	15-03-16	36.20	E 385,661.0 N 810,612.9

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.95 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+36.20				
			SILT with some organics and minor sand; light brown. "Firm to stiff"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 1, 2, 2, 2, 3, 2, 2, 2, 2, 2, 2, 2, 3, 3, 2, 2, 2, 2, 1, 2, 3
+35.90	0.30			
			SILT with some sand and trace organics; light yellowish brown. "Stiff"; dry; non-plastic; friable; sand, fine; organics, fibrous rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)	
+35.30	0.90		0.85m Grades to "firm".	
	1		Silty fine SAND; light brown. Medium dense; dry; friable.	1.00m; No. 2 2, 3, 3, 3, 2, 2, 2, 1, 2, 2, 3, 3, 3, 2, 1, 1, 2, 1, 2, 2
+34.80	1.40		1.35m Grades to loose.	
			SILT with minor sand; grey with orange brown mottling (oxidisation). "Stiff"; moist; non-plastic; sand, fine.	
+34.50	1.70			
			Fine SAND with trace silt; light grey. Loose; dry; friable.	
	2			2.00m; No. 3 1, 1, 2, 2, 2, 3, 2, 3, 2, 1, 1, 4, 2, 1, 2, 3, 2, 1, 3, 20
+34.10	2.10			
			Interbedded silty fine SAND and sandy SILT; grey with brown and orange brown mottling (oxidisation). Medium dense/ "stiff"; moist; non-plastic.	
			2.45m Grades to loose to medium dense/ "firm to stiff".	
+33.25	2.95			
	3		EOH @ 2.95 m	3.00m

Soil Shear Strength (kPa): 50 100 150 200
Scala Penetrometer (blows / 50 mm): 3 6 9 12 15
Groundwater | Soil Moisture | Samples | Instrument/ Backfill

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 2.95m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 3.0m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

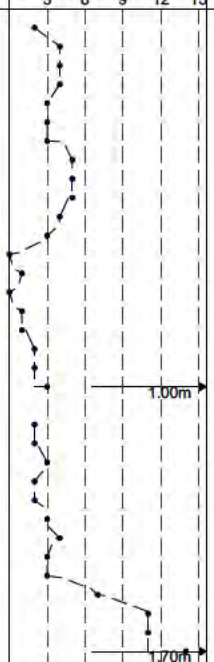
Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC03

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	15-03-16	15-03-16	36.20	E 385,669.2 N 810,548.5

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.60 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+36.20				
			SILT with some organics and minor sand; light brown. "Stiff"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 2, 4, 4, 4, 3, 3, 3, 5, 5, 5, 4, 3, 0, 1, 0, 1, 1, 2, 2, 3
+35.90	0.30			
			SILT with some sand and trace organics; light yellowish brown. 'Stiff to very stiff'; dry; non-plastic; sand, fine; organics are fibrous rootlets <1mm. (YALDHURST MEMBER, SPRINGSTON FORMATION) 0.45m Grades to include orange brown mottling (oxidisation). 0.60m Grades to "very soft". 0.75m Grades to "firm". 0.95m Grades to "stiff".	No. 2 2, 2, 2, 3, 2, 2, 3, 4, 3, 3, 7, 11, 11, 14
	1			
			1.50m Grades to "very stiff to hard".	
+34.60	1.60			
			EOH @ 1.60 m	
	2			
	3			

Legend: Soil Shear Strength (kPa) 50 100 150 200; Scala Penetrometer (blows / 50 mm) 3 6 9 12 15; Groundwater; Soil Moisture; Samples; Instrument/Backfill



Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.6m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.7m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC04

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	15-03-16	15-03-16	35.00	E 385,740.3 N 810,615.6

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	0.35 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+35.00					50 100 150 200	3 6 9 12 15					
			SILT with some organics, minor sand and trace gravel; brown. "Soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine; gravel, fine to medium, subrounded to rounded, greywacke. (TOPSOIL)							No. 1 1, 1, 3, 3, 2, 4, 3, 2, 8, 9, 12, 13, 15	
			0.10m Grades to "stiff".								
+34.65	0.35		EOH @ 0.35 m			0.65m					
	1										
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.35m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.65m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC05

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	15-03-16	15-03-16	35.00	E 385,770.1 N 810,608.8

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	0.30 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+35.00					50 100 150 200	3 6 9 12 15					
+34.80	0.20		SILT with some organics and minor sand; brown. "Firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 2, 4, 5, 3, 6, 6, 10, 6, 7, 11, 11, 13	
+34.70	0.30		0.10m Grades to "very stiff".								
			SILT with some sand; light yellowish brown. "Stiff to very stiff"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
			EOH @ 0.30 m			0.65m					
	1										
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.30m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.65m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC06

Job No.:	Start Date: 16-03-16 Finish Date: 16-03-16	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.60	E 385,800.4 N 810,563.2

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.70 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+35.60				
+35.40	0.20		SILT with some organics and minor sand; brown. " Soft to firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 1, 1, 1, 2, 1, 1, 3, 2, 2, 3, 2, 2, 2, 2, 2, 1, 1, 2, 1, 1
			SILT with some sand; light yellowish brown. "Soft"; dry; non-plastic; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)	
			0.30m Grades to "stiff".	
+35.00	0.60			
			Silty fine SAND; light greyish brown. Loose; dry; friable.	
	1			1.00m; No. 2 1, 1, 2, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 0, 1, 2, 1
			1.20m Grades to include some silt. 1.25m Grades to very loose to loose.	
			1.50m Grades to moist.	
			1.85m Grades to loose. 1.90m Grades to include orange brown mottling (oxidisation).	
+33.60	2.00			2.00m; No. 3 1, 0, 1, 0, 2, 1, 2, 2, 1, 2, 1, 2, 2, 8, 8, 10, 13, 20
			SILT with trace sand and trace clay; greyish brown with orange brown mottling (oxididation). "Very soft"; moist; low plasticity; sand, fine.	
			2.20m Grades to "firm".	
			2.50m Grades to non-plastic.	
+32.90	2.70		2.65m Grades to "very stiff".	
			EOH @ 2.70 m	2.90m
	3			

Soil Shear Strength (kPa): 50 100 150 200
Scala Penetrometer (blows / 50 mm): 3 6 9 12 15
Groundwater | Soil Moisture | Samples | Instrument/ Backfill

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.30m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.65m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC07

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	15-03-16	15-03-16	36.00	E 385,776.4 N 810,491.3

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.60 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+36.00					50 100 150 200	3 6 9 12 15					
+35.80	0.20		SILT with some organics and minor sand; brown. "Soft to firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 1, 2, 2, 2, 2, 1, 1, 2, 1, 1, 1, 2, 1, 1, 1, 1, 1, 1, 1	
+35.30	0.70		SILT with some sand and trace organics; light greyish brown. "Firm"; dry; non-plastic; friable; sand, fine; organics are fibrous rootlets <1mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
+34.80	1.20		Fine SAND with some silt; light greyish brown. Loose; dry; friable.			1.00m				No. 2 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 0, 1, 1, 1, 1, 2, 1, 2, 1, 2	
+34.40	1.60		SILT with minor sand; grey with orange brown mottling (oxidisation). "Soft"; moist; non-plastic; sand, fine. 1.40m Grades to "very soft".								
			EOH @ 1.60 m			2.00m				No. 3 2, 1, 1, 2, 1, 2, 1, 2, 1, 2, 7, 7, 10, 10, 13	
						2.75m					

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.6m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 2.7m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC08

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	16-03-16	16-03-16	35.20	E 385,680.9 N 810,301.1

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	0.85 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+35.20					50 100 150 200	3 6 9 12 15					
+35.00	0.20		SILT with some organics and minor sand; brown. "Firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 2, 1, 2, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 1, 4, 11, 11, 13	
+34.35	0.85		SILT with some sand and trace organics; light yellowish brown. "Stiff"; dry; non-plastic; friable; sand, fine; organics are fibrous rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
	1		EOH @ 0.85 m			1.00m					
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.8m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.0m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC09

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):	Sheet:
160070	15-03-16	15-03-16	33.90	E 385,873.4 N 810,611.7	1 of 1

Client:	Hole Depth:
Memorial Avenue Investments Ltd.	0.10 m

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+33.90					50 100 150 200	3 6 9 12 15					
+33.80	0.10		SILT with some organics and minor sand; brown. "Stiff to very stiff"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 2, 6, 7, 7, 6, 8, 16, 15	
			EOH @ 0.10 m			0.40m					
	1										
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.1m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.4m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

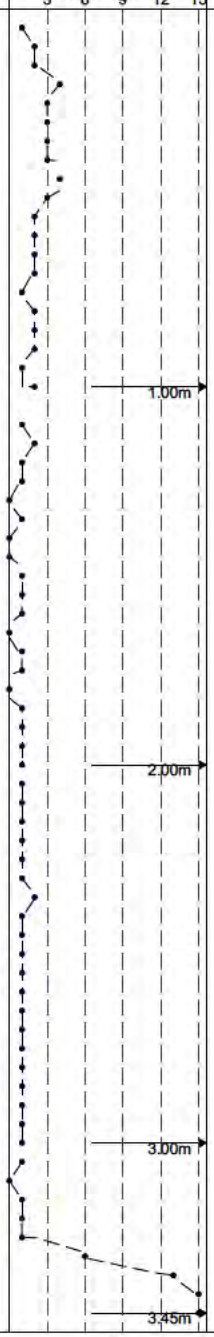
Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC10

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	15-03-16	15-03-16	35.90	E 385,827.1 N 810,504.1

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+35.90				
+35.70	0.20		SILT with some organics and minor sand; brown. "Firm to stiff"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 1, 2, 2, 4, 3, 3, 3, 3, 4, 3, 2, 2, 2, 2, 1, 2, 2, 2, 1, 2
			Sandy SILT; yellowish brown. "Stiff"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)	
			0.70m Grades to "firm".	
+35.00	0.90			
	1		Silty fine SAND; grey. Loose; moist.	No. 2 1, 1, 2, 1, 1, 0, 1, 0, 0, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1
			1.25m Grades to very loose.	
	2			No. 3 1, 1, 1, 1, 1, 1, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
			2.30m Grades to loose.	
+33.40	2.50			
+32.90	3 3.00		SILT with trace sand and trace clay; grey with orange brown mottling (oxidisation). "Soft"; moist; non-plastic; sand, fine.	No. 4 1, 0, 1, 1, 1, 6, 13, 15, 15
			EOH @ 3.00 m	

Legend: Soil Shear Strength (kPa) 50 100 150 200; Scala Penetrometer (blows / 50 mm) 3 6 9 12 15; Groundwater; Soil Moisture; Samples; Instrument/Backfill



Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[X] Target depth [ ] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 3.0m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 3.45m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC11

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	16-03-16	16-03-16	35.50	E 385,857.8 N 810,478.8

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.95 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+35.50				
+35.30	0.20		SILT with some organics and minor sand; brown. "Very soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 1, 0, 1, 1, 1, 0, 1, 1, 1, 1, 2, 1, 2, 1, 2, 1, 1, 1, 1, 1
			SILT with some sand and trace organics; light yellowish brown. "Very soft to soft"; dry; non-plastic; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)	
			0.50m Grades to "firm".	
+34.80	0.70		Silty fine SAND; light brown. Loose; dry; friable.	
	1			1.00m; No. 2 1, 1, 1, 2, 1, 2, 1, 2, 2, 2, 2, 1, 2, 1, 1, 1, 3, 2, 2, 2
+34.10	1.40		SILT with minor sand and trace clay; dark greyish brown with slight orange brown mottling (oxidisation). "Firm"; moist; low plasticity; sand, fine.	
+33.90	1.60		Fine SAND with trace silt; brown. Loose; moist.	
+33.55	1.95		EOH @ 1.95 m	2.00m; 2.15m; No. 3 7, 12, 20
	2			
	3			

Soil Shear Strength (kPa): 50 100 150 200

Scala Penetrometer (blows / 50 mm): 3 6 9 12 15

Groundwater | Soil Moisture | Samples | Instrument/ Backfill

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.95m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 2.15m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

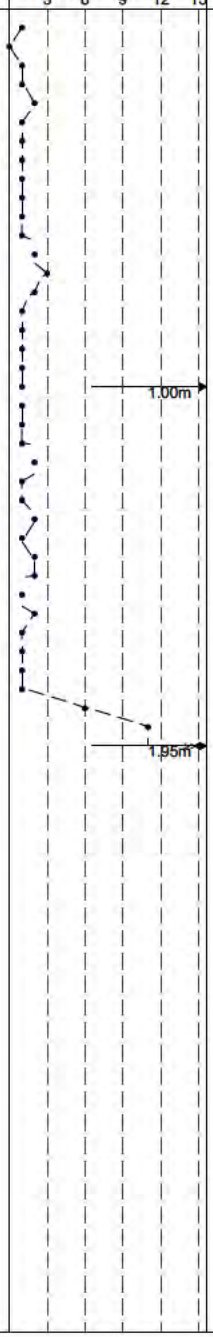
Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC12

Job No.:	Start Date: 16-03-16 Finish Date: 16-03-16	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.40	E 385,833.2 N 810,458.3

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.90 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+35.40				
+35.20	0.20		SILT with some organics and minor sand; brown. "Very soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 1, 0, 1, 1, 2, 1, 1, 1, 1, 1, 1, 1, 2, 3, 2, 1, 1, 1, 1, 1
			Sandy SILT with trace organics; light grey. "Soft to firm"; dry; non-plastic; sand, fine; organics are fibrous rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)	
			0.60m Grades to "stiff".	
			0.75m Grades to "soft to firm".	
	1			No. 2 1, 1, 1, 2, 1, 1, 2, 1, 2, 2, 1, 2, 1, 1, 1, 1, 6, 11, 20
			1.30m Grades to dark greyish brown with slight orange brown mottling (oxidisation). "Firm"; moist.	
+33.90	1.50			
			Fine SAND with minor to some silt; dark greyish brown. Loose; moist.	
			1.80m Grades to dense.	
+33.50	1.90			
	2		EOH @ 1.90 m	
	3			

Legend: Soil Shear Strength (kPa) 50 100 150 200; Scala Penetrometer (blows / 50 mm) 3 6 9 12 15; Groundwater; Soil Moisture; Samples; Instrument/Backfill



Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.9m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.95m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

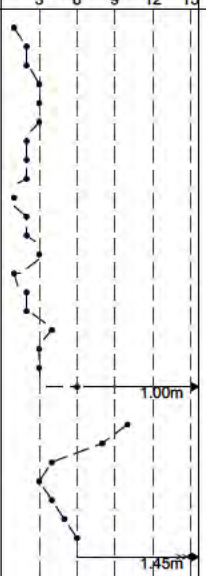
HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC13

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	16-03-16	16-03-16	35.00	E 385,781.2 N 810,354.0

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.00 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+35.00					50 100 150 200	3 6 9 12 15					
+34.80	0.20		SILT with some organics and minor sand; brown. "Firm to stiff"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 2, 2, 3, 3, 3, 2, 2, 2, 1, 2, 2, 3, 1, 2, 2, 4, 3, 3, 6	
+34.00	1.00		SILT with some sand to sandy SILT with trace organics; yellowish brown. "Firm to stiff"; dry; non-plastic; sand, fine; organics are fibrous rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)			1.00m				No. 2 12, 10, 8, 4, 3, 4, 5, 6, 20	
			EOH @ 1.00 m			1.45m					



Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.0m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.45m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC14

Job No.:	Start Date: 16-03-16 Finish Date: 16-03-16	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.70	E 385,776.2 N 810,273.2

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.00 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+34.70			SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)		50 100 150 200	3 6 9 12 15				No. 1 1, 1, 1, 2, 3, 2, 2, 2, 1, 2, 2, 2, 1, 2, 2, 2, 2, 2, 3, 2	
+34.40	0.30		0.15m Grades to "stiff".								
			Fine SAND with some silt and trace organics; light yellowish brown. Loose; dry; non-plastic; friable; organics are fibrous rootlets <1mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
+33.70	1.00		0.90m Grades to medium dense.			1.00m				No. 2 10, 13, 15	
			EOH @ 1.00 m			1.15m					
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.0m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.15m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC15

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	16-03-16	16-03-16	33.80	E 385,950.2 N 810,548.9

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	0.20 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+33.80					50 100 150 200	3 6 9 12 15					
+33.60	0.20		SILT with some organics and minor sand; brown. "Firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 2, 1, 3, 2, 3, 2, 12, 6, 10, 11, 11	
			EOH @ 0.20 m			0.60m					
	1										
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.2m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.6m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC16

Job No.:	Start Date: 16-03-16 Finish Date: 16-03-16	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.10	E 385,934.2 N 810,466.2

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.40 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+35.10					50 100 150 200	3 6 9 12 15					
+34.95	0.15		SILT with some organics and minor sand; brown. "Firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 2, 1, 1, 2, 1, 1, 2, 2, 1, 1, 1, 2, 2, 1, 1, 1, 1, 1	
+34.50	0.60		SILT with some sand and trace organics; light yellowish brown. "Firm"; dry; non-plastic; sand, fine; organics, rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
+33.70	1.40		Silty fine SAND to sandy SILT; light grey. Loose/ "firm"; dry; non-plastic; friable; sand, fine.			1.00m				No. 2 1, 1, 2, 1, 1, 1, 2, 1, 1, 2, 1, 2, 1, 1, 2, 1, 1, 1, 1, 1	
+32.70	2.40		Interbedded SILT with some sand and silty fine SAND; grey. Loose/ "firm"; moist; non-plastic; sand, fine. 1.80m Grades to include orange brown mottling (oxidisation).			2.00m				No. 3 1, 1, 2, 1, 2, 1, 2, 2, 3, 14, 15	
			EOH @ 2.40 m			2.55m					

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 2.4m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 2.55m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC17

Job No.:	Start Date: 16-03-16 Finish Date: 16-03-16	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.70	E 385,879.6 N 810,376.2

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.75 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+34.70					50 100 150 200	3 6 9 12 15					
			SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 1, 1, 2, 3, 2, 2, 2, 3, 4, 3, 4, 4, 2, 2, 2, 3, 3, 2	
+34.45	0.25		0.20m Grades to "firm".								
			SILT with some sand and trace rootlets< 1mm; light yellowish grey. "Stiff"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
+33.80	0.90										
	1		Silty fine SAND to sandy SILT; light grey with orange brown mottling (oxidisation). Medium dense / "stiff"; dry; non-plastic; friable.			1.00m				No. 2 3, 4, 5, 3, 1, 2, 1, 1, 3, 4, 3, 2, 2, 7, 10, 10, 15	
			1.20m Grades to loose/ "firm".								
			1.40m Grades to medium dense/ "stiff".								
			1.65m Grades to dense/ "very stiff".								
+32.95	1.75										
			EOH @ 1.75 m			1.85m					
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 2.4m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 2.55m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC18

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	16-03-16	16-03-16	34.50	E 385,877.0 N 810,307.8

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	0.90 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+34.50					50 100 150 200	3 6 9 12 15					
+34.30	0.20		SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 1, 1, 2, 1, 1, 1, 2, 1, 2, 3, 5, 5, 6, 7, 10, 14, 12	
+33.80	0.70		Fine SAND with trace silt and trace organics; light brown. "Firm"; dry; non-plastic; organics are fibrous rootlets <1mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
+33.60	0.90		Silty fine SAND to sandy SILT; light brown. Medium dense to dense/ "stiff to very stiff"; dry; non-plastic; friable. 0.70m Grades to dense to very dense/ "very stiff to stiff".			1.00m					
	1		EOH @ 0.90 m								
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.9m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.95m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC19

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	17-03-16	17-03-16	34.30	E 385,996.8 N 810,391.8

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.75 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+34.30					50 100 150 200	3 6 9 12 15					
+34.10	0.20		SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 1, 3, 3, 2, 2, 2, 2, 1, 1, 1, 1, 1, 1, 1, 2, 2, 1, 2	
			0.15m Grades to "stiff".								
			Fine SAND with trace silt and trace organics <1mm; light grey. Medium dense; organics are fibrous rootlets <1mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
			0.45m Grades to loose.								
	1					1.00m				No. 2 2, 3, 2, 3, 3, 3, 3, 2, 2, 3, 2, 2, 1, 1, 10, 13, 14	
			1.05m Grades to medium dense.								
			1.30m Grades to include some silt; slight orange brown mottling (oxidisation).								
			1.60m Grades to loose.								
+32.55	1.75										
			EOH @ 1.75 m			1.85m					
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.75m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.85m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC20

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	17-03-16	17-03-16	34.10	E 385,984.5 N 810,327.5

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.75 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+34.10				
+33.90	0.20		SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 1, 1, 2, 3, 2, 2, 2, 3, 2, 3, 2, 4, 4, 6, 7, 7, 4, 4, 5, 4
			0.10m Grades to "stiff".	
			SILT with minor sand and trace organics; brown. "Stiff"; dry; non-plastic; friable; sand, fine; organics are fibrous rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)	
			0.70m Grades to some sand; light yellowish brown.	
+33.10	1.00		0.90m - 1.00m Grades to include llight orange brown mottling (oxidisation).	
			Fine to medium SAND with trace silt; greyish brown. Loose; dry; friable.	No. 2 2, 2, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 7, 11, 13, 15
			1.40m Grades to very loose.	
+32.60	1.50			
			Interbedded fine to medium SAND and SILT; brown. Loose/soft; moist; non-plastic.	
+32.35	1.75			
			EOH @ 1.75 m	
	2			
	3			

Legend

Soil Shear Strength (kPa): 50 100 150 200

Scala Penetrometer (blows / 50 mm): 3 6 9 12 15

1.00m

1.90m

Groundwater | Soil Moisture | Samples | Instrument/ Backfill

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.75m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.90m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC21

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	17-03-16	17-03-16	33.90	E 385,898.4 N 810,261.1

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	0.80 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+33.90					50 100 150 200	3 6 9 12 15					
+33.70	0.20		SILT with some organics and minor sand; brown. "Firm to stiff"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 2, 2, 3, 1, 2, 3, 2, 2, 4, 5, 3, 3, 2, 3, 3, 14, 15	
+33.20	0.70		SILT with some sand and trace organics; light yellowish brown. "Stiff"; dry; non-plastic; friable; sand, fine; organics are fibrous rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
+33.10	0.80		Fine SAND with trace silt; light yellowish brown. Medium dense; dry; friable.			0.90m					
	1		EOH @ 0.80 m								
	2										
	3										

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 0.8m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 0.9m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC22

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	17-03-16	17-03-16	33.70	E 386,011.6 N 810,196.9

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.60 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+33.70					50 100 150 200	3 6 9 12 15					
+33.50	0.20		SILT with some organics and minor sand; brown. "Soft to firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 1, 2, 2, 3, 2, 2, 3, 5, 6, 6, 5, 4, 2, 2, 1, 2, 1, 4	
+33.10	0.60		SILT with some sand and minor organics; brown. "Stiff"; dry; non-plastic; friable; sand, fine; organics are amorphous and fibrous rootlets <2mm. (YALDHURST MEMBER, SPRINGSTON FORMATION)								
+32.70	1.00		Fine SAND with trace to minor silt; light brown. Medium dense; dry; friable. 0.80m Grades to loose. 0.95m Grades to medium dense.			1.00m				No. 2 9, 4, 3, 3, 3, 3, 3, 3, 0, 1, 1, 1, 3, 6, 4, 9, 4, 5, 7, 8	
+32.10	1.60		Silty fine SAND to sandy SILT; light greyish brown with orange brown mottling. Medium dense/ "stiff". 1.00m Locally very dense/"hard". 1.40m Grades to very loose/ "very soft to soft".								
			EOH @ 1.60 m			2.00m 2.70m				No. 3 7, 5, 8, 5, 4, 3, 3, 2, 3, 4, 7, 10, 12, 20	

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.6m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.7m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC23

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	31-03-16	31-03-16	36.50	E 385,740.0 N 810,536.6

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.50 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Soil Shear Strength (kPa)	Scala Penetrometer (blows / 50 mm)	Groundwater	Soil Moisture	Samples	Tests	Instrument/ Backfill
+36.50					50 100 150 200	3 6 9 12 15					
+36.35	0.15		SILT with some organics and minor sand; dark brown. "Soft to firm"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							No. 1 1, 1, 2, 1, 1, 1, 1, 2, 1, 2, 2, 2, 1, 2, 2, 1, 2, 1, 2, 2	
	1		Fine SAND with some silt; light greyish brown. Loose; dry; friable. (YALDHURST MEMBER, SPRINGSTON FORMATION)			1.00m				No. 2 2, 1, 1, 2, 1, 1, 1, 2, 1, 2, 2, 1, 1, 2, 2, 1, 1, 1, 1, 1	
+34.70	1.80		1.40m Grades to moist.								
	2		SILT with trace clay and sand; light grey with orange brown mottling. "Soft"; moist; low plasticity; sand, fine.			2.00m				No. 3 1, 1, 0, 1, 1, 1, 1, 1, 1, 7, 15	
+34.40	2.10		Silty fine SAND; dark grey with orange brown mottling. Very loose to loose; moist.								
+34.00	2.50		2.45m Grades to dense.			2.55m					
	3		EOH @ 2.50 m								

Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 2.5m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 2.55m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

HAND AUGER LOG

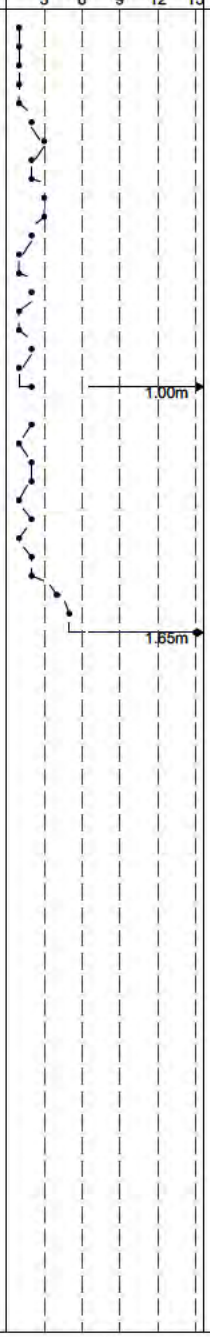
Project:	Location:	Hole position:	No.:
400-447 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	HA/SC24

Job No.:	Start Date:	Finish Date:	Ground Level (m LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070	31-03-16	31-03-16	36.40	E 385,602.8 N 810,591.9

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	1.60 m	1 of 1

Elevation (m LINZ)	Depth (m)	Geological Unit	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Tests
+36.40				
+36.25	0.15		SILT with some organics and minor sand; dark brown. "Soft"; dry; non-plastic; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)	No. 1 1, 1, 1, 1, 1, 2, 3, 2, 2, 3, 3, 2, 1, 1, 2, 1, 1, 2, 1, 2
			SILT with some sand; light yellowish brown. "Soft"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)	
+35.90	0.50		0.25m Grades to "stiff".	
			Fine SAND with some silt; light brown. Medium dense; dry.	
			0.60m Grades to loose.	
	1			No. 2 2, 2, 1, 2, 2, 1, 2, 1, 2, 2, 4, 5, 15
+35.10	1.30			
			Sandy SILT; brown with orange brown mottling. "Firm"; moist; non-plastic; sand, fine.	
			1.50m Grades to "very stiff"; moist.	
+34.80	1.60			
			EOH @ 1.60 m	
	2			
	3			

Legend: Soil Shear Strength (kPa) 50 100 150 200; Scala Penetrometer (blows / 50 mm) 3 6 9 12 15; Groundwater; Soil Moisture; Samples; Instrument/Backfill



Explanations:

- Scala Penetrometer - blows/50mm
- Permeability Test
- Schmidt Hammer
- Insitu Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Small Disturbed Sample
- Large Disturbed Sample
- U100 Undisturbed Sample
- Water Strike (1st, 2nd ...)
- Water Rise (1st, 2nd ...) and Rise Time (minutes)

Soil Moisture:
D = dry; M = moist; W = wet; S = saturated

GROUNDWATER

- [X] Not Encountered
- [ ] Slow Seep (depth)
- [ ] Rapid Inflow (depth)

HOLE TERMINATED DUE TO:
[ ] Target depth [X] Refusal [ ] Collapse

Remarks

1. Co-ordinates are approximate (handheld GPS) and subject to survey confirmation.
2. Strength terms for cohesive soils are inferred from correlated Scala penetrometer test results (and indicated in quotation marks).
3. Hand auger terminated at 1.6m bgl due to practical refusal on gravels.
4. Scala penetrometer test terminated at 1.65m bgl due to practical refusal on gravels.

All dimensions in metres Scale 1:20	Contractor: N/A	Rig/Plant Used: Hand Auger 70 mm	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH HA 160070 400-447 MEMORIAL AVE HA_SC.GPJ <<DrawingFile>> 07/04/2016 10:49 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP01

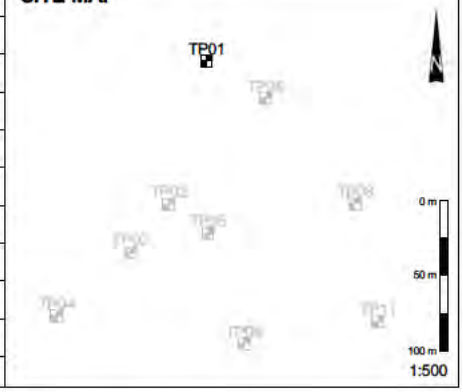
Job No.:	Start Date: 07-03-16 Finish Date: 07-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.9m	E 385,714.1 N 810,700.5

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.80 m	1 of 1

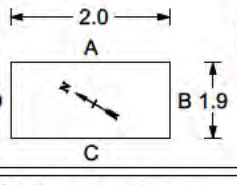
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.90									
+34.70	0.20	SILT with some organics, minor sand and trace gravel; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine; gravel, fine to medium, subrounded, greywacke. (TOPSOIL)							
	1	Cobbly fine to coarse GRAVEL with some sand and minor silt; greyish brown. Dry; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=90mm; sand, fine to medium. (YALDHURST MEMBER, SPRINGSTON FORMATION) 0.70m Grades to dark greyish brown. Moist.							
	2								
+32.10	2.80								
	3	EOH @ 2.80 m							
	4								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[ ] Target depth [X] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket. Changed to 1.00m bucket at 2.00m bgl.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:42	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP02

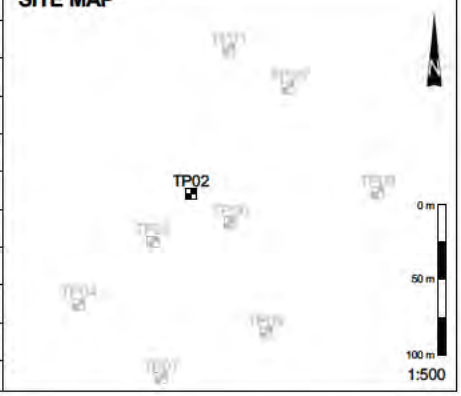
Job No.:	Start Date: 07-03-16 Finish Date: 07-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.4m	E 385,688.9 N 810,605.6

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

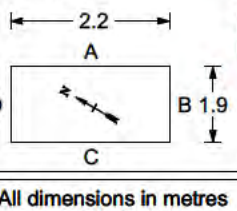
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.40									
+35.30	0.10	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)						CBR SAMPLE TAKEN (SILT).	
+34.90	0.50	SILT with some sand and trace gravel; light brown. "Soft"; dry; non-plastic; friable; sand, fine; gravel, fine to coarse, subrounded to rounded, greywacke. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
+34.40	1.00	Fine to coarse GRAVEL with some sand and minor cobbles; grey. Dry; well graded; gravel, subrounded to rounded, greywacke; loosely to moderately packed; Bmax=95mm; sand, fine to medium. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
+33.10	2.30	1.00m - 2.10m Grades to sandy fine to coarse GRAVEL with some cobbles; grey with orange brown staining (oxidation). 1.50m - 1.60m Grades to orange brown (oxidation).							
+32.40	3.00	Silty fine SAND to sandy SILT; greyish brown. Silt is "Soft to firm"; moist; non-plastic.							
		Sandy fine to coarse GRAVEL with some cobbles; grey with orange brown staining (oxidation). Moist; well graded; gravel, subrounded to rounded, greywacke; loosely to moderately packed; sand, fine.							
		EOH @ 3.00 m							

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Silt sample taken for CBR testing.
5. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP03

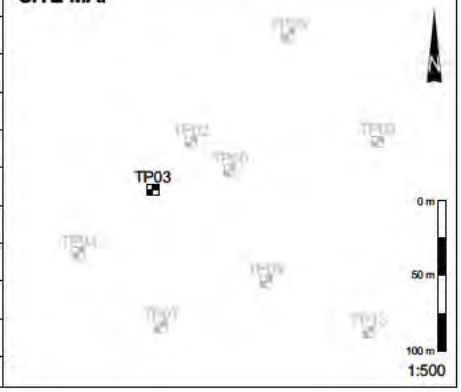
Job No.:	Start Date: 07-03-16 Finish Date: 07-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		36.2m	E 385,663.6 N 810,574.1

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.90 m	1 of 1

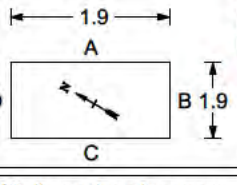
Elevation (m LINZ) +36.20	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+36.00	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
	1	SILT with some sand and trace rootlets <2mm; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
+34.70	1.50								
	2	Sandy fine to coarse GRAVEL with some cobbles, trace rootlets <2mm and trace silt; greyish brown. Dry; well graded; gravel, subrounded to rounded, greywacke; Bmax=100mm; loosely to moderately packed; sand, fine to medium.							
+33.30	2.90								
	3	EOH @ 2.90 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[ ] Target depth [X] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP04

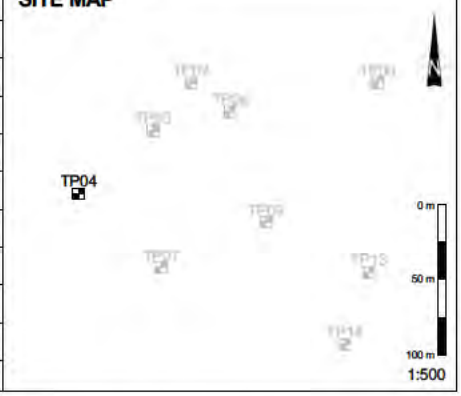
Job No.:	Start Date: 07-03-16 Finish Date: 07-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		36.5m	E 385,614.7 N 810,532.3

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

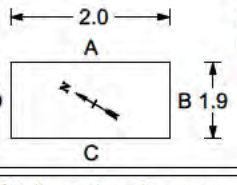
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+36.50									
+36.40	0.10	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
	1	SILT with some sand and trace rootlets <2mm; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION) 1.00m Grades to moist.							
	2								
+34.30	2.20	2.10m Grades to grey with orange brown staining (oxidation).							
		Sandy fine to coarse GRAVEL with some cobbles; dark greyish brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=95mm; sand, fine to medium.							
+33.50	3 3.00	EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP05

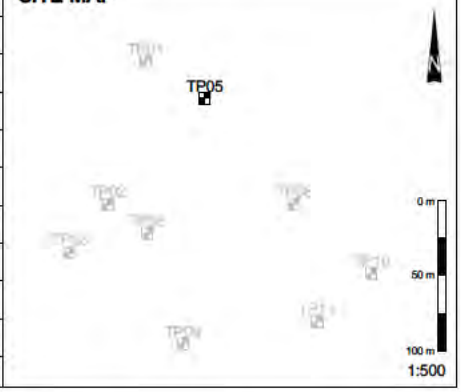
Job No.:	Start Date: 07-03-16 Finish Date: 07-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.9m	E 385,753.1 N 810,675.9

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.90 m	1 of 1

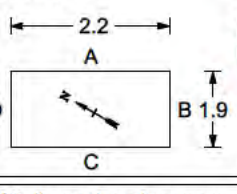
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.90									
+34.80	0.10	SILT with some organics, minor sand and trace gravel; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine; gravel, fine to medium, subrounded, greywacke. (TOPSOIL)							
	1	Cobbly fine to coarse GRAVEL with some sand and minor silt; greyish brown. Dry; well graded; gravel, subrounded to rounded, greywacke; loosely packed; Bmax=95mm; sand, fine to medium. (YALDHURST MEMBER, SPRINGSTON FORMATION) 0.15m - 0.80m Interbedded with 50mm bands of fine to medium gravel. 0.80m - 2.85m Grades to sandy fine to coarse GRAVEL with some cobbles; dark greyish brown.							
	2								
+32.00	2.90								
	3	EOH @ 2.90 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[ ] Target depth [X] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket. Changed to 1.00m bucket at 1.00m bgl.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP06

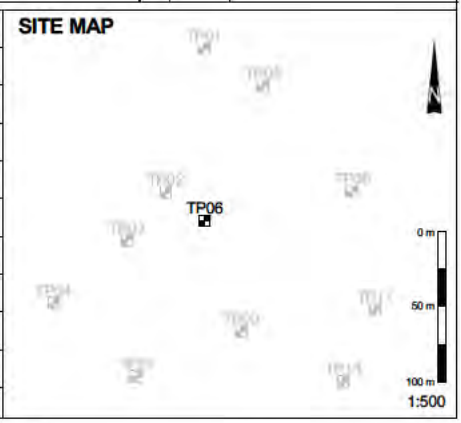
Job No.:	Start Date: 07-03-16 Finish Date: 07-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.3m	E 385,714.8 N 810,586.6

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

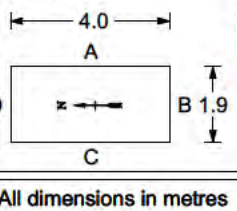
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.30									
+35.10	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.65	0.65	SILT with some sand; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
	1	Fine to coarse GRAVEL with some sand, trace to minor cobble and silt; dark greyish brown. Moist; well graded; gravel, subrounded to rounded, greywacke; loosely to moderately packed; Bmax=100mm; sand, fine to medium.							
	2	0.70m - 2.00m Interbedded with 50mm bands of silty/sand fine to medium gravel. 2.00m - 2.95m Grades to sandy fine to coarse GRAVEL with some cobbles and minor silt. 2.10m - 2.30m Orange brown stained (oxidised) layer.							
+32.30	3 3.00								
		EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Service trench encountered in top 500mm. Moved 2.00m North.
4. Partial collapse occured in gravel layers.
5. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP07

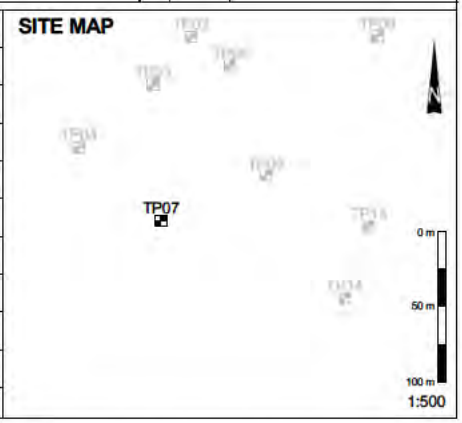
Job No.:	Start Date: 07-03-16 Finish Date: 07-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		36.3m	E 385,669.2 N 810,483.8

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

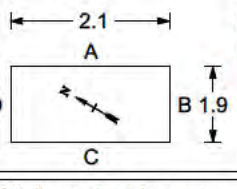
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+36.30									
+36.10	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
	1	SILT with some sand; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
+34.30	2.00								
	2	Sandy fine to coarse GRAVEL with some cobbles and minor silt; light brown. Dry; well graded; gravel, subrounded to rounded, greywacke; moderately packed; sand, fine to medium.							
+33.30	3.00								
	3	EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists

Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP08

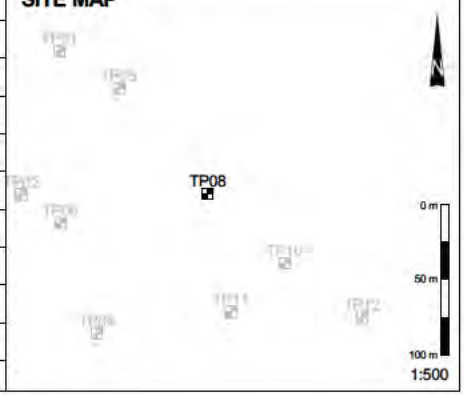
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.8m	E 385,812.1 N 810,606.0

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

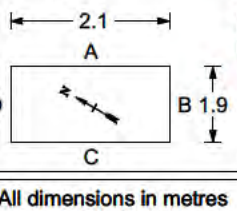
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.80									
+34.70	0.10	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
	1	Silty / sandy fine to coarse GRAVEL; brown. Dry; well graded; gravel, subrounded to rounded, greywacke; loosely packed; Bmax=100mm; sand, fine to medium. (YALDHURST MEMBER, SPRINGSTON FORMATION) 0.40m - 1.20m Grades to cobbly fine to coarse GRAVEL with some sand and minor silt; greyish brown. Moderately packed. 1.20m - 2.95m Grades to sandy fine to coarse GRAVEL with some cobbles; brown.							
	2								
+31.80	3 3.00								
		EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZLB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP09

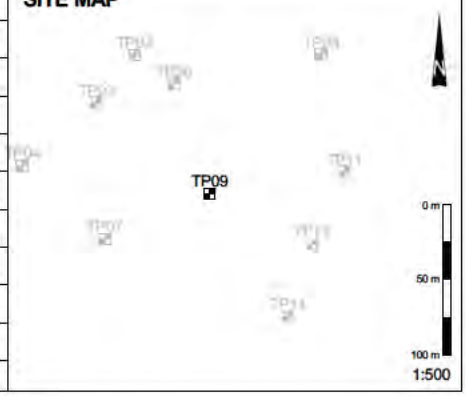
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.2m	E 385,738.6 N 810,513.7

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.60 m	1 of 1

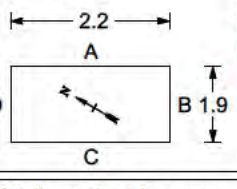
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.20									
+35.00	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
	1	SILT with some sand and trace rootlets <2mm; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION) 0.90m - 2.60m Grades to sandy SILT to silty fine SAND; greyish brown. "Firm to stiff"; moist; non-plastic.							
	2	2.60m - 3.00m Grades to SILT with some sand with trace organics (large tree root); greyish brown with orange brown mottling (oxidation). "Firm to stiff" 3.00m - 3.50m Grades to sandy SILT to silty fine SAND; greyish brown. "Firm to stiff"; moist; non-plastic.							
	3								
+31.70	3.50								
+31.60	3.60	Sandy fine to coarse GRAVEL with some cobbles and minor silt; brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed.							
	4	EOH @ 3.60 m							
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP10

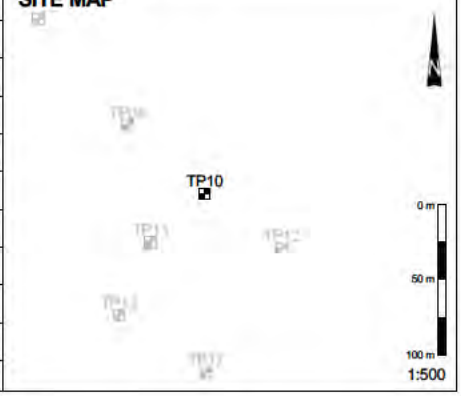
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.8m	E 385,863.0 N 810,560.3

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.30 m	1 of 1

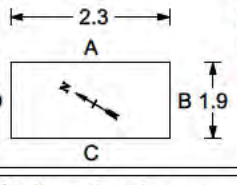
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.80									
+35.60	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.80	1.00	SILT with some sand; light brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
	1	Fine SAND with trace silt and rootlets <2mm; grey with slight orange brown mottling (oxidation). Dry; loosely packed. 1.50m Grades to moist.							
	2								
+33.50	2.30	Sandy SILT; grey with orange brown mottling (oxidation). "Firm"; dry; non-plastic.							
	3								
+32.60	3.20								
+32.50	3.30	Sandy fine to coarse GRAVEL with some cobbles; dark grey with orange brown staining (oxidation). Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax= ~110mm; sand, fine to medium.							
	4	EOH @ 3.30 m							
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP11

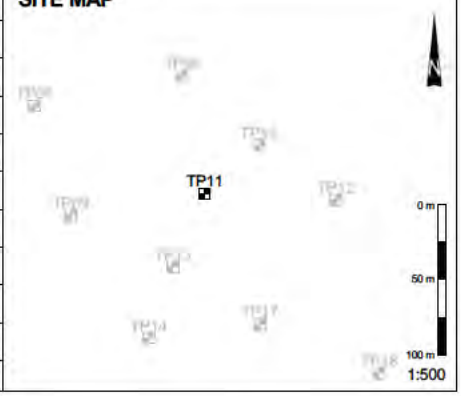
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.8m	E 385,827.3 N 810,528.2

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

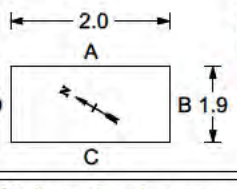
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.80									
+35.70	0.10	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.80	1.00	SILT with some sand; light yellowish brown. "Soft to firm"; dry; non-plastic; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
+33.90	1.90	Fine SAND with trace silt; light greyish brown. Dry; friable; loosely packed.							
+32.90	2.90	SILT with some sand; brownish grey. "Firm"; moist; non-plastic; sand, fine.							
+32.80	3.00	Sandy fine to coarse GRAVEL with some cobbles and minor silt; brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; sand, fine to medium.							
		EOH @ 3.00 m							

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP12

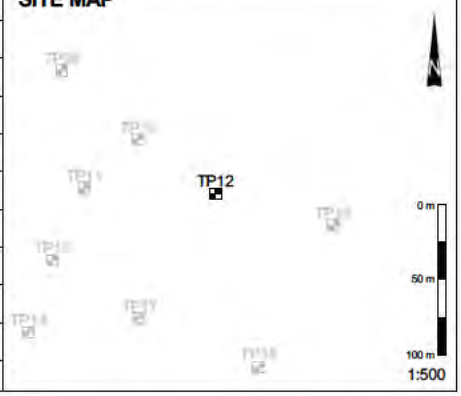
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.4m	E 385,914.0 N 810,524.3

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

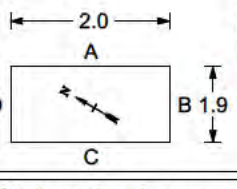
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.40									
+35.25	0.15	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.50	0.90	SILT with some sand; yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
+33.50	1.90	Silty fine to medium SAND with trace rootlets <1mm; greyish brown. Moist; sand, fine; loosely packed.							
+33.00	2.40	Sandy SILT; brownish grey with orange brown mottling (oxidisation). "Firm"; moist; non-plastic; sand, fine.							
+32.40	3.00	Sandy fine to coarse GRAVEL with some cobbles and minor silt; greyish brown with slight orange brown staining (oxidation). Moist; well graded; gravel, subrounded to rounded, greywacke; loosely to moderately packed; Bmax=150mm; sand, fine to medium.							
		EOH @ 3.00 m							

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP13

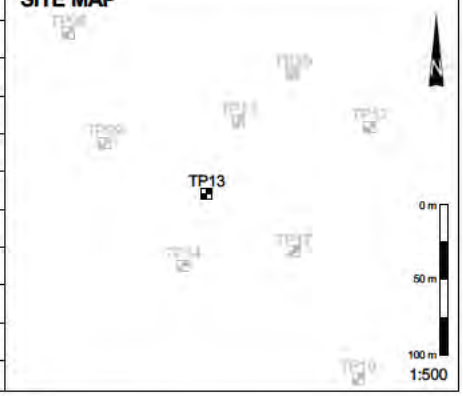
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.7m	E 385,806.3 N 810,480.3

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.90 m	1 of 1

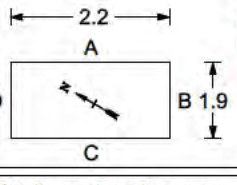
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.70									
+35.40	0.30	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.70	1.00	SILT with some sand and trace rootlets <2mm; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)						CBR SAMPLE TAKEN (SILT).	
		Silty fine SAND; greyish brown. Moist; loosely packed.							
+33.60	2.10								
		Sandy fine to coarse GRAVEL with minor cobbles and minor silt; brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=95mm; sand, fine to medium.							
+32.80	2.90								
	3	EOH @ 2.90 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[ ] Target depth [X] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Silt sample taken for CBR testing.
5. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP14

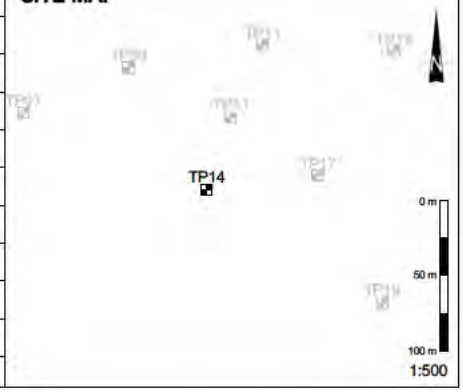
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.4m	E 385,790.4 N 810,432.7

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

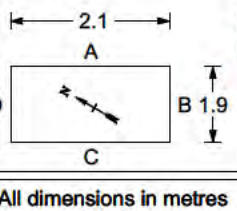
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.40									
+35.10	0.30	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
	1	SILT with some sand and trace rootlets <2mm; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION) 1.10m - 2.30m Grades to sandy SILT to silty fine SAND; dark greyish brown. "Firm to stiff"; moist.							
	2								
+33.10	2.30	Sandy fine to coarse GRAVEL withsome cobbles and minor silt; brownish grey with orange brown staining (oxidisation). Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=90mm; sand, fine to medium.							
+32.40	3 3.00	EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP15

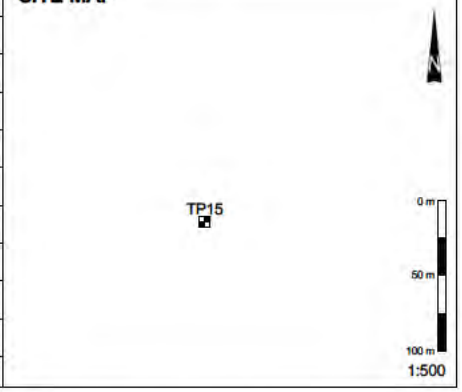
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.9m	E 385,745.1 N 810,285.1

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

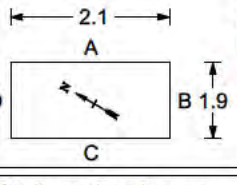
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.90									
+34.80	0.10	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.00	0.90	SILT with some sand and trace rootlets <2mm; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)						CBR SAMPLE TAKEN (SILT).	
+33.70	1.20	Silty fine to medium SAND to sandy SILT; light yellowish brown. Silt is "Soft to firm"; dry; non-plastic; sand, loosely packed.							
	1	Sandy fine to coarse GRAVEL with some cobbles and minor silt; brown. Moist; well graded; gravel, subrounded to rounded, greywacke; loosely packed; Bmax=100mm; sand, fine to medium.							
	2	2.70m - 2.70m Sandy fine to medium GRAVEL; orange brown stained (oxidised).							
+31.90	3 3.00	EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Silt sample taken for CBR testing.
5. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP16

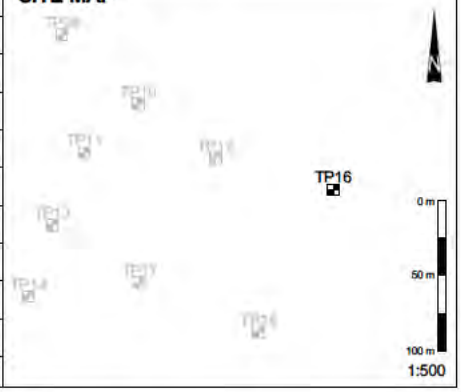
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.0m	E 385,991.9 N 810,503.4

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.90 m	1 of 1

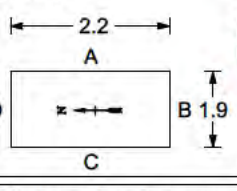
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.00									
+33.80	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
	1	Fine to coarse GRAVEL with some sand, cobbles and minor silt; light greyish brown. Dry; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=100mm; sand, fine to medium. (YALDHURST MEMBER, SPRINGSTON FORMATION)						CBR SAMPLE TAKEN (GRAVEL).	
		0.70m - 2.50m Grades to sandy fine to coarse GRAVEL; brown. Moist.							
	2								
+31.50	2.50								
+31.35	2.65	Fine SAND with minor silt; brown. Moist; loosely packed.							
+31.10	2.90								
	3	Sandy fine to coarse GRAVEL with some cobbles and minor silt; brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=100mm; sand, fine to medium.							
		EOH @ 2.90 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[ ] Target depth [X] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Gravel sample taken for CBR testing.
5. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP17

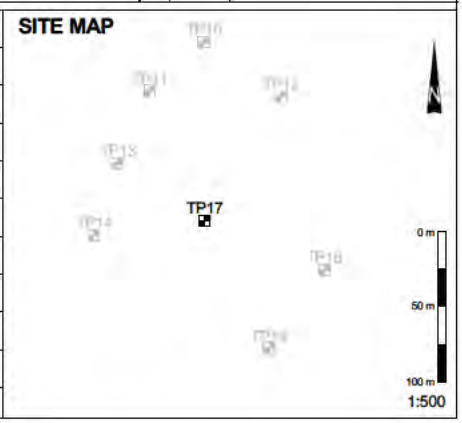
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		35.0m	E 385,863.8 N 810,442.2

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

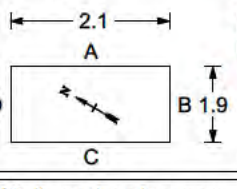
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+35.00									
+34.80	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.30	0.70	SILT with some sand; yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
	1	Silty fine SAND with trace rootlets <2mm; brown. Moist; loosely packed.							
+33.25	1.75								
	2	Sandy fine to coarse GRAVEL with some cobbles and minor silt; greyish brown. Moist; well graded; gravel, subrounded to rounded, greywacke; Bmax=100mm; sand, fine to medium. 2.40m - 2.50m Orange brown staining (oxidisation).							
+32.00	3 3.00	EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP18

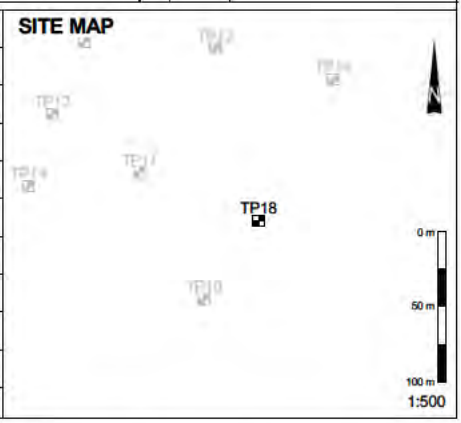
Job No.:	Start Date: 08-03-16 Finish Date: 08-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.7m	E 385,942.6 N 810,409.7

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.10 m	1 of 1

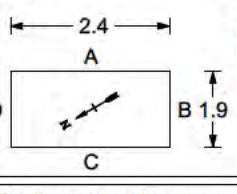
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.70									
+34.50	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.30	0.40	SILT with some sand; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
	1	Fine SAND with trace silt; light greyish brown. Dry; friable; loosely packed. 0.90m Grades to fine SAND with some silt to silty fine SAND; greyish brown with orange brown mottling (oxidisation). Moist.							
	2								
+32.40	2.30	Sandy fine to coarse GRAVEL with some cobbles and minor silt; greyish brown with orange brown mottling (oxidisation). Moist; well graded; gravel, subrounded to rounded, greywacke; Bmax=100mm; sand, fine to medium.							
+31.60	3 3.10	EOH @ 3.10 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP19

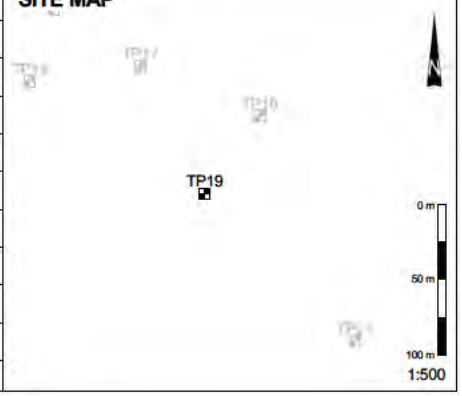
Job No.:	Start Date: 09-03-16 Finish Date: 09-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.4m	E 385,906.3 N 810,358.0

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

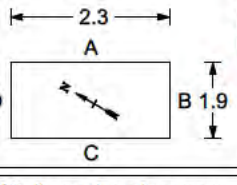
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.40									
+34.20	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+34.00	0.40	SILT with some sand; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)						CBR SAMPLE TAKEN (SILT).	
	1	Fine SAND with trace silt; greyish brown. Dry; friable; loosely packed.							
+32.80	1.60	0.70m - 1.60m Fine SAND with some silt tending to silty fine SAND.							
	2	Sandy fine to coarse GRAVEL with some cobbles and minor silt; greyish brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=90mm; sand, fine to medium. 1.80m - 1.85m Orange brown staining (oxidisation); gravel, fine to medium.							
+31.40	3.00	EOH @ 3.00 m							
	4								
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Silt sample taken for CBR testing.
5. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP20

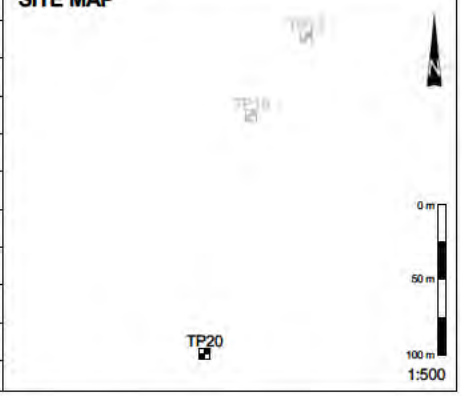
Job No.:	Start Date: 09-03-16 Finish Date: 09-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		34.0m	E 385,875.6 N 810,200.5

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	3.00 m	1 of 1

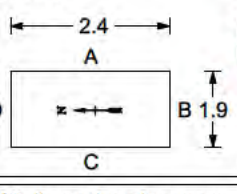
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength (Soil / Rock)	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+34.00									
+33.85	0.15	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+33.60	0.40	SILT with some sand; light yellowish brown. "Soft to firm"; dry; non-plastic; friable; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)						CBR SAMPLE TAKEN (SILT).	
	1	Fine SAND with some silt; greyish brown. Dry; friable; loosely packed. 1.00m Grades to moist.							
+32.00	2.00								
+31.90	2.10	Fine to medium GRAVEL with minor sand; orange brown staining (oxidisation). Moist; poorly graded; gravel, subrounded to rounded, greywacke; sand, fine to medium.							
+31.50	2.50	Fine SAND with some silt; greyish brown. Dry; friable; loosely packed.							
+31.00	3.00	Sandy fine to coarse GRAVEL with minor cobbles and trace silt; greyish brown with orange brown staining (oxidisation). Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=75mm; sand, fine to medium.							
	4	EOH @ 3.00 m							
	5								

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[X] Target depth [ ] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Silt sample taken for CBR testing.
5. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LIB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

RILEY CONSULTANTS
Engineers and Geologists
Riley Consultants Limited
395 Madras Street, Christchurch
Christchurch 8013
Tel: 03 3794402
Fax: 03 3794403

INSPECTION PIT LOG

Project:	Location:	Hole position:	No.:
400-477 Memorial Avenue	Burnside, Christchurch	Refer to Site Plan.	TP21

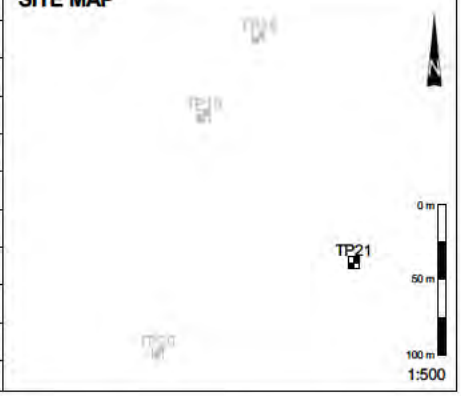
Job No.:	Start Date: 09-03-16 Finish Date: 09-03-16	Ground Level (LINZ):	Co-Ordinates (NZGD2000 - Mt Pleasant):
160070		33.9m	E 386,005.5 N 810,260.9

Client:	Hole Depth:	Sheet:
Memorial Avenue Investments Ltd.	2.90 m	1 of 1

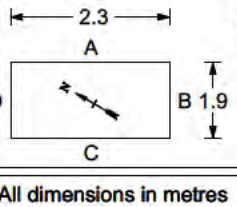
Elevation (m LINZ)	Depth (m)	Geological Description (refer to separate Geotechnical and Geological Information sheet for further information)	Legend	Weathering	Field Strength Soil / Rock	Defect Description (type, orientation, spacing, roughness, persistence aperture, infilling etc)	Groundwater	Samples	Tests
+33.90									
+33.70	0.20	SILT with some organics and minor sand; brown. "Soft"; dry; non-plastic; friable; organics are amorphous with fibrous rootlets <2mm; sand, fine. (TOPSOIL)							
+33.20	0.70	SILT with some sand; light yellowish brown. "Soft to firm"; dry; friable; non-plastic; sand, fine. (YALDHURST MEMBER, SPRINGSTON FORMATION)							
+32.60	1.30	Silty fine SAND; grey with orange brown mottling. Dry; friable; loosely packed.							
+32.40	1.50	1.10m - 1.30m Grades to fine SAND with trace silt. Moist.							
+32.10	1.80	Sandy fine to coarse GRAVEL with minor silt and trace cobbles; greyish brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=95mm; sand, fine to medium.							
+31.00	2.90	Silty fine SAND; grey with orange brown mottling. Dry; friable; loosely packed.							
		Sandy fine to coarse GRAVEL with some cobbles and minor silt; greyish brown. Moist; well graded; gravel, subrounded to rounded, greywacke; moderately packed; Bmax=95mm; sand, fine to medium.							
		EOH @ 2.90 m							

SKETCH/PHOTOS:

SITE MAP



Shoring/Support:
Stability:



SAMPLES AND TESTING
- Grab Sample (Disturbed)
- Bulk Sample (Disturbed)
- "U100" Sample (Undisturbed)
- Water Inflow
- Clegg Hammer; test repetitions (IV)
- Insitu Vane Shear Strength (kPa) P=Peak, R=Residual, UTP=Unable to penetrate
- Scala Penetrometer - blows/50mm

GROUNDWATER [X] None
[ ] Slow Seep (depth)
[ ] Rapid Inflow (depth)

PIT TERMINATED DUE TO
[ ] Target depth [X] Collapse
[ ] Refusal [ ] Machine limit

Remarks
1. Co-ordinates are approximate and subject to survey confirmation.
2. Test pit dug using a 16 tonne, Hitachi Zaxis 160 LC excavator using a 1.80m wide flat bucket.
3. Partial collapse occured in gravel layers.
4. Strength terms for cohesive soils based on field description and indicated in quotation marks.

All dimensions in metres Scale 1:50	Contractor: Taggart Earthmoving Ltd	Rig/Plant Used: Machine Excavator (16 tonne)	Logged by: CFC	Checked by: LK

RILEY AGS 3_1 NZ LB 13.GLB Log RILEY CHCH TP 160070 MEMORIAL AVENUE.GPJ <<DrawingFile>> 18/03/2016 15:17 Produced by gINT Professional

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	0.00m
		Date:	7 March 2016	**To (m):**	3.22m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH1	**Interval (m):**	3.22m
		Box No.	1 and 2 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	3.22m
		Date:	7 March 2016	**To (m):**	7.48m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH1	**Interval (m):**	4.26m
		Box No.	3 and 4 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	7.48m
		Date:	8 March 2016	**To (m):**	12.34m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH1	**Interval (m):**	4.86m
		Box No.	5 and 6 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	12.34
		Date:	8 March 2016	**To (m):**	15.08m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH1	**Interval (m):**	2.74m
		Box No.	7 and 8 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	0.00m
		Date:	8 March 2016	**To (m):**	3.72m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH2	**Interval (m):**	3.72m
		Box No.	1 and 2 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	3.72m
		Date:	8 March 2016	**To (m):**	7.78m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH2	**Interval (m):**	4.06m
		Box No.	3 and 4 of 8		

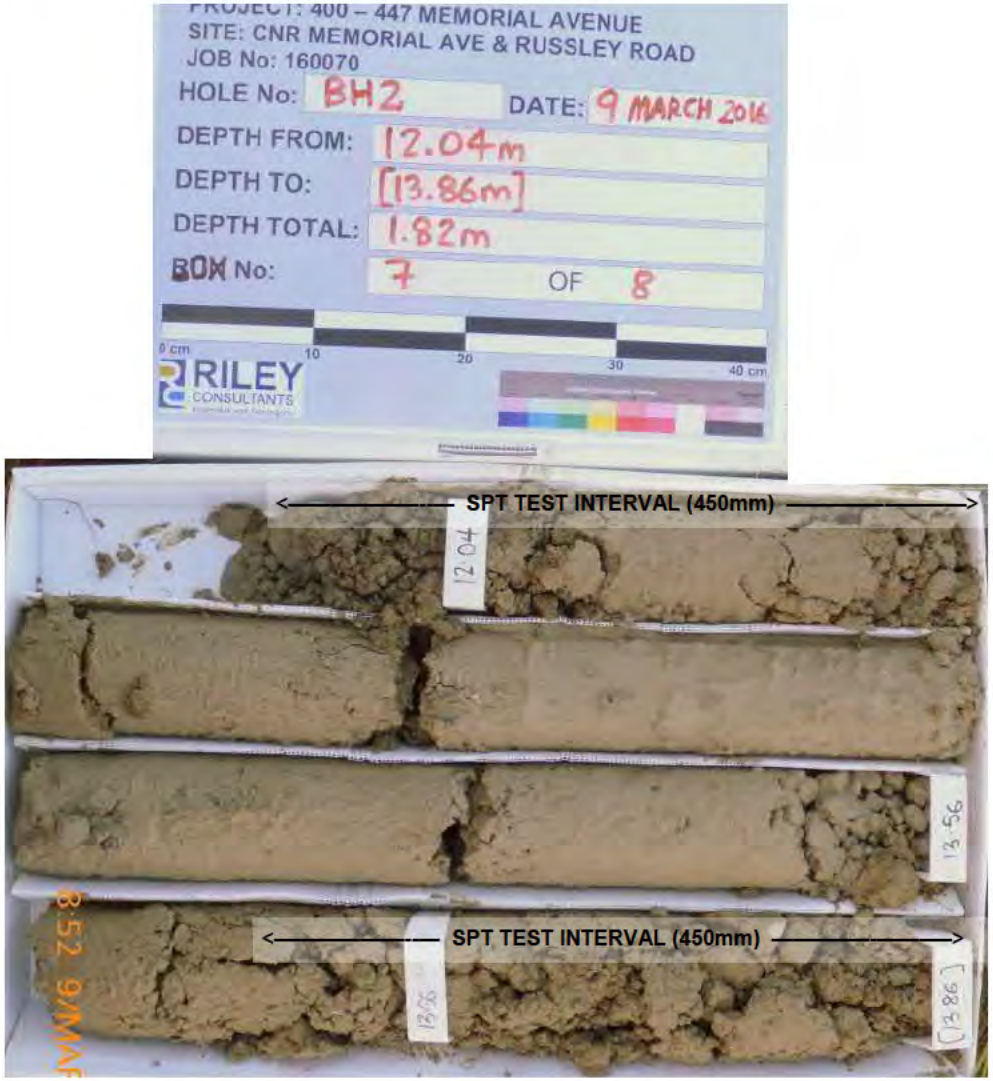
RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	7.78m
		Date:	8 March 2016	**To (m):**	12.04m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH2	**Interval (m):**	4.26m
		Box No.	5 and 6 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016



Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	12.04
		Date:	9 March 2016	**To (m):**	15.08m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH2	**Interval (m):**	3.04m
		Box No.	7 and 8 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	0.00m
		Date:	8 March 2016	**To (m):**	3.84m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH3	**Interval (m):**	3.84m
		Box No.	1 and 2 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	3.84m
		Date:	8 March 2016	**To (m):**	7.78m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH3	**Interval (m):**	3.94m
		Box No.	3 and 4 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	7.78m
		Date:	9 March 2016	**To (m):**	12.04m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH3	**Interval (m):**	4.26m
		Box No.	5 and 6 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

Client / Project:	MEMORIAL AVE. INVESTMENT LTD. 400-447 MEMORIAL AVE GEOTECH ASSESSMENT	**Project No.:**	160070	**From (m):**	12.04
		Date:	10 March 2016	**To (m):**	15.08m
Notes:	1. Drill method: Sonic (76mm core); potable water added at beginning of each run. 2. SPT test intervals are as indicated; solid cone used 3. "OS" = over sample; result of drill/extraction-induced relaxation of drill arising's. 4. Depth markers indicate start/end of run in metres; square brackets indicate run split between two boxes.	**Hole ID:**	BH3	**Interval (m):**	3.04m
		Box No.	7 and 8 of 8		

RILEY CONSULTANTS

Date printed 10 March 2016

APPENDIX B
Drawings

LEGEND

BH1	BOREHOLE LOCATION (RILEY)
HA/SC01	HAND AUGER HOLE/SCALA PENETROMETER TEST LOCATION (RILEY)
TP1	TEST PIT LOCATION (RILEY)
IT1	DOUBLE RING INFILTROMETER TEST LOCATION (RILEY)
BH1A	BOREHOLE PERMEABILITY TEST LOCATION (RILEY)
A–TP1	TEST PIT LOCATION (AURECON)

DEPTH TO GRAVEL CONTOURS

- 0.0 – 1.0m bgl
- 1.0 – 2.0m bgl
- 2.0 – 3.0m bgl
- 3.0 – 4.0m bgl
- HIGH DENSITY AREA BOUNDARY
- PROPERTY BOUNDARY
- 34.0 MAJOR CONTOURS (2m)
- 34.4 MINOR CONTOURS (0.5m)

NOTES:-

1. PHOTO SOURCED FROM CHRISTCHURCH POST EARTHQUAKE AERIAL PHOTOS (24TH FEB 2011), LINZ.
2. PARCELS SOURCED FROM QUICKMAP CANTERBURY (OCT 2012).
3. CO–ORDINATES IN Mt. PLEASANT CIRCUIT 2000.

25 0 50 100m
SCALE 1:2500

REV	DESCRIPTION	BY	DATE
1	REPORT ISSUE	HN	13.4.16
0	FIRST ISSUE		

DESIGN CFC | CHECKED CFC
DRAWN HN | CHECKED CFC
DATE DRAWN 4 APRIL 2016

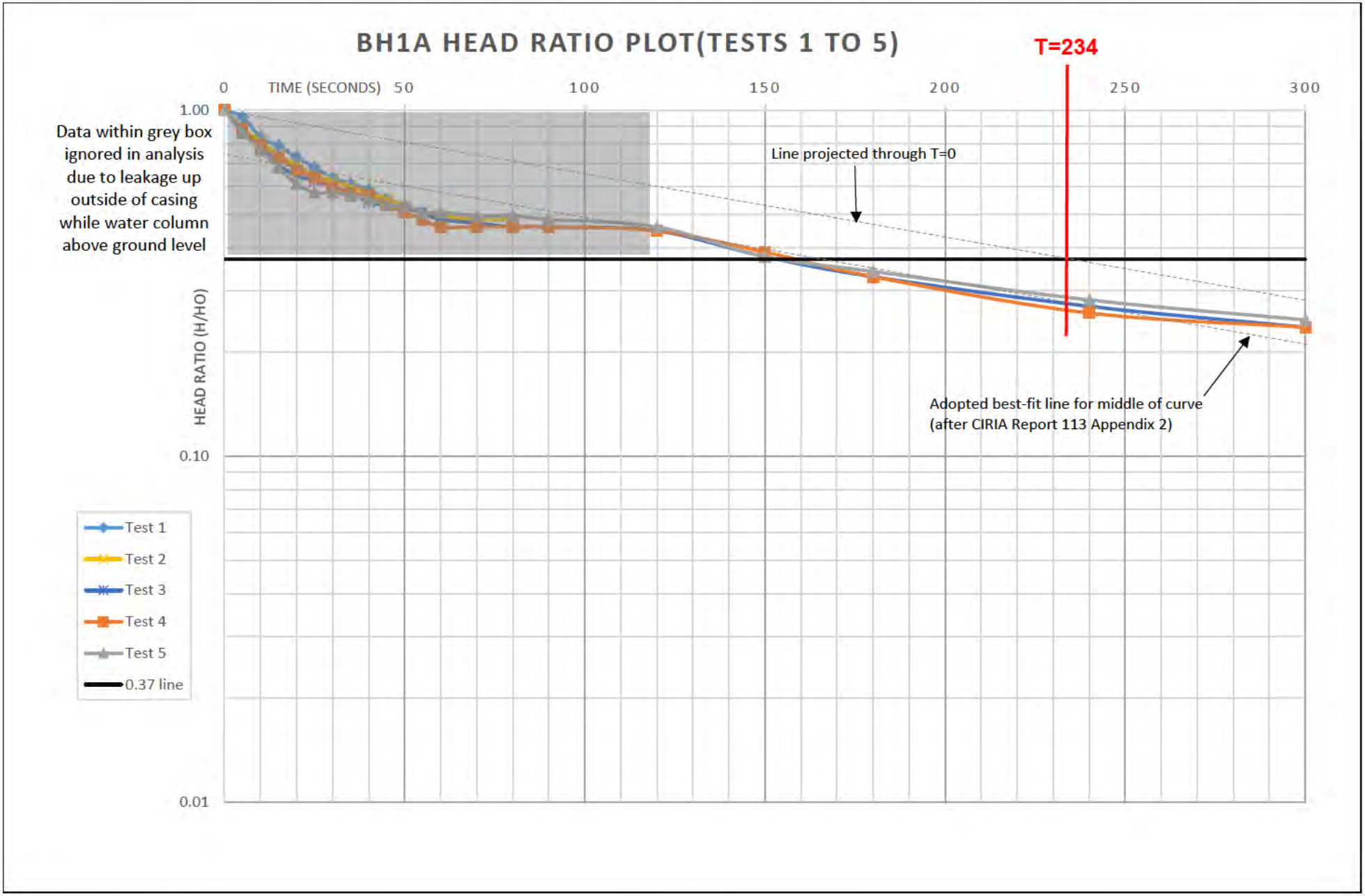
APPROVED FOR ISSUE: B CLOUGH
DATE: 13/04/16

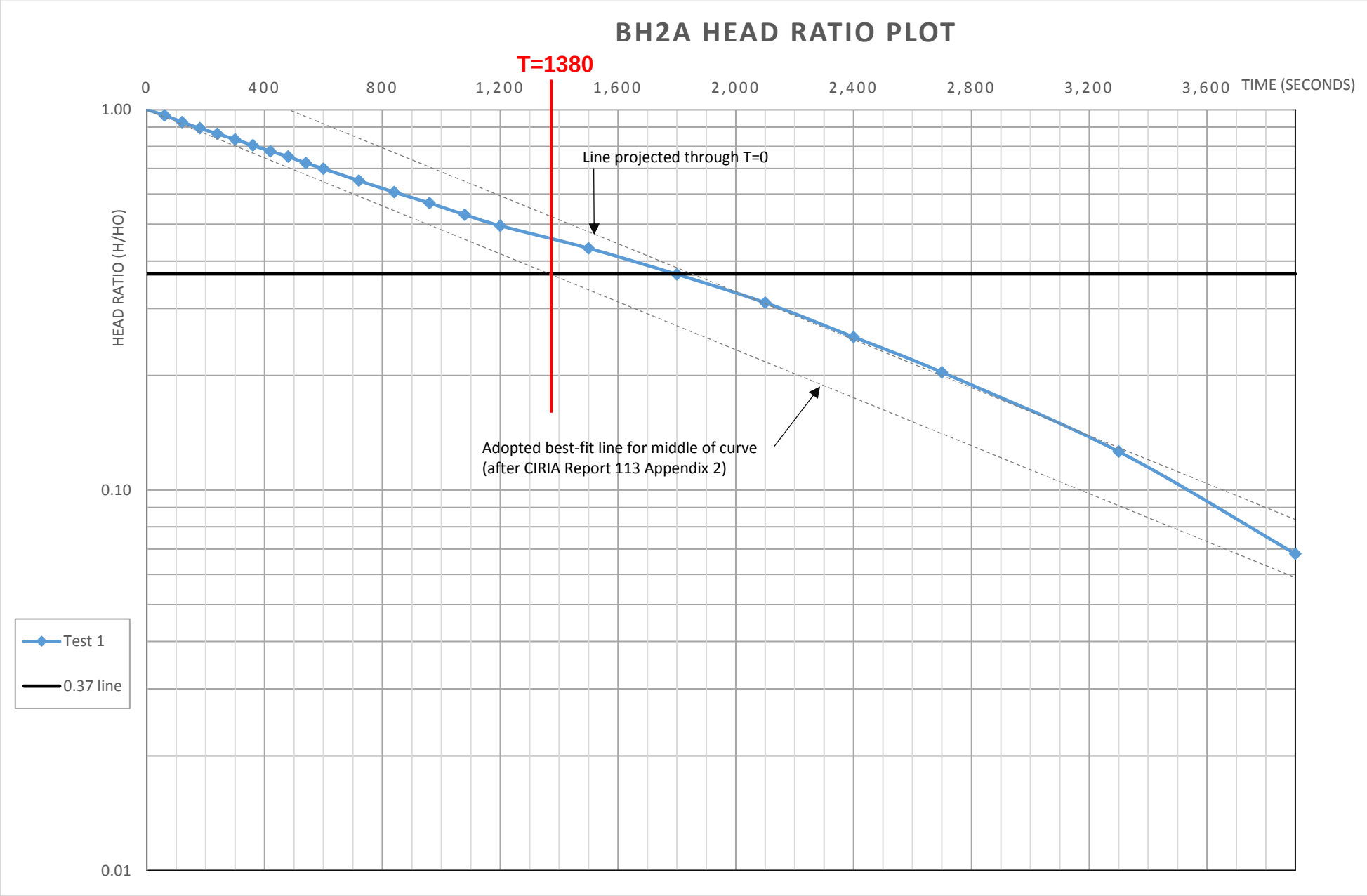
RILEY CONSULTANTS
P.O.BOX 4355 CHRISTCHURCH
TEL. 03–3794402
FAX. 03–3794403

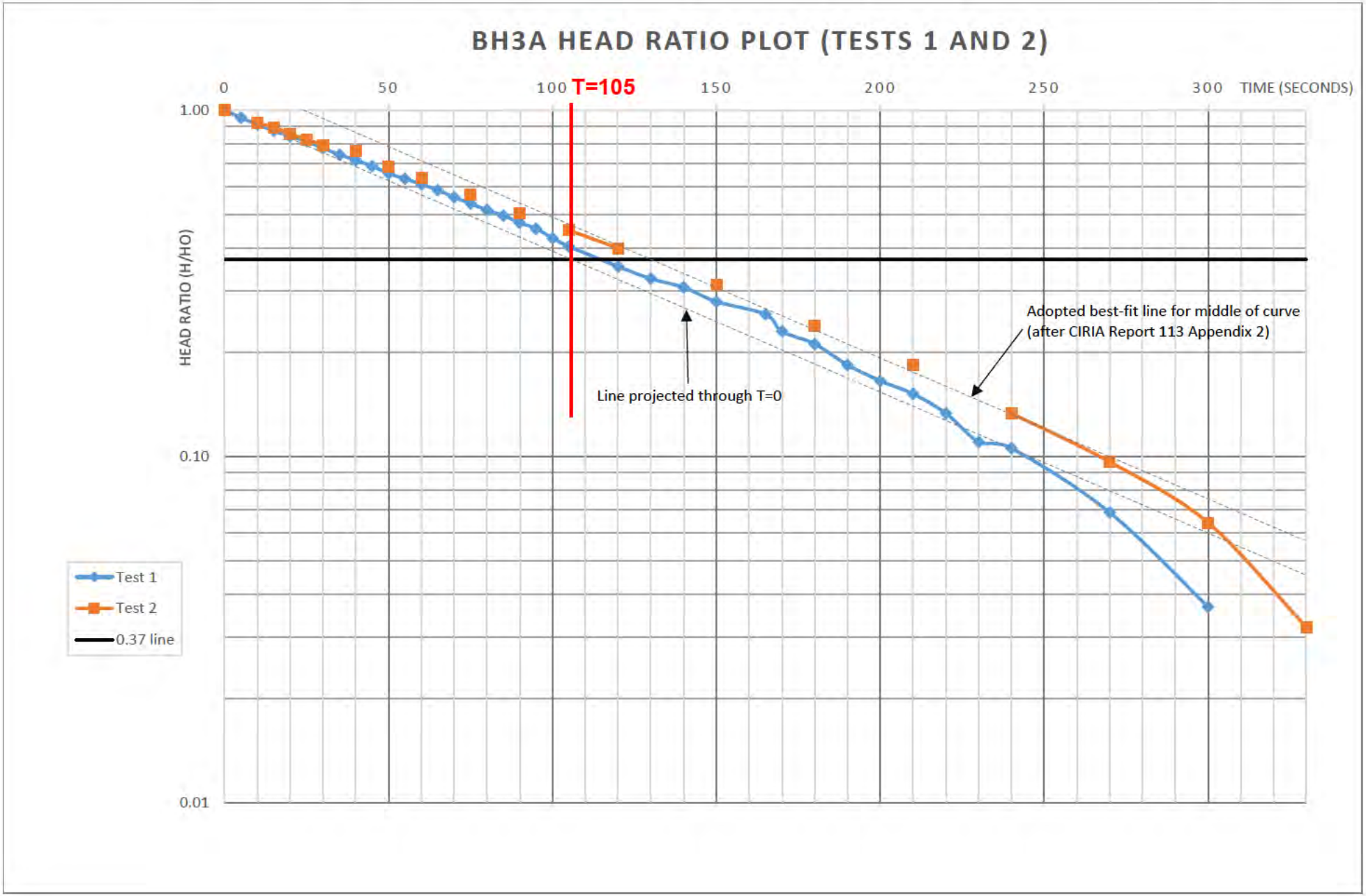
TITLE
MEMORIAL AVENUE INVESTMENTS LTD
400-447 MEMORIAL AVENUE, CHRISTCHURCH
GEOTECHNICAL SITE LOCATION PLAN

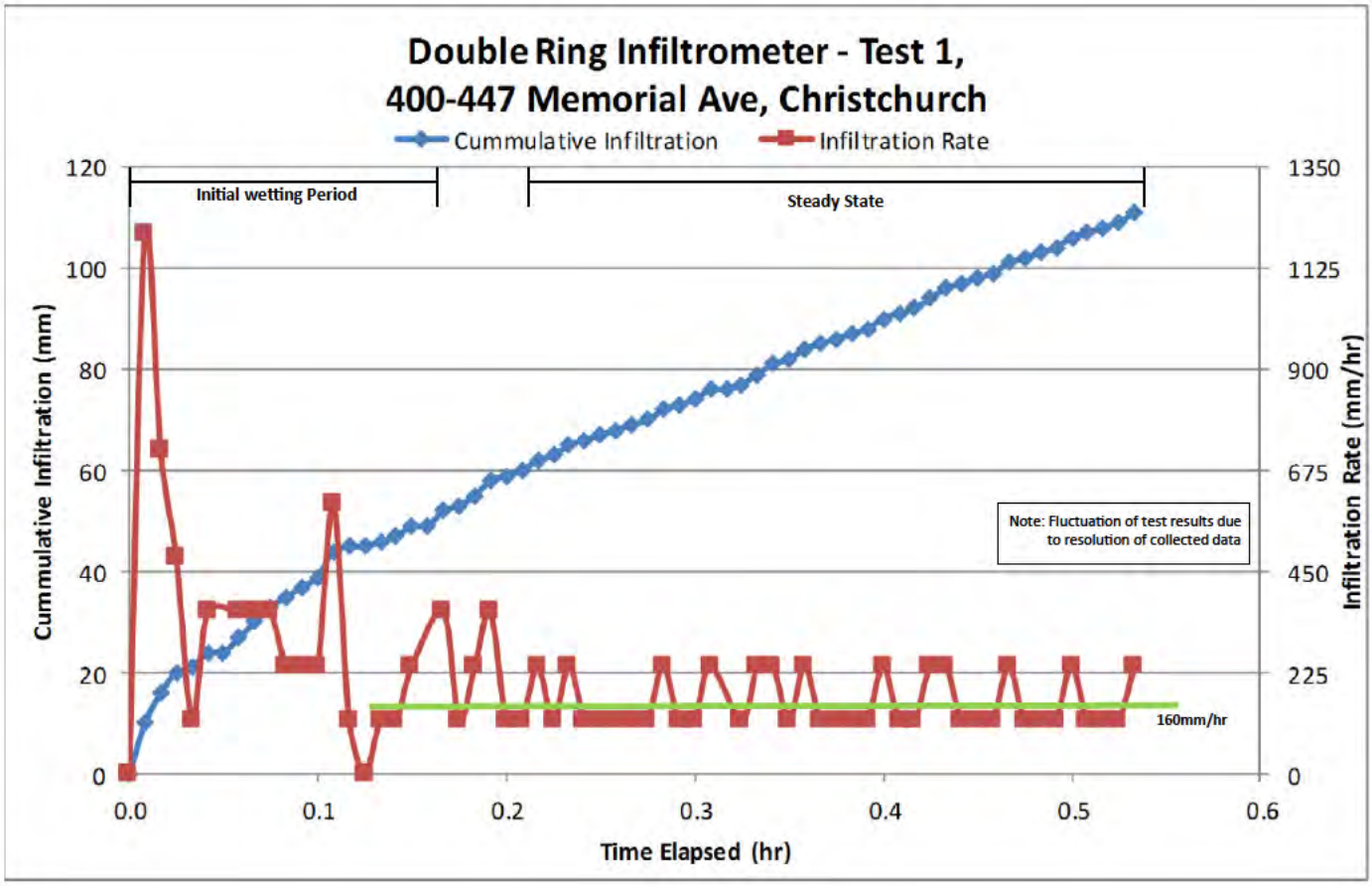
CADFILE 160070–1
SCALES (A3) AS SHOWN
ACENZ
DRAWING No. 160070-1
REV. 1

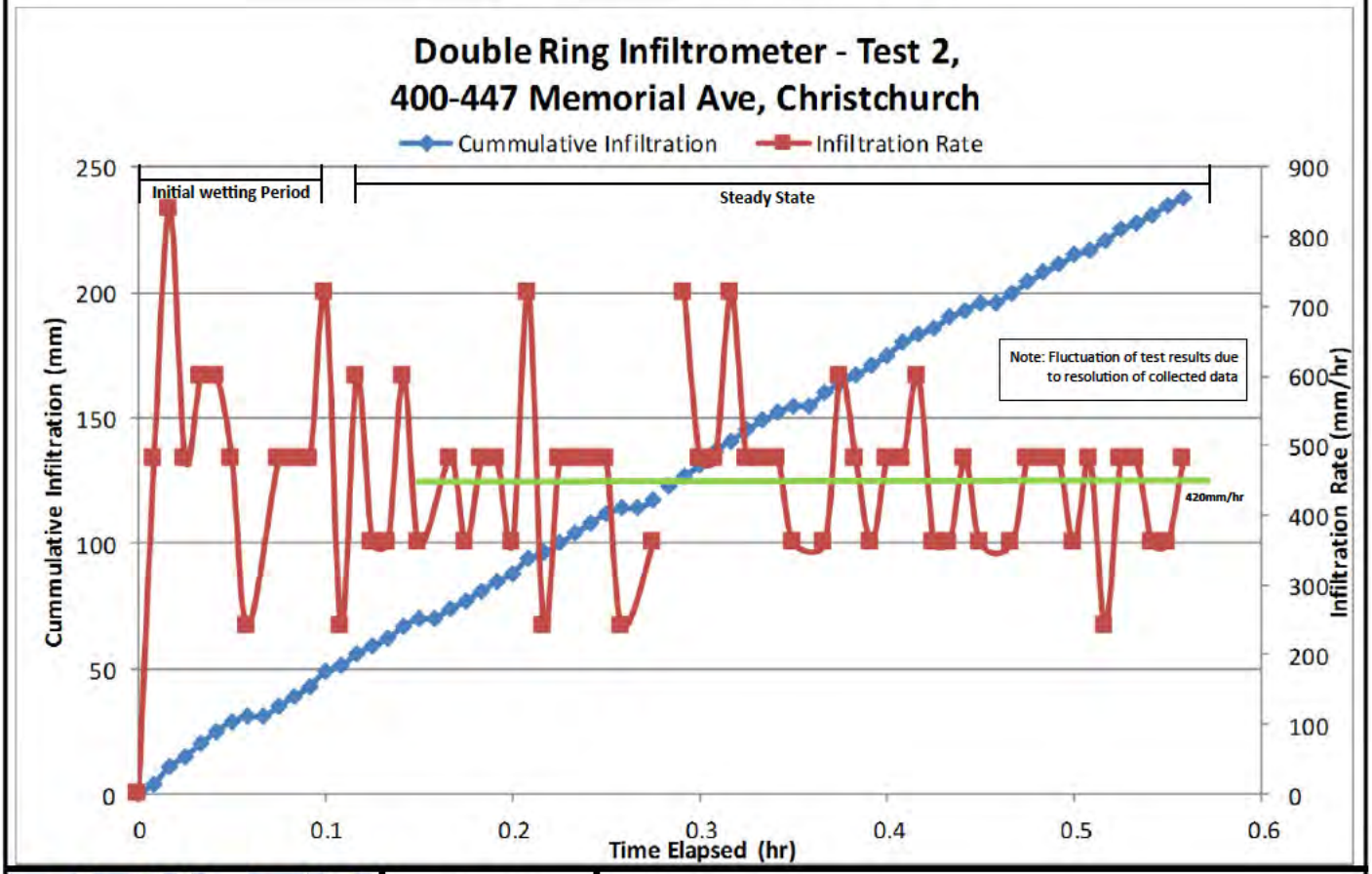
APPENDIX C
Permeability Testing


BH1A HEAD RATIO PLOT(TESTS 1 TO 5)
T=234
TIME (SECONDS)
0
50
100
150
200
250
300
1.00
0.10
0.01
HEAD RATIO (H/HO)
Data within grey box ignored in analysis due to leakage up outside of casing while water column above ground level
Line projected through T=0
Adopted best-fit line for middle of curve (after CIRIA Report 113 Appendix 2)
Test 1
Test 2
Test 3
Test 4
Test 5
0.37 line

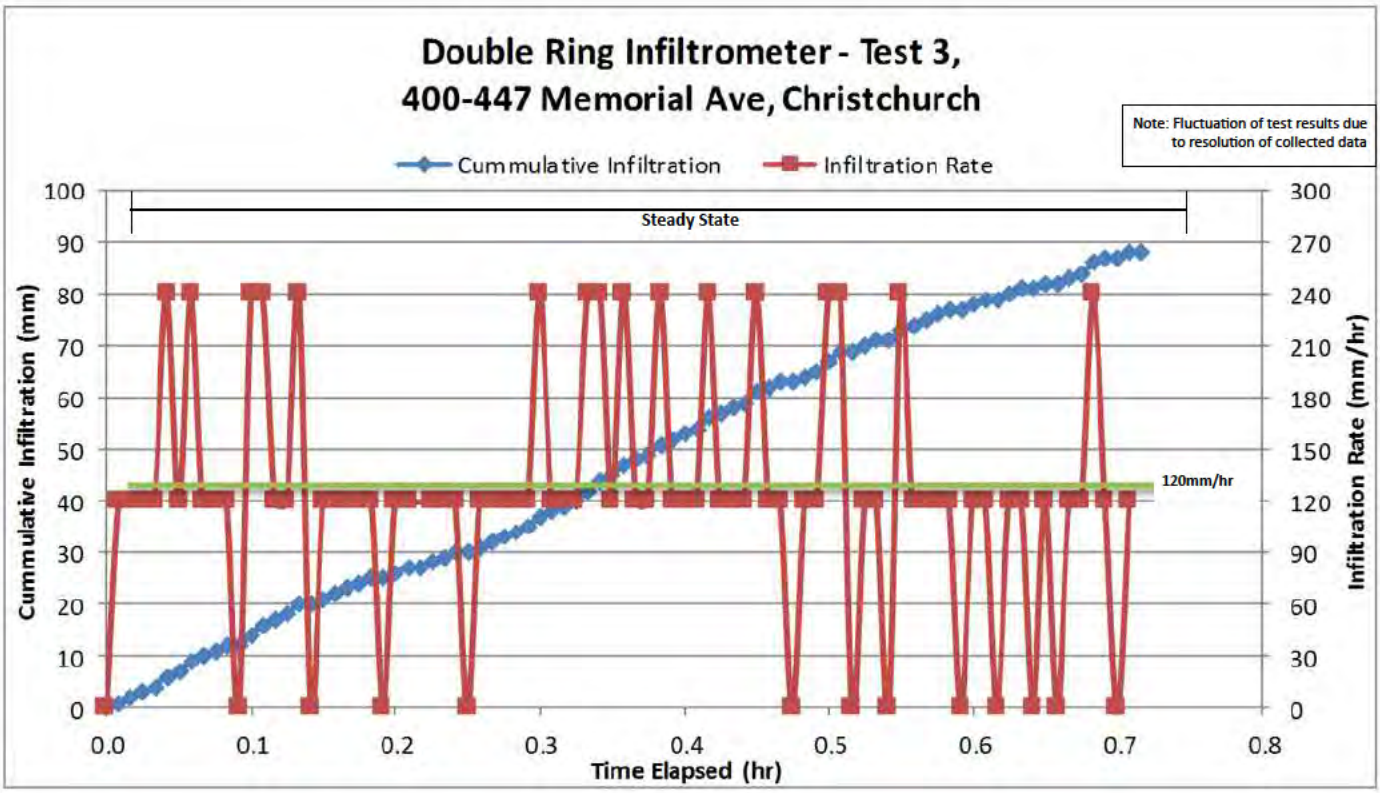

BH2A HEAD RATIO PLOT
T=1380
0
400
800
1,200
1,600
2,000
2,400
2,800
3,200
3,600
TIME (SECONDS)
1.00
0.10
0.01
HEAD RATIO (H/HO)
Line projected through T=0
Adopted best-fit line for middle of curve
(after CIRIA Report 113 Appendix 2)
Test 1
0.37 line


BH3A HEAD RATIO PLOT (TESTS 1 AND 2)
0
50
100
T=105
150
200
250
300
TIME (SECONDS)
1.00
0.10
0.01
HEAD RATIO (H/HO)
Adopted best-fit line for middle of curve
(after CIRIA Report 113 Appendix 2)
Line projected through T=0
Test 1
Test 2
0.37 line





RILEY CONSULTANTS	Project Number:	160070
	Project:	400 - 447 Memorial Avenue
	Client:	Memorial Avenue Investments Limited



RILEY CONSULTANTS	Project Number:	160070
	Project:	400 - 447 Memorial Avenue
	Client:	Memorial Avenue Investments Limited

APPENDIX D
Laboratory Testing

Central Testing Services
18 Ngapara Street, P.O. Box 397, ALEXANDRA, Central Otago, NZ
Telephone (03) 448 7664, Fax (03) 448 7401, Email s 9(2)(a)

Reference No: 16/743

Date: 30 March 2016

TEST REPORT - LABORATORY SOAKED CBR'S

Client Details:	**Riley Consultants Ltd, P.O. Box 4355, Christchurch**	**Attention:**	**C. Cameron**
Job Description:	**400 – 447 Memorial Avenue Investigations**	**Client Reference No:**	**160070**
Sampled By:	**Riley Consultants Ltd Staff**	**Date & Time Sampled:**	**7 to 9-Mar-16**
Sample Method:	**Test Pit**	**Date Received:**	**17-Mar-16**
Test Method:	**Water Content & Laboratory Soaked CBR - NZS 4402:1986, Test 2.1 & 6.1.1**		

LABORATORY WATER CONTENT & SOAKED CBR RESULTS			
Sample Source:	**TP02**	**TP13**	**TP15**
Sample Depth:	**0.1m - 0.5m**	**0.3m - 1.0m**	**0.1m - 0.9m**
Sample Description:	**SILT with some sand (organics)**	**Sandy SILT**	**Sandy SILT**
Material Tested:	**-19.0mm**	**Whole Sample**	**Whole Sample**
Condition of Sample:	**Soaked**	**Soaked**	**Soaked**
Surcharge Mass: (kg)	**4.0**	**4.0**	**4.0**
Time Soaked:	**4 days**	**4 days**	**4 days**
Swell: (%)	**1.6**	**0.6**	**1.6**
Water Content as Received: (%)	**4.5**	**5.9**	**6.9**
Water Content as Compacted: (%)	**8.5**	**6.0**	**9.3**
Water Content From Under Plunger: (%)	**26.5**	**20.6**	**26.2**
Dry Density As Compacted: (t/m^3)	**1.52**	**1.61**	**1.55**
CBR Value @ 2.5 mm Penetration:	**4.5**	**8**	**4.5**
CBR Value @ 5.0 mm Penetration:	**4.5**	**7**	**6**
Reported CBR Value:	**4.5**	**8**	**6**

Notes:

- *The material was received in a natural state.*
- *The sample was compacted to NZ Standard Compaction.*
- *The rate of penetration was 1.15 mm / min.*
- *Information contained in this report which is Not IANZ Accredited relates to the sample descriptions based on NZ Geotechnical Society Guidelines 2005 and sampling.*
- *This report may not be reproduced except in full.*

Tested By: **A.P. Julius & L.T. Smith** **Date:** **24 to 29-Mar-16**

Checked By:

Tests indicated as Not Accredited are outside the laboratory's scope of accreditation

IANZ ACCREDITED LABORATORY
Accreditation No: 434

Central Testing Services
18 Ngapara Street, P.O. Box 397, ALEXANDRA, Central Otago, NZ
Telephone (03) 448 7664, Fax (03) 448 7401, Email s 9(2)(a)

Reference No: 16/743

Date: 30 March 2016

TEST REPORT - LABORATORY SOAKED CBR'S

Client Details:	**Riley Consultants Ltd, P.O. Box 4355, Christchurch**	**Attention:**	**C. Cameron**
Job Description:	**400 – 447 Memorial Avenue Investigations**	**Client Reference No:**	**160070**
Sampled By:	**Riley Consultants Ltd Staff**	**Date & Time Sampled:**	**7 to 9-Mar-16**
Sample Method:	**Test Pit**	**Date Received:**	**17-Mar-16**
Test Method:	**Water Content & Laboratory Soaked CBR - NZS 4402:1986, Test 2.1 & 6.1.1**		

LABORATORY WATER CONTENT & SOAKED CBR RESULTS			
Sample Source:	**TP16**	**TP19**	**TP20**
Sample Depth:	**0.2m - 0.7m**	**0.2m - 0.4m**	**0.15m - 0.4m**
Sample Description:	**Sandy GRAVEL with trace of silt**	**Silty SAND**	**Silty SAND**
Material Tested:	**-19.0mm**	**Whole Sample**	**Whole Sample**
Condition of Sample:	**Soaked**	**Soaked**	**Soaked**
Surcharge Mass: (kg)	**4.0**	**4.0**	**4.0**
Time Soaked:	**4 days**	**4 days**	**4 days**
Swell: (%)	**0.0**	**0.2**	**0.4**
Water Content as Received: (%)	**1.0**	**3.0**	**5.2**
Water Content as Compacted: (%)	**2.1**	**7.3**	**6.3**
Water Content From Under Plunger: (%)	**7.3**	**21.3**	**22.0**
Dry Density As Compacted: (t/m^3)	**2.14**	**1.57**	**1.57**
CBR Value @ 2.5 mm Penetration:	**70**	**13**	**8**
CBR Value @ 5.0 mm Penetration:	**75**	**13**	**7**
Reported CBR Value:	**75**	**13**	**8**

Notes:

- *The material was received in a natural state.*
- *The sample was compacted to NZ Standard Compaction.*
- *The rate of penetration was 1.15 mm / min.*
- *Information contained in this report which is Not IANZ Accredited relates to the sample descriptions based on NZ Geotechnical Society Guidelines 2005 and sampling.*
- *This report may not be reproduced except in full.*

Tested By: **A.P. Julius & L.T. Smith** **Date:** **24 to 29-Mar-16**

Checked By:

Approved Signatory

A.P. Julius
Laboratory Manager

Tests indicated as Not Accredited are outside the laboratory's scope of accreditation

IANZ
ACCREDITED LABORATORY
Accreditation No: 434

APPENDIX E
Permeability and Infiltration Test Methodology

In-situ Permeability Test Methodology

- A 100mm ID casing was installed by Sonic drilling to a depth immediately below the silt-gravel contact. The top of the casing formed an “upstand” above the ground surface.
- A pre-soak was undertaken as follows
    - Silty drill tailings were gently flushed out of the hole by placing a flowing hose at the toe and adjusting the flow rate to allow a steady outflow from the top of the casing until the outflow ran clear (20-60 seconds).
    - Water level was maintained at/near the top of the upstand for a period of time determined by the “fall” rate.
    - In BH3A, falling head tests were undertaken during pre-soaking to determine whether the fall rate was decaying. The pre-soak test was determined to be complete at the time that no decay in fall rate was apparent. Length of time of the pre-soak is detailed in Table 4 below.
- After the pre-soak a transducer set to record water depths at one second intervals was installed near the bottom of the hole. This remained in place for the duration of testing.
- A test or series of tests was then undertaken as follows
    - The casing was filled to the top with water
    - A stopwatch was started at the time that the water hose was removed
    - An electronic (beeping) dip tape was used to ascertain the water level at specific time intervals
    - Water depths were recorded at specific time intervals (seconds to minutes)
    - The test was terminated once the water level dropped below the dip tape sensor (approx. 150mm above the toe of the hole).

Double Ring Infiltrometer Test Methodology

- For each test the grassed area was clipped down to near surface levels and loose material was removed from the test area.
- A measuring cylinder with a diameter of 150mm, and a buffer cylinder with a diameter of 300mm (placed concentric to measuring cylinder) were driven approximately 100mm vertically into the ground surface.
- The buffer cylinder was filled with water to approximately 50 mm depth with at least 25 mm maintained throughout the test. The measuring cylinder was filled with water to a depth of approximately 75mm and the test was started.
- Time and elevation measurements were taken at 30 second increments. During each test sufficient water was added to the measuring cylinder to bring it back to its initial level after dropping between 25 to 50mm.
- The test was terminated when a constant infiltration rate was achieved.

Test 1 was conducted over a total time span of 32 minutes and results indicated a constant infiltration rate of approximately 160mm/hr after 12 minutes from the start of the test. The test was terminated due to an apparent constant infiltration rate over a sustained time span.

Test 2 was conducted over a total time span of 33.5 minutes and indicated a constant infiltration rate of approximately 420mm/hr after 19 minutes from the start of the test. The test was terminated due to an apparent constant infiltration rate over a sustained time span.

Test 3 was conducted over a total time span of 1 hour 51.5 minutes and indicated a constant infiltration rate of approximately 120mm/hr from the start of the test. The test was left running for an additional 1 hour and 8.5 minutes where an average infiltration rate of approximately 140mm/hr was achieved, comparable to the earlier readings. The test was terminated due to an apparent constant infiltration rate over a sustained time span.

AUCKLAND
Riley Consultants Limited
4 Fred Thomas Drive, Takapuna
PO Box 100 253, NSMC, Auckland, New Zealand
Telephone 64 9 489 7872, Facsimile 64 9 489 7873
riley@riley.co.nz

www.riley.co.nz

CHRISTCHURCH
Riley Consultants Limited
Ground Floor, 395 Madras Street
PO Box 4355, Christchurch, New Zealand
Telephone 64 3 379 4402, Facsimile 64 3 379 4403
rileychch@riley.co.nz

www.riley.co.nz

ACENZ

ISO 9001 CERTIFIED GCS

Appendix C. Eliot Sinclair Site Investigation Logs

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm		Test Location TP 01	
	0.2	TS / T: SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	0.4, 0.6, 0.8, 1.0, 1.2	Fine SAND, with some silt; greyish brown. Non-plastic; damp; Trace iron staining.	
	1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2	EOH: 1.2m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

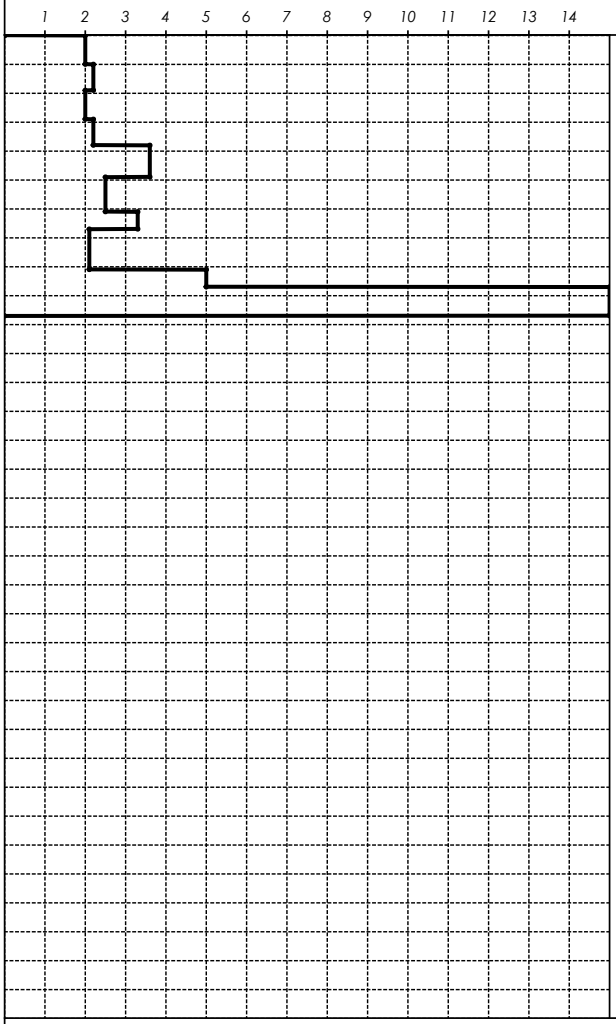
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 02

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
SILT, with trace sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
Sandy fine to coarse GRAVEL; greyish brown. Damp; gravel, round to subround; sand, fine to medium.	
EOH: 1.2m - Target Depth.	

SC A1

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 03

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; grey. Damp; gravel, round; sand, fine to medium.	
EOH: 0.9m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 04	
	0.2	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	0.4	Sandy fine to coarse GRAVEL; grey dark. Damp; gravel, round; sand, fine to medium.	
	0.6		
	0.8		
	1.0		
	1.2	EOH: 1.2m - Target Depth.	
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

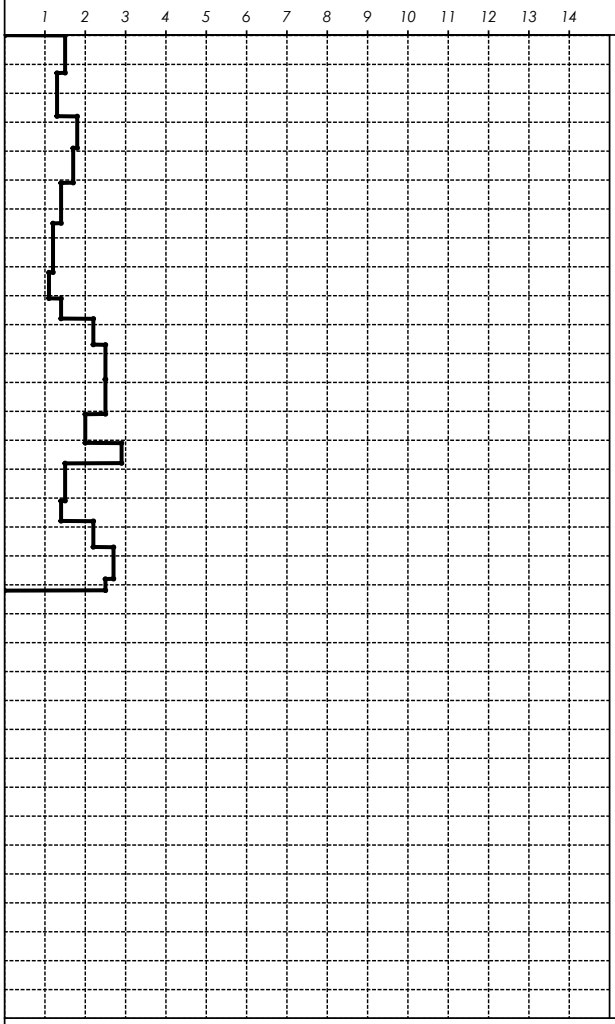
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B1

Soil Profile

Test Location TP 05

Depth (m)	Soil Profile	Water
0.2	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	SILT, with minor sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
0.6		
0.8		
1.0	Fine to medium SAND, with trace silt; greyish brown. Damp; Trace iron staining.	
1.2	EOH: 1.1m - Target Depth.	
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 06

TS T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	Sandy fine to coarse GRAVEL; grey dark. Damp; gravel, round; sand, fine to coarse.
	EOH: 0.6m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 07

	Water
SiltyTOPSOIL, with some gravel; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; grey. Damp; sand, fine to medium.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 08

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; grey. Damp; gravel, round; sand, fine to medium.	
EOH: 0.65m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 09

TS	SandyTOPSOIL; dark brown. Damp; Rootlets.
T	Sandy fine to coarse GRAVEL; light brown. Damp.
	EOH: 0.35m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
JSF	JSF	☐ Hand Auger
Job Manager:	**Approved By:**	☑ Spade Hole
WJH	JTA	☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 10	Water
	0.2	TS GravellyTOPSOIL; dark brown. Damp; Rootlets.	Groundwater Not Encountered
	0.4	Sandy fine to coarse GRAVEL; light brown. Damp.	
	0.6	EOH: 0.4m - Target Depth.	
	0.8		
	1.0		
	1.2		
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
JSF	JSF	☐ Hand Auger
Job Manager:	**Approved By:**	☑ Spade Hole
WJH	JTA	☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 11	
	0.2	TS T (FILL?) silty gravellyTOPSOIL; dark brown. Non-plastic; damp; gravel, fine to coarse, round; Trace rootlets.	Groundwater Not Encountered
	0.4	Sandy fine to coarse GRAVEL; greyish brown. Damp; sand, fine to medium.	
	0.6		
	0.8	EOH: 0.7m - Target Depth.	
	1.0		
	1.2		
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 12

	Water
(FILL?) siltyTOPSOIL, with some gravel; dark brown. Non-plastic; damp; gravel, fine to coarse, round to subround; Trace rootlets.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; greyish brown. Damp; gravel, round to subround; sand, fine to medium.	
EOH: 0.7m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

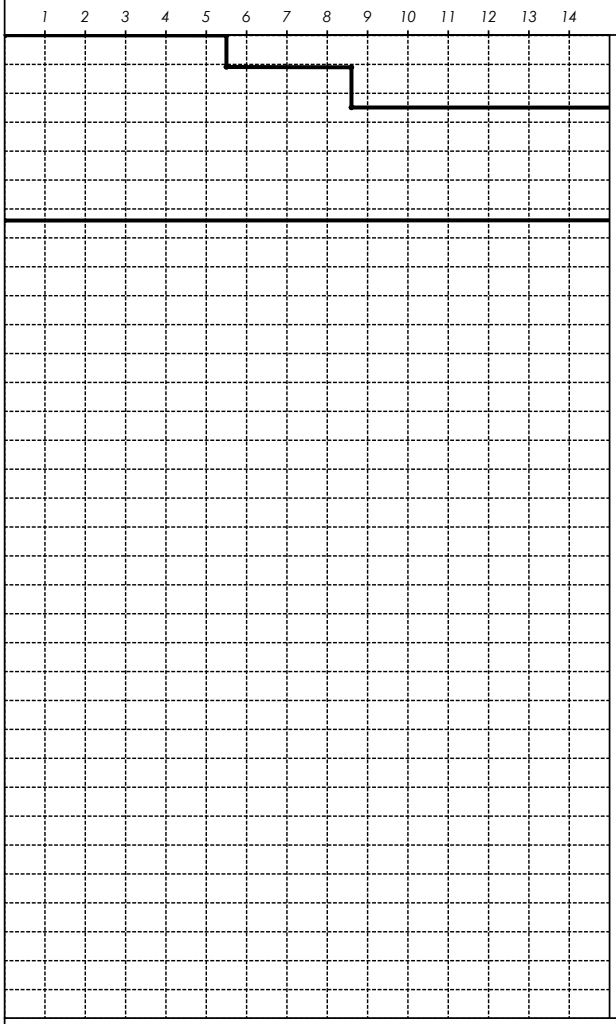
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC D5

Soil Profile

Depth (m)	Test Location TP 13	Water
0.2	TS T SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	Sandy fine to coarse GRAVEL; greyish brown. Damp; gravel, round to subround; sand, fine to medium.	
0.6	EOH: 0.5m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 14

TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	SILT; greyish brown. Non-plastic; damp.
	Fine to medium SAND; greyish brown. Damp.
	Sandy fine to coarse GRAVEL; greyish brown. Damp; gravel, round to subround; sand, fine to medium.

EOH: 0.9m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 15

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
SILT, with some sand; greyish brown. Non-plastic; damp to moist; sand, fine; Trace iron staining.	
EOH: 1m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

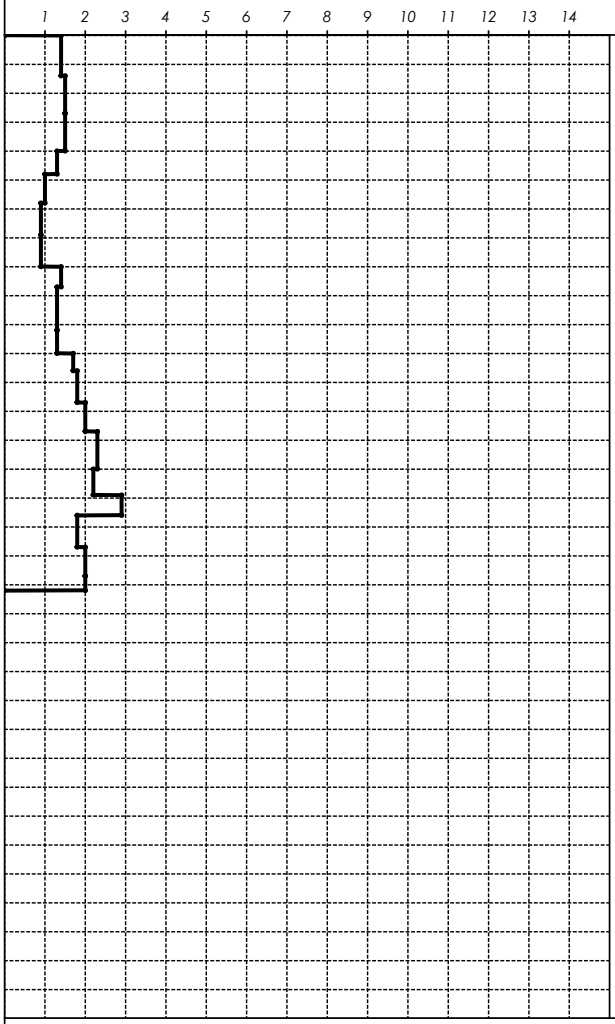
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B2

Soil Profile

Test Location TP 16

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	Fine SAND, with some silt; greyish brown. Damp; Trace iron staining.	
0.6	EOH: 0.6m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 17

	Water
TS T SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Silty fine SAND; greyish brown. Damp.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 18

	Water
TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Fine SAND, with some silt; greyish brown. Non-plastic; damp; Trace iron staining.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

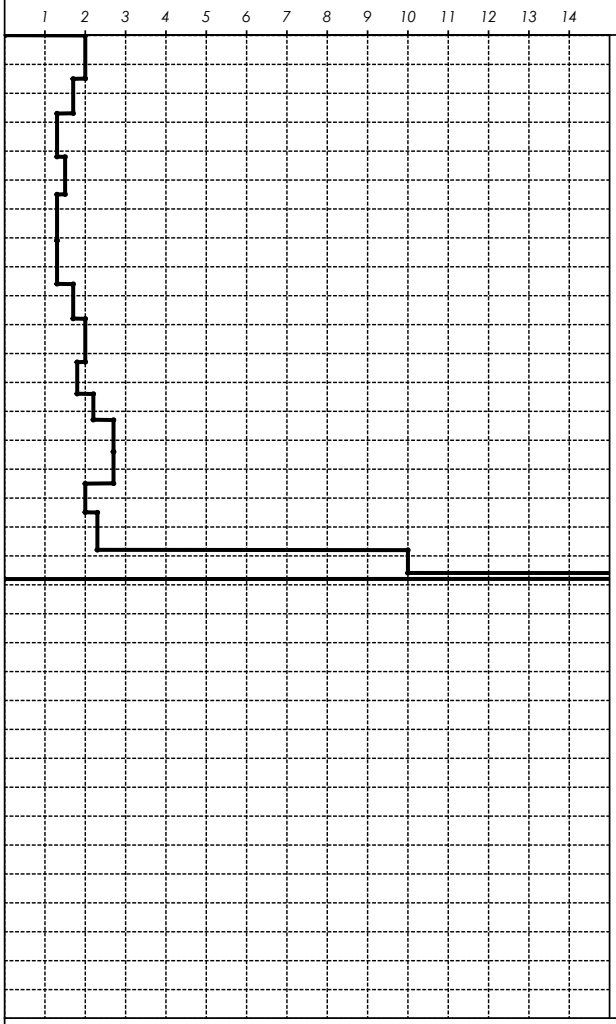
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC A2

Soil Profile

Depth (m)	Test Location TP 19	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	Silty fine SAND; greyish brown. Non-plastic; damp; Trace iron staining.	
0.6	EOH: 0.5m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 20

TS / T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	Fine SAND, with some silt; greyish brown. Non-plastic; damp; Trace iron staining.
	EOH: 0.6m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 21

	Water
TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Fine SAND, with some silt; greyish brown. Non-plastic; damp; Trace iron staining.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

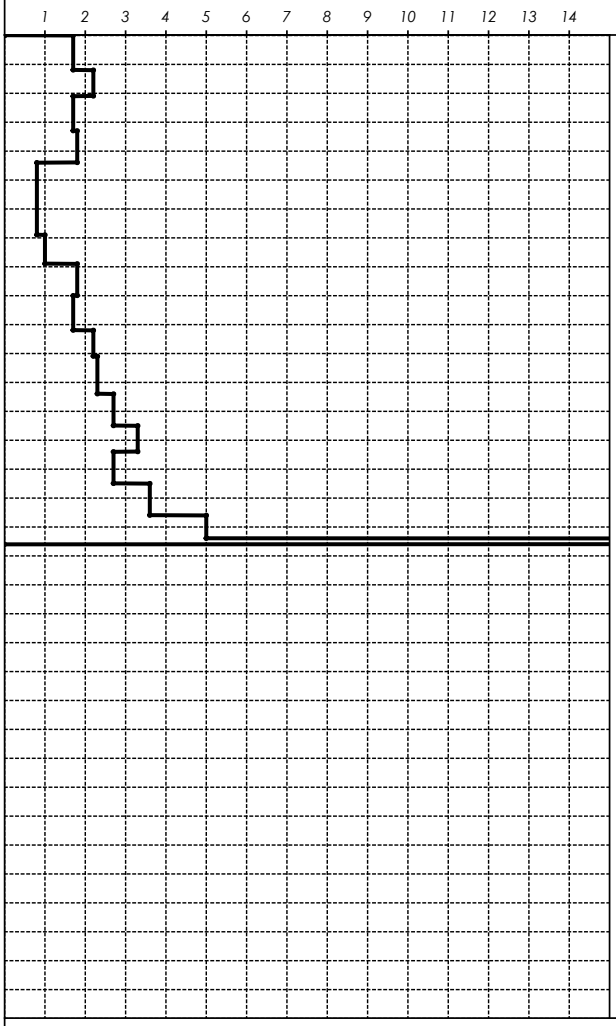
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 22

		Water
TS T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	Fine to medium SAND, with trace silt; greyish brown. Non-plastic; damp; Trace rootlets.	
	EOH: 0.6m - Target Depth.	

SC A3

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

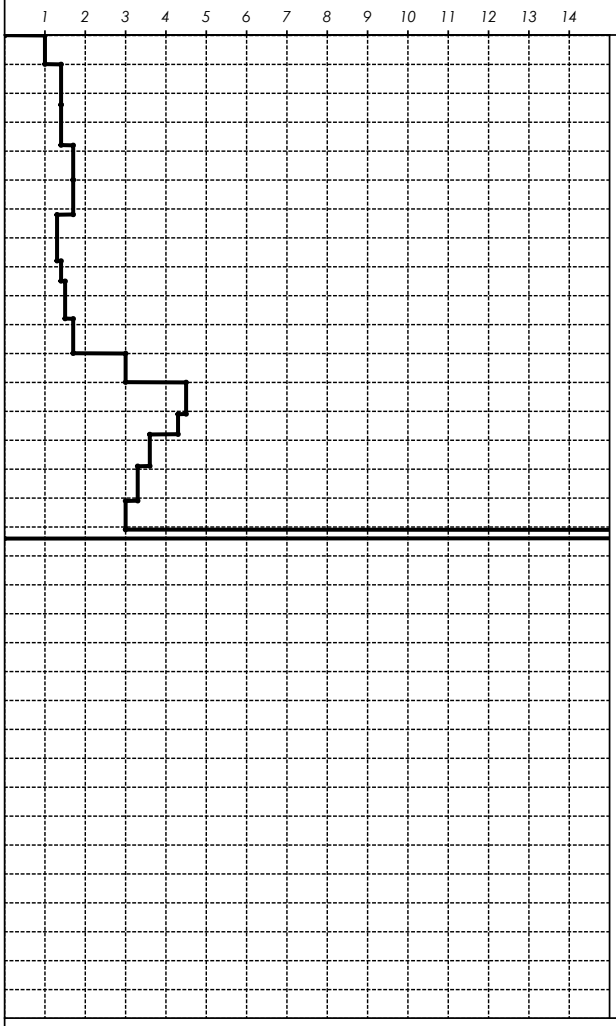
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC C1

Soil Profile

Test Location TP 23

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	SILT, with some sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
0.6	EOH: 0.6m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 24

TS	Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.
	SILT, with some sand; greyish brown. Non-plastic; damp; sand, fine; trace iron staining.
	EOH: 0.6m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

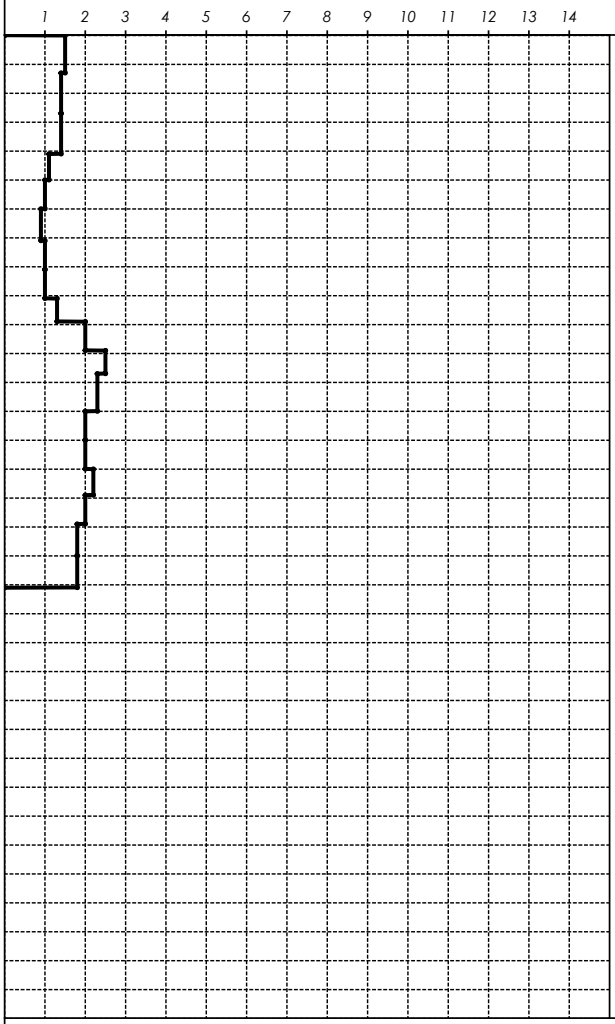
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B3

Soil Profile

Test Location TP 25

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	Fine SAND, with some silt; greyish brown. Non-plastic; damp to moist; Trace iron staining.	
0.6		
0.8	EOH: 0.7m - Target Depth.	
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 26

TS / T / TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	Fine SAND, with trace silt; greyish brown. Damp; Trace iron staining.
	EOH: 0.8m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

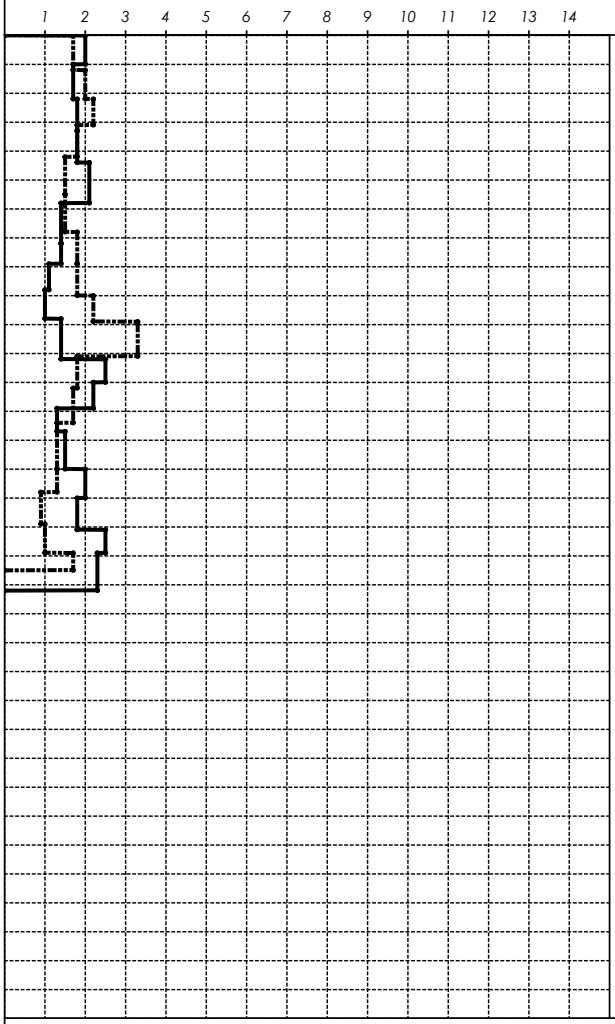
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC D1 — SC D2

Soil Profile

Test Location TP 27

Depth (m)	Soil Profile	Water
0.2, 0.4, 0.6, 0.8, 1.0	Silty sandyTOPSOIL; dark brown. Damp.	Groundwater Not Encountered
1.0	Fine to medium SAND; light grey. Damp.	
1.2	EOH: 1.1m - Target Depth.	
1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
JSF	JSF	☑ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 28

	Water
TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Fine to medium SAND; greyish brown. Damp; Trace iron staining.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

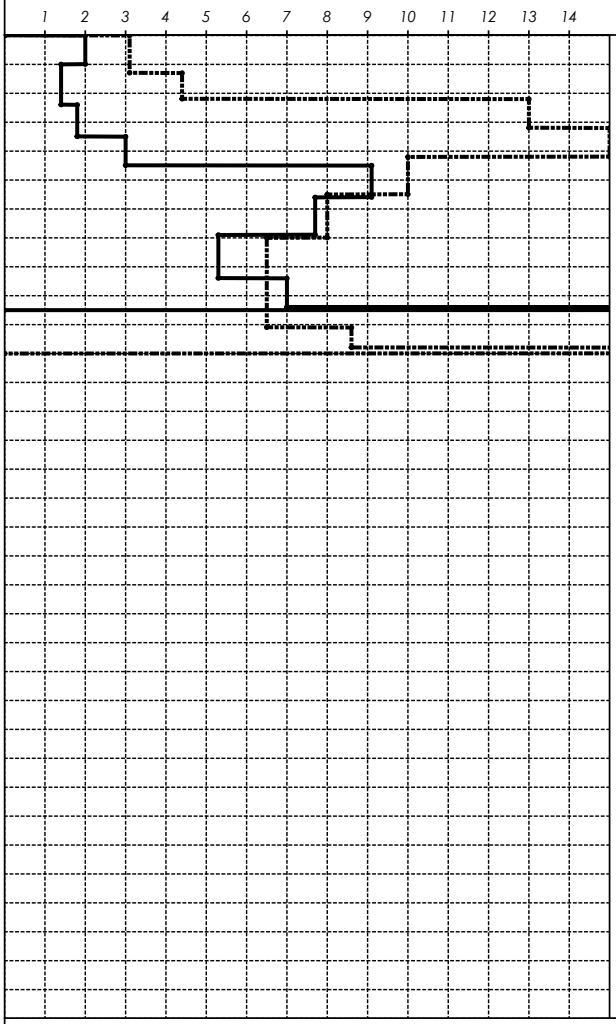
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC D3 — SC D4

Soil Profile

Depth (m)	Test Location TP 29	Water
0.2	TS / T — FILL: silty gravellyTOPSOIL; dark brown. Non-plastic; damp; gravel, fine to coarse, round to subround; Trace rootlets.	Groundwater Not Encountered
0.4	Sandy fine to coarse GRAVEL; greyish dark brown. Damp; gravel, round to subround; sand, fine to medium.	
0.6	EOH: 0.65m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 30

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets, some 10-20mm roots.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; grey dark. Damp; gravel, round to subround; sand, fine to medium.	
EOH: 0.55m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 31

	Water
TS T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; greyish dark brown. Damp; gravel, round to subround; sand, fine to medium.	
EOH: 0.5m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 32

TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	SILT; greyish brown. Non-plastic; damp; Trace iron staining.
	EOH: 0.7m - Target Depth.

Water: Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

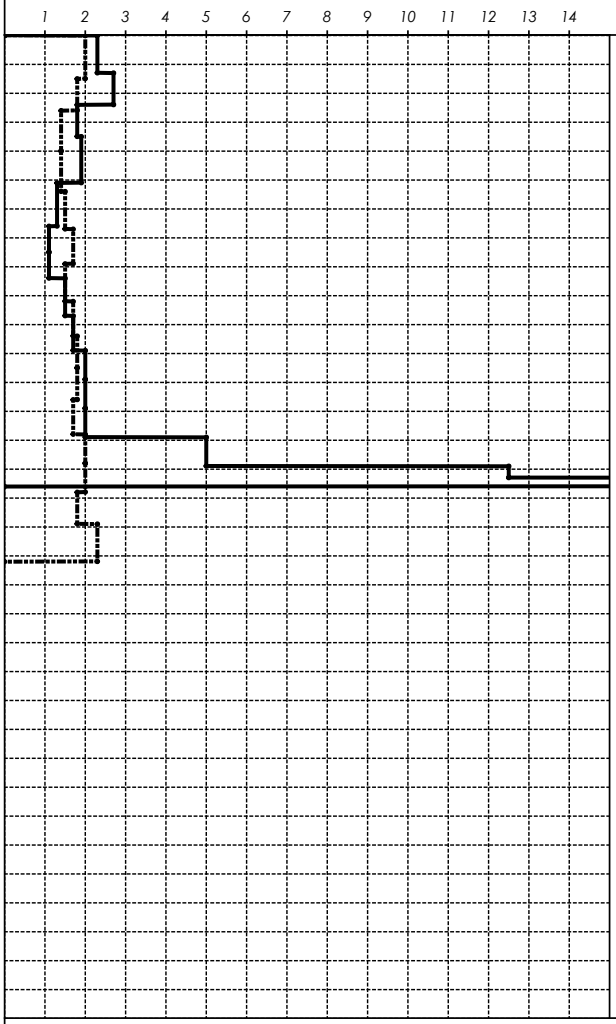
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC D6 — SC D7

Soil Profile

Test Location TP 33

Depth (m)	Soil Profile	Water
0.2	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4		
0.6	Silty SAND; greyish brown. Non-plastic; damp; Trace iron staining.	
0.8		
1.0	EOH: 0.9m - Target Depth.	
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

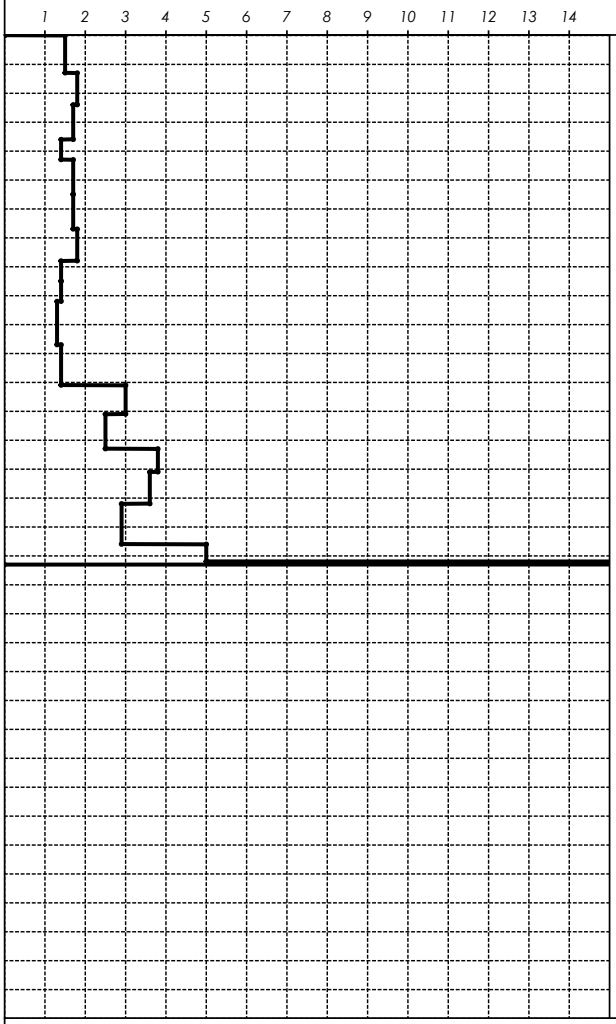
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 34

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Silty fine SAND; greyish brown. Non-plastic; damp; Trace rootlets.	
EOH: 0.6m - Target Depth.	

SC B4

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 35

TS T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	SILT, with some sand; greyish brown. Non-plastic; damp to moist; sand, fine; Some iron staining.
	EOH: 0.7m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 36

TS T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	SILT, with trace sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.
	EOH: 0.6m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 37

		Water
TS T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	Silty fine SAND; greyish brown. Damp; Trace iron staining.	
	EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 38

TS T TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	SILT, with trace sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.
	EOH: 0.7m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 39	
	0.2	TS T SiltyTOPSOIL; dark brown. Damp; Rootlets.	Groundwater Not Encountered
	0.4	TS T	
	0.6	Fine to medium SAND; light grey brownish. Damp.	
		EOH: 0.6m - Target Depth.	
	0.8		
	1.0		
	1.2		
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
JSF	JSF	☐ Hand Auger
Job Manager:	**Approved By:**	☑ Spade Hole
WJH	JTA	☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 40	
	0.2	TS / T — SiltyTOPSOIL; greyish brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	0.4	Fine SAND, with trace silt; greyish brown. Damp; Trace iron staining.	
	0.6		
	0.8	EOH: 0.7m - Target Depth.	
	1.0		
	1.2		
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 41

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
SILT; greyish brown. Non-plastic; damp to moist; Trace iron staining.	
EOH: 0.7m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 42

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
SILT, with trace sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

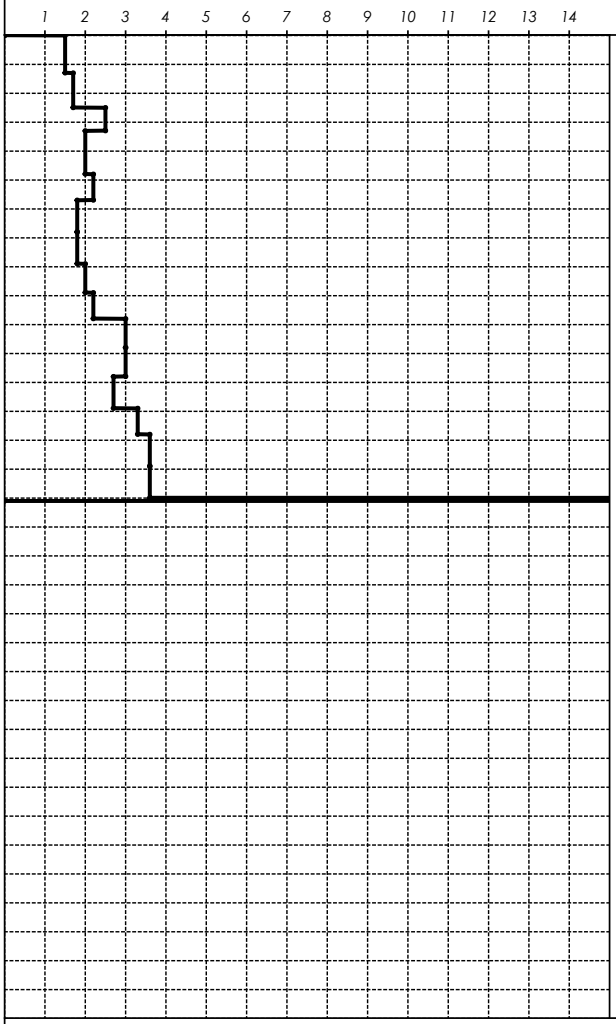
Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd
Site: Miles Premises - Memorial Avenue
Technical Category: N/A
Lot: 2
D.P.: 553686
Date Tested: 21-Sep-2021
Log Sheet No.: 1 of 1
Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC A4

Soil Profile

Test Location TP 43

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	SILT; greyish brown. Non-plastic; damp; Trace iron staining.	
0.6	EOH: 0.6m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 44

	Water
SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Fine to medium SAND, with trace silt; greyish brown. Damp; Trace iron staining.	
EOH: 0.5m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 45	Water
	0.2	TS SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace iron staining.	Groundwater Not Encountered
	0.4	SILT, with trace sand; greyish brown. Non-plastic; damp to moist; sand, fine; Trace iron staining.	
	0.6	EOH: 0.6m - Target Depth.	
	0.8		
	1.0		
	1.2		
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 46

TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	Silty fine to medium SAND; greyish brown. Non-plastic; damp; Trace iron staining.
	EOH: 0.6m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 47

		Water
TS T	SiltyTOPSOIL; dark brown. Non-plastic; Trace rootlets.	Groundwater Not Encountered
	Fine SAND, with minor silt; greyish brown.	
	EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 48

TS T	SiltyTOPSOIL; dark brown. Non-plastic; damp.
	Silty fine SAND; greyish brown. Damp.
	EOH: 0.55m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

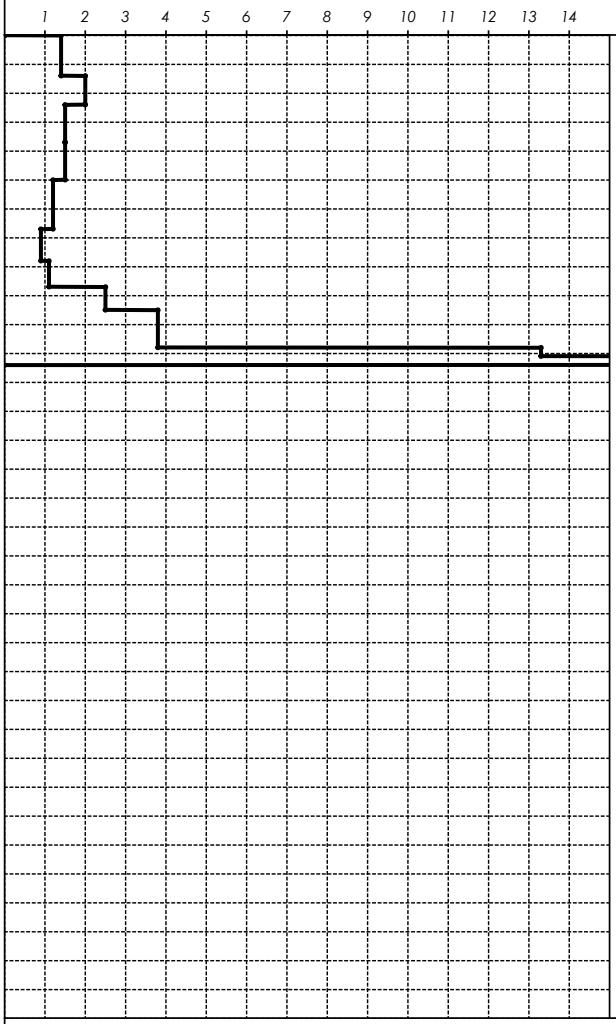
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 49

		Water
TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	Fine SAND, with some silt; greyish brown. Damp.	
	EOH: 0.5m - Target Depth.	

SC A5

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 50

	Water
TS / T — Silty TOPSOIL; dark brown. Damp; Trace rootlets.	Groundwater Not Encountered
Sandy SILT; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

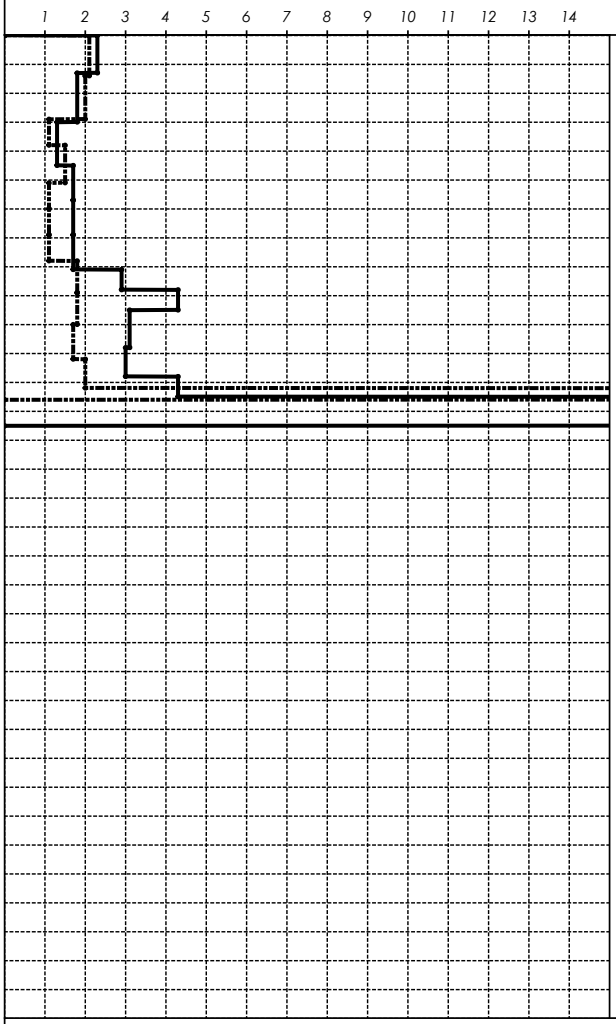
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B5 SC B6

Soil Profile

Depth (m)	Test Location TP 51	Water
0.2	TS Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
0.4	Silty fine SAND; greyish brown. Non-plastic; damp; Trace iron staining.	
0.6	EOH: 0.6m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 52

		Water
TS T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	Fine SAND; greyish brown. Damp.	
	EOH: 0.5m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 53

	Water
Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
Silty fine SAND; greyish brown. Damp.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

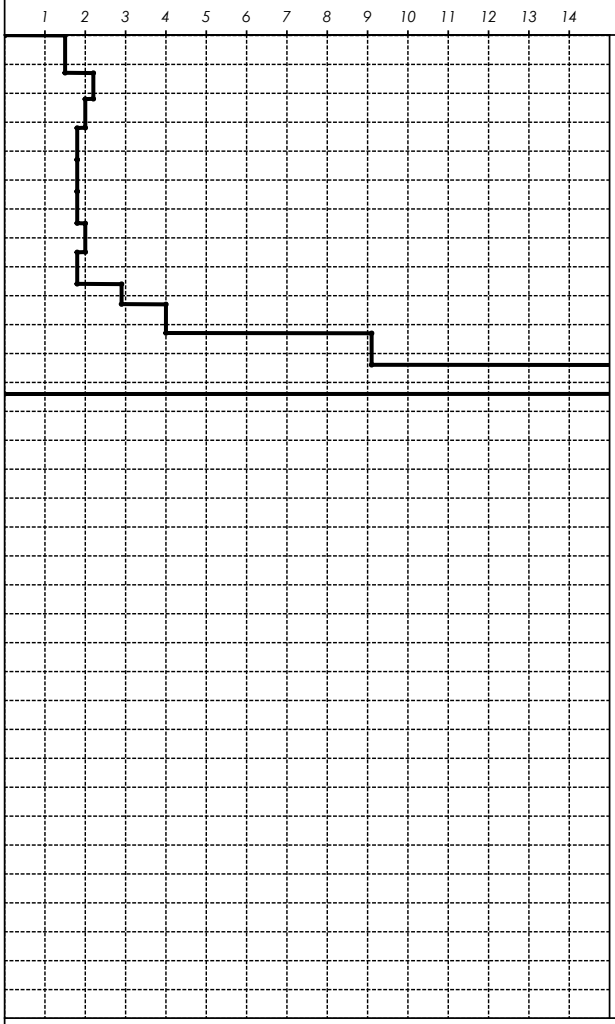
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 54

	Water
Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
Fine SAND; greyish brown. Damp; Trace iron staining.	
EOH: 0.6m - Target Depth.	

SC B7

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5 **D.P.:** 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1 **Project No.:** 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 55	
	0.2	TS / T / TS — Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
	0.4		
	0.6	Sandy SILT; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
	0.8		
	1.0	EOH: 0.9m - Target Depth.	
	1.2		
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

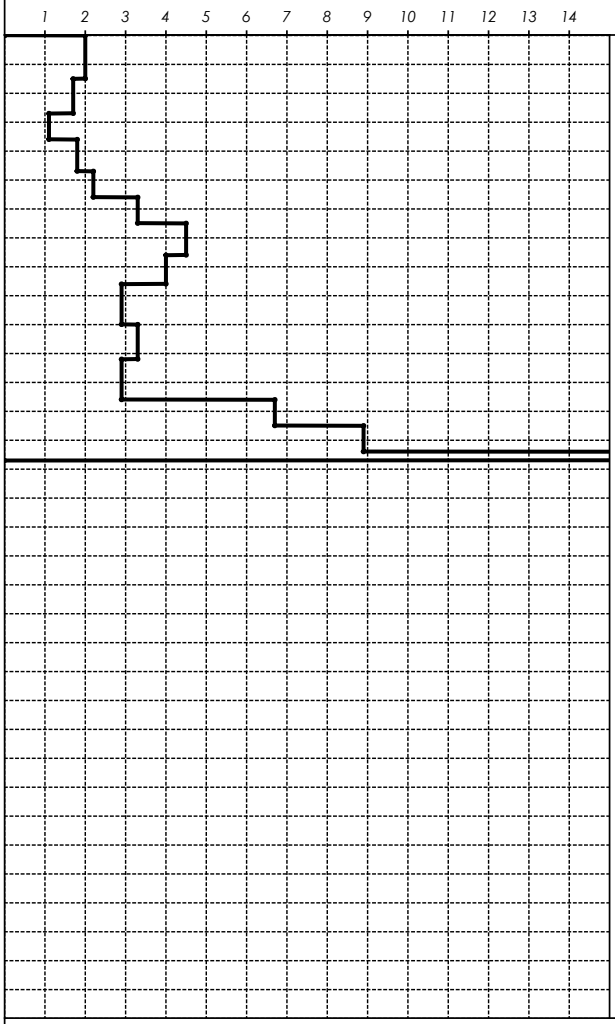
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC A6

Soil Profile

Depth (m)	Test Location TP 56	Water
0.2	TS SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	SILT; greyish brown. Non-plastic; damp; Trace iron staining.	
0.6	EOH: 0.5m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 57

	Water
Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
Fine SAND, with some silt; greyish brown. Damp; Trace iron staining.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 58

	Water
Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
SILT; greyish brown. Non-plastic; damp; Trace iron staining.	
EOH: 0.5m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 59

	Water
Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
SILT; greyish brown. Non-plastic; damp; Some iron staining.	
EOH: 0.7m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 60

TS T	Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.
	SILT; greyish brown. Non-plastic; damp; Some iron staining.
	EOH: 0.5m - Target Depth.

Water: Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

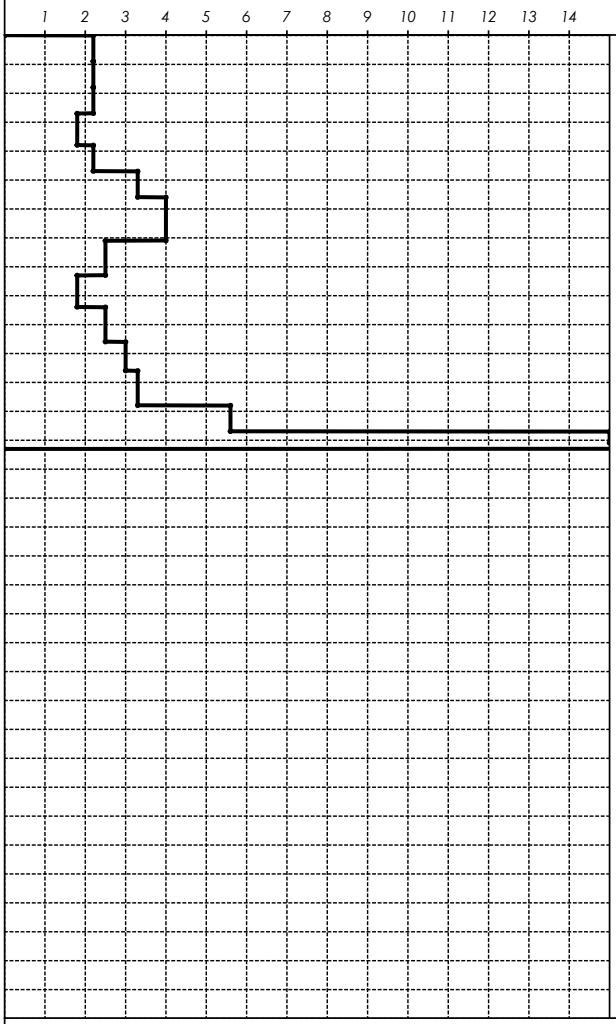
Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd
Site: Miles Premises - Memorial Avenue
Technical Category: N/A
Lot: 2
D.P.: 553686
Date Tested: 21-Sep-2021
Log Sheet No.: 1 of 1
Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 61

	Water
TS — Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
Silty fine SAND; greyish brown. Damp; Trace iron staining.	
EOH: 0.5m - Target Depth.	

SC A7

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

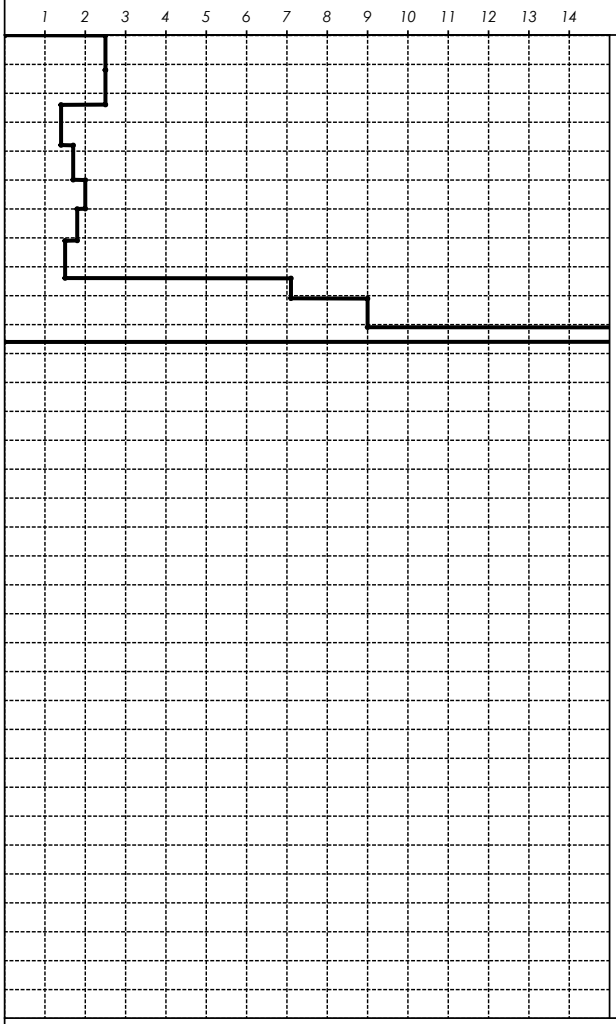
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B8

Soil Profile

Test Location TP 62

Depth (m)	Soil Profile	Water
0.2	TS / T: Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
0.4	SILT; greyish brown. Non-plastic; damp.	
0.6	EOH: 0.5m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 63

	Water
TS T Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.Some large roots.	Groundwater Not Encountered
SILT; greyish brown. Non-plastic; damp.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5 **D.P.:** 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1 **Project No.:** 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 64	
	0.2	TS T TS Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
	0.4	Sandy fine to coarse GRAVEL; brown. Damp; sand, fine to coarse.	
	0.6	EOH: 0.55m - Target Depth.	
	0.8		
	1.0		
	1.2		
	1.4		
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

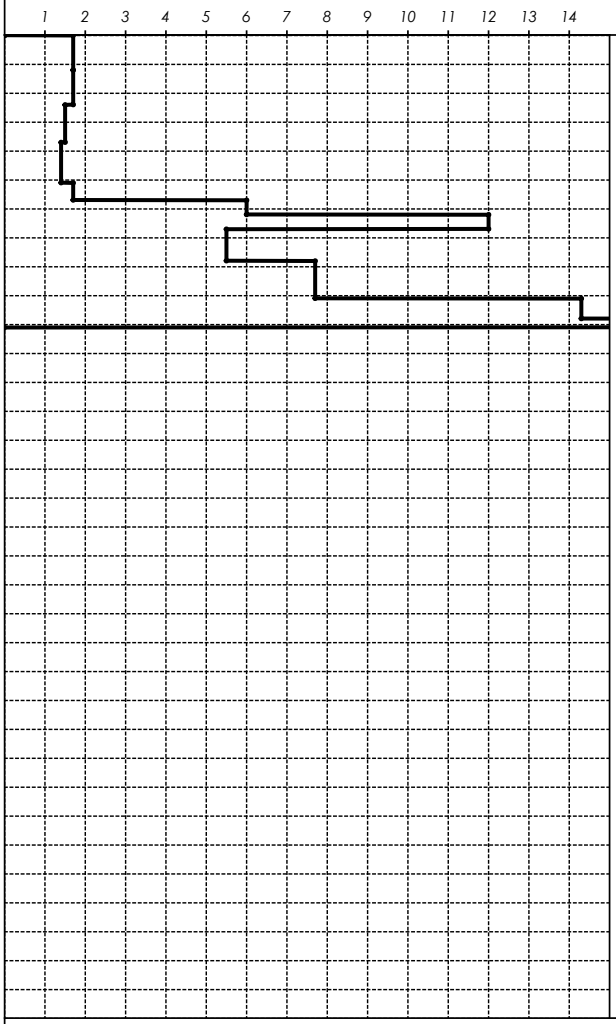
Lot: 5 **D.P.:** 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1 **Project No.:** 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B9

Soil Profile

Depth (m)	Test Location TP 65	Water
0.2	TS Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
0.4	SILT; greyish brown. Non-plastic; damp.	
0.6	EOH: 0.5m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 5

D.P.: 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 66

		Water
TS	SiltyTOPSOIL; dark brown. Damp; Roots rootlets.	Groundwater Not Encountered
	Silty fine SAND; light brown. Moist.	
	EOH: 0.4m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
JSF	JSF	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

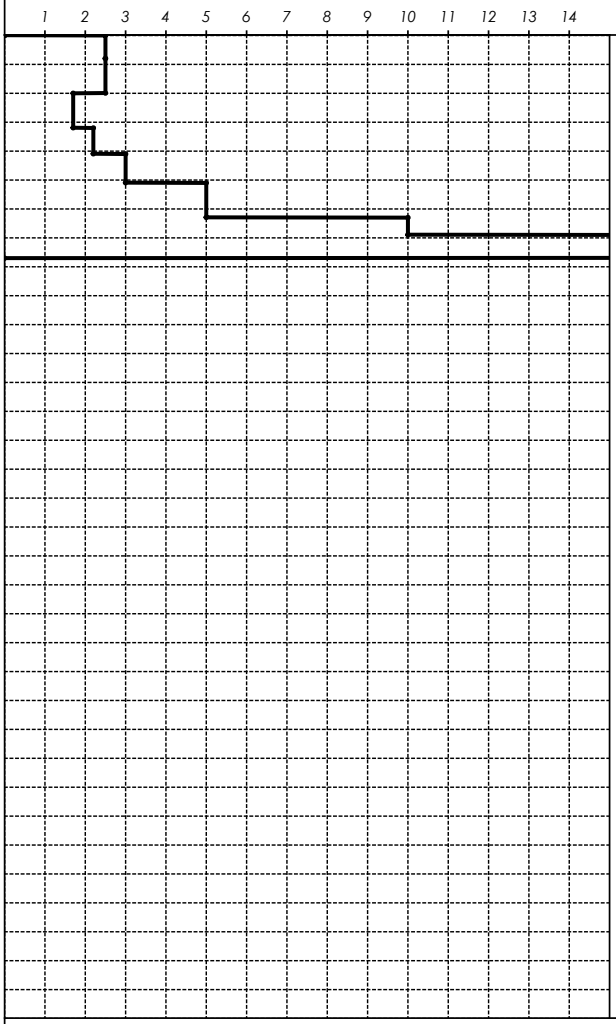
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 67

		Water
TS	Silty TOPSOIL; dark brown. Damp; Trace rootlets.	Groundwater Not Encountered
	SILT; greyish brown. Non-plastic; damp; Some iron staining.	
	EOH: 0.6m - Target Depth.	

SC A8

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 68

TS T	Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.
	SILT, with some sand; greyish brown. Non-plastic; damp to moist; sand, fine; Some iron staining.
	EOH: 0.7m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 1

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 69

	Water
Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
SILT, with minor gravel; greyish brown. Non-plastic; damp.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 70

	Soil Profile
TS	Silty TOPSOIL; dark brown. Non-plastic; dry to damp; trace rootlets.
	Silty fine SAND; greyish brown. Damp; trace iron staining.
	EOH: 0.65m - Target Depth.

Water: Groundwater Not Encountered

Minimum penetration resistance (based on 300mm wide footing founded at 300mm depth) required for 'Good Ground' as defined in the Acceptable Solutions and Verification Methods for NZBC Clause B1 Structure.

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 100

	Water
FILL: siltyTOPSOIL; dark brown. Non-plastic; dry; Trace motttles, rootlets.	Groundwater Not Encountered
Fine SAND; light greyish brown. Dry.	
EOH: 1.8m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 101

TS	SiltyTOPSOIL; dark brown. Non-plastic; dry; Trace rootlets.
	Fine to medium SAND, with minor silt; greyish brown. Damp; Some iron staining.
	EOH: 0.6m - Target Depth.

Water: Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 102

	Water
(FILL?) siltyTOPSOIL; dark brown. Non-plastic; dry; Trace rootlets.	Groundwater Not Encountered
Fine SAND; light greyish brown. Dry.	
EOH: 0.9m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 103	
	0.2	(FILL?) silty TOPSOIL; dark brown. Dry; Trace rootlets.	Groundwater Not Encountered
	0.4		
	0.6		
	0.8		
	1.0		
	1.2	Fine SAND, with some silt; light grey. Dry.	
	1.4	EOH: 1.4m - Target Depth.	
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 104

		Water
TS	SiltyTOPSOIL; dark brown. Non-plastic; dry to damp; Trace rootlets.	Groundwater Not Encountered
	Fine to medium SAND; greyish brown. Damp; Some iron staining.	
	EOH: 0.7m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:07 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 105

	Water
(FILL?) siltyTOPSOIL; dark brown. Non-plastic; dry; Trace rootlets.	Groundwater Not Encountered
Silty fine SAND; light grey. Dry.	
EOH: 1.4m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 106

	Water
TS T TS — SiltyTOPSOIL; dark brown. Non-plastic; dry to damp; Trace rootlets.	Groundwater Not Encountered
Fine SAND, with some silt; greyish brown. Damp; Some iron staining.	
EOH: 0.6m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 200	
	0.2	TS T TS SiltyTOPSOIL; dark brown. Non-plastic; damp.	Groundwater Not Encountered
	0.4	SILT, with some sand; greyish brown. Non-plastic; damp; sand, fine.	
	0.6		
	0.8		
	1.0		
	1.2		
	1.4		
	1.6	EOH: 1.5m - Target Depth.	
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 201

	Water
FILL: siltyTOPSOIL; dark brown. Damp; Trace debris - brick, plastic.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; grey. Damp; gravel, round to subround; sand, fine to coarse.	
EOH: 1.2m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 202

TS	FILL: siltyTOPSOIL; dark brown. Damp.
	(FILL?) sandy SILT; greyish brown. Sand, fine to medium.
TS	(FILL?) siltyTOPSOIL; dark brown. Damp; Buried topsoil. Trace bones. Brick..
	Sandy GRAVEL; grey. Damp; gravel, round to subround; sand, fine to coarse.
	EOH: 1.7m - Target Depth.

Water

Groundwater Not Encountered

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 203

	Water
FILL: siltyTOPSOIL; dark brown. Non-plastic; damp.	Groundwater Not Encountered
FILL: sandy SILT; greyish brown. Non-plastic; damp; sand, fine.	
SiltyTOPSOIL; dark brown. Damp; Buried topsoil.	
SILT, with some sand; grey brownish. Non-plastic; damp; sand, fine; Some iron staining.	
EOH: 1.8m - Target Depth.	

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 204

	Water
(FILL?) siltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; grey. Damp; gravel, round to subround; sand, fine to coarse.	
EOH: 1.2m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 205	
	0.2	FILL: siltyTOPSOIL; dark brown. Dry.	Groundwater Not Encountered
	0.4		
	0.6		
	0.8	Sandy fine to coarse GRAVEL; grey. Damp; gravel, round to subround; sand, fine to coarse.	
	1.0		
	1.2		
	1.4	EOH: 1.4m - Target Depth.	
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 206	
	0.2	TS / T — FILL: silty TOPSOIL; dark brown.	Groundwater Not Encountered
	0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8	FILL: SILT; brown. Non-plastic; dry; Debris: bricks, clay pipes, wire, etc..	
	2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2	EOH: 1.9m - Practical Refusal: Extent of excavator.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 207	
	0.2	(FILL?) siltyTOPSOIL; dark brownish black. Non-plastic; dry; Trace rootlets.	Groundwater Not Encountered
	0.4		
	0.6	Silty fine SAND; greyish brown. Damp; Some iron staining.	
	0.8		
	1.0		
	1.2		
	1.4	EOH: 1.4m - Target Depth.	
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 208

	Water
FILL: siltyTOPSOIL; dark brown. Dry.	Groundwater Not Encountered
Sandy fine to coarse GRAVEL; grey. Dry; gravel, round to subround; sand, fine to coarse.	
EOH: 1.5m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results	Depth (m)	Soil Profile	Water
Number of Blows per 100mm (1 2 3 4 5 6 7 8 9 10 11 12 13 14)		Test Location TP 209	
	0.2	TS SiltyTOPSOIL; dark brown. Non-plastic; dry; Trace rootlets.	Groundwater Not Encountered
	0.4	Sandy SILT; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
	0.6		
	0.8	Fine to medium SAND; greyish brown. Damp; Trace iron staining.	
	1.0		
	1.2		
	1.4	EOH: 1.3m - Target Depth.	
	1.6		
	1.8		
	2.0		
	2.2		
	2.4		
	2.6		
	2.8		
	3.0		
	3.2		

Comments:

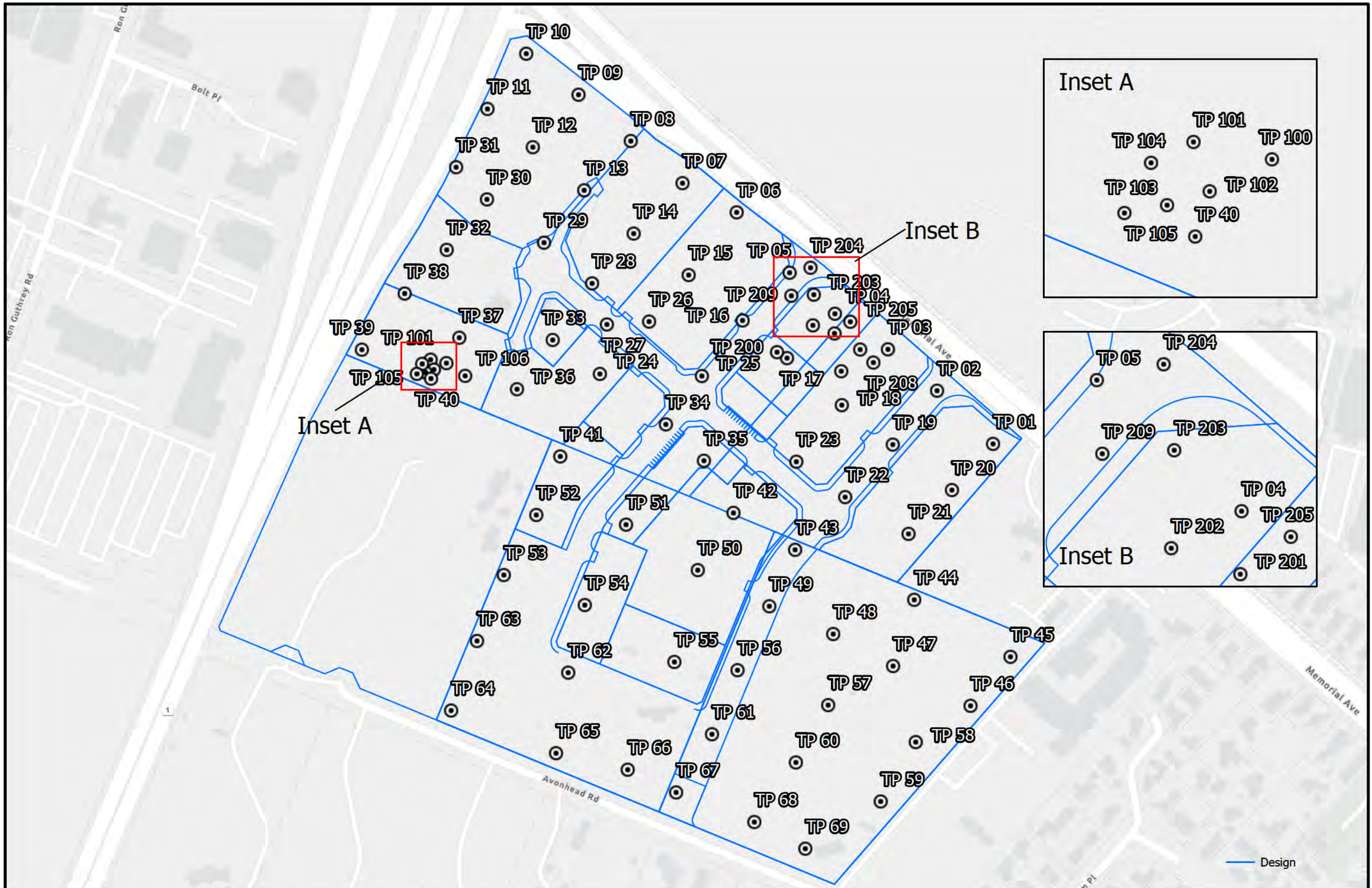
Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:14:08 p.m.



Client		Name	Date	Project Title	Drawing Title	Project No.		
Miles Premises Limited	Designed	P Ngenang		Miles Toyota - Memorial Ave Industrial Park	Site Test Plan - Test Pits	501827		
	Drawn	<Name>	<Date>			Set	Page	Rev.
	Scales	1:2,500				A1	1	C

eliot sinclair

Path: G:\Jobs\50\501827\GIS\501827 Site Test Plan\501827 Site

Appendix D. Eliot Sinclair CBR Logs

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

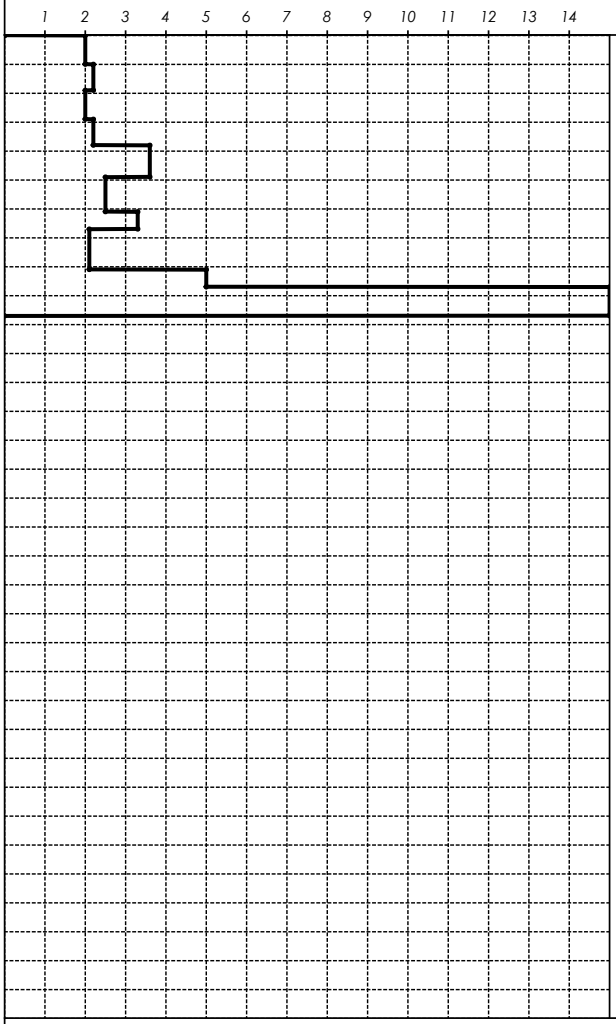
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 02

	Soil Profile	Water
TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	SILT, with trace sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
	Sandy fine to coarse GRAVEL; greyish brown. Damp; gravel, round to subround; sand, fine to medium.	
	EOH: 1.2m - Target Depth.	

SC A1

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

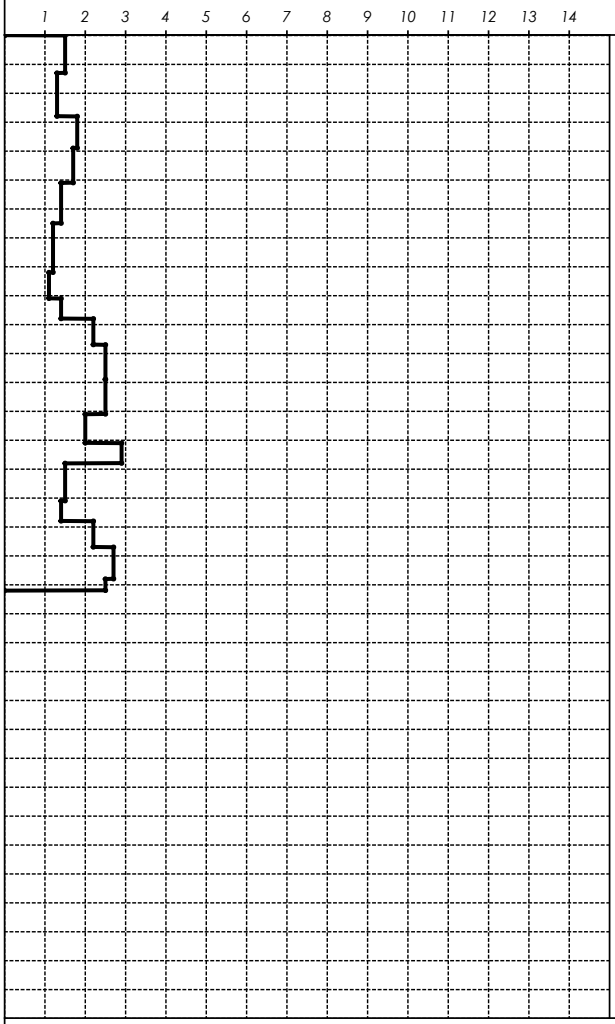
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B1

Soil Profile

Test Location TP 05

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4, 0.6, 0.8	SILT, with minor sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
1.0	Fine to medium SAND, with trace silt; greyish brown. Damp; Trace iron staining.	
1.2	EOH: 1.1m - Target Depth.	
1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2		

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

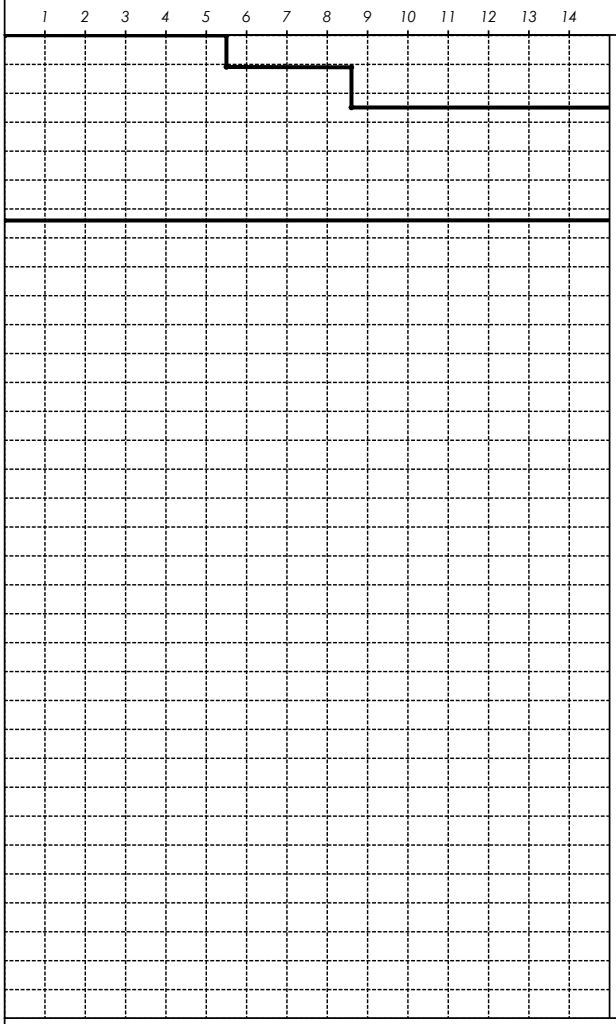
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC D5

Soil Profile

Depth (m)	Test Location TP 13	Water
0.2	TS T SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	Sandy fine to coarse GRAVEL; greyish brown. Damp; gravel, round to subround; sand, fine to medium.	
0.6	EOH: 0.5m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

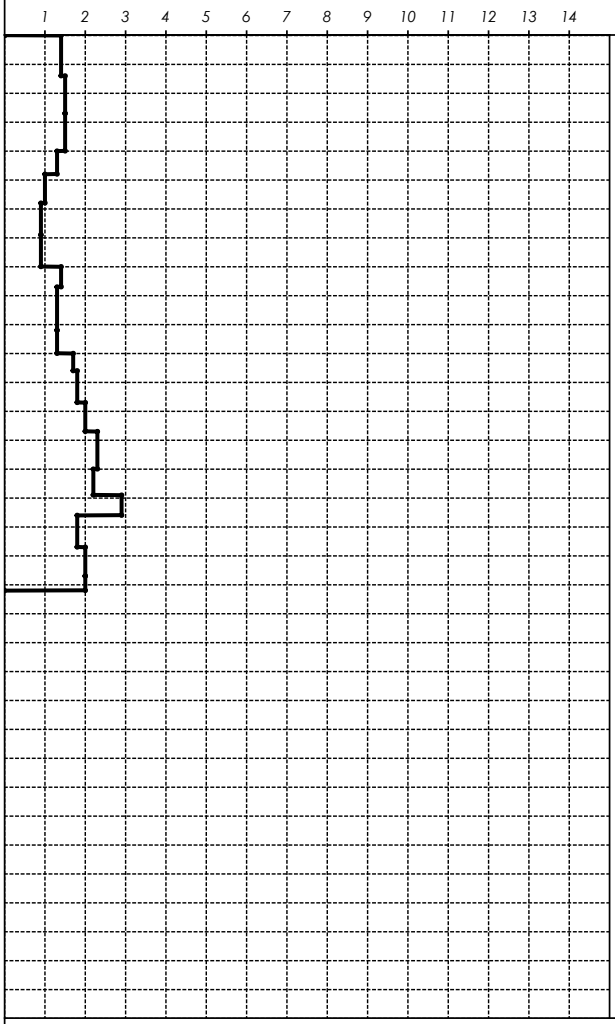
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC B2

Soil Profile

Test Location TP 16

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	Fine SAND, with some silt; greyish brown. Damp; Trace iron staining.	
0.6	EOH: 0.6m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

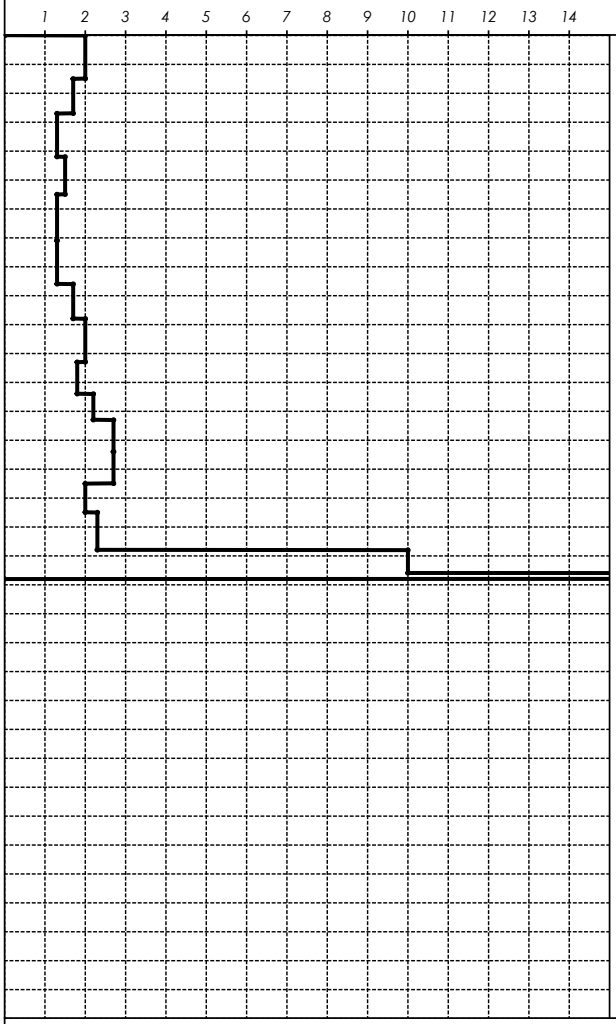
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

Number of Blows per 100mm



SC A2

Soil Profile

Test Location TP 19

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	Silty fine SAND; greyish brown. Non-plastic; damp; Trace iron staining.	
0.6	EOH: 0.5m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

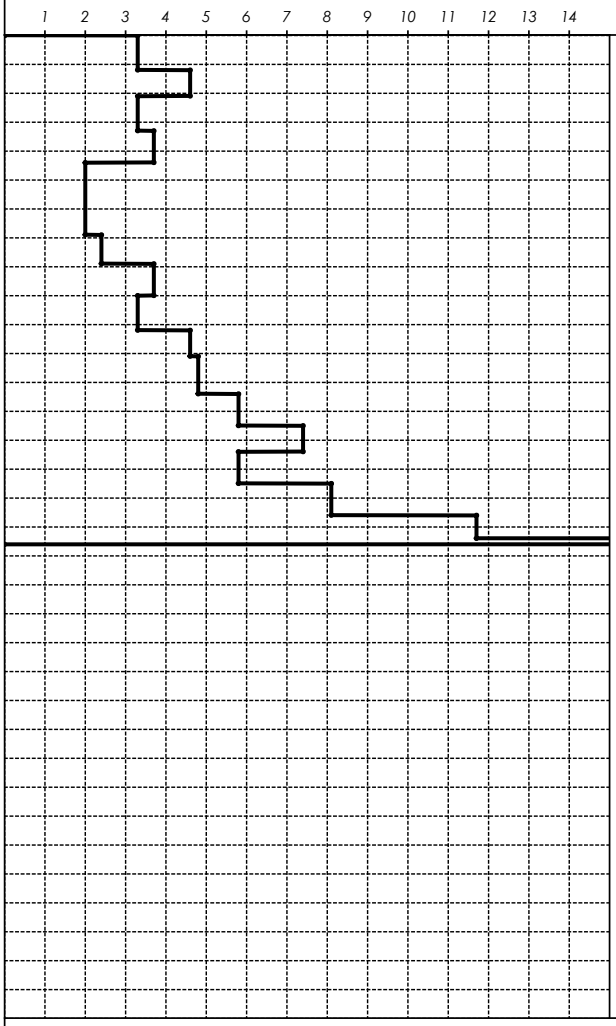
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m)

0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 22

		Water
TS / T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	Fine to medium SAND, with trace silt; greyish brown. Non-plastic; damp; Trace rootlets.	
	EOH: 0.6m - Target Depth.	

SC A3

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

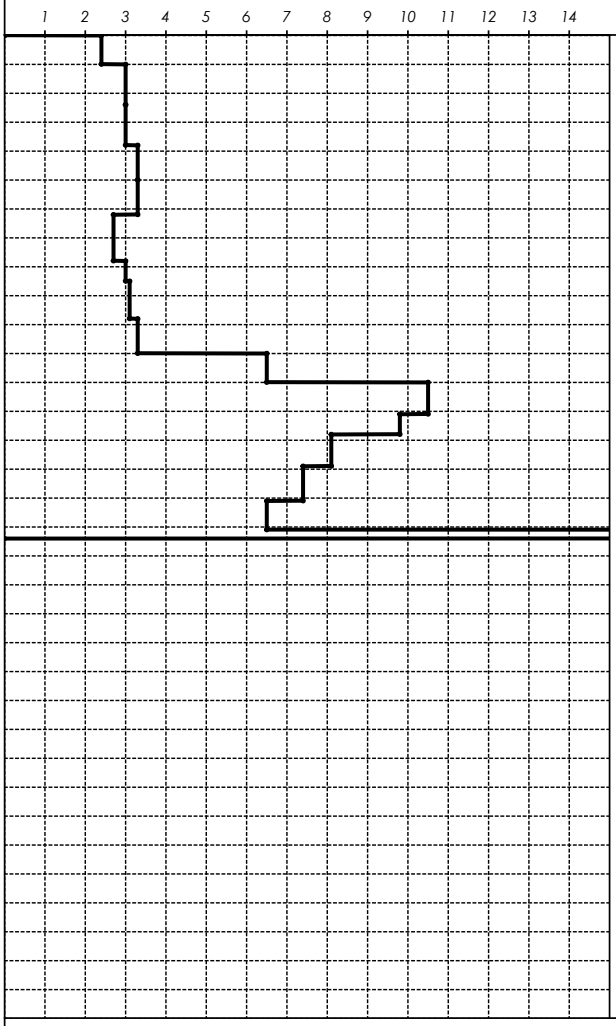
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m)

0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 23

	Water
TS T SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
SILT, with some sand; greyish brown. Non-plastic; damp; sand, fine; Trace iron staining.	
EOH: 0.6m - Target Depth.	

SC C1

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

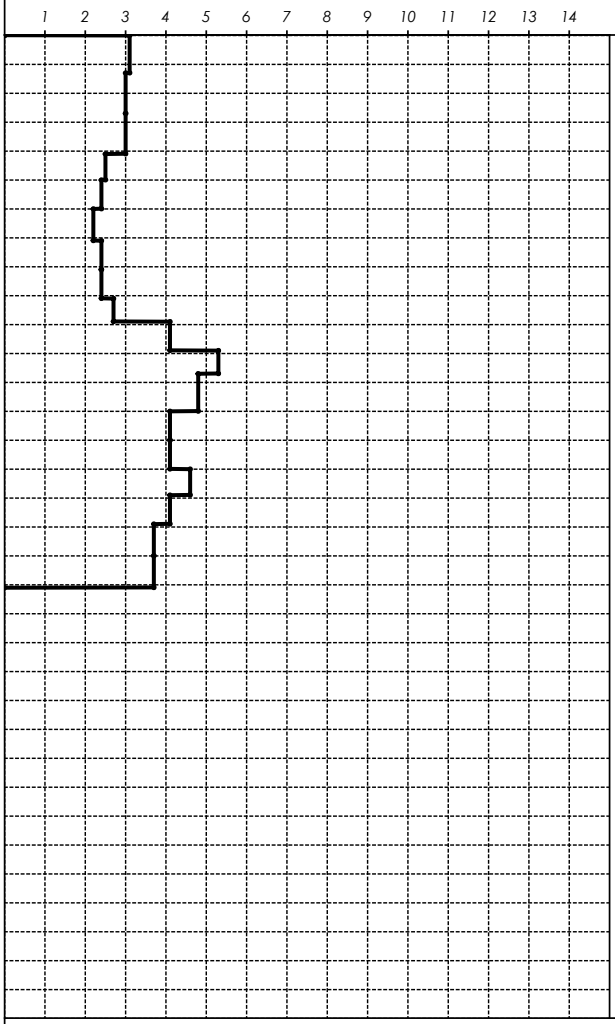
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m)

0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 25

		Water
TS / T	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	Fine SAND, with some silt; greyish brown. Non-plastic; damp to moist; Trace iron staining.	
	EOH: 0.7m - Target Depth.	

SC B3

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

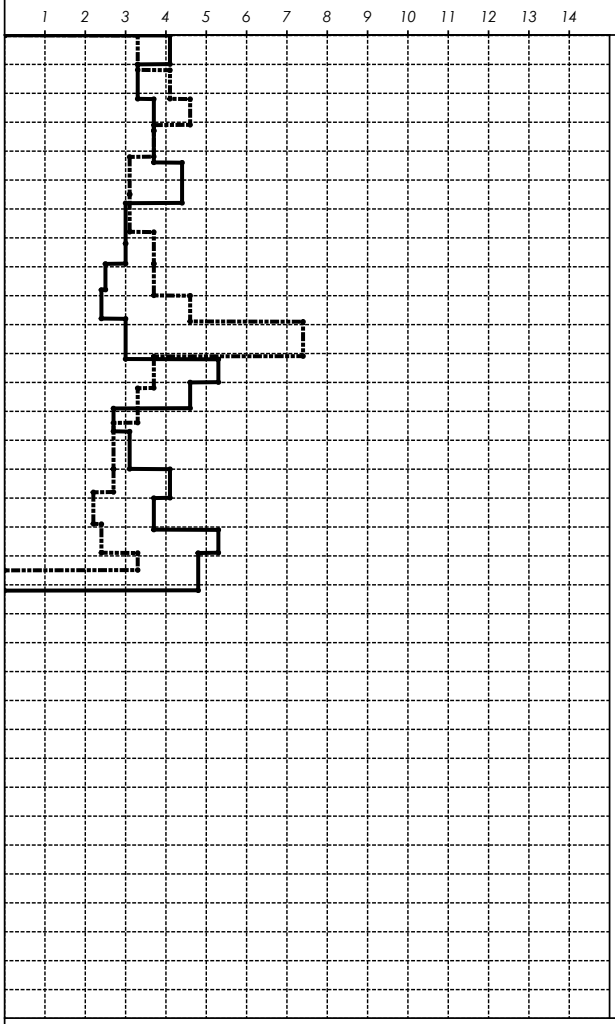
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



SC D1 — SC D2

Soil Profile

Test Location TP 27

Depth (m)	Soil Profile	Water
0.2, 0.4, 0.6, 0.8, 1.0	Silty sandyTOPSOIL; dark brown. Damp.	Groundwater Not Encountered
1.0 – 1.1	Fine to medium SAND; light grey. Damp.	
1.2	EOH: 1.1m - Target Depth.	
1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
JSF	JSF	☑ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☐ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 8

D.P.: 544350

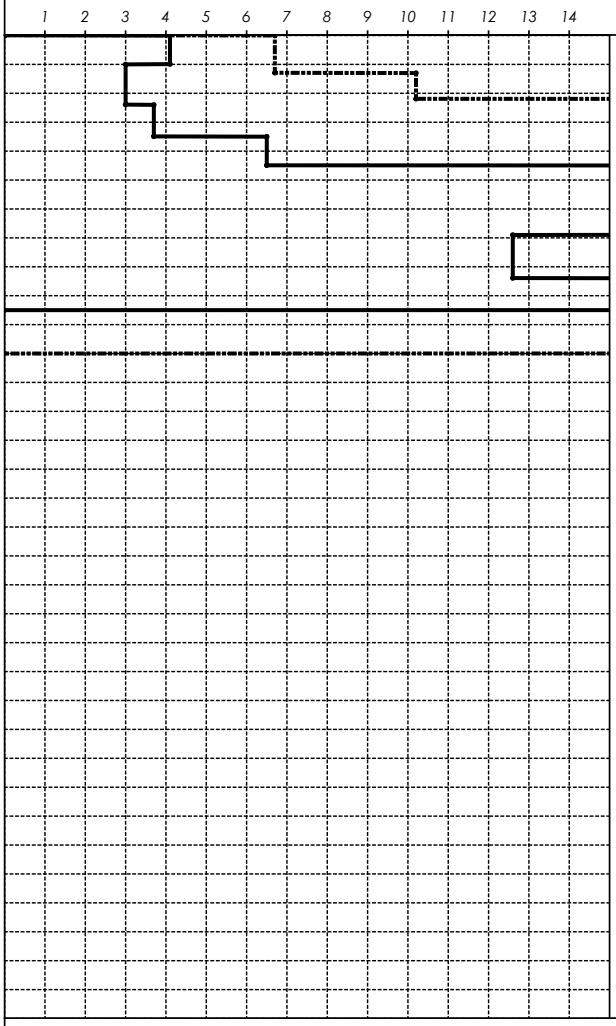
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



SC D3 SC D4

Soil Profile

Test Location TP 29

Depth (m)	Soil Profile	Water
0.2	FILL: silty gravellyTOPSOIL; dark brown. Non-plastic; damp; gravel, fine to coarse, round to subround; Trace rootlets.	Groundwater Not Encountered
0.4	Sandy fine to coarse GRAVEL; greyish dark brown. Damp; gravel, round to subround; sand, fine to medium.	
0.6	EOH: 0.65m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

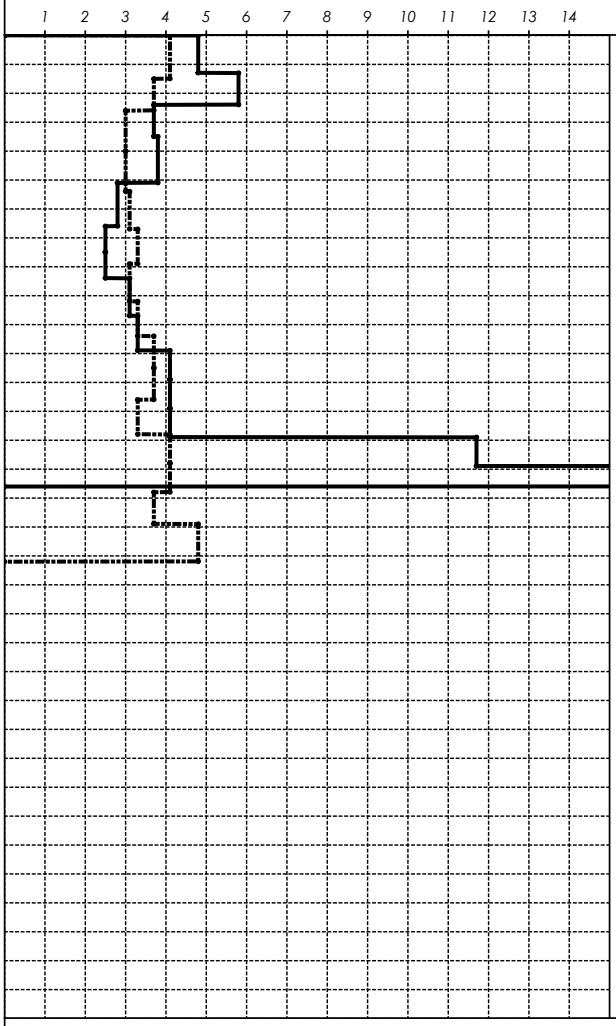
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



SC D6 — SC D7

Soil Profile

Test Location TP 33

Depth (m)	Soil Profile	Water
0.2, 0.4, 0.6	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.8	Silty SAND; greyish brown. Non-plastic; damp; Trace iron staining.	
1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2	EOH: 0.9m - Target Depth.	

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

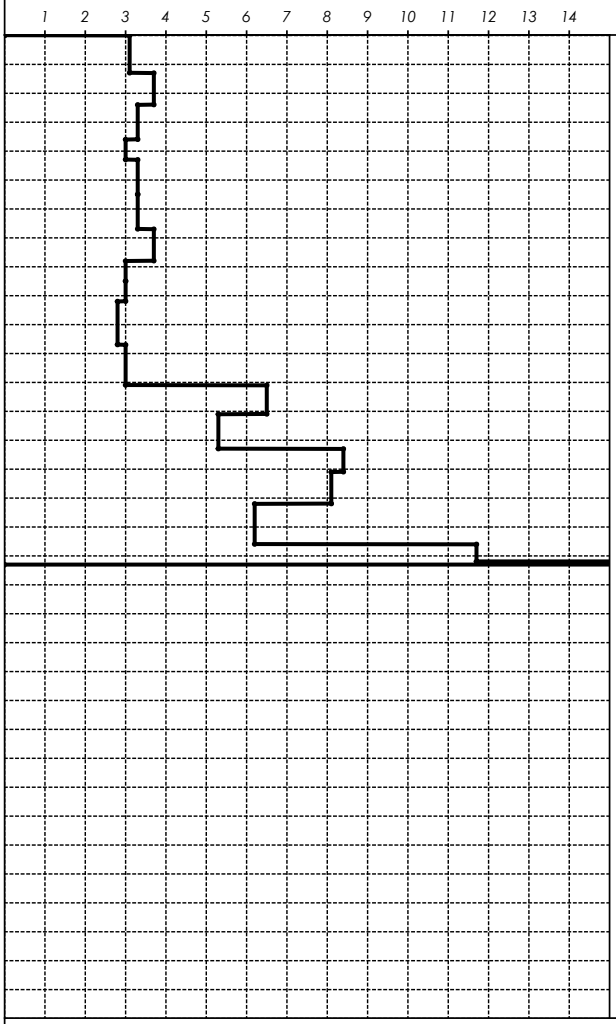
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m)

0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 34

		Water
TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	Silty fine SAND; greyish brown. Non-plastic; damp; Trace rootlets.	
	EOH: 0.6m - Target Depth.	

SC B4

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

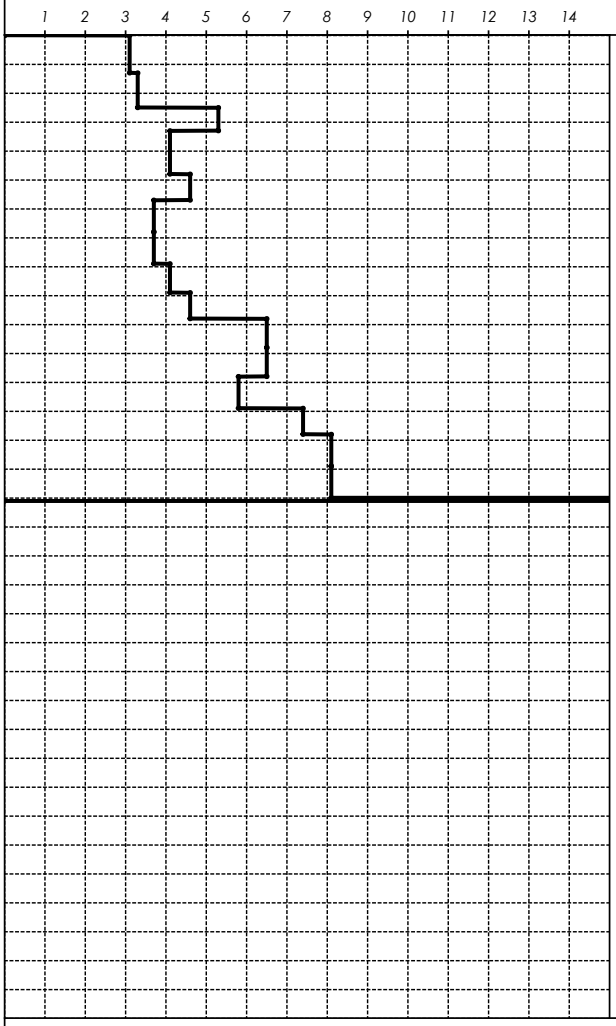
Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd
Site: Miles Premises - Memorial Avenue
Technical Category: N/A
Lot: 2
D.P.: 553686
Date Tested: 21-Sep-2021
Log Sheet No.: 1 of 1
Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



SC A4

Soil Profile

Test Location TP 43

Depth (m)	Soil Profile	Water
0.2	TS / T — SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
0.4	SILT; greyish brown. Non-plastic; damp; Trace iron staining.	
0.6	EOH: 0.6m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

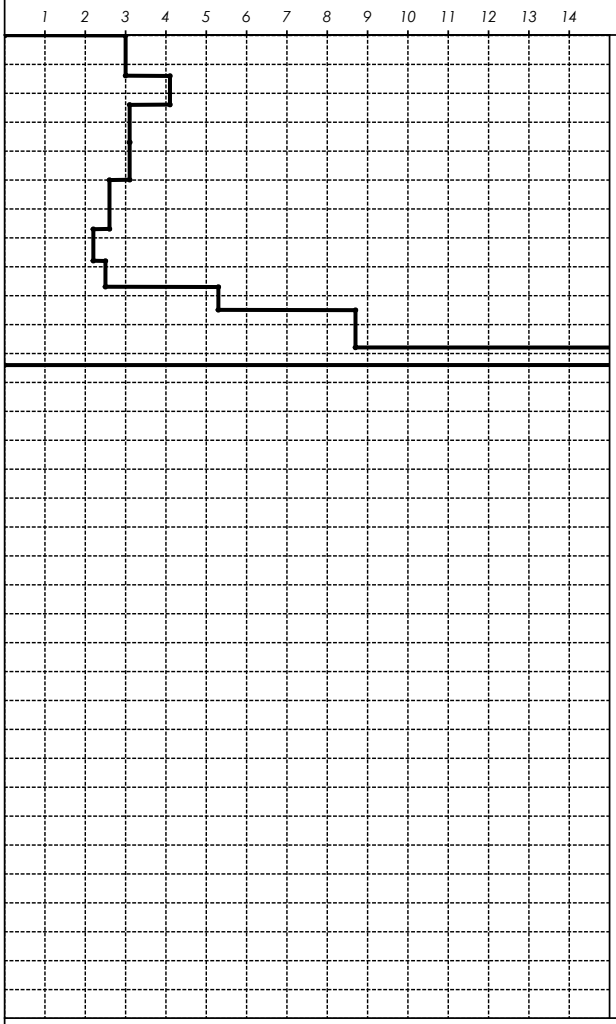
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 49

TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.
	Fine SAND, with some silt; greyish brown. Damp.
	EOH: 0.5m - Target Depth.

Water: Groundwater Not Encountered

SC A5

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

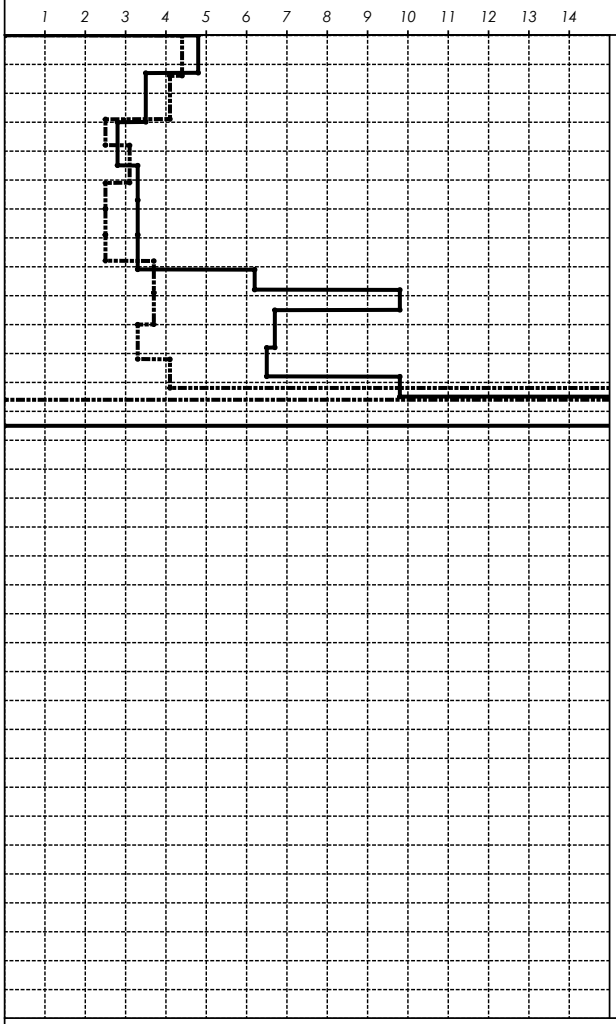
Lot: 5 **D.P.:** 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1 **Project No.:** 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



SC B5 SC B6

Soil Profile

Depth (m)	Test Location TP 51	Water
0.2	TS Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
0.4	Silty fine SAND; greyish brown. Non-plastic; damp; Trace iron staining.	
0.6	EOH: 0.6m - Target Depth.	
0.8		
1.0		
1.2		
1.4		
1.6		
1.8		
2.0		
2.2		
2.4		
2.6		
2.8		
3.0		
3.2		

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

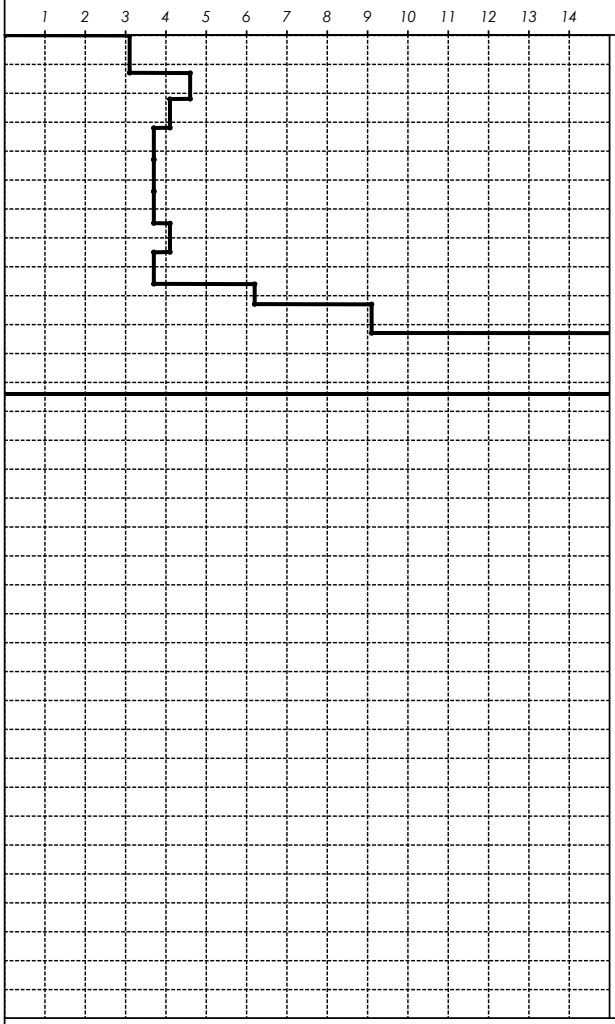
Lot: 5 **D.P.:** 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1 **Project No.:** 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 54

		Water
TS	Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
	Fine SAND; greyish brown. Damp; Trace iron staining.	
	EOH: 0.6m - Target Depth.	

SC B7

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

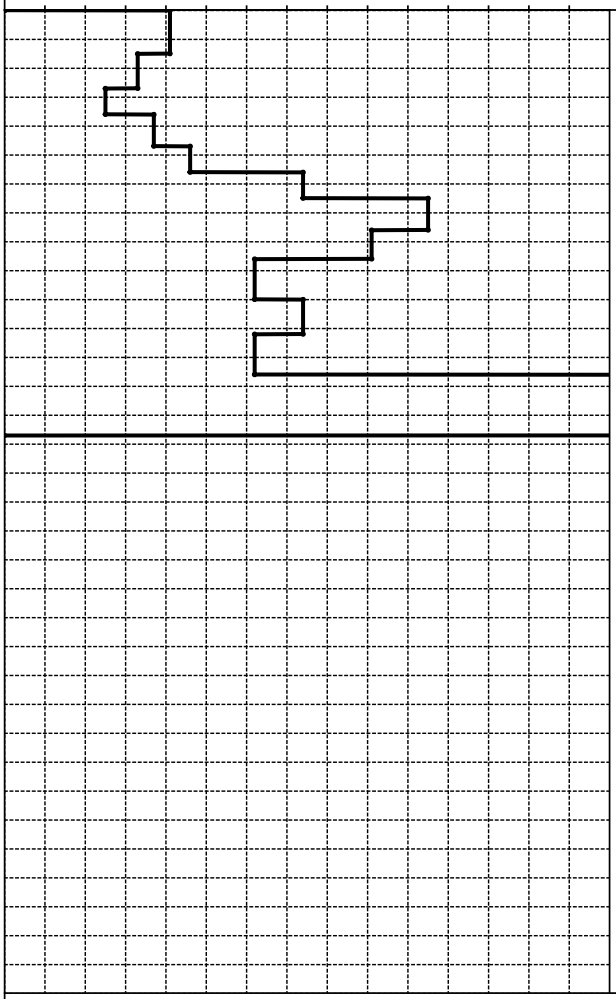
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m)

0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 56

		Water
TS	SiltyTOPSOIL; dark brown. Non-plastic; damp; Trace rootlets.	Groundwater Not Encountered
	SILT; greyish brown. Non-plastic; damp; Trace iron staining.	
	EOH: 0.5m - Target Depth.	

SC A6

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

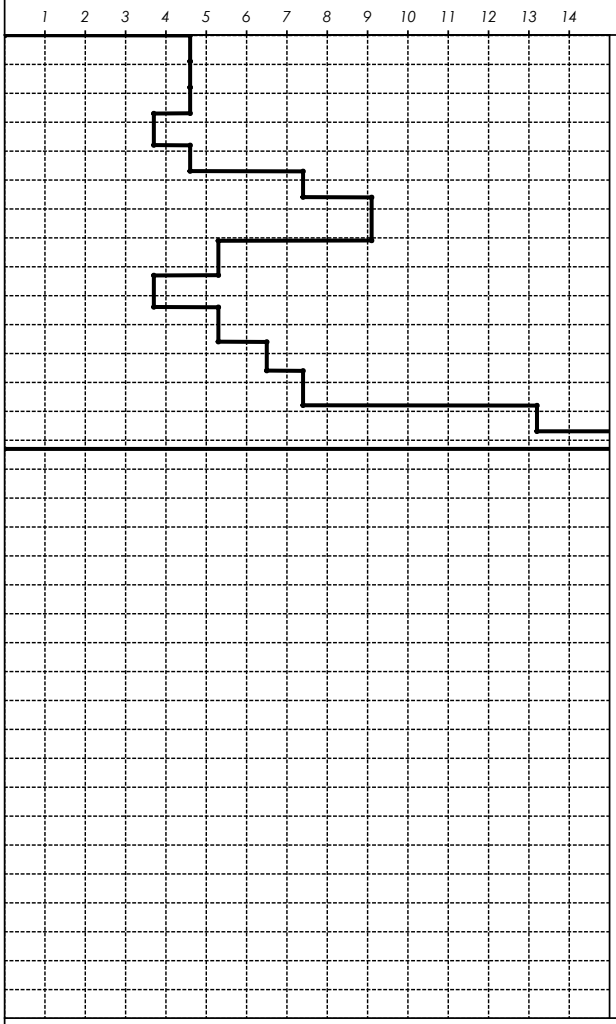
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m)

0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 61

		Water
TS	Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
	Silty fine SAND; greyish brown. Damp; Trace iron staining.	
	EOH: 0.5m - Target Depth.	

SC A7

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

eliot sinclair

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

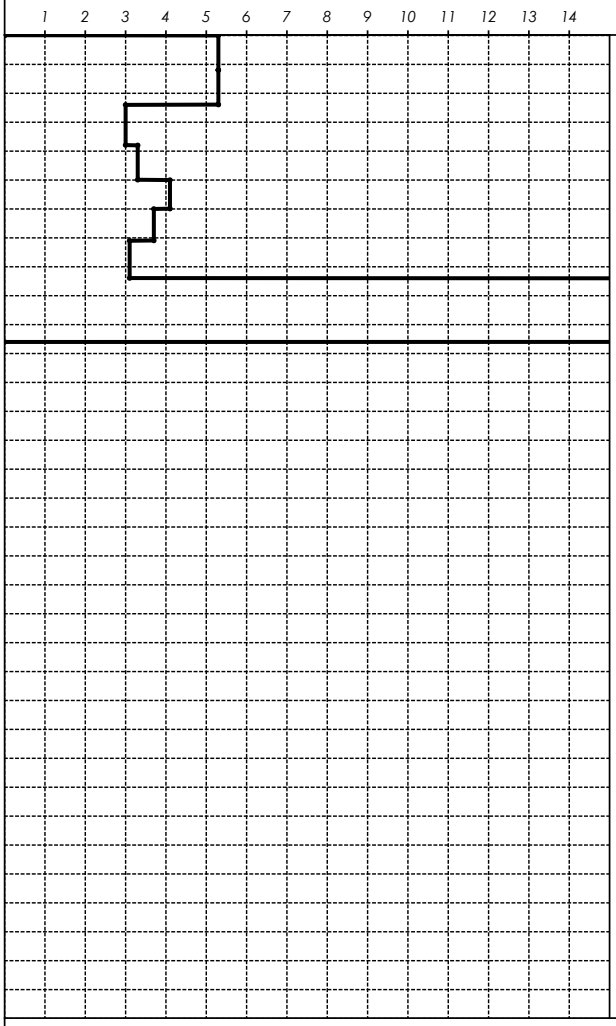
Lot: 5 **D.P.:** 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1 **Project No.:** 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m)

0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 62

		Water
TS	Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
	SILT; greyish brown. Non-plastic; damp.	
	EOH: 0.5m - Target Depth.	

SC B8

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

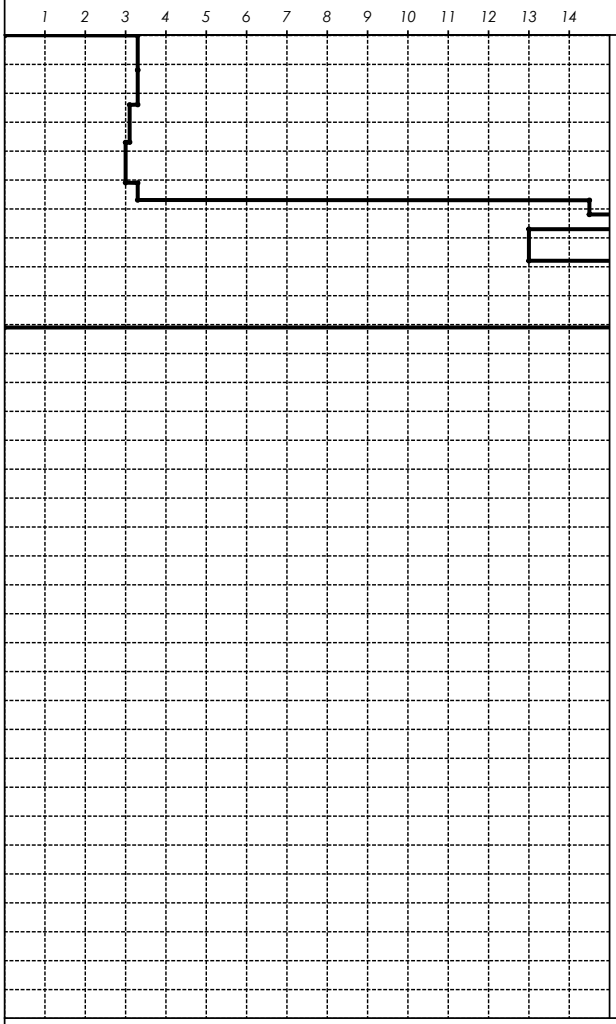
Lot: 5 **D.P.:** 28780

Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1 **Project No.:** 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 65

		Water
TS	Silty TOPSOIL; dark brown. Non-plastic; damp; trace rootlets.	Groundwater Not Encountered
	SILT; greyish brown. Non-plastic; damp.	
	EOH: 0.5m - Target Depth.	

SC B9

Comments:

Site Plan: (Not to Scale)

Refer to Attached Site Plan Reference 501827

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

Site Investigation Record

Client: Miles Premises Ltd

Site: Miles Premises - Memorial Avenue

Technical Category: N/A

Lot: 2

D.P.: 553686

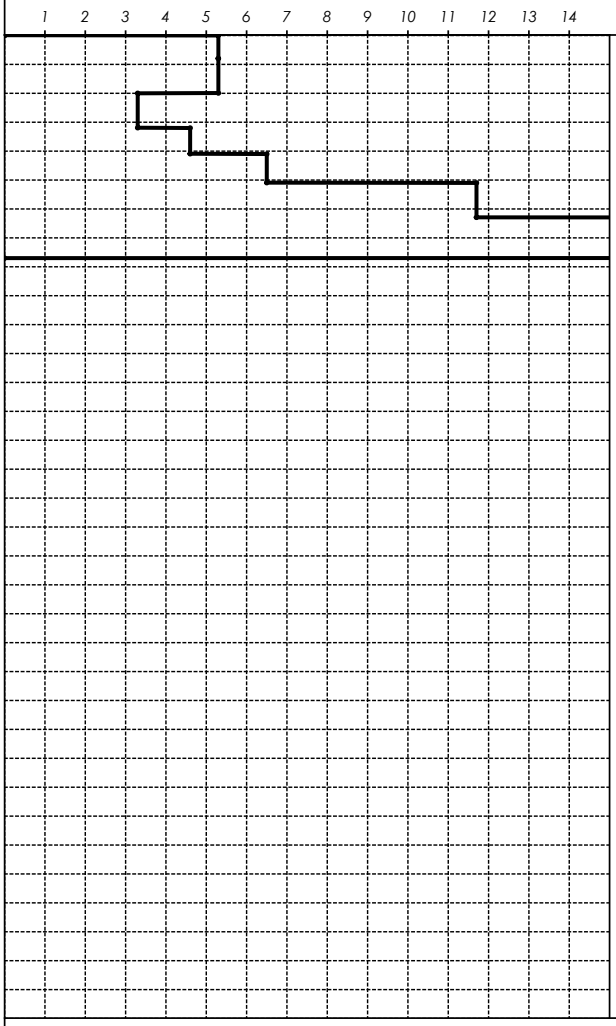
Date Tested: 21-Sep-2021

Log Sheet No.: 1 of 1

Project No.: 501827

Dynamic Cone Penetrometer (DCP) Test Results

California Bearing Ratio (%)



Depth (m): 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2

Soil Profile

Test Location TP 67

		Water
TS	Silty TOPSOIL; dark brown. Damp; Trace rootlets.	Groundwater Not Encountered
	SILT; greyish brown. Non-plastic; damp; Some iron staining.	
	EOH: 0.6m - Target Depth.	

SC A8

Site Plan: (Not to Scale)

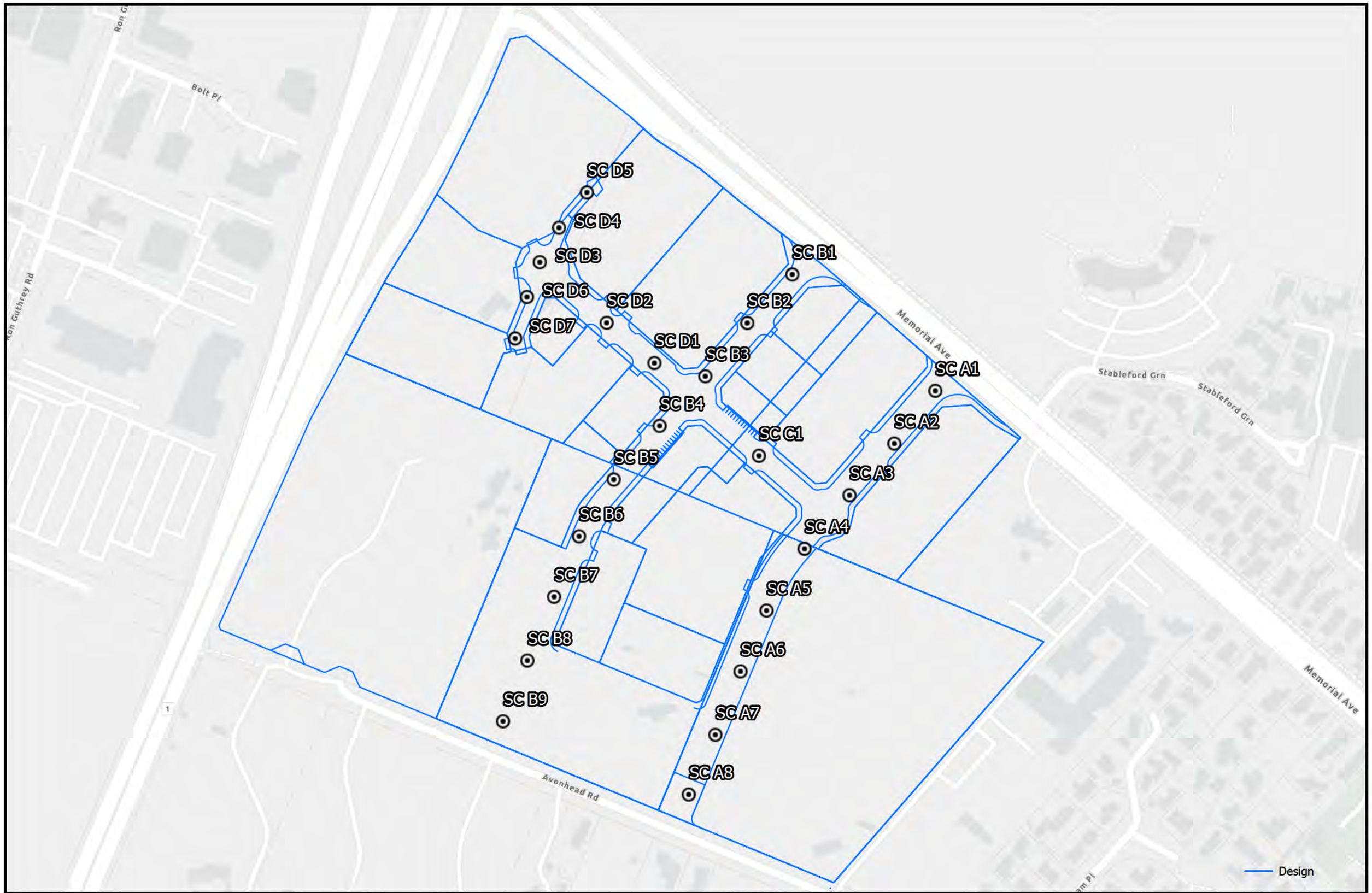
Refer to Attached Site Plan Reference 501827

Comments:

Field Staff:	Prepared By:	Soil Profile From:
CAO	CAO	☐ Hand Auger
Job Manager:	**Approved By:**	☐ Spade Hole
WJH	JTA	☑ Test Pit

Note: This record identifies the geotechnical conditions encountered at the noted test location(s) only. It is possible that ground conditions could be different away from the point(s) of testing.

Produced with CORE-GS Report Published: 18/10/2021 3:27:06 p.m.

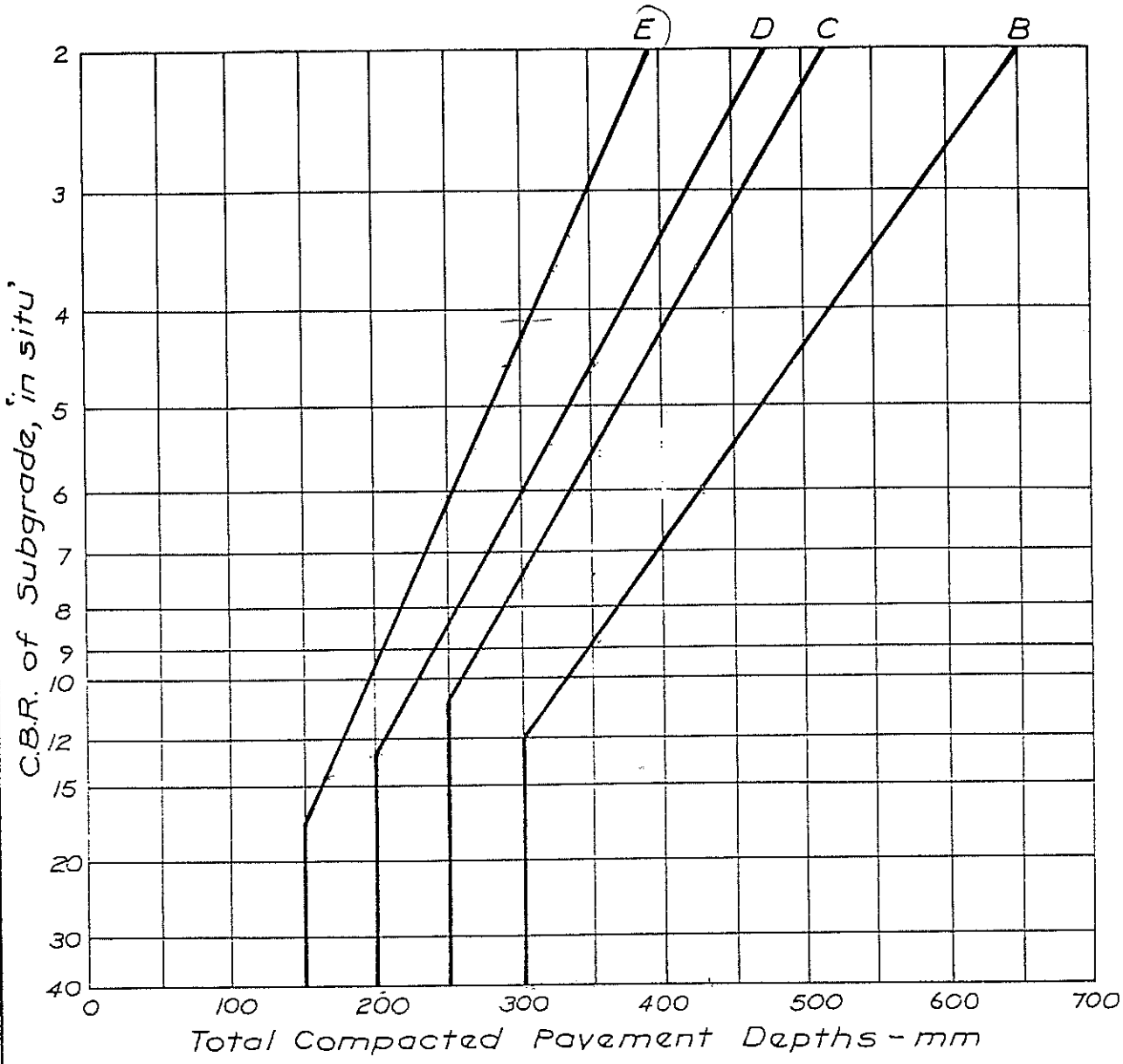


Client		Name	Date	Project Title	Drawing Title	Project No.			
Miles Premises Limited	Designed	P Ngenang		Miles Toyota - Memorial Ave Industrial Park	Site Test Plan - Scalas	501827			eliot sinclair
	Drawn	<Name>	<Date>			Set	Page	Rev.	
	Scales	1:2,500				A1	1	C	

Path: G:\Jobs\50\501827\GIS\501827 Site Test Plan\501827 Site

Appendix E. Preliminary Pavement Calculations

DESIGN GRAPH FOR FLEXIBLE PAVEMENTS



B Through streets to carry between 100 and 500 heavy vehicles per day.

C Through streets to carry up to 100 heavy vehicles per day.

D Residential streets not likely to be used as bus routes or heavy traffic routes and cul-de-sacs.

E Rights of way serving more than 2 lots.

PAVEMENT DESIGN CHART CONSTRUCTION DEPTH

For preliminary pavement design, use modelling figures prepared by Carriageway Consulting in 2014 to support re-zoning of the Site.
Refer Figs. 12 & 14 below.
Assume AADT can be approximated by 5x (sum of AM & PM peaks)

	Spine Road		LILO Road	
AM Peak	565		426	
PM Peak	1797		526	
	2362		952	
Est. AADT	11810	One Direction	4760	Both directions

This appears reasonable considering that the overall estimated AADT for the site is 28818 vehicle movements, of which 22874 are generated by the development. Refer tables 3 & 6
NB: LDF & DF both set to one, on the basis that the analysis has considered signalised access outbound only

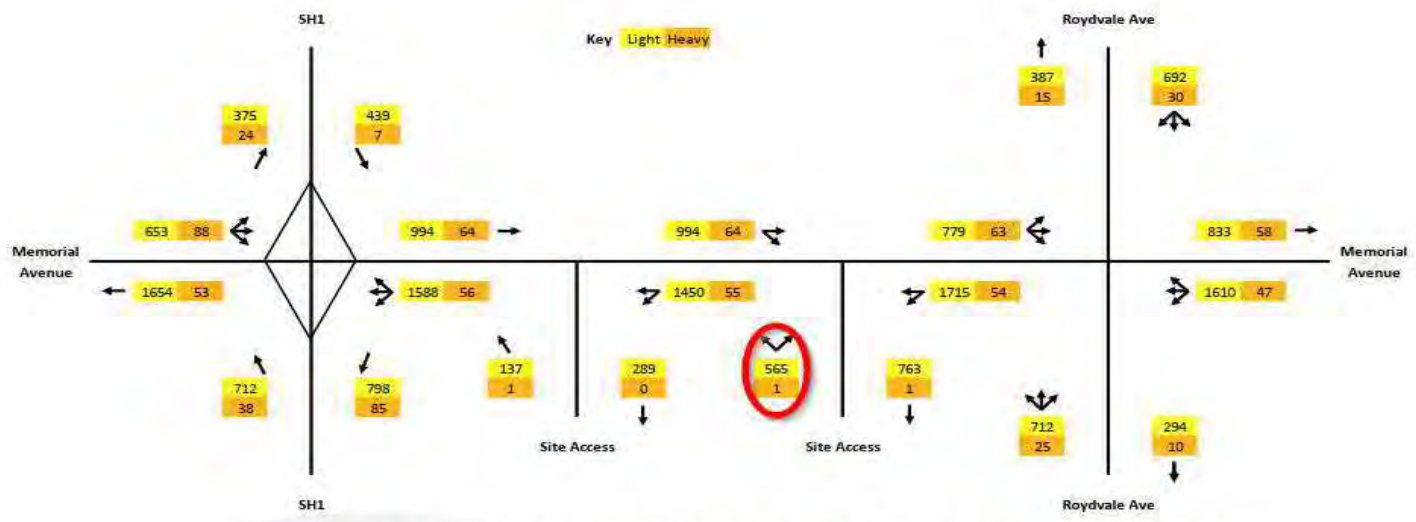


Figure 12: Memorial Avenue Corridor, Morning Peak Hour, With MBP Traffic

Figure 14: Memorial Avenue Corridor, Evening Peak Hour, With MBP Traffic

Land Use	Quantity / Area	Trip Rates (per room or 100sqm GFA)		Number of Vehicle Movements	
		Daily	Peak Hour	Daily	Peak Hour
Visitor Accommodation	200 rooms	8.0	0.5	1,600	100
Retail supermarket	4,200sqm GFA	129.0	17.9	5,418	752
Retail (bulk retail)	23,800sqm GFA	45.0	5.6	10,710	1,333
Retail (Mall rate)	7,000sqm GFA	87.0	10.0	6,090	700
Offices	50,000sqm GFA	10.0	2.0	5,000	1,000
Total	-	-	-	**28,818**	**3,885**

Table 3: Traffic Generation of Full Extent of Proposed Development

Land Use	Quantity / Area	Trip Rates (per room or 100sqm GFA)		Number of Vehicle Movements	
		Daily	Peak Hour	Daily	Peak Hour
Visitor Accommodation	200 rooms	-	-	1,600	100
Retail supermarket	4,200sqm GFA	-	-	4,212	574
Retail (bulk retail)	23,800sqm GFA	-	-	8,327	1,018
Retail (Mall rate)	7,000sqm GFA	-	-	4,735	535
Offices	50,000sqm GFA	-	-	4,000	800
Total	-	-	-	**22,874**	**3,048**

Table 6: New Trips Generated by the Development

Pavement Design

Spine Road Memorial Ave to Avonhead Road

eliot sinclair

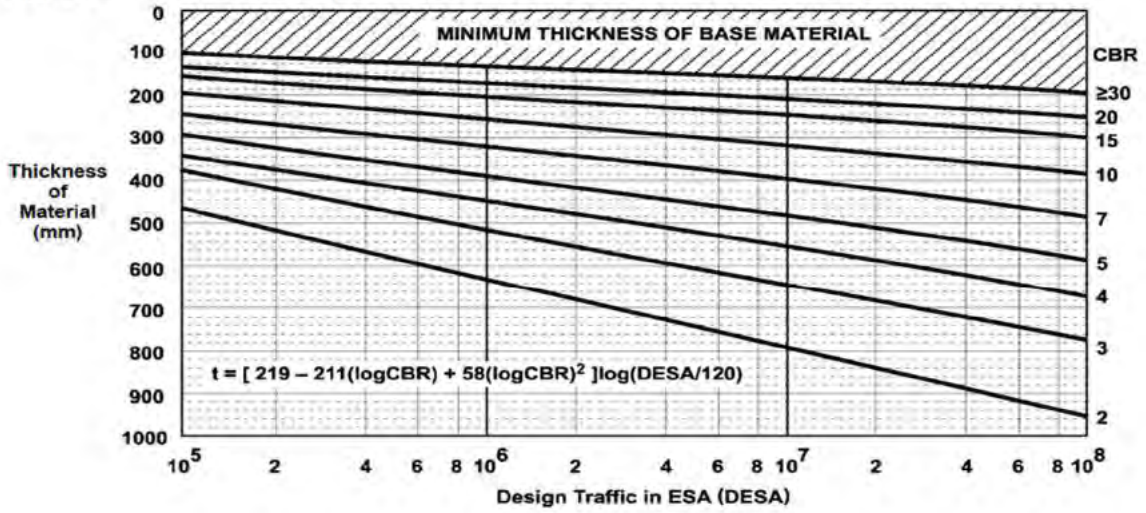
Client Name: Miles Premises Limited
Project Name: Miles Memorial
Project Number: 501827
Date: 13-Oct-21

Austroads
Figure 8.4 design pavement thickness for granular pavements with thin bituminous surface, &
Figure 12.2 for lightly-trafficked pavements

AADT	11810	Average Annual Daily traffic (vehicles per day)
LDF	1.0	Lane distribution factor
DF	1	Direction factor
%HV	1%	Average % heavy vehicles
Design life, yrs	50	
Initial Annual growth rate, %	2%	
Initial Annual growth rate period, yrs	1	
Secondary Annual growth rate, %	2%	
CGF	85	Cumulative growth factor
Nhvag	2.4	Average number of heavy vehicle axle groups per HV
Ndt	8.8E+06	
ESA/HVAG	0.6	
DESA	5.3E+06	Design Equivalent Standard Axles
Subgrade CBR	2	
Total Pavement thickness	746	mm, total pavement thickness
Minimum Thickness of Base Material	157	mm
	From Austroads Figure 8.4 For DESA 10^5-10^8	

NB: Excl. any allowance for working on soft subgrade. Add 150mm thick working platform in accordance with NZTA Guide to Pavement Structural Design V1.1. Total estimated pavement thickness = 900mm

Figure 8.4: Design chart for granular pavements with thin bituminous surfacing



Pavement Design

LILO Access Road

eliot sinclair

Client Name: Miles Premises Limited
Project Name: Miles Memorial
Project Number: 501827
Date: 13-Oct-21

Austroads

AADT	4760	Average Annual Daily traffic (vehicles per day)
LDF	1.0	Lane distribution factor
DF	0.5	Direction factor
%HV	1%	Average % heavy vehicles
Design life, yrs	50	
Initial Annual growth rate, %	2%	
Initial Annual growth rate period, yrs	1	
Secondary Annual growth rate, %	2%	
CGF	85	Cumulative growth factor
Nhvag	2.4	Average number of heavy vehicle axle groups per HV
Ndt	1.8E+06	
ESA/HVAG	0.6	
DESA	1.1E+06	Design Equivalent Standard Axles
Subgrade CBR	2	
Total Pavement thickness	634	mm, total pavement thickness
Minimum Thickness of Base Material	134	mm
	From Austroads Figure 8.4 For DESA 10^5-10^8	

NB: Excl. any allowance for working on soft subgrade. Add 150mm thick working platform in accordance with NZTA Guide to Pavement Structural Design V1.1. Total estimated pavement thickness = 800mm

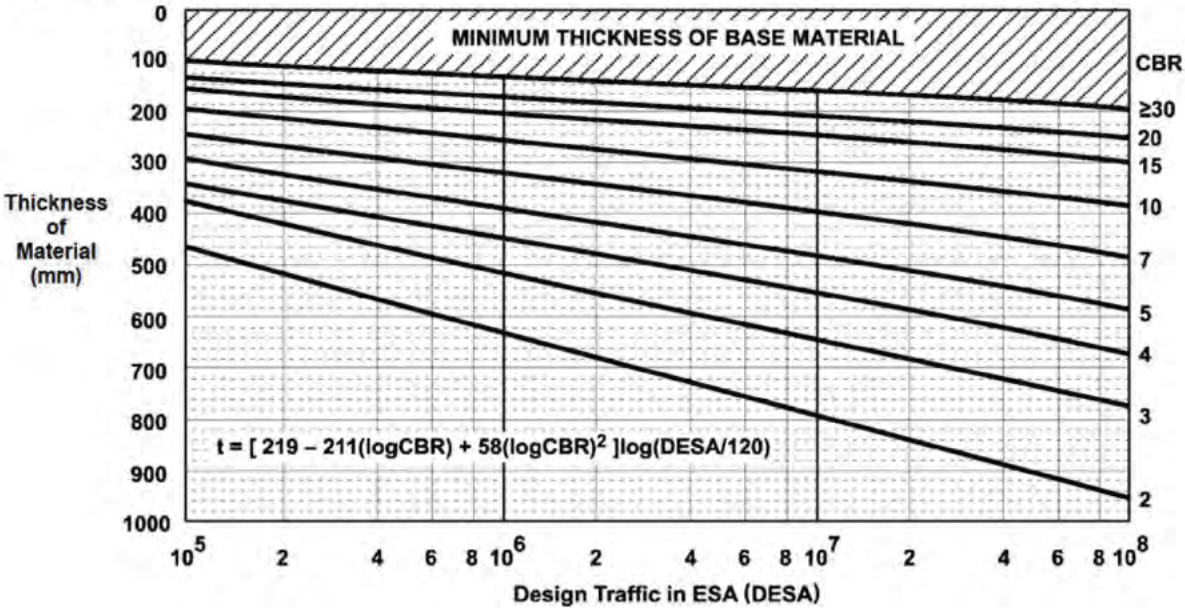



Figure 8.4: Design chart for granular pavements with thin bituminous surfacing